

General Sir John Kotelawala Defence University
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FOREWORD

The International Research Conference 2018 of General Sir John Kotelawala Defence University (KDU IRC-2018) was on the 13th and 14th of September on the theme, Securing Professional Excellence through Collaboration. It was held for the 11th consecutive year under the guidance of the Vice Chancellor, Rear Admiral JJ Ranasinghe. The inaugural ceremony of the conference was held at the auditorium of the Faculty of Graduate Studies, under the patronage of the Secretary to the Ministry of Defence, Mr. Kapila Waidyaratne. Many distinguished guests: Tri-service Commanders, members of the Board of Management of KDU, representatives of the Diplomatic Corps, Vice Chancellors of other state universities, senior officers of the Tri-services and the Police, graced the event.

The session was opened by the Vice Chancellor, and he warmly welcomed all the dignitaries and participants. Further, he briefly explained the significance of the theme of the conference and KDU's commitment to fulfill national responsibilities. KDU IRC-2018 awarded honorary professorships to two internationally eminent Sri Lankan born scientists, Professor Mohan Munasinghe and Dr Sarath D Gunapala, in recognition of their contribution to their respective fields of science, and to mankind.

Delivering the keynote address, Mr. Waidyaratne commended KDU for playing a leading role in moulding the future of the military as well as civilian youth who are in pursuit of high quality tertiary education in Sri Lanka. He also stated that KDU contributed immensely to the much needed research and innovation, despite being an excellent institution for learning and disseminating knowledge that empowers the youth by helping them to develop sound attitudes and skills.

KDU IRC - 2018 continued with the tradition of bringing together researchers, academics and professionals from all over the world. This conference particularly encouraged the interaction of scholars to present and to discuss new and current research. Their contribution helped to make the conference as outstanding as it had been. A significant

increase in the number of research papers received was noted at this conference. Out of 573 research papers received from both local and international scholars, 370 research papers were selected for presentation through the double blind peer review method. Each paper was reviewed by two independent experts in the field prior to selecting them for either oral or poster presentation. The selected papers were presented in nine research sessions, such as, Defence and Strategic studies, Basic and Applied Sciences, Engineering, Medicine, Allied Health Sciences, Computing, Built Environment and Spatial Sciences, Law and Management Social science and Humanities.

Technical Sessions were conducted on the first day of the conference in each faculty which drew approximately 55 guest speakers internationally and locally. Similarly, on the second day, parallel Plenary Sessions were conducted in the faculties under sub-themes, with the participation of approximately 370 experts delivering speeches related to their respective disciplines. The international guest speakers numbering more than 14 represented countries such as Japan, United States of America (US), United Kingdom (UK), India, New Zealand, Malaysia, Pakistan, Philippines, Burma, Indonesia, Bangladesh and Maldives,

KDU IRC-2018 was a unique research conference due to reasons, such as, international authors were facilitated to present via Skype remaining in their country; articles were automatically uploaded to Google Scholar in order to generate individual citations (H-indexing); the best papers of each category were published in the KDU Journal of Multidisciplinary Studies; and the best oral and poster presentation of each session were awarded.

This book contains proceedings of the sessions conducted under the disciplines of The plenary speeches and selected research papers presented at the technical sessions of the faculty are also included in this book, in addition to transcripts of the speeches delivered at the inaugural session. These Proceedings will no doubt furnish scholars of the world with an excellent reference book. I also trust that this will be an impetus to stimulate further study and

research in all areas. I also trust that this would stimulate enthusiasm among scholars to engage in further study and to demonstrate the national and international importance of conducting research. I thank all authors, guest speakers and participants for their contributions.

A conference of this magnitude could not have been realized without the tremendous and generous support of the academic and administrative staff of KDU, who contributed to making it all happen.

Dr. Upali Rajapaksha
Editor
Conference Chairman 2018

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WELCOME ADDRESS



Rear Admiral JJ Ranasinghe VSV, USP, psc, MSc(DS) Mgt
Vice Chacellor

A very good morning to you!

I cordially welcome the Hon. Secretary to the Ministry of Defence, Mr. Kapila Waidyaratne, and I pay my gratitude to you Sir, for accepting our invitation and for being with us today at this 11th International Research Conference of General Sir John Kotelawala Defence University.

Next, I wish to extend a warm welcome to our Keynote Speaker, Prof. Mohan Munasinghe; and the Guest Speaker, Dr. Sarath D. Gunapala, both of whom are very eminent and distinguished Sri Lankan scholars who have made their imprint in the international arena. We are proud of your achievements and we consider your presence here today, as truly encouraging and inspiring us at KDU, as well as for all conference participants.

Let me also warmly welcome the Tri-service Commanders and all the other Members of the Board of Management of KDU. Also it is my pleasure to welcome Your Excellencies of the Diplomatic Corps; Vice Chancellors of other State Universities; and Senior officers of the Army, Navy, Air Force, and the Sri Lanka Police.

I also wish to extend a warm welcome to all dignitaries, scholars and participants; especially those of you from our friendly countries, who have come all the way to adorn this international conference in Sri Lanka.

Ladies and gentlemen, let me bid all of you present here today a very warm welcome this morning; and extend our appreciation for participating in this important event of our calendar.

We at KDU consider this annual conference very seriously due to several reasons. First, it is instrumental in establishing and strengthening the much needed research culture within the university, and it permeates the same into other universities and higher educational institutions in the country as well as into the industry through collaborations. Secondly, it gives local participants and institutions invaluable opportunities to establish links and networks with international counterparts, which is essential for progression in respective fields of specializations. Thirdly, it directly and indirectly contributes to the national growth and development in the long run. So, we consider this international research conference as an investment for the future.

As you are aware ours is primarily the National Defence University of Sri Lanka and our primary mandate is to produce academically and professionally qualified officers for our defence services, and we have been doing this for the highest satisfaction of the services. But today KDU has identified the need to establish firm civil military relations to face the complexities in national defence today, and hence the commencement of day-scholar programmes has helped us to achieve that goal while reducing the burden

of the other state universities in providing adequate higher educational opportunities for our youths. The well-developed infrastructure, state-of-the-art facilities as well as the dedicated human resources at KDU are now being meaningfully utilized to extend its services to deserving civilian youths to follow standard degree programmes in diverse disciplines, and the success of our achievement is seen in the increasingly higher number of foreign students who join our courses from countries, such as, the Maldives, India, Pakistan, Bhutan, Nepal, Uganda and Japan; along with expatriate students from Australia, Canada and the Middle East.

Ladies and gentlemen, in the modern times, it is essential not to compartmentalize varied fields, but to instill multidisciplinary collaboration among them. Hence relationships with different fields of innovation help to bridge gaps and inculcate professional excellence, which is the challenge of the 21st century. This explains the validity of the theme of our 11th International Research Conference, "Securing Professional Excellence through Collaboration".

KDU IRC is an ideal opportunity for the academia and professionals, to meet, discuss and exchange views in an academic environment. What is special about our conference is that, it is enriched with the participation of many local and foreign academics in varied disciplines; along with individuals from all three armed forces and the Police Department. Therefore, this is the only conference in Sri Lanka that brings together civilian professionals and their military counterparts.

I extend a warm invitation to the local and foreign students, academics and professionals present here today, to present their research findings; engage with other researchers in your field of study; have fruitful discussions and build life-long friendships with each other.

I welcome all to the 11th International Research Conference of KDU.

Have an inspiring and unforgettable day at KDU!

SPEECH OF THE CHIEF GUEST



Mr. Kapila Waidyaratne
President's Counsel Secretary

Good morning, everyone !

Chancellor, Vice Chancellor, Secretaries to the Ministries, Commander – Sri Lanka Navy, Chief of Staff of the Army, Dampath Fernando and the Air Force, Sumangala Dias, Your Excellencies of the Diplomatic Corp, international organizational scholars and other distinguished invitees.

It is my privilege and honour to be present here as the Chief Guest of the inauguration ceremony of the 11th International Research Conference organized by the Kotelawala Defence University, at which I happen to be the Chairman of the Board of Directors of its management. Let me first express my thanks to the Vice Chancellor, and conference organizers for inviting me as the Chief Guest of this very significant event.

Ladies and Gentlemen, as the Defence Secretary and also the Chairman of the Board of Management, I am aware of the outstanding role played by KDU in the tertiary landscape of Sri Lanka. With the donation of this beautiful estate along with the Kandawala mansion by the late General Sir John Lionel Kotelawala, the third Prime Minister of Sri Lanka, KDU was founded in the 1980s as the only tri-service academy in the country to provide much needed university education to the officers of the tri-services. Since then, KDU has come a long way over the last several decades reaching heights that may not have been dreamt at its inception.

For the last thirty years, KDU has produced thousands of graduate officers of very high calibre to lead the Army,

the Navy and the Air Force, as highly disciplined and professional forces. In most recent times with its expansion to provide higher education opportunities to deserving civilian students, KDU has earned a name within and outside the country as a university that provides high quality tertiary education in diverse fields in a disciplined environment.

Today, with nine academic faculties, the Southern Campus and the recently established University Hospital, KDU has come to the forefront with determination to serve the nation in the best possible way. Therefore let me congratulate the Vice Chancellor and his able staff for the tremendous job, the excellent job done by them. Also let me take this opportunity to salute the pioneers of the university, specially the late General Sir John Lionel Kotelawala and Deshamanya Late General Dennis Perera, and let me not forget the political leadership of His Excellency the former President, J.R. Jayawardena, for the foresight to establish this University far back in the 1980s. Ladies and Gentlemen, the 11th International Research Conference that we are inaugurating today is a testimony for the significant role played by KDU in the field of higher education of Sri Lanka. As you are aware, it is not at all an easy task to successfully organize an annual conference of this magnitude considering the previous years. This itself indicates the strong commitment and responsibility of KDU to provide opportunities for the all-important task of knowledge creation and dissemination.

As you have already heard, and what I gathered from the Vice Chancellor, every year the number of research

papers submitted for this conference is on the increase. It is heartening to know that thousands of researchers from all over the country as well as the world consider this conference an appropriate platform to present their papers. Therefore in my capacity as the Chairman of the Board of Management of KDU, I too share with KDU the pride of the leading role played by this defence university in popularizing research, which I believe is an essential, key aspect in the nation's growth.

Ladies and Gentlemen, the conference theme, Securing Professional Excellence through Collaboration, is timely particularly for countries like ours in our quest for appropriate development strategies in the face of new global challenges.

We do need meaningful collaborations across diverse professional bodies, and we cannot be completely looking after our own interests in isolated compartments. So time has come for all professionals to unite in sharing the burden of developing our nation economically, socially and culturally, so that the future generations will have a safer world to live in.

I believe it is our professional responsibility, irrespective of lables of distinction such as scientists, doctors, engineers, lawyers, academics, administrators, military professionals or any other, to find opportunities for innovative collaborations. And in such initiatives we all must reach excellence in our own professional domains and it is in this respect that universities and higher education institutions play an important role.

Ladies and Gentlemen, it is my belief that in this respect General Sir John Kotelawala Defence University is discharging its duty to the nation in a commendable manner. So let me conclude without taking much of your precious time as there are two eminent internationally recognized Sri Lankan intellectuals to deliver key note addresses at this conference. Let me once again thank the Vice Chancellor and the organizers for inviting me as the Chief Guest this morning. And let me also congratulate them for organizing a conference of this nature on a very timely and an important theme. Finally let me wish the two-day conference and both national and international participants a highly productive conference with intellectually stimulating deliberations.

Thank you very much.

KEYNOTE SPEECH



Professor Mohan Munasinghe

Professor of Sustainable Development, Sustainable

Consumption Institute, University of Manchester, UK

Founder Chairman of the Munasinghe Institute of Development, Sri Lanka

Good Morning to everybody!

Distinguished Audience, Vice Chancellor, Secretary, Service Commanders, Distinguished Guests Excellencies and of course fellow academics - I'm going to talk to you very briefly about Sri Lanka's sustainable mission and how we can achieve security, peace and prosperity through the green growth path. I would like to emphasize that we are looking for win-win solutions for people, the planet and prosperity for the entire globe. Now let me talk very briefly about the major issues that we face, i.e. threat for global security, and threats, such as, poverty and inequality due to resource shortages, shortfalls in the financial sector, disasters, conflicts and unfortunately weak leadership at the global level.

There is a concept called ecological foot print of humanity, which tells us how much of the planet resources we are using in total. In 2012, we were using one and a half times the equivalent of what the earth can sustainably produce, and by 2030 If we continue our present pattern of development we will need two planets! We know that we have only one planet. Sri Lanka is also exceeding its own ecological balance; it means we are chopping down the forests, polluting the water and so on. Now we have another question. It is the question of over consumption because if you look at who is doing the consumption, the richest people on the planet or the top 20% is consuming 85% of the resources, which is sixty times more than the poorest.

Sri Lanka has a dynamic nonaligned strategy; friend of all and enemy of none, which is something the President emphasized to me very much. The multipolar world order will be hopefully much more dependent on soft economic power rather than military power. And you have many poles of influence in the world. As we move to that, there will be disturbances, but Sri Lanka has a very key geostrategic position, and we can play a role in this. In case of climate change and global warming, there are two key facts which are the most important. The first point is; poor countries in poor groups suffer the most, which is manifestly unfair because the poor countries and the poorer people had the least to do with creating the problem. The problem was mainly created by the rich countries but the poor suffer. The second important point is that we follow this balance inclusive of a green growth path and make development more sustainable.

We can meet the challenge of climate change, as well as, all the other problems like poverty and so on. In the history, we have had many civilizations which lasted thousands of years. Whilst the Han civilization in China, Maurya Gupta Empires in India, Mesopotamian and the Roman Empire collapsed, eventually because of environmental and social factors, mainly over consumption of resources, there will be social divisions between rich elites and poor masses. So, these are very important aspects. We can learn a lot from the past history. If you take for example the hydraulic Systems in Sri Lanka, we had a wonderful

sustainable vision. For example, we believe that land belongs to the people and all living things while the ruler is only the guardian of the land; and King Parakramabahu had said not even a drop of rain water should flow into the ocean, without serving the man. If you look at the old dam anicuts, you will see that they were positioned exactly where the modern instruments tell us where they should be. They were ecofriendly and we had systems like the Velwidhana system and social system, controlling the flow of water which was extremely sustainable. So we have to be very much aware of these environmental and socio economic factors, scarcity of resources, inequality and conflicts which can also affect our present civilization. It could lead to some process of Barbarization where you have unrestrained market forces combining various problems like poverty, inequality and climate change, which would lead to a total breakdown of the planetary system. We also see the mass movement of refugees and other people which is more and more difficult to control, which is really a threat to global security in the future.

So, we now come to the last hope for mankind in a sense in this era, which is the 2015 sustainable development goals and the UN 2030 Agenda. How can we move forward towards a 21st Century Earth Eco-Civilization for a safer and better future? It is through the Balanced Inclusive Green Growth (BIGG) Path. The "Inclusive Green Growth Path", if you analyze the words- 'inclusive' means social; 'green' means Environment; and 'Growth' means Economy. These three elements are in the sustainable development triangle. And one of the core concepts that are extremely important here is, making development more sustainable. It is a call for empowerment and action. It basically says that sustainable development maybe very mysterious like a mountain peak covered with clouds. But we don't need to be discouraged. We will take one step at a time and climb up the hill, and eventually, we will reach the top. And the important thing here is that you and I, individuals, can make a difference.

We don't need to wait for Presidents, Prime Ministers and others to tell us what to do. Many of us know what we need to do. When we leave this room we switch off the light, we can turn off a tap, we can plant a tree, many things we can do that are extremely sustainable; so empowerment is extremely important. At the company level, we have corporate social responsibility and many other things. At the city level we can practice sustainable cities, and we come to the second core concept which is essentially what I told you before, that we need a prosperous economy specially with many millions of poor people in the world,

we need to bring them out of poverty, but we also need to look at the environmental side that is the process of growth. So we don't want to destroy the environment and we need the social side which is the most neglected part. Unless we have social harmony none of the other things will be helpful. We can understand nature quite well, such as, forests, lakes and the air we breathe. But we have neglected social capital, human and cultural capital, and we had a 30 year war which eroded a lot of our social capital, this is the glue that binds the society together. All of us have a major role to play in that.

Just to remind you of the 2004 Tsunami in Sri Lanka, which is a shining example of social capital work. We were in the middle of a civil war, a poor country, one in every five hundred people was affected by the Tsunami, and other countries thought our society would collapse. But we rallied; people went out onto the beaches, voluntarily helped other people and cleared the bodies. There was social capital at work. If you look at the following year, in Hurricane Katrina in 2005 in one city New Orleans, what happened? There was no social capital: there was a complete breakdown of law and order, looting, raping and other things were going on. It was shocking because it's a very wealthy country and a small city. Hence social capital is not necessarily the property of the rich. Poor countries have effective social capital networks; we have it in Sri Lanka; we must build it and we must continue with it. I must also tell you very briefly that we need to transcend boundaries within our own mind; also this is for innovation that is what universities have to do.

Values are extremely important. We have to replace unsustainable values with more ethical values. We need to think in terms of multi-disciplinary issues. We need to think in terms of the whole planet and not just our own backyards. We have to think in terms of long time spans, decades and centuries; and as military practitioners, I'm sure you understand that it should be a long range plan, not just today or tomorrow. And we need to work with all stakeholders, i.e. the Government, not only the Government but also the civil society and businesses. Just to emphasize the question of social values, it is unethical social values that actually drive our society towards injustice, violence, greed and selfishness. That has created the state of what I call not as economic development, but as maldevelopment. We are growing based on debt, poverty, inequality and so on, which is not a very healthy way to go, and that has created what is called the environmental death over-using our planetary sources and also causing climate change. When we deplete our natural resources,

there is more conflict. So, you have unethical social values. That is a vicious cycle. If you look at the pattern of wars today, there are no wars on weapons of mass destruction, the wars are all for resources for oil, water and land.

So, this cycle has to be broken, and we have to transcend disciplines to do that, we need to think in multi-disciplinary terms, and we need to bring the civil and business societies to work with the government to push them to strengthen democratic space and provide good governance. So, let me just briefly tell you that climate change is in a precarious situation today. We have 280 parts per million, and the main indicator is the Co2 level in the atmosphere. That was at a safe level 100 years ago or more. Today it's over 400. So, we are exceeding the safe level of Co2, and what will happen is that we will have global warming, we will have more rainfall in wet areas so you have more floods, landslides; and more droughts in dry areas and more deserts; and we will have storms, cyclones and other things in addition to sea level rise and overall temperature increase. So the economic damage over the last 50 years is rising and it's going to continue to rise. We need to survive climate change, specially to protect the vulnerable people, poor children and the elderly, in some parts of the world, such as, small islands like the Maldives, and others which will be completely submerged, and particular sectors and systems like agriculture, coral reefs and so on, but unfortunately we are not doing those things.

Talking of sustainable production, there are two key points to consider. The first one is sustainability and triple bottom line, i.e. finance and economy, environmental and social. Those three have become much more important, it's not only a question of profits any more. The second one is effective usage of resources. If you are producing shoes, if you can produce shoes using less leather, less energy and less water; it is a win-win situation, because you are reducing the burden on the environment, and also reducing your cost. So this is very attractive and now we have technologies, which are win-win. There are many technologies which we have applied, for example, in case of a garment factory in Sri Lanka, MAS Holdings, which shows you how resource efficiency works. We have looked at how carbon and energy are used in the life cycle of the product from raw material to manufacturing, to distribution to use and disposal. The main carbon emissions of a garment come from raw material, not only from manufacturing. What is the lesson for us? If you want to reduce emissions of carbon, you are not going to tinker with the manufactory process; you are going to talk to your procurement officer. The procurement officer must

buy raw material from the sources, which uses the least amount of carbon. It is not an engineering problem, it's a procurement problem. So this kind of analysis tells you where the hot spot is.

For energy, the hot spot is in manufacturing and distribution and in final endings. Why? Because people wash garments, that is energy, because of hot water. So these are methods on improving production processes; and let me just tell you that what we are planning here is to have sustainable consumers and sustainable producers working together because what you see in advertising today in the TV is mainly very unsustainable; it tells you to buy more and tells you to buy very unsustainable products. We have to break that side and eventually if we get these sustainable consumers and sustainable producers working together, we can eventually have a sustainable society and use modern tools. Traditional markets fall, so we can have organic markets and other things, where you go and buy the stuff, but for young people, it's online marketing. I'm supporting start-up companies which have huge sustainable online markets. Most young people who are in their twenties do not want to visit a shop; they go to the computer and shop online. So you have to have the tool to do the right thing and through these sustainable markets you can build a sustainable society.

In the sustainable Sri Lanka vision, we have hope for a thriving economy. We don't want to be poor. Being green and inclusive does not mean poor. We want to be prosperous and to lead a high quality life in an advanced stable economy, but it is green; it should be built on our traditional respect for nature, use resources efficiently and in an inclusive society. If you look into cross cutting issues, it has things like values, gender, international relations, security and peace; so all of these are integrated. This is one of the failures of Sri Lanka in every department of the Government. It is up to people like you, thought leaders, who can contribute to bring this integration about.

Let me just finish by saying we need to harmonize the economy, society and environment to build the democratic space in Sri Lanka. We need to work with the business society, civil society, the government, or all working together; and let me just end by reminding you that the situation in Sri Lanka has to be improved quite substantially because inequality has become much worse in the last two decades. Although GDP is growing, it is not reaching down. That is a very important aspect. Spatially also, the western province and so on are much better off than for example - the dry zone. We are not

investing enough in health; we are not investing enough in education rather low as a percentage of GDP. There are also other things, for example, the Belt and Road Initiative (BRI). The Chinese government is very important for us strategically. If you want to be an Indian Ocean hub, we have to understand that we are right in the middle of the maritime BRR. So we need to be a friend of everybody and enemy of none. We have two major ports, Hambantota and Colombo right in the middle. So Sri Lanka's geostrategic position allows us to play a key role and the investments in the BRI will also help us to bring that about. But we have an important balancing act to play. And I think, the Foreign Ministry and security forces establishment of the country have a very important role in maintaining that balance and bringing prosperity to Sri Lanka. So, for the defense services you have to be good professionals; as professionals you have to be the best. But you have to also understand the economic, social and environmental dimensions of your job. And you have to broaden your perspective to bring those aspects this is difficult.

Although it is a difficult task, our graduates and others need to narrowly focus on their expertise and to be the best in the world. I think you can do much for building the nation, one nation and one flag, protecting the democratic space. And you have to understand the concept of National Identity. We all are Sri Lankans. We have a role in disaster, this is a peace time role going from conflict to resolution; through education and training, raising the standard of national conduct especially among young people; service to the nation; honesty; integrity; respect for nature and environment; respect for the society; law; tolerance and harmony; discipline; leadership; accountability; effectiveness and impartiality, and all of these values have to be rebuilt. My final message is that we face multiple problems, but we know how to address them. Unfortunately we need to do more; we have to go on the balanced inclusive green growth path. The Indian Ocean is a key area where we can do this. We need also to bottom up leadership; we don't have to wait for global leaders to tell us what to do. I think KDU and the Sri Lanka Defence Services can lead the way to peace and prosperity in the 21st century global civilization.

GUEST SPEECH



Dr Sarath D Gunapala

Solid-state Physicist and Senior Research
Scientist, Jet Propulsion Laboratory, NASA, USA

It's my pleasure to be here today, and I'm going to talk about the exploration of our solar system and beyond in the next thirty minutes or so. I have small stories to make it memorable, and I hope you will enjoy it.

I work at NASA Jet Propulsion Laboratory (JPL). Our main business at NASA is exploration of solar system and beyond, using robotic space-crafts. If you hear anything in the news, such as, going to Mars, Rovers, Jupiter, Saturn or beyond solar system, that is what we do.

We design and build space-craft, and seven minutes after launching we take control of it. With the space network, we can listen to our satellites even beyond the solar system. Two of our satellites, Voyager 1 and Voyager 2, are stationed about sixteen billion miles away, so if you have to send a radio signal at one hundred and eighty six thousand miles per second, it takes twenty six hours to go and then acknowledgement comes twenty six hours later, and it keeps changing.

Our deepest space network system has three antennas set in Basku in California, Madrid in Spain and Canberra in Australia. So when the earth spins, we have 24/7 coverage. Why do we do this? When I fly for a long ride, if my neighbour sitting next to me somehow learns that I am a physicist working for NASA, ten out of nine times, irrespective of gender, colour of skin, religion or ethnicity, they ask, "Are we alone? Is there life in outer space?" Looks like the question, "Are we alone?" is somehow genetically

quoted into us. It's fascinating! It's interesting to note as to why we call this a solar system and not an earth system!

For nearly a few million years we believed the earth was flat, we were at the centre and everything and the universe spun around us. Normal people, also called Homo Sapiens; in Latin, homo is "man" and sapiens is "wise" – "wiseman" – were very egocentric and less tolerant, so they thought everything was around us; but some people thought otherwise. Some thought there were other worlds, and they were put to silence very quickly by execution. Aren't we glad we live in more tolerant times today? We can say, "It's flat", "It goes around or not", "I don't believe in it", etc. People may argue with you, but not get physical. I'm going to talk about different types of space-craft we use, one example for each satellite class, such as, Voyager, Cassini, Phoenix and Curiosity. Then I'll talk about the hunt for other earth-like planets and recent developments in the search for life in our solar system and beyond.

JPL was formed by the California Institute of Technology in 1936 as a graduate student experiment with the involvement of six students. JPL gave the first orbiting spacecraft called Explorer 1 to the United States of America in 1958. The first two Russian spacecraft were Sputnik 1 and Sputnik 2. We have about 9000 staff, located in Pasadena in California at the foot of St. Gabriel Mountain. In 1940, JPL's first claim to fame was the development of something called jet assisted takeoff, during the World War II, for planes to takeoff at very sharp angles, so in enemy

territory it was very helpful. In 1950, they developed the first guided missile for the United States Army, and in 1958, they designed the first orbiting satellite called the Explorer. Today, we have thirty one robotical spacecraft, two beyond the solar system and the balance twenty nine are around different planets. The four types of spacecrafts we use today are: Flybys, Orbiters, Landers and Rovers. Sometimes planets align; in that case it is much more cost effective to send one satellite to observe few planets. It happens once in one hundred and seventy six years; they are the major planets: Jupiter, Saturn, Uranus and Neptune. Voyager is a Fly-by. We built two voyagers, Voyager 1 and Voyager 2; and launched them to Jupiter in 1976. Jupiter, the largest planet, is a thousand times larger than the earth and does not have a terrestrial land; instead it's just a gas bowl with many moons. Before sending the Voyager, we knew of only four moons, discovered by Galileo called Galilian Moons, bigger than our moon, but Voyager 1 discovered fifty four moons, so Jupiter has fifty eight moons. It's fascinating! In one of the Galilean moons, we observed a big volcanic eruption. This was the first time we observed a volcanic eruption beyond the earth. All the planets of the solar system are on one plain called the Solar Plain.

Voyager 2 was sent two weeks behind, in case something goes wrong with Voyager 1. Saturn is a magnificent planet, also a gas bowl. It has a fantastic ring system, first observed by an Italian astronomer. Its density is so low, if you can take this serene and beautiful Saturn to the ocean, it will float. Its rings are formed with ice particles; some are like sand pebbles and some are big chunks of ice, as big as ten meters. Close to about sixty moons were observed in Saturn; the biggest moon is Titan, at which temperature is very low and ice water is frozen. Another moon of Saturn is called Enceladus. It is a very small moon covered in ice and it has water-rivers. Hence, it has a lot of interest. Voyager is very interesting. Professor Carl Sagan, Professor of Cornell University, encouraged JPL to put a message if there is any intelligent life elsewhere. So we made a copper record quoted in gold with greetings from fifty five languages including "Ayobowan", one hundred and fifteen pictures, a variety of natural sounds of birds, whales, giraffes, lions, etc., and also President Carter's and the then UN Secretary General Waldheim's message, classical and western music, and also we put a needle and sign language if intelligent life captures it they will figure out how to play it. We put a map of the solar system so that they would know from which planet it came from. We also put sign language indicating where we are and where it came from. It is hoped for someone to find it; similar to

in early days when people got lost in the ocean or stranded on an island, they would put a message to a bottle, hoping someone would find it.

The first Lander was launched to Mars in 1975. An Italian astronomer found canals in Mars. So, Hollywood movie makers hypothesized Marshians; little men with big heads, complied with Darwin's theory of evolution. We believed Martians were more brainy. Of course now we know Mars does not have intelligent life, but there could be microbial life.

Curiosity is the largest rover we built; it has ten instruments, cameras and very powerful lasers, which would analyze signals coming from vapour to find out what kind of minerals it has. Curiosity has been working on Mars since 2012, and we are building the next one called Mars 2020, and it will be launched in 2020, it will take eight months to go to Mars. We will launch when Mars and the earth are close, so it doesn't have to travel across the solar system, which would otherwise take years. Mars and earth get close every other year. We are about one hundred million miles away. One Martian year is two earth years. We landed on a crater with a five kilo metre high mound. Why did we select this location? From previous Rovers, Landers and Orbiters there is evidence that Mars has running water. We know on earth, life was formed as soon as it had water. So we thought if Mars has running water, this crater could have water. We wanted to explore whether there are rivers. There were pebbles without jagged edges, instead they were circular, because for millions of years they would have rolled over. One hundred to two hundred years ago Mars had frozen ice like frozen mud, so in Summer times, it melts. The question is if it had water, what would have happened to it? Scientists believe that when the inner core gets colder and becomes solid, it is called a dead planet as nothing moves, and there is no current and no magnetic field. Therefore, due to blasting of high energy solar wind, the water would have vapourized.

Cassini orbiter launched in 1997 on a journey to Saturn, landed in Venus. Until Cassini, we didn't know Enceladus had rivers. We sent Cassini five miles above the surface of Enceladus. It was a very risky maneuver. We found it has geysers, everything that a primordial soup needs. Now we know of four places that have water: Mars, Europa (icy moon of Jupiter), Titan and Enceladus. We want to investigate all four. We are very much interested in sending a very specific satellite to Titan to explore the possibility of life. We encourage NASA to fund. Actually NASA funded Europa Clipper Mission last year. Europa

is one of the large moons of Jupiter discovered by Galileo. In Europa ice cracks all the time, but we don't know the cause. By 2020 we are going to find out whether there is life.

In 2009 we launched the Kepler telescope to find extra planets orbiting around our neighbouring stars. So far we have found five thousand planets. Out of three thousand five hundred of them we found only two earth-like planets; and in one we think there is water. We shouldn't get discouraged; as the Galaxy has two hundred and fifty billion stars. So far we have discovered about two hundred and fifty billion galaxies. If each star has ten planets, there are so many planets more than all the words uttered by human beings in the last several million years; probably one hundred thousand planets in our solar system that can probably have life.

Now we are building a lot of big telescopes for astronomy. The current largest telescope is a ten metre telescope located in Hawaii. We think with large space telescopes we can hopefully find life elsewhere, within our neighbourhood and in the near future. When looking for life, we look around for earth-like blue planets (blue for water), medium in size, hovering around. Bigger stars or giant red stars burnout fast as their life time is short. Medium size stars like us survive longer for about

a million years and their biological process is lengthy, so there is plenty of time to evolve.

The building blocks of life are carbon and hydrogen. There is plenty of these in the universe found by NASA's Spitzer space telescope developed about twenty years ago, still in space. Life must be around carbon and water base. Life can come in surprises. Look at life on earth? Take a bird, lion, jelly fish, human, snake and a giant tree. To explain a snake to a person from another planet – how do you explain? We have this animal as long as a rod, no hands, can swallow his prey five times bigger than his mouth, can move two feet per second, can kill a person like me in a couple of hours by biting and injecting some proteins allergic to us, etc. So when we look for life, it can be in different forms, but water and carbon base.

Our ancestors, probably two and a half million years ago, never thought we would walk on the moon; escape the gravity of earth; become the second kind of species, not the first generation, etc. What's happening? Scientists are making new life! A couple of years ago, French scientists made an artificial rabbit. They took the glowing florescent of a jelly fish and mixed and made a glowing rabbit or a luminous rabbit. Now homosepians are creating life. Many cultures or societies in the East and mostly the West thought only God can create life. Homosepians can play the role of God, too! A question for you!

VOTE OF THANKS



Dr Upali Rajapaksha

The Conference Chairman,
KDU International Research Conference 2018

Honourable Secretary to the Ministry of Defence, Mr. Kapila Waidyaratne, Keynote Speaker, Professor Mohan Munasinghe, Guest Speaker, Dr. Sarath D. Gunapala, Tri-service Commanders, Members of the Board of Management of KDU, Your Excellencies of the Diplomatic Corps, Vice Chancellors of other State Universities, Senior Officers of the Tri-forces and the Police, Our most valued invited guests, Academic and Administrative Staff of KDU Distinguished Ladies and Gentlemen.

It is my privilege to propose the vote of thanks on this occasion. An event of this magnitude cannot happen overnight. The wheels started rolling months ago. It required planning and a bird's eye view for detail. I have been fortunate enough to be backed by a team of motivated and dedicated colleagues, who were willing to take on the completion of tasks beyond their comfort zones.

It is with pride I announce that we received more than 573 manuscripts, from local and international authors, and approximately 350 of them are published. Moving with the times, this year's conference offers great opportunities to presenters, such as the ability to deliver presentations via Skype; and to upload Google Scholar in order to generate individual H-indexing citations.

It is with utmost pleasure I announce that we have also given many opportunities to internal and external undergraduates to share their research findings at our conference, as either poster or oral presentations.

On behalf of KDU, or let me call it fraternity of the one and only Defence University of Sri Lanka, I extend very hearty thanks to our Chief Guest, Honourable Secretary to the Ministry of Defence, Mr. Kapila Waidyaratne; for gracing this occasion. The Support we received from the Ministry of Science & Technology and Bank of Ceylon was immense.

It is my pleasure to acknowledge our gratitude to the Guest Speakers, Professor Mohan Munasinghe and Doctor Sarath Gunapala, for sharing with us their findings and opinions. We are all inspired by your great words. You are an enormous pride to our motherland.

My special thanks go to our Vice Chancellor, Deputy Vice Chancellor Defence and administration and Deputy Vice Chancellor Academic, for your consistent guidance throughout this journey.

Ladies and gentlemen, we thank you for being with us this morning.

Have an inspirational and fruitful day!



WHITHER MANAGEMENT RESEARCH? REFLECTIONS AND RESOLUTIONS

Prof Ajantha S Dharmasiri

Director, Postgraduate Institute of Management

Research plays a vital role in today's world as it brings about opportunities for 'change'. With the advancement of technology, people have been able to create new paths, social networks as well as new dimensions for research. Therefore, research should always be enabled by technology from the process of collecting data until the findings and conclusions are made. The term leadership goes hand in hand with research. Leadership in this regard is highly essential as it is about inspiring, influencing and instructing. Therefore, researchers should be able leaders who inspire others through their knowledge. They should be able to influence others through the thinking and be good instructors with the knowledge in hand. In order to do that, the leader should be assisted with the correct 'Human Resources'. It is considered as a key contributor towards the development any company, institution or organization. In order to conduct research, there should be the right people with the right competencies, in the right context with the right resources. Relevance, respect of human resources and how they are treated should be the priority of the leader. There are 3 roles for researchers in this context which should be acquired to be efficient leaders in research:

1. Be knowledge capturers
2. Knowledge communicators
3. Knowledge creators

Exploration, explanation and exclamation is done by the creators of knowledge. They have to challenge the existing knowledge, reveal and champion the new knowledge. This is what is mentioned as the 'Wow' effect and therefore, when a researcher generates new knowledge, we must be open to accept this change and 'wow' the new knowledge. Hence, a good researcher must become a visionary and have a purpose in the mind. Art, Science and craft dimensions should be met in order to be a good Manager. Envisioning, executing and exploring will always open doors to newfound knowledge. Albert Gigoy has stated that "Research is to see what everyone else has seen and think what nobody else has thought" and by aiming to be positive researchers, one might be able to open doors for future research. As stated by Jonas Sock after all "The reward for work well done is, the opportunity to do more research".

IMPORTANCE OF "LITERACY" FOR MANAGERS AND ENTREPRENEURS IN THE 21ST CENTURY

Prof HD Karunaratne
Professor in Economics, University of Colombo

Having 93% 'literacy rate' with the people being able to read and write in their mother tongue, Sri Lanka still remains a developing country. Thus, 'Literacy' today can be interpreted in other ways than the colloquial explanation.

A labour force survey has found out that there are 229,000 employers in Sri Lanka in contrast with developed countries like Japan. One of the key reasons for this is that majority of the businesses in Sri Lanka are Micro enterprises whereas in Japan most of the businesses are Small, Medium Enterprises (SME). 2013 Economic Establishment Survey revealed that there were one million enterprises in S/L but the SME contribution is very less. Japan has 48 million people who are employed in the employee sector when compared to Sri Lanka where there are many unemployed graduates passing out

from universities each year. The GDP remains at 2% as it comes from small firms. On the other hand, 4.2 million businesses are established in Japan. However, there are only 12,000 large businesses, 4.1 million Small enterprises and 4.2 million entrepreneurs and business owners. This can be stated as the major reason for the difference between a developed country and a developing country. The key reason for developed countries to remain the same is that, even though employment opportunities can be provided for many people, these countries do not create value nor add something to their products. Therefore, the quality of the products manufactured in these countries, remains marginal. In order to cope up with the modern, technological world, countries such as Sri Lanka must begin to find solutions in the near future by paving way for higher percentages of SMEs.

COLLABORATION FOR PROFESSIONAL EXCELLENCE IN MANAGEMENT AND IN SOCIAL SCIENCES AND HUMANITIES

Prof NS Cooray
Professor in Economics, International University of Japan

"Collaboration is a common subject which takes place everywhere". A country can be developed in 13 years. When the right attitude, knowledge and abilities are injected to the students at school level, development will begin to commence though the initiatives taken by these students once they pass out from schools. However there are several areas where Sri Lanka has failed in doing this. 1) Failed in developing entrepreneurship. 2) Failed in achieving well-being.

In order to achieve material as well as spiritual wellbeing, one should possess the right knowledge, skills, attitudes and values. If these four components are reached with the right guidance by parents, teacher and the government, wellbeing will be achieved at national and even at international levels. The knowledge required to achieve well-being is directly linked to professional excellence. This directly targets the wellbeing of the stakeholders. The benefit of collaboration depends on the appropriateness of collaboration.

The political economy of a country has three main pillars; state, market and civil society. There has to be a

delicate balance among these 3 pillars in order to reach development. Therefore, it can be stated that collaboration and wellbeing is a win-win policy.

There are many possible areas that a country can collaborate in: 1) Customer oriented applied research. 2) Business services (business, peace and security) 3) Global education services 4) Library and information sciences. 5) Digitalization (In order to achieve or receive any collaborative activities, we definitely need to have a standard digital framework. That is why technology is vastly incorporated in education process. Education and technology reinforce each other and are both directly related).

Sri Lanka is still a developing country as there are too many governing authorities and as there is no long-term plan nor vision. By mentioning that, the government must invent strategies to overcome this problem while collaborating with other countries to achieve the above wellbeing. In addition, plans should be made to develop entrepreneurship in the country as well. Therefore, SIYB (Start Improve Your Business) should be practiced to improve and develop a country like Sri Lanka.

CORPORATE STRATEGY: THE WAY FORWARD

Mr Udaya Indrarathne
CEO /Sector Head -Leisure Softlogic Holdings PLC

“Strategy isn’t a problem but the perception is, in Asia.” Even though people do not consider strategic planning seriously due to its limited jargon, it is a highly simple process. Corporate strategy in this regard is very important due to several reasons;

- 1) It sets objectives for the organization.
- 2) Allocate company resources
- 3) Establishes expectations
- 4) Improves competitive position
- 5) Assure a value and most importantly,
- 6) Cohesively integrates the staff and everybody together to work in harmony

Most income earning companies focus the most on corporate planning and corporate strategy. One of the reasons why S/L can’t progress is because we are weak in these two areas.

A strategic plan should be developed based on:

1. The environment- the market, competitors and the customers.

2. The analysis of the resources – HR, Financial etc.
3. Purpose of the organization.
4. Developing the strategy
5. 5. How to evaluate and make the changes

By following these, a strategic plan can be developed as a cycle. When developing a strategic plan one should consider achieving a clear vision , mission, corporate objectives, marketing objectives etc. Following this, he/she should consider what options are available to carry out the strategy according to the best available option.

SWOT, Ration, Strategic Group analysis should be carried out during the invention of a strategic plan. The perception map is highly important at this point. It is a technique to find out what customers expect, what products you target to be perceived etc. Apart from these the market share and situation analysis should be performed before carrying out a business. Short-term medium or long term strategies should be amalgamated into the corporate plan when dealing with companies and any business. Finally, the Strategic staircase theory should be applied to analyze where one needs to reach a goal in 5 years. All the initiatives and achievements should be put into this staircase to achieve the correct development objective.

MULTIDISCIPLINARY DIMENSION WITHIN COLLABORATION TO REACH EXCELLENCE IN PROFESSIONALISM

Prof Sarath Amunugama
Professor in French, University of Kelaniya

As defined in Oxford English “Collaboration is an action of working with someone to produce something”. Cambridge dictionaries define the term “The situation of two or more people working together to achieve or create the same thing”. Professional excellence is the outcome of collaboration and therefore, to reach excellence of a certain situation or action, one should reach that state to achieve the expected outcome of securing/maintaining excellence. According to Oxford dictionary, “Multidisciplinary means combining or involving several academic disciplines or professional specializations in an approach”. When considering the two terms, the term collaboration has a wider and a broader generic significance whereas the term multi disciplinary has a narrower or specific significance.

At present, there are multiple discussions, statements, and discourses or concerns pertaining to multi-disciplinary research. All those arguments consider more and rightly on a requirement on its use than the decoration. It is very relevant in different situations. However, in the professional sector, specially related to societal work, there is a prescriptive discourse on the merits and relevance of multi disciplinarily, especially since it is now in certain contexts preserved in some legislative tests as well. For the most parts, it affirm the importance of “multi disciplinarily”. Emphasizing further, it is a concept of social work consisting different work of different professionals. It is the corporation between several

professional categories in analyzing the uses of the clients profile and in providing individualized services.

Employers now expect new skills from their employees with multi-disciplinary knowledge at any level of recruitment from the laborers to managers it is required that since they want them to work more collaboratively. This will be beneficial for the companies as they will be able to dependent less on the assets of the employees (sick leave, resign).It is a generally accepted fact that these relationships favour the participation in the sector. Also, this is important at the level of forming professionalism or training professionals. This is where the growing elements of Social Sciences and Humanities in this framework can be emphasized. Social sciences and humanities are interconnected and work in collaboration; “they are the means of keeping our society sane”.

Even the fields of Humanities and Social Sciences work in collaboration when creating multi-disciplinary knowledge. These areas talk about the marriage in society and explains the way in which human beings behaves towards each other which is not susceptible in being put into a formally or mathematical assumptage. As Human nature is a mysterious thing, we always have to deal with diverse circumstances. If Humanities and Social Sciences sectors do not work collaboratively, the countries in the world will not have a promising future.



INVESTMENT DECISIONS IN MEGA PROJECTS: BUREAUCRACY AND ACCOUNTING CONTROL: PRELIMINARY DATA ANALYSIS

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Abstract- Research in Accounting and development is now an established field. Research in Cultural political economy of accounting and development has made an important theoretical development in this field of research. Identifying this theoretical development this research is trying to identify how public sector/government (organizational) decision making, multitudes of controls, political and cultural institutions are associated with each other in permeating eclectic form of accounting for investment decisions in mega projects in Sri Lanka's Development. Sri Lanka is developing country and traditional culture with dynamic political environment. This paper derived from Weberian framework introduced by Colington and Covalleski(1991) and the draws the works of Dyball and Valcarcel (1999), Uddin (2009) on traditional societies and tries to respond to the existing literature from the findings of case study. To materialize the study, one of the major mega infrastructure projects in Sri Lanka has been selected for the study. The study is following qualitative tradition and data collection process has consisted with five parts followed by data analysis. Preliminary Data analysis process is being done with themes emerging through interpretation of respondents, organizational and theoretical categories. Findings of the preliminary data analysis shows that there are many bureaucracies within the bureaucracy and it does not lies only with administrative staff as explained by weber. Further different layers and sections of the organizational have different accounting practices which are unknown to the other where minimal or no information link with each other. Cultural Political Economy has identified as the theoretical framework of the study as the studies in this research agenda has reported number of case

studies to understand how cultural, political factors and institutions are important in understanding management accounting practices and management control systems of developing countries.

Keywords- Public Sector, development projects, Sri Lanka, Accounting practices

I. INTRODUCTION

Context of the study

Whilst research in accounting and development is now becoming an established field, its cultural political economy hue has made important theoretical developments (Wickramasinghe & Hopper, 2005; Hopper *et al.*, 2012) . Exploring these developments, this research aims to address how the state apparatuses, multitudes of controls and political and cultural institutions are implicated in permeating an eclectic form of accounting for investment decisions in mega projects in Sri Lanka's development.

Cultural political economy research in accounting has reported several case studies to illustrate how political and cultural factors are relevant to understanding the functioning (and mal-functioning) of management accounting and control system in developing counties (Hoque & Hopper, 1994; Uddin & Hopper, 2001; Wickramasinghe *et al.*, 2004; Wickramasinghe & Hopper, 2005; Tsamenyi *et al.*, 2007; Alawattage & Wickramasinghe,

2008, 2009). In particular, this agenda of research has enhanced our understanding of how these macro factors gave rise to unintended idiosyncrasies in the mundane practices of management accounting and controls. This development has extended not only the scope of political economy research in accounting (Tinker, 1980; Cooper & Sherer, 1984; Hopper & Armstrong, 1991), but also made an interesting contribution to political economy research in the social sciences by connecting the macro to the micro through the trails of complexities of accounting (Polanyi, 1957; Williams, 1958; Taylor, 1979)

This research takes this literature as a point of departure and puts mega projects in development in Sri Lanka on trial to investigate whether and how auditing and control procedures, government accounting practices, investment decisions, and cultural institutions are interrelated and, in turn, produce an eclectic form of development accounting. The notions of culture – as Hofstede (1980) observed – “could be defined as the interactive aggregate of common characteristics that influence a human’s response to its environment” or as Williams (1958) observed “its ordinary” every human society has its own shape of culture, its own purpose and its own meaning. Further the notion of development accounting – as Hopper et al, (2012) observed – encompasses spatially and historically varying calculative practices and accountability mechanisms operating at multitudes of the development discourses linked to state apparatuses, political and cultural spheres, and institutionalized practices of accounting. An elaboration of these aspects in relation to the execution of mega projects within the recent development agenda will be an avenue to make a theoretical contribution to the above literature in cultural political economy of accounting.

1.1 Cultural Political Economy of Accounting, Development and Mega Projects

The 1980s witnessed an emphasis on political and economic factors in understanding accounting and gave rise to political economy of accounting (Tinker, 1980; Cooper & Sherer, 1984; Hopper et al., 1986; Hopper *et al.*, 1987). Hopper and his associates extend this agenda to developing countries since the late 1990s (Hoque & Hopper, 1994; Uddin & Hopper, 2001; Wickramasinghe et al., 2004; Wickramasinghe & Hopper, 2005; Alawattage & Wickramasinghe, 2008,2009; Jayasinghe & Wickramasinghe, 2011). Both research communities were critical of functionalist approaches of accounting

research, which assume that accounting is effective, functional merely through better technical, procedural and organizational configurations (Hopper, 1985). Political economy researchers, in contrast, argue that accounting operates in a broader (than its technical and procedural) context, giving rise to complex issues in mundane practices. For example, Wickramasinghe and Hopper (2005) illustrated that, despite its market and engineering rationalities for more rational production budgets, village ethnicity and culture shaped the ways in which what budgets were to be prepared and how they were to be executed. This practice was also coupled with political and ideological influences through trade union mechanisms linked to postcolonial fashion of national politics in the country.

Although functionalists believe that Management Accountings Controls (MAC) are presumed to be purposeful, effective and unproblematic, seen from the above cultural and political angles, such practices are questionable and problematic. Applying modes of production theory (Taylor, 1979), cultural political economy researchers justified such predicaments in that imposing capitalist Mode of production (MOP) on the context of traditional culture with non-capitalistic MOP can bring a conflict between traditional way of life and belief, leading to cultural dissonance, hence it may result in unanticipated consequences (Wickramasinghe & Hopper, 2005). Although MACs are the key to planning, control and accountability in state-led central planning, constitutionally, state is the controller of the regulatory systems, which provides considerable power to bureaucrats and politicians to pursue personal agendas. Political pressures, struggling for party advantage and pressures for political survival in the state drive politicians and their agents to involve into enterprise affairs (Wickramasinghe & Hopper, 2005). Hence political criteria dominate decision-making and control. While this is an important development in this ilk of research, such research has, however, paid little attention to how development and development projects are shaped by forms of accounting and controls in relation to changing rationalities of development discourses and associated practices (van Helden & Uddin, 2016).

Development research, on the other hand, has followed neoclassical modeling and econometrics methods ending up with either so-called hypothesis tests or arms-length prescriptions (Kirkpatrick, 1981; Lélé, 1991) rather than exploring mundane complications

related to development trajectories that would give rise to unintended forms of accounting and control issues. Although there was a branch of critical development research (Taylor, 1979; Wallerstein, 1991; Escobar, 1993), researchers had inadvertently ignored accounting issues associated with micro level idiosyncrasies that were also not captured by functional development research above. By locating accounting in a “critical development” sphere and by theorizing accounting practices as a form of cultural political economy, I believe that those idiosyncrasies could be captured and, in turn, a form of development accounting could be articulated. Whilst, “critical development” sphere here is aimed at understanding development beyond its discourses, jargons and taken-for-granted institutions, cultural political economy is inclined to revealing the pragmatics of accounting and development practices in terms of structural rationalization of decisions, actions and their consequences (Taylor, 1979; Wickramasinghe & Hopper, 2005). I will thus aim to offer a theoretical analysis of how accounting operates in a development context by analyzing critical development literature (Taylor, 1979; Escobar, 1993) and by reanalyzing cultural political economy of accounting.

Such a development emphasis was little appreciated by cultural political economy of accounting, but the researchers in this ilk acknowledged the conditions imposed by development discourses and practices (Wickramasinghe & Hopper, 2005; Hopper *et al.*, 2009). They referred to how World Bank and similar trans-national financial agencies had imposed loan conditionalities including accounting reforms on developing countries. Although such impositions would have shaped how government accounting, auditing and control practices should be changed and how decisions and actions are taken accordingly, there has been little research examining how actually this occurs. As a result, a little is known about structural rationalization of investment decisions in development projects, of their execution and actions at mundane levels, and of intended and unintended consequences of such events and processes. The proposed study is thus important in that it can contribute to theoretical developments in cultural political economy research in accounting, on the one hand, and critical development theory and its implications for policy impacts on such development projects, on the other.

In order to produce such a piece of “development accounting” research, the study has chosen to study

the processes and mechanisms of accounting, controls and accountability in mega projects in the context of Sri Lankan development agenda. The initiation of mega projects in the context of developing economies has become the primacy of attaining development through infrastructure developments. They have often made the relationship between the global and the local while highlighting national indicators of development within national and regional development strategies. These mega projects represent extremely large projects owned by private or public sector where “initiatives that are physical, very expensive, and public”(Altshuler & Luberoff, 2002, p.2). They “...transform landscapes rapidly, intentionally and profoundly in very visible way(Gellert & Lynch, 2003). However, as developing economies far from being rich to invest in these projects with their own capital, they have naturally look for international funding which impose conditions on the practices of accounting and accountability that are implicated in wider reforms in state apparatuses.

This leads to a form of “projectification” pointing to the handling of complex tasks through a series of restructurings by which traditional functional structures are gradually transformed into different forms of practices (Midler, 1995; Maylor et al., 2006). Traditionally projects have focused on forms and vocabularies for planning and control supported by varying calculative practices (such as discounted- cash-flow techniques) as well as visual and imagery tools such as Gantt charts and network diagram. However, transnational funding agencies have asked further controls and accountability mechanisms, including the ideas of risk management, environmental screening, stakeholder management and the like.

However, concerns have been raised as to whether these mega projects in developing countries are akin to newly imposed accounting and accountability practices. Anecdotes in the public domain suggest that there are cultural and political predicaments that hinder the expected aims of these projects. As a result, as (Al Darmaki, 2008) observed, project executions suffer the negligence of systematic management and controls and the delivery of expected accountabilities. Despite such anecdotes and observations, there is a lack of analysis of the roots of such negligence that led to a particular form of “development accounting”.

II. METHODOLOGY

This study follows qualitative tradition which could be used as a critique of positivism and as a leading and governing epistemology and identification of need of alternative direction to produce knowledge (O'Leary, 2013). As Ahrens and Chapman (2006) explained, qualitative tradition provides an alternative approach to positivism which offers the ontological assumption that "empirical reality is objective and external to the subject" (Chua, 1986, p.611) The main purpose of qualitative tradition is to get a close understanding of people, cultures, places and situations through rich engagement of the reality being studied (O'Leary, 2013; Silverman, 2015). Qualitative tradition mainly follows inductive logic, but also deductive logic, appreciate subjectivities rather than objectivities, accept multiple realities and perspectives (O'Leary, 2013) . Further it identifies the power of research over researchers and participant and no requirement of being away from political agendas (O'Leary, 2013).

In gathering interpretations, researcher has gained access to key actors and relevant institutions to conduct in-depth interviews and conceivable conversations and to review available documentations. Creswell (2012) explains that multiple sources can be used as data collection forms such as interviews, observations, documents and artifacts in developing case studies. In doing so, I followed qualitative research methods (Silverman, 2015) to develop an explanatory case study. Case is a "site of particular situation with defined boundaries" and case study is a method of studying of a social fabric through comprehensive description analysis of single case or situation, finally it would build a holistic understanding on the case within a clearly defined context (Silverman, 2014; O' Leary, 2014). As explained by Scapens (1990), an explanatory case study attempts to show explanations for accounting practices. The purpose the research is on the specific case (Scapens, 1990). A theory is used in order to understand and explain the specific case rather than to make generalizations, and if prevailing theories do not provide sufficient persuading explanations, there might be a requirement of modifications (Scapens, 1990). The main purpose to develop a case study is to "see" things the way participants do, and try to understand the world within which people live by ignoring judgments (O'Leary, 2013). Further cultural significance took in to discussion in this study by participating and the reflecting lived conversations and observation - an approach that has

been used in previous case study analyses of the links between accounting and culture (Hopper et al., 1986; Hoque &Hopper, 1994; Wickramasinghe & Hopper, 2005; Alawattage et al., 2007; Hopper *et al.*, 2009) . Thus, this study would develop a case study on Development Accounting in relation to Southern Expressway, Sri Lanka in order to analyze the data and to make interpretations exhaustively on research questions framed. The analysis is being done through a process of iteration between the provisional conceptual mapping above and the themes and issues being emerged from the fieldwork. Analyzing data though description of the case and the themes of the case as well as cross case themes (Creswell, 2012). This is consistent with 'typical' case study approaches within management accounting research generally (Ahrens &Chapman, 2004,2006).

With respect to credibility in qualitative studies, regardless of the purpose of the study and their own paradigms, all studies need to consider the credibility of the study. In order to realize the credibility, the study considered different criteria such as whether subjectivities have been managed, consistency of approached methods, "true essence" has been apprehended, broad applicability of the findings and verification of the research process (O'Leary, 2013) . Through such assessment the study gained neutrality or transparent subjectivity, dependability, authenticity transferability, and auditability over the criteria of quantitative tradition; objectivity, reliability, validity, generalizability, reproducibility (O'Leary, 2013). In the hope of that further strategies have been used for the credibility such as saturation, prolonged engagement, persistent observation, broad representation and peer review.

The main focus of case study is developing an in-depth description and analysis of a case (Creswell, 2012). Case studies provide the ability of understanding the nature of management accounting in practice: such techniques and procedures, which are used and the ways which they are used (Scapens, 1990). Writers like Kaplan' studies views case studies "as part of the process of developing positive accounting theories" (Scapens, 1990, p. 267);, where core elements of neo classical economics are embedded in positive theories of accounting (Scapens, 1990). Neoclassical economics has provided a base for management accounting decision model, where we study normative decision models for attaining optimal, profit maximizing behavior; for example capital investment decision models, cost variance investigation models

etc. Though management accounting research positive theories informed by neoclassical economics is useful in predicting general trends in accounting, it might be less useful in explaining the process of which directs to individual accounting practices. To support this argument Kaplan claimed in his paper " case studies tend to be used more for hypothesis generation than for hypothesis testing" (Kaplan, 1986, p. 442). However case studies with this tradition emphasized with exploring use of accounting information by managers for the purpose of planning and controlling decisions and used to generate hypothesis by researchers and would be tested with other empirical research methods.

But, on the other hand this research tradition was criticized by Scapens (1990) explaining the use of neoclassical economics framework by case study researchers limits the explanations that they can provide on the nature of management accounting practices. Further, qualitative case/field study with reference to qualitative methodology allows to focus on the strategies of qualitative researchers in acquiring knowledge rather than tools commonly in use (Ahrens &Chapman, 2006). Moreover, literature argued that management accounting case study research supported by neoclassical economics framework failed to locate cases in their historical, economic and social context (Smith, 1988). Campmbell (1988) explained that, " a meaningful context that is structured by diverse participants acting within political, economic, social and material arrangements, the field is not open to the researcher's favorite explanations (Ahrens & Chapman, 2006) . The role of accounting and other control cannot be fully understood in isolation, and that requires a more contextual approach (Otley &Berry, 1994).

Case study/field work is mostly used method of data collection than surveys in management accounting research in developing economies or emerging economies (van Helden &Uddin, 2016). Literature identified lack of sufficiently reliable data from surveys and official document is the main reason for conducting case/fieldwork research. (Alawattage et al., 2007). These issues might encounter due to poor response to questionnaire surveys from the respondents in less-developed countries due to various cultural and political reasons (Hofstede, 1980; Hoque &Hopper, 1994). Most commonly used methods in case study/field research include interviews, observations and documentation reviews (van Helden & Uddin, 2016).

III. BUREAUCRACY AND WEBERIAN FRAMEWORK: A PERSPECTIVE OF ORGANIZATIONAL CONTROL

There are different uses of this particular word bureaucracy. One; the word 'Bureaucracy' had been used in nineteenth century to indicate a type of political system, literally it means 'rule by bureau'. It indicated a system in which ministerial positions were carried out and occupied by career officials, usually answerable to a heredity monarchy. Here bureaucracy is contrasted with a system of representative government , for example; the rule of elected politicians accountable to a representative parliament (Beetham, 1996). Beetham (1996, pp 3) cites the work of Mill (2008) Representative Government , considered bureaucracy as the only serious alternative to a representative system. In the twentieth century bureaucratic rule positioned as likely to be a feature of military dictatorship, one party government or other forms of authoritarian rule as of heredity, but still contrast with parliamentary democracy. This contrast belongs to the discipline comparative government, and the concern is to identify differences and functioning between political systems.

The second usage related to the sociology of organization, derives from work of Max Weber. To Weber bureaucracy means a 'system of administration carried out on a continuous basis by trained professionals according to prescribed professionals, and not a type of government (Beetham, 1996). In his definition of bureaucracy, weber identified several features common to modern systems of large scale administration and can be reduced them in to four main features; (1) hierarchy – where each official has a clearly defined competence within a hierarchical division of labor, and answerable for its performance to a superior, (2) continuity – the office constitutes a full time salaried occupation, with a career structure that offers a prospect of regular advancement, (3) impersonality - the work is conducted according to prescribed rules, without arbitrariness or favoritism. A written record is kept of each transaction; (4) expertise – officials are selected according to merit, are trained for their function, and control access to the knowledge stored in the files. The above features constitute Weber's definitional model of bureaucracy and those criterion need to be there for a systems to be called as bureaucratic.

Administration can be identified as the coordination and execution of policy, and System of administration can be identified as an arrangement of offices concerned with translating policy into directives to be executed at the front line of an organization. For Weber not all the employees of an organization are bureaucrats.

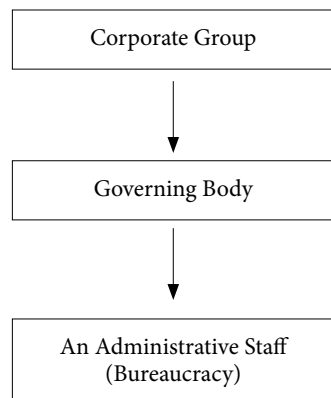


Figure 1. Bureaucracy
Source: Beetham (1996)

Members of each category differ based on the position, function and responsibility.

As explained by Weber a corporate group ‘ is a voluntary or compulsory association of people which either directly or indirectly elects leadership or governing body to manage its affairs’ (Beetham, 1996).The governing body after that employs an administrative staff to carry out and implement its policies. The administrative staff, then called bureaucracy. Members of a governing body are typically elected and may work part time; their function is the broadest formulation of policy and rules for the association, and the provision of the necessary funds for its administration; and their responsibility is outwards to the association as a whole (electorate, shareholders, members etc.) Members of bureaucracy, in contrast, are always appointed from above, and are responsible to the governing body for the execution of its policy and the administration of its funds.

Case study findings

In this case, Parliament and the government work as the corporate body which directly and indirectly appoints leadership of the Project Executing Agency, which is

Ministry X (name of the ministry is anonymized due to ethical reasons). Parliament is the highest authority which comprises with politicians who are elected by the general public during the general election. Parliament and the government of Sri Lanka has the authority to appoint governing body of the Ministry X, that is highest level of management of the organization, which comprises with Secretary, Additional Secretaries, Chief Financial Officer, Chief Accountant, and respective directors. This could be considered as the governing body. Implementation body, which is Department A (name of the department is anonymized due to ethical reasons) with the project Staff who are responsible for implementation of the project could be identified as the Administrative body. Organization has a hierarchical organizational structure headed by Secretary of Ministry. Each level of decision making has respective decision making power and authority based on their subject matter. Delegation of power was there informally, apart from formal, subject based authority and decision making power.

“When we receive a public complaint related to a project we instruct relevant PD (Project Director) to take remedial actions. Meantime we monitor the situation. Relevant PD has to report after remedial action has been taken. We have a procedure for that.....But sometimes before we instruct the PD, remedial actions had been taken by the PD. That is their duty. Project Director has some sort of authority. There is no need to tell everything to us.”

Here is another instance where information and decision making are split off across the senior levels and then other levels of the organization and the project.

“Secretary always used to tell that additional secretary is almost a secretary, and I should be able to take decisions without taking to him. So I cannot just go and ask everything from him know. I am not doing that. Same principles applies to here. We ask project directors to give solutions in and out. Because solutions need to be given in the field itself.”

As per the above, head of the organization identifies the different functions of different job roles and positions, and allows them to make their own decisions with information flow while being under his purview of supervision. This shows there are multiple bureaucracies within the bureaucracy. Initial analysis of organization in terms of bureaucracy is aligned with Weber’s definition

of Bureaucracy. But, organizational reality is much more complex than the Weber’s definition. Bureaucracy is not only lies within the administrative group, but also with the governing body. In other words it is not simple to identify where the bureaucracy is within the organization, it lies within different layers of the organization with different forms.

Weberian Framework, Bureaucracy and Organizational Control

Uddin (2009, pp 783) cites, several studies in less developed countries have illustrated that the socio-historical context, societal structure, global capitalism and politics have significant influence on organizational practices, including management controls (Ouibrahim & Scapens, 1989; Jones & Sefiane, 1992; Uddin & Hopper, 2001,2003; Uddin & Tsamenyi, 2005; Wickramasinghe & Hopper, 2005). Further Uddin (2009, pp 783) explains the work of Uddin and Tsamenyi (2005), local social and political structures, together with other factors, render the rational control and performance model, which derived from private management practices and aid agencies, ineffective, and performance measurement model has become marginal, ritualistic, and de-coupled from operations (Ouibrahim & Scapens, 1989; Jones & Sefiane, 1992). Given the importance of the structural conditions such as culture, political institution and economic uncertainty in accounting in less developed countries, especially country like Sri Lanka, Weberian framework is deemed to be appropriate (Tinker, 1980; Neimark & Tinker, 1986; Hopper et al., 1987; Hopwood & Miller, 1994; Uddin, 2009). Weber’s framework tends to applicable in rational capital accounting, bureaucracy and traditional society which are neglected in accounting research. Weber’s framework can be applied to situations where there is an empirical variability of domination and resistance among different social groups such as families and clans being dominant in traditional setting. As per Weber, although accounting calculations seem to be neutral in their execution, consequences are not neutral, and its raises the problem of the social impact of accounting practices on organizations, industries and societies. Thus Accounting serves as a mechanism of domination and object of struggle among social groups.

Weberian Framework: Organizational Control

Theoretically, as cited by Uddin (2009, pp 784), Weber’s framework developed by Colignon and Covaleski (1991),

serves critical and political foundation for evaluating management control practices, including accounting. They provide three layers of analyses to be useful in understanding of organizational practices including accounting. They are: structural conditions (external layers), the historical context (external layers), and the institutional/organizational context. Each of these layers are separate but interacting with each other, according to Weber.

Structural and Historical Layers (External)

As explained by Weber, rational calculations of economic actions and accounting are based on structural conditions; such as free labour, markets, technology, rational economic law etc. and these structural conditions facilitate rational calculations/accounting such as profitability. Weber sees this as the ideal and typical conditions and the starting point for development of capitalism. But this ideal/typical and rational capitalism was not fully realised or partially realised as structural conditions interact with socio-political, cultural, historical conditions. In his framework Weber also recognised that less developed countries encountered with very different structural and socio-political conditions which are different from the west economies and that lead to have different economic conditions for example; traditionalism. In this framework Weber focused on cultural and historical details to capture specific features of the society that enable or prevent the deployment of rational capitalism, modern enterprise and capital accounting. Uddin (2009, pp 784) cites the work of Uddin & Choudhury (2008), further in this framework Weber recognised role of competing ideas, conflicts and institutions and how they influence capitalism, enterprise and accounting practices.

Historical analysis provides as ‘an extension and complement to structuralist’s discussions on the institutional requirements for the development of the modern capitalist market, rational enterprise and accounting practice. Departure from ideal and actual type of capitalist regimes can be explained including accounting regimes - rationale or irrational- through Weber’s analysis of rationalization. Weber identified two different economic actions called formal and substantive rationality. The formal rationality is called as ideal type which views the organization and the society very technical manner, assume and consider world could be able to control through calculations. Uddin (2009, pp 784) cites, the work of Colignon and Covaleski (1991),

pp 145), in this context, rationality is the result of empirical knowledge, that is in mathematical form, and it is supposed to be universal application. This is a value neutral approach and accept certain types of calculations, for example accounting models in the west. Substantive rationality is an evaluative concept which indicates to what extent an economic system provides needs, ends or values of a specific social group and weber (1968, pp 499) called this rationality as “ultimate ends” Uddin (2009), and this form addresses the substances of the values, ends and needs of social groups and the institutions that promote them. Hence, economic action is substantively rational if it is consistent with ends or values of a specific social group or institution and it is irrational if it is not consistent with ends or values of a specific social group or institution.

As explained by Uddin (2009), the difference between formal and substantive rationality is both tension between conflicting values and tension between social groups with divergent interests. In his works, weber (1968) identified these tensions in a traditional society, and their implications for organizational bureaucracy and accounting rationality. Uddin (2009) cites the work of Uddin and Choudhury (2007) that in Weberian terms ‘traditional domination economic activities tend to strengthen traditional attitudes. In other words traditional domination attempts to restrict the development of markets, i.e labour, product capital, but it promotes and develops a consumptive economy by making emergence of rational capitalism challenging and problematic. Dyball et al. (2006) draws from weber (1978) and explain in Weberian terms, institutions of the community, market and the state are conjoined in traditional societies whereas modern and rational societies would attempt to keep them separate and autonomous (Uddin 2009). Uddin (2009, pp784) cites the work of Dyball et al (2006, pp 53), ‘the conjoined nature of the traditional society makes accountability relationship lean towards the personal and the perpetual as opposed to the objective and ephemeral (as found in modern variants of market and state). This would suggest that the power of accounting as an articulation of accountability relationship is muted, if not ignored, in traditional societies.

Organizational Analysis

At the organizational level, Weber (1968) develops two axes of tension which frame his analysis of the interplay of forces, agencies and intersects when they relate with

accounting practices. The first axis is formal and substantive rationality and second axis is dominance and resistance. Weber explained that modern organizations are systems based and on formal rationality without inherent link or connection to specific substantive ends. “Organizations can serve the interest of social, political or economic elites, the general need of the community or some combination, but the analysis of formal rationality alone tells us nothing about its directions or outcomes” (Uddin, 2009). As explained by the Colignon and Covaleski (1991), these forms of rationalities are analytically separate, but each rationality is being subjected to the forces of the other rationality, and interpretations need to follow from the understanding and examination of particular institutional circumstances. Further they explained that multiple rationalities are characteristic of modern organizations and are the foundation for the conflict, which create the difference between formal rationality and substantive rationality which are important in their application of accounting practices.

According to Weber’s framework, second axis is the domination of persons and groups by the organizational mechanisms and the resistance of these social actors to these mechanisms. Bureaucracy is a method of domination and the use of domination and direction are distinct and the consequences for social actions are central to organizational analysis. Uddin (2009) cites the work of Weber (1968) ‘strict capital accounting is further associated with the social phenomena of “shop discipline” and appropriation of the means of production, and that means: with the existence of a ‘system domination” (pp 108). This is the normal tendency of accounting that is to favour one social group within the organization and the society. But still this is no evaluative tool. (Uddin 2009). Dominations does not signify by merely the external fact of the order being obeyed, and weber further explained that it is not correct to overlook the ‘meaning of the fact that the command is accepted as a valid norm’ (pp 948). Accounting practices can be identified as mechanism of domination, constraint and control, and that domination is incomplete (Weber 1968). This framework of tension between domination and resistance applies to tensions, struggles and conflicts of social groups with different substantive rationalities over the formation and application of different accounting practices (Uddin 2009). Accounting practices can be identified as the objects of tension between different social groups which represent different interpretations, interest or within an organization.

Bureaucratic domination of enterprise in a traditional society is always superseded by direct control from the dominant owners of the company who are part of a family (Uddin & Hopper 2001; 2003). To Weber this is traditional domination and it is exercised by an individual or family which is mainly based on relations of personal loyalty. Uddin (2009) cites the work of Weber (1947, pp 341)

“The person exercising authority is not a ‘superior’, but a personal chief’. His administrative staff does not consist primarily of officials, but of personal retainers. Those subjects of authority are not ‘members’ of an association, but are either his traditional ‘comrades’ or his ‘subjects’. What determines the relations of the administrative staff to the chief is not the impersonal obligations of office, but personal loyalty to the chief. Obedience is not owed to enacted rules, but to the person who occupies a position of authority... who has been chosen for such a position”.

Weber’s work expects management controls in a private enterprise in a traditional society like Sri Lanka to resist the rational control model (ideal bureaucracy) and the ideal typical accounting controls. As Uddin (2009) explained, direct or familial control from the owners is the likely outcome in private enterprise, which give rise to different substantive rationality for compliance. Westernised controls in a private enterprise may be perceived as a condition of the stable economic calculation of the “rational” society, and its efficiency depend on knowledge of the techniques (accounting and auditing standards) and facts (Uddin 2009). In a traditional society like Sri Lanka, Weber (1968) expects “property and productive capacities of individual economic units to be primarily directed towards satisfying the needs and the preference of the master that is they are governed by a substantive rationality of economic action (Uddin 2009; Dyball & Valcarcel, 1999). This study investigate how management controls persists in public organization in Sri Lanka.

External Layers of the case study – Historical, political and economic context of Southern Expressway and Sri Lanka

The origin of the Southern Expressway (initially called Southern Highway) was to be found in the 1991 proposal made by Department A. The Southern part of Sri Lanka was one of the least developed areas of the country during that period since the completion of the project. One of

the main reasons for this project was infrastructure development. Before the project the area had poor infrastructure development and at the time of the project appraisal there were only two means of access; railway and A2 roads; from Colombo to Southern region. There were many problems associated with rail roads including poor travelling performance, an unreliable service schedule as the railway was single track and its maintenance was not sufficient and was not up to the standard. The south bound national road (A2) that was run along with the coast had extremely poor alignment and with limited road width. Basically A2 road is a two lane road, but road shoulder is not paved and which obstructed the smooth flow of traffic as both slow moving vehicles and pedestrians occupied the carriage way (Miyazaki, 2015). Road realignment and widening were difficult as this alternative would involve with major resettlement of residents who used to live along with the road. The objective of the project was to facilitate smooth traffic flow between Colombo and Southern Region by constructing high standard of highway (changed the scope later on to an expressway), thereby reduce traffic congestion in the Colombo region and economic development of the Southern region of Sri Lanka. This project has been recognised as a mega project and it was a milestone in Sri Lanka’s development history. In addition to the cost of the project and the investment, this project involved and associated with lots of challenges in planning and implementation level. Initially four tracing were drawn called A, B, C, D and Traces C, D were rejected due to low grade alignment and resulting environmental damages. Finally trace B were selected over trace A. The decision was based on marginal difference in engineering costs which included acquisition, design and construction. Assessment of benefits and environmental impact differentials, and possible costs for responding and mitigating efforts for different traces had not been considered in the selection process. But economic evaluation in the pre-feasibility study indicated a relatively high economic Internal Rate of Return around 22%, hence this investment was generally indicated as a favourable infrastructure development. Initially pre-feasibility study had been done only from Bandaragama to Matara as there was an uncertainty in the continuation of the highway from Bandaragama to Kottawa. The highway runs through four districts Colombo, Kalutara, Galle and Matara which includes more than 14 divisional secretariats and more than 90 Grama Niladhari Divisions. According to the feasibility report cost analysis had been done from 4th intersection onwards, report stated that it is unclear how benefits were assessed.

There were other development programs going on in the same southern area during this period implemented by other state organizations i.e. Southern Area Development Programme (SADP). These program also had the objective of social and economic development of southern area. These programs were mainly envisaged the development of 'small to medium scale industries and the integrated eco-cultural resorts and the agri-businesses without grower system. Southern Highway was also added a new avenue to this development process of Southern Area. The development of the Galle City was a key concept in this development program as Port of Galle as a trans-shipment base for container cargo and a distribution terminal for bulk cargo was to be the single large investment in that development agenda. The Southern Highway was seen as a mean of providing speed accessibility to Colombo and Matara. Initially there were three objectives of Southern Highway; (1) To provide the required accessibility and mobility for the future development of Southern Area, part of Western and Uva area (2) To provide a highway to be as catalyst in encouraging and attracting industries and services for the Economic and Social Development of Western and Southern Provinces and beyond (3) To provide a highway that would be a part of a proposed access controlled highway network in Sri Lanka to improve inter regional transportation. After the scope change in to an expressway the main objective of the project was to facilitate a smooth traffic flow between Colombo and Matara region by constructing a four lane 124 km expressway, thereby to alleviate traffic congestion in the Colombo region, improvements in the traffic safety and economic development of Southern part of Sri Lanka. This project brought positive impacts on traffic flow, improvement in traffic safety, and comfort as a results of travelling experience and promotion of economic development of the southern region (Miyazaki, 2015).

This project was financed by Japan International Corporation Agency (JICA) and Asian Development Bank (ADB). The project cost and the period had exceeded the expected plan, hence efficiency of the project had been affected. Out of the 125km, 67 km was financed by JICA and remaining 58 Km was financed by ADB. Terms and conditions. Interest rates were different to each other funders.

During the land Acquisition process the project used merely the political power of the government.

“Actually though we acquired the lands, we considered it as a sale of land made by the owner. Here we used power

of government. We used the government authority. Whether you like or not. That is the law.”

Further, the consideration given to human rights was minimal due to disparity in purpose of relevant legal frameworks.

“You cannot expect the same respect for human rights available in European countries in our country. Because this act was made during the colonial period. Though it was implemented in after 1950's, it was made even before. The purpose of the act during that time was to acquire land for governmental purposes. Democracy was not considered during that time.

Organizational Analysis

Case Findings – Organizational Context

The Southern Transport Development Project (STDP) is the largest road project ever implemented in Sri Lanka. Ministry X was the implementing agency of projects and the Department A was the executing agency of the Project on behalf of the Ministry and the government of Sri Lanka. The Project was financed by the government of Sri Lanka and five development partners; Asian Development Bank (ADB), Japan International Corporation Agency (JICA), The Nordic Development Fund (NDF), the Swedish International Development Agency (Sida) and later the Export and Import Bank of China.

This ministry is a public organization, hence both Department A and the Project were under the ministerial control. The government is the ultimate controller of the organization and the project. Head of the organization and other senior level positions are filled according to the government procedures but political interventions always play an important role in appointing key positions of the organization and the project. One interviewee commented “Supporters and the people from the same political party are in the senior positions of the organization”.

Project has started before three president's time and initial feasibility report had been done in 1996. Initially Ministry and the Department A (initially Highways department) maintained the roads under the purview of central government and there were no any expressway or highway projects before 1996. As a result of devolution of power maintenance of C and D roads were given

to provincial councils. There are 18 special projects directly under ministry and remaining road network is maintained by Department A that is A and B roads.

There was a scope change in the project, in respect of the construction of the original two-lane highway to four-lane expressway. This project was formulated as a single project and single project management unit (PMU) managed the implementation of the whole project regardless of the financing source.

Organizational Structure – Informal vs formal relationship

Ministry comprises with five major sections including, Development, Engineering, Administration, Finance, Planning. All section heads report to the head of the organization. There are some minor departments, which are directly under the purview of the secretary of the ministry. I.e. Internal Audit. Department A is also under the purview of the ministry and directly report to secretary. Southern Expressway (STDP) also recognized as one of the special projects and directly report to head of the organization. These formal channels are tend to be dominated by informal relationships. Head of the organization intervenes decision making affairs without engaging in formal communication with respective department heads.

There was an incident, one person directly went to head of the organization and convinced him to get a foreign course with all allowances, but still he/she was not deserved for it. But finally he/she got it.

This shows the domination of informal relationships in decision making within the organization. One executive director commented that she directly reports to the head of the organization, although officially, additional secretary (administration) is her line manager. The same comment was observed by the researcher that some of the executive directors are used to meet the head of the organization during weekends for official matters by passing their line managers. Many interviewees confirmed that head of the organization tend to intervene formal channels of communication if he thinks it is important for the organization and employees take it as granted opportunity to communicate with the head of the organization.

Recruitment and promotions for the organization as well as for the project were made based on the government regulations, but some lower grade appointments; i.e. drivers for the project were appointed due to the influence made by the respective minister in power. Project recruitments are governed by separate circulars and their salary scales are different than the other government sector levels, hence, there is an increased demand for positions in special projects. Interviews with different department heads revealed that it is unusual to have new and sudden recruitments to senior and middle level managerial positions due to government regulations. But transfers of senior level position are usual due to political interventions. Sudden and new recruitments are obvious in lower level positions such as drivers, office assistants etc. It was found that one office assistant is employed in a ministerial department who used to work in the same department after the retirement. Head of the particular department employed the same office assistant in the department due to his efficient service and as a help after his retirement, but his salary is allocated from one of the special projects going under the ministry. One of the senior managers of the department responded “*he is working for us, not of the project, but salary is paid from the project*”. It is a known and usual practice of the organization. Though there is a hierarchical structure and separate departments work independently, each department does not have clear idea what other departments are exactly doing, including the project. Interviews and observations revealed that interviewees tend to direct people to other departments ad-hoc manner as they do not know the functions of the other departments exactly. Many individuals informed the researcher that ministry and the project had and have employees, recruited on request from influential people especially from minister (political influence), who had/have no specific task within the organization and the project, but yet simply received/receiving salaries and other benefits from the organization. Most of these employees are receiving monthly salaries for a long time period and allocated directly for the staff of the minister. The accountants of the Finance division do not have any idea who are these employees and why they have been receiving salaries.

“I sign for cheques I receive for payments from the minister's office. Once I have recommendation from the administration department, I sign for the approval and for the payment” one accountant commented.

This shows that accountant is merely rely on the recommendation of the administration department and he/she does not know whether there is any expense actually occurred (or is there any person employed for a certain task) in the organization.

In summary recruitment, promotion and structures of the organization are tend to be arbitrary and informal. Consequently organizational structure does not reflect the actual division of functions and tasks. As Uddin (2009) argues, "rational structure is overwhelmed by traditional relationships. Uddin cites the work of Weber (1968), "there is a 'personal master', not a 'superior', served not by an administrative staff, but by a 'personal retainers', instead of 'members of an organization; there are traditional comrades'.

Decision making process – top to down approach

According to the interviews and documentations heads of the each department are responsible for overseeing the day-to-day activities of the organization. When concerning the project, Project Director is the responsible person for the day-to-day activities of the project. Considering to the southern expressway, ministry held Project Coordinating Committees to oversee the activities of the project. This committee always coordinated by Additional Secretary (Engineering) though Senior Program Director – Planning. This committee is headed by the head of the organization and in the absence of the head, additional secretary (Engineering) chairs the meeting. But at the same time project director has direct contact with head of the organization. This is similar to a management committee and meets every month to evaluate project progress including financial and physical progress, but decisions are usually made via telephone conversations or informal meeting with head of the organization with project director and additional secretaries informally. Information is passed to head of the organization informally, during causal meeting with a coffee, during other meetings or through various other informal channels including via telephone calls. Other than the project coordinating committee, there are all staff meeting for the whole organization once in a month. Through interviews it was revealed that employees do not see any necessity for regular meeting as such. At the same time very hardly organization has all staff meeting every single month as usual. These meeting are mere formal meetings and observations revealed that meetings are held to make sure the formality. As observation revealed

members of the both meetings do not tend to disagree with head of the organization. Department heads hardly exercise their official authority and power to make major decisions, but yet they make minor decisions with the approval of the head of the department. Observation revealed that department heads always wait for soft approval from head of the organization even to finalize day-to-day decision even if the head of the organization allowed them to make some decisions under their purview. Senior level employee revealed;

"Secretary always used to tell that additional secretary is almost a secretary, and I should be able to take decisions without taking to him. So I cannot just go and ask everything from him know. I am not doing that."

This shows that secretary allows some decision making power and authority to senior level manager, still they wait for soft approval from the head of the organization.

Head of the organization had the final word for every decision and all wait to receive his decision even for finance matters. Considering finance division, they send the recommendation to head of the organization and final decision lies with the head of the organization. Same phenomena applies to development sector of the organization (i.e land acquisition). All the employees of the organization, including senior level management act as information providers rather than decision makers for the head of the organization. Informal nature of decision making process is reflected in all the aspects of the organization and the project.

When we received a public complaint related to a project we instruct relevant PD to take remedial actions. Meantime we monitor the situation. Relevant PD has to report after remedial action has been taken. We have a procedure for that.....But sometimes before we instruct the PD, remedial actions had been taken by the PD. That is their duty. Project Director has some sort of authority. There is no need to tell everything to us.

Accounting System

The Finance department is one of the major departments of ministry. It handles billions of money for all the projects. This department is headed by Chief Financial Officer/Chief Accountant (both positions are held by the same person), who is one of the key players in the

decision making process. Apart from keeping accounting record, the main job of this department is to keep head of the organization and top management up-to-date about the cash level of the organization. Observation revealed that most of the Chief Accountants day involves with coordinate with general treasury for take extra funds for the project matters for the organizational activities and disbursement (including giving approval for payments) of funds for projects. Maintaining the liquidity is a major challenging task for the chief accountant as ministry as whole have less allocations compared to expected and budgeted. It even involves with management of funds within different projects to meet cash requirements of projects. For this purpose ministry prepare internal document with the recommendation of the chief accountant and send it for the signature of head of the organization. Then this form send to general treasury for approval. Although funds are allocated for the ministry, they cannot exchange money within projects without the approval of the general treasury. Finance division has employed a separate employee for this particular activity.

The other major task of the finance department includes dealing with receipts, payments and preparing annual reports. When consider receipts, they are mainly come from budget allocation even if it through foreign funded project other than the revenue from expressway projects. The only problem they face is not enough funds as expected for payments for the respective year. They consider their most important task is cash forecasting and budgeting. Budgeting was considered as a tool for controlling of project rather than organization. This is mainly because of the funds are pumped by the government. But not all the accountants and employees of the organizations consider budget as a controlling tool. Observation revealed that one accountant is totally devoted her time for signing payment vouchers from the minister's office. Information is not normally passed to other departments unless otherwise it specifically asked for, Chief Accountant revealed. Heads of the departments have very low idea about organization's financial position (Uddin &Hopper, 2001,2003; Uddin, 2009), But at the end of the financial year summarised financial reports are send to parliament for their scrutiny, yet detailed version is kept as a confidential information by the department.

Employees of the finance division are divided in to different categories based on their functions. Some employees are responsible for record keeping of special projects activities and some employees are responsible

for ministerial activities. All of them are under one of the senior accountants and all senior accountants are responsible and accountable for chief accountant.

IV. DISCUSSION AND CONCLUSION

The study is about understanding how management accounting, decision making and control of investment decisions are done in a context of cultural political economy of developing country. In order to understand this phenomenon this study put one of the mega projects in Sri Lanka in trial to investigate the research questions of the study. Sri Lanka is developing country and traditional culture with dynamic political environment. This paper derived from Weberian framework introduced by Colington and Covaleski and the draws the works of Dyball and Valcarcel (1999), Uddin 2009) on traditional societies. This paper illustrates initial data analysis of the study and tries to address the Weberian framework. Weber explained separate organizational analyses, but yet there these analyses are interactive with external layers, in order to understand management practices of an organization including accounting practices (Uddin 2009). As discussed in the case study findings section, intention of the state to facilitate development of a rational/ideal type of economic actions were transformed into a different form (politicized) as a result of social, political and cultural clashes(Uddin &Hopper, 2001). It was found that in the case, there is an indirect and coercive control to replace bureaucracy. There are many bureaucracies within the bureaucracy as a whole.

Organizations in a traditional society in Sri Lanka more likely to rely on informal and personal control which give rise to a different substantive rationality for compliance, such as forms of control which are dominated by senior levels employees. The case study shows that organizational practices are dictated by the senior level management, in which each one looking are different accounting practices which are unknown to the others. There is a formal organizational structure (chart) in the organization, but it does not reflect the reality. Informal relationships are maintained throughout the organization in decision making and information gathering. There are some employees who work for the ministry even after the retirement, but they are paid out of the funds available to the specific projects. These facts are known and not secrets. Lower level employees are seen as personal retainers and they assigned to any duty as the senior management sees

him fit for the job and their appointments were made based on their loyalty and political influence. Although all staff meeting are scheduled in every month in regular basis, rarely it happens in every months. Hence, employees do not see the necessity of regular meetings. Final decision making authority always lies with the head of the organization, but yet communications are not always formal, there are informal communications between head of the organization and other employees of the organization when there is an important decision.

There were incidents that cash was appropriated to funds out side of the activities, legal or illegal (employment of the retired employee again, but salary was made out of a project). Interviews revealed that payments were being made in order to meet expenses of other government officials out the projects funds which were later come as audit queries. Independency of the project, direct reporting to head of the organization, no internal auditor made this unrestricted controls over the projects and respective funds. These are consequences of an organization with unrestricted controls in a traditional society where rationale bureaucratic administration and accounting controls are absent.

Many appointments are directly appointed by minister and other influential parties. Case study shows that personal relationship serves more than bureaucratic domination. Routine, regular downward reporting is absent in the organization, but budget plays an important role in accounting. Role of accounting and direct control are still important as it serves the substantive purposes of the organization.

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GOVERNANCE AND PERFORMANCE OF MICROFINANCE INSTITUTIONS IN SRI LANKA

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Abstract- This paper establishes facts to evaluate the governance factors affecting the performance of micro finance institutions in Sri Lanka, in terms of outreach and sustainability. Through literature, five independent variables under governance having an impact on performance was identified, namely: remuneration (fixed / variable) of managers, size of the board, independence of the board via the presence of non affiliated board members, the diversity of the board, and the availability of an independent auditor within the organization. The study is carried out based on a purposively selected sample of 42 microfinance institutions operating in Sri Lanka, which have been in operation for more than ten years. Data was collected via a self administered questionnaire and published financial data of these selected institutions. It was determined as evidenced in data that the type of compensation received by the managers is not associated with performance of the sampled Institutions. The results identify trade-offs between micro finance institution's outreach and sustainability, based on the board size, and on the proportion of unaffiliated directors. Moreover, the study shows that a higher representation of female members on the board (diversity), leads to better performance. The study also reveals that availability of an internal auditor does not indicate a significant relationship on the performance of these Institutions.

Keywords- Microfinance institutions, Governance, Performance, Outreach, Sustainability

I. INTRODUCTION

Financial potential is an essential requirement in developing a country's entrepreneurs. However, obtaining

financial assistance from the formal banking institutions has not been an easily available option for the rural entrepreneurs. The formal institutions generally viewed them as a financially unviable segment; thus forcing them to seek financial assistance from the informal money markets. These markets generally lend at exorbitant rates which lead to market exploitation. In this context, the concept of microfinance that adheres to the principle of both financial and social capital emerged to help ease this constraint.

At the early stages of microfinance development, programs were focused on credit distribution based on administrative criteria by state owned and development banks. Minimal concern for program efficiency resulted in poor performance of these programs, eventuating political intervention. This forced most organizations to become insolvent and unviable, causing denial of further donor support (Pischke 1991, p.225)

While having the main social goal of financing the rural entrepreneurs and alleviating poverty is a valid effort, majority of Micro Finance Institutions (MFIs) claim having two priorities; that is to increase the outreach to the rural segment and being financially sustainable (Outreach and Sustainability). However, the governance structure within the industry will have an impact on the performance of financial institutions and in turn on their sustainability. As per Labie (2001, p.296), during the last decade corporate governance principles have been earmarked as the primary rule of running a corporate well. Further, along with the process of globalization the world is being considered as a "Flat surface" for conducting

business. This concept has since become important in standardizing and controlling the vision of many major organizations in the world (Friedman 2005, p.67).

With regard to MFIs, it is instrumental to have good governance practices in order to achieve success within institutions. The concept essentially indicates that they need to reach out to more clients and attempt to alleviate poverty (Helmas 2006) but also should ensure that they achieve financial stability (Johnson, Malkamaki & Wanjau, 2006,p.107). Several studies have attempted identifying the relationship between factors of good governance and successful management of MFIs (Campion 1998; Rock et al. 1998; Labie 2001,p.296; CGAP 2006; Helmas 2006). In spite of same, a very limited number of studies have explored the relationship between various mechanisms of corporate governance and performance (McGuire 1999, p.717). Therefore, it is pertinent to establish and determine the relationship between diverse governance mechanisms in practice and success of MFIs.

The studies conducted by Hartarska (2005,p.1627), and Mersland & Strom (2007), and Cull et al (2007,p.107), has shed light on the relationship between governance and performance of MFIs. In the context of Sri Lanka, in a study conducted by Damme, Wijesiri & Miyoli (2016,p.82) on governance and efficiency of microfinance institutions, it has been revealed that smaller and gender diverse boards have a positive impact on financial efficiency. Results also show that MFIs in which the Chief Executive Officer (CEO) chairs the board and a woman holds the CEO position, are less efficient in terms of poverty outreach. The study has been conducted on data envelopment analysis based on a sample of MFIs in Sri Lanka.

The micro finance act of Sri Lanka was enacted in 2016, with a view to boost the outreach and sustainability of MFIs. Although it is evident that micro finance institutions are actively participating in Sri Lanka's economic development and such active players should concurrently pursue the most effective way of realizing their social objective while achieving greater levels of profitability, there is no clear evidence of researches attempting to analyze the relationship between governance and performance of such institutions.

Based on information compiled from microfinance institutions in Sri Lanka and relevant secondary sources of information, this paper aim to establish and determine

the impact of governance mechanism on the performance of Sri Lankan MFIs, in the context of outreach and sustainability. As stated by Rock et al (1998) "Governance mechanisms are the key to guiding management in strategic issues". The empirical model adopted, tests the impact of management compensation, size of the board, board independence, board diversity and the availability of internal auditors, on the MFIs outreach and sustainability. It also analyses the depth and breadth of outreach. The results indicate that the performances of the MFIs are not positively impacted by the performance based compensation. These results also indicate that the MFIs with larger boards perform better.

A. Study objective

This study is carried out with the main objective of ascertaining the impact of governance mechanism, tested under five identified variables, on the performance of MFIs in Sri Lanka.

B. Literature Review

Achieving better governance practices within the institutions engaged in microfinance has always been considered as imperative. The biggest barrier encountered by practitioners of micro finance is that they need to balance the two mutually exclusive objectives of outreach and sustainability. The ever changing environment of microfinance has forced institutions engaged in micro lending to adopt new principles of corporate governance, thus ensuring sustainability is achieved whilst maintaining the principles of good governance. It is of utmost importance to analyze the relationship between the performance of MFIs in terms of outreach, sustainability and good governance. This is due to the fact that good governance would guide the institutions in attaining the corporate goals and ensure asset protection over a long period of time. However, there is only a limited amount of researches conducted based on the area, especially in the Sri Lankan context, mainly due to lack of data. Apart from the study stated herein, which has been conducted by Damme, Wijesiri & Miyoli (2016,p.82) in the context of the Sri Lankan market, no major studies have investigated the relationship between governance and efficiency of microfinance institutions.

In reviewing the literature available on the captioned subject, it could be noted that Hartarska (2005,p.1627) has

investigated the relation between governance mechanism and financial performance of the MFIs in East Europe. In that study, dependent variable dimensions comprise of financial performance and outreach, while the governance mechanisms include board characteristics, managerial compensation, and external governance mechanisms such as rating, availability of audited financial statements, and supervision. It has been concluded that performance based compensation provided for managers does not have an impact with the performance of MFIs. It has also been identified that better Return On Assets (ROA) are recorded with organizations having boards with better independence. However, a board consisting of employee directors has recorded lower outreach and financial performance. The final outcome of that study concludes that there is a moderate relationship between the external governance mechanisms and performances of the sampled MFIs.

A study conducted by Mersland & Strom (2007), has established the relationship between board characteristics, ownership type, competition and regulations on the MFIs performance and their outreach to rural entrepreneurs. A sample of MFIs across 57 countries has been used to collect data for the research. It has been concluded that a female CEO, performing a split role of CEO and chairman has a strong relationship to performance. Furthermore, it has been found that larger board size has a negative relationship with the average loan size, while individual guaranteed loans has a positive relationship with same. As the final finding, it has been stated that nonprofit organizations and shareholder firms does not show a difference in terms of performance measured by outreach.

In another research undertaken by Cull et al (2007,p.107) to establish the relationship between financial performance and the outreach of MFIs, focusing on lending methodology (the way loans are given i.e.; individual loans, group loans, and village banks which are bigger groups that often have wider objectives than to serve as a guarantee mechanism only), authors have found out that among the 124 MFIs used as the sample, the organizations focusing on giving loans to individuals indicates a better profitability. However, these MFIs recorded a lower exposure to low income earning borrowers and female borrowers in comparison to the organizations focusing on group lending. These authors also talk about a "mission drift", where increased profitability shifts MFIs focus to wealthier clients. However the variables of board

type and governance mechanisms have not been checked under this study.

Therefore, the inadequate research findings, especially in the Sri Lankan context, investigating the impact of governance mechanisms on performance of the MFIs measured by outreach and sustainability, indicates that the study undertaken is academically important and aims to build a gap in theoretical knowledge.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

Good governance of an institution could be defined as the process of achieving the objectives of an organization while taking care of its asset base. According to Hartarska (2005) this is the process via which the equity investors and other forms of fund providers ensure that their funds are being used for the intended purpose. The mechanism aligns the interest of managers with the organizational objectives and ensures that the delegated authorities are working best to increase the Return On Investments (ROI). This is a crucial control mechanism. This is originally found in the work of Jensen and Meckling (1976,p.305) which routes from the agency perspective. As stated by Jensen & Meckling (1976,p.305) "agency relationship is a contract under which one or more persons (principal) engage another person (agent) to perform some service on their behalf, which involves delegating some decision-making authority to the agent". Information asymmetry and conflict of interest are two major issues which are mentioned under the concept of agency, named as "agency cost". In accordance with the theorist of agency, "an organization is considered efficient if it minimizes the agency costs" (Jensen & Meckling 1976,p.305).

Keasey, Thompson & Write (1997) has indicated that the most important attribute of an effective governance framework is the ownership structure. Usually the research literature in this field uses the impact of various variables separately. However, it was noted that in a later study conducted by Hermalin & Weisbach (2003,p.7), they have indicated the complementarities and correlations between these factors. This paper aims at establishing the impact of mainstream governance mechanisms, identified based on previous theoretical findings, on the performance of the Sri Lankan MFIs. However, the ownership structure has been excluded from the study due to the fact that

no sufficient data is available. Estimating of the impact of governance mechanisms on both aspects of micro finance, namely sustainability and outreach, has been achieved by testing constructed hypotheses based on the insights to former literature by Hartarska (2005,p.1627), Mersland & Strom (2007),Cull et al.(2007.p107),which has investigated governance mechanisms of banks and non-profit organizations.

Hypotheses 1: Receipt of a fixed remuneration by managers does not have a relationship with the performance of the MFIs.

According to John, Mehran & Qian (2004, p.55) the remuneration acts as the fact aligning the interest of shareholders and managers. However, with regard to financial institutions, high incentives may lead to high risk, thus endangering the depositors in case of an institutional failure (John & John 1993, p.949).

Hypothesis 2: Board size has a relationship with performance of MFIs

The board and its structure has an expressed, direct behavior towards corporate governance. The board has the responsibility of making sure that its top management is working towards enhancing the firm's value (Coles, Mc Williams & Sen 2001, p.23). Although the notion is that larger boards are preferred due to diversified exposure, Jensen (1993,p.831) and Lipton & Lorsch (1992,p.59) argue that smaller boards are more effective due to effectiveness in coordination. This supports the view of Yermack (1996,p.185) who states that United State (U.S) industries with smaller boards record a higher market value. A negative relationship between the board size and profitability of firms has been established by Eisenberg, Sundgren & Wells (1998,p.35) in their research. A study conducted on MFIs in Ghana by Kyereboah-Coleman & Biekpe (2005) also agrees with this view.

Hypothesis 3: Proportion of non-affiliated members on the board (Independence) has a relationship with the performance of MFIs

The previous studies undertaken indicate that as a result of an increased percentage of external directors on the board, the performance of firms would increase

(Adams & Mehran 2003, p.123). This is supported with the results found in a study conducted by Byrd et al (2001) confirming that there is a positive aspect of having board independence. Kyereboah-Coleman & Biekpe (2005) also confirms that there is a positive relationship between the two factors.

Hypothesis 4: Board diversification and the presence of women have a relationship with the performance of MFIs.

According to previous literature it is noted that there is a positive impact of women and minority representation on the boards to the firm's performance. A positive correlation between board diversity, performance and better control has been established as a result of the research carried out by Robinson & Dechant (1997,p.21) as well as Fondas & Sasselos (2000,p.13). A study by Kyereboah-Coleman (2006,p.19) undertaken in the field of micro finance indicates that availability of female CEO's participating in the governing board leads to enhanced performance.

Hypothesis 5: Availability of internal auditors reporting directly to the board has a relationship with the performance of MFIs

As per Steinwand (2000) another principle of effective governance, especially in financial institutions, is internal audit. Accordingly, reporting matters timely and accurately is critical for the current status evaluation of the institute. This would also lead to evaluate the requirements of strategy changes at the top level.

C. Sample and Data

Out of the registered institutions at the Sri Lanka Microfinance Practitioner's Association (76 institutions as at end of 2016), 42 institutions which have been in operation for more than 10 years and had audited financials as at end of 2017, were selected as the sample.

Data was collected via a close ended, self administered questionnaire and published financial statements of the

selected MFIs and analyzed using Statistical Package for Social Sciences software (SPSS).

D. Conceptual Model

Following the work of Hartarska (2005,p.1627) and Basseem (2009,p.343),the below conceptual model was developed and used to test the hypotheses.

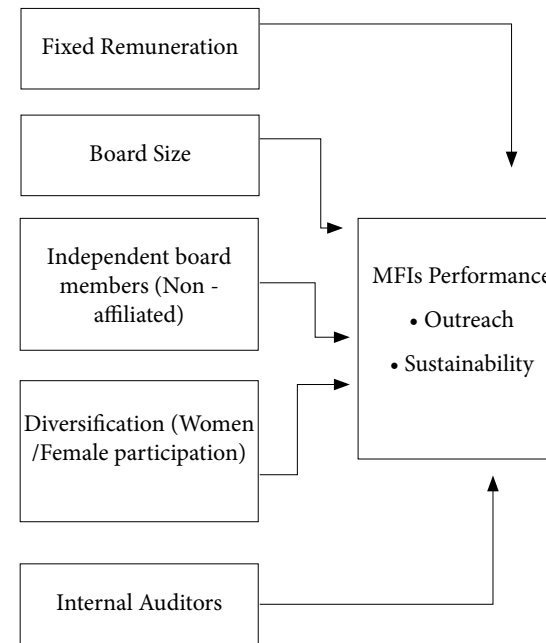


Figure 1. Conceptual Model

The country specific and macroeconomic variables used in the study by Hartarska (2005,p.1627) has been excluded as the study population and sample was based on Sri Lankan MFIs only and there is no difference in the macro / country specific data related to the MFIs used as the sample.

As the dual mission of MFIs is outreach and sustainability, the researcher measures their performance with these two factors. Outreach is measured in breadth and depth. Breadth of outreach (NAB) is the logarithm of active borrowers; depth of outreach (DEPTH) is the average loan size on GDP per capita. Return On Assets (ROA) and Operational Self Sufficiency (OSS) is used to measure sustainability. OSS indicates how well the MFIs bear its costs through revenues generated via operational activities.

The independent variables built in are; Fixed remuneration - indicating pay not based on performance, Board size- measured by the number of members on the board, Independent - measured as the proportion of non affiliated board members present in the board, Diversification- measured as the proportion of women representing the board, and Internal auditors - from the availability of independent internal auditors reporting directly to the board.

III. RESULTS

E. Descriptive Statistics

Notably, the researcher has considered only 42 MFIs operating in Sri Lanka. The performances of micro finance institutions are widely spread. On average, the MFIs indicated a return on assets of 5.935%. A wide spread performance was indicated with a minimum of 7.58% and a maximum of 33%.

In case of operational self sufficiency, the sample under consideration has indicated an average of 85.41% of OSS. Data indicates a minimum and a maximum of 20.345% and 143.33% respectively. In the case of DEPTH, it was indicated that the borrowers were served well with an indicative average value of weak 220.

The average experience of managers of the MFIs under consideration was recorded as 8.4 years. It revealed that 82.4% of the managers received a fixed wage and average 5 persons serve on the board. In considering the number of board members, a standard deviation of 3.32 was recorded. The maximum board size of 16 members and a minimum board size of 4 members recorded suggest that these boards are widely dispersed. Average 45% of the board members are represented by unaffiliated directors. The descriptive statistics also confirms that as an average a percentage of 39% of board members were represented by women.

In the sample considered for the study, approximately 82% of the institutions reported having an internal auditor reporting directly to the board. The findings also confirm that 42% of the selected institutions are being regulated and 73% of the sample is constituted with individual lending technology.

F. Hypotheses Testing

As indicated in Table 1, the Hypotheses 01 stipulating there is no relationship between the remuneration system (fixed salary) and performance is accepted. With any of the specifications tested, the fixed remuneration does not show a significant correlation. This result supports and confirms the previous findings of Hartarska (2005,p.1627). It could be determined that the MFI managers have not responded to performance based compensation offered during the period of this study.

In terms of Hypotheses 02, the hypothesis is accepted, with the positive relationships indicated with ROA, OSS NAB and DEPTH with the board size. This is in agreement with and supports the views of Kyereboah-Coleman (2006,p.19). These studies state that larger boards are better for corporate performance due to the fact that members are equipped with diverse expertise which leads to better decision making, thus making it more difficult for the powerful CEOs to dominate the decision making process. However, this presents a contrasting finding to Jensen (1993,p.831),Lipton & Lorsch (1992,p.59), Eisenberg, Sundgren & Wells (1998,p.35), Sanda, Mukaila & Garba (2003,p.555).

One of the crucial findings of the study was the fact that under Hypotheses 03, which was accepted, it was confirmed that MFIs with a larger proportion of unaffiliated directors were better performers, with reference to both outreach and sustainability. These results agree with and confirm the findings by Hartarska (2005,p.1627) and indicate that MFIs would clearly benefit by independent boards.

According to data, Hypotheses 04 was accepted. It shows that the board diversity characterized by a higher female representation positively impacts performance. This supported the recent concept that having more gender diversity in the board room enhances the effectiveness of the board. This concept has been widely accepted and it is believed that a larger talent pool in the board room results in a more diversified board, thus paving the way for having better relations with other stakeholders such as customers, suppliers, and employees (Ellis & Keys, 2003). This unavoidably leads to an increase in performance, in turn leading to an increased firm value (Kyereboah-

Coleman 2006,p.19).

The results reject Hypotheses 05 and indicate that there is no significant relationship with the availability of an independent internal auditor reporting to the board and performance of MFIs. A very weak positive relationship was indicated only with DEPTH. This agrees with the findings of Mersland & Strom (2007).

Table 1. Summary of correlation analysis between variables

	Hypotheses Testing			
	Sustainability		Outreach	
	ROA	OSS	NAB	DEPTH
Fixed wage	.276** (0.600)	.138** (0.700)	.157** (0.501)	.356** (0.600)
Board Size	.986** (0.000)	.546** (0.000)	.664** (0.000)	.724** (0.001)
Independent board	.797** (0.001)	.692** (0.000)	.579** (0.000)	.528** (0.000)
Board Diversity	.234** (0.000)	.810** (0.001)	.434** (0.000)	.710** (0.000)
Internal auditor	.440** (0.701)	.610** (0.500)	.280** (0.501)	.110** (0.000)

** Correlation is significant at the 0.01 level (2-tailed).
(Sig - 2 -tailed)

Therefore, Hypotheses 1-4 has been accepted and Hypotheses 5 has been rejected.

The multiple regression value on the study's dependent variable indicated a value of 0.82, suggesting that the factors taken into consideration have a contribution of 82% to the performance of the MFIs in terms of sustainability and outreach. A further study is to be carried out in order to identify further factors affecting same.

IV. DISCUSSION AND CONCLUSION

The paper tests empirically the relationship between corporate governance and performance of MFIs in Sri Lanka. The performance is measured in terms of outreach and sustainability. The data has been of two types; primary data collected via a self conducted survey and secondary data collected via published annual reports of the MFIs considered as the sample. With the assistance of both sets of data, the researcher examines the impact of management remuneration, board size, board independence, board diversity, and internal auditor reporting directly to the board on performance of MFIs.

Results indicate that except internal auditor reporting to the board and the remuneration of the managers, the other tested governance mechanisms have a positive relationship with the performance of the MFIs.

The results also indicate the explicit and implicit incentive schemes such as compensation, perks, etc... have been indicated as less powerful, which agrees with Dewatripont & Tirole. (1994, p.1027). It was also proven that due to members being equipped with a range of expertise, larger boards are better for the performance of MFIs. In such cases, powerful CEO's find it difficult to dominate member decisions.

Furthermore, the results conclude that organizations with a larger percentage of unaffiliated directors in the board achieve better results. Thus, it is important to promote independence of microfinance boards.

Elemental findings from this study are that a diversified board (featuring a higher proportion of females) supports enhanced performance, indicating that more females on the board, the better the performance. Therefore, it is concluded that board diversity is vital for enhancing performance of micro finance institutions in Sri Lanka.

G. Limitations

Even though the study undertaken has been able to shed light on the impact of governance mechanisms on the performance of MFIs, a number of governance mechanisms such as CEO duality, graduate board members, international directors, ownership structure has not been considered under the study. Therefore, it is of importance to conduct further studies to understand

the impact of other factors on outreach and sustainability of the Sri Lankan MFIs.

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CORPORATE GOVERNANCE IN DETERMINING THE STOCK PRICE IN COLOMBO STOCK EXCHANGE

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Abstract- The impact of corporate governance on firm performance has become a topic of conversation. However there is less attention on how it impacts the share price. The purpose of the study is to determine the impact of corporate governance on the share price of companies listed in the Colombo Stock Exchange (CSE). The research designs, descriptive analysis, regression analysis and correlation analysis, were used in this study and it the period of financial year of 2015–16. A sample of 64 companies was chosen as representative of the population out of 296 companies listed on the Colombo Stock Exchange (CSE), excluding banking and finance sector and data was collected using secondary method. Compliance level of corporate governance have been measured by utilizing self-constructed Corporate Governance Index (CG Index) with five sub-indexes namely Board Structure (BS), CEO and Management (CEO), Transparency and Disclosure (TR), Investor Relation (IV) and CSR Disclosure (CSR). The index contains 40 criteria under the above Sub-Indexes. The study found that there is no significant relationship between overall CG index and the share price. However, transparency demonstrated a significant negative impact on the share price. When the overall sample was clustered in to sub samples as high, medium and low according to firm size, the medium sample demonstrated a significant positive relationship between CG index and the share price. The important key finding that was supported with enough evidence to show lowering the firm size the Board Structure (BS) and Investor Relation (IV) is significant to increase the share price. Unexpectedly Transparency (TR) demonstrated a significant negative impact for smaller firms. Further, it was found that the corporate governance practices generated a long term impact on share price since the same impact can be found in lead share price also.

Keywords- Corporate Governance, CG Index, Share Price

I. INTRODUCTION

Corporate governance has now become the corner stone of corporate sector development (Sarkar & Sen 2012). With the scandals of business corporations recorded during the past years there is an increasing awareness on health of businesses, and it creates an increasing demand on code of best practices on business sector in developed and developing countries (Heenetigala 2011). Corporate governance is a mechanism in which corporation is rationalized, directed, controlled and monitored and the reason for existence of organization is also defines by corporate governance (Dissabandara 2014). Corporate governance provides solutions to align the interest of management to benefit the shareholders of the business and ensures the protection of them. (Javaid and Saboor 2015). The main theoretical argument of this study is based on this agency theory. Rational for this argument suggests that the firms which follow good governance practices in their company conduct, will be benefited by increasing the share price directly by increasing the demand for shares and indirectly by increasing the firm performance. This paper is an attempt to study whether the share price of company gets affected due to corporate governance practices and disclosure.

A.

A. Problem Statement

To compete with dynamic business world, it is required to adapt corporate governance practices and there

should be a demand from investors to follow those provisions in corporations. This demand should be included in the share price. This study agrees that the share price is dependent on so many factors, and the research question of this study is: Does the corporate governance of the firms affect the share price?

B.

A. Objective of The Study

The main objective of this study is to determine the relationship between corporate governance and the share price of companies listed on the CSE.

The sub objective of this paper is to investigate whether the firm size influence the level of governance and stock price.

B. Research Hypothesis

H1: There is a relationship between corporate governance and share price of a firm.

firm specific governance differ the agency costs, and these differences are not incorporated in to stock price at secondary market at the very beginning, but later on with performance or operation statics investors realize differences of these governance and decide to pay either a premium or take discount on the current stock price and ultimately effects share price (Drobotz et al 2003). In other view weak governance leads to poor management and ultimately it lowers the performance (Core et al 2006). As a result, analysts and the market, surprised with weaker performance, and stock price falls (Core et al 2006). However contrasting to the above findings, Owala (2010) discovered that there was no significant difference in stock returns between the good and weak governance portfolios when compared to differences in stock returns (Owala 2010). Later the same kind of study in Egypt found that firms with strong corporate governance have a significant impact on stock prices while no significant impact on trade volume (Mohamed and Elewa 2016).

C. Justification of Research Gap

Plenty of studies and researches have been done on corporate governance both in developed and developing countries. Most of the studies have focused on CG and firm performance, or CG and CSR reporting. In existing literature there is not much evidence to support the relationship between stock prices and corporate governance especially in the case of developing countries. Further the findings contradicted. Most researchers limit to a narrow framework, with the top element of CG; the board of directors when evaluating corporate governance. The intention of the current study is to cover all the aspirations of corporate governance that is directing, controlling, communicating and social character. Therefore, there is a requirement to measure the corporate governance in a broader view and find the impact from governance to share price.

III. METHODOLOGY

A. Conceptualization

Based on the review of literature and from the evidence of empirical studies the conceptual framework was developed as depicted in Figure 1. It indicates governance Index, based on the agency theory and stakeholder theory. It covers the directing by the board structure, controlled by CEO & the management team and communication by

transparency and disclosure, in line with investor relations which will account the agency theory while the CSR to add the stakeholder theory.

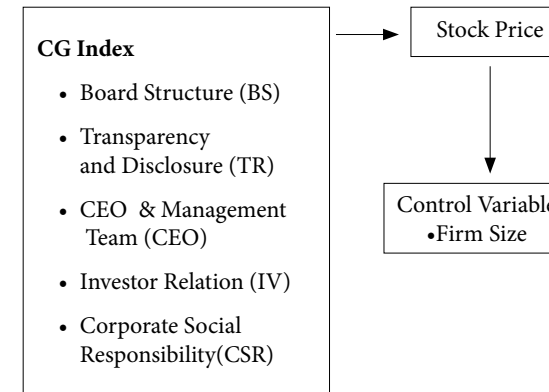


Figure 1. Conceptual Framework
Source: Researcher Developed (2018)

B. Operationalization

The research utilizes a self-constructed CG index as the independent variable by following a number of various CG literature and guidelines of Corporate Governance Code of Best Practices Sri Lanka 2013. The CG index consists of 40 items under given separate areas and it contains weights according to expert opinion. Corporate Governance indexing has been performed using the annual reports of selected listed companies to assess the level of Corporate Governance of each company. Refer Appendix-Table 01 to see the criteria of index. Share Price is considered as a dependent variable and the study incorporated close share price¹ and lead share price² with the intention to find out the timely impact. Details of each variable are provided in Appendix-Table 02. Firm Size is taken as control variable and the study is performed in two steps. First the overall sample is taken in to consideration and as a second step to fulfil the second objective of the paper, the overall sample is divided in to sub samples according to size and regression analysis done separately for each sub category to find whether there is any impact over the share price when the size is controlled.

¹ The share price at the end of the financial year (2016/3/31 or 2016/12/31)

² The average share price of the following year (Average of beginning and the end share price of 2017)

C. Population and Study Sample

Population consists of all public listed companies which are registered in the Colombo Stock Exchange. The study sample consists of at least one listed company from each business sector. Bank finance and insurance sector were considered as a special type of company that require several other mandatory requirements in relating to CG. Therefore, considering it as an exceptional situation which can mislead the results, bank, finance and insurance sector were reasonably be excluded from the sample. Expected sample size is 64 public listed companies representing all business sectors excluding the banking and finance sector. This sample counts about 28 percent of the total population. Sample was selected according to the sector wise market capitalization. Top few companies were selected on equal proportion of 28 percent.

D. Collection of Data

Data collection was done according to the secondary source through annual reports of listed companies of financial year 2015-16 which were provided in the website. The share price was collected through CSE publication in electronic form.

IV. DATA ANALYSIS & DISCUSSION

The research utilizes a self-constructed index, and should ensure the validity and reliability. Content and consistency are crucial for the validity of the index. When considering the content, the index covers five wider governance elements under four major areas namely direct, control, communication and social character. The construction of index was guided by CG literature and regulations of best practices issued as joint initiative by Institute of Chartered Accountants of Sri Lanka (ICASL) and the Securities and Exchange Commission of Sri Lanka (SEC) with the Colombo Stock Exchange, to cover all important areas. The weights for each sub index have been decided using expert opinion which ensure the comparative importance of each index. Using this CG index, the level of corporate governance of listed companies can be measured in more advanced way. In order to find out the relationship between CG Index and stock price the correlation

analysis had been performed. By performing the regression analysis the overall model validity, degree of explanatory power and significant variables and mainly the impact of independent variables was identified.

A. Descriptive Analysis

The CG Score has been designed by allocating 20 percent weight to CSR which is to represent the ethical character and board consideration on responsibility towards society based on stakeholder theory. The rest of the 80 percent of the CG score is more towards agency theory which is more favor on shareholder. Descriptive statistics demonstrated that except CSR all other Sub indexes are averagely at higher level. Refer Table 03 for details. Which means that Sri Lankan company social character is considerably at lower level. This suggest to encourage CSR in company conduct for better governance. However, the overall CG is at higher level which is more than 76 percent. It may due to mandatory requirements which should be followed by the listed companies in Sri Lanka. Further the companies are focusing to come in to an international standard to attract foreign investments. Internationalization of companies had redefined corporate conduct aligned with global investor interests and had emerged standardization in corporate governance (Heenetigala 2011).

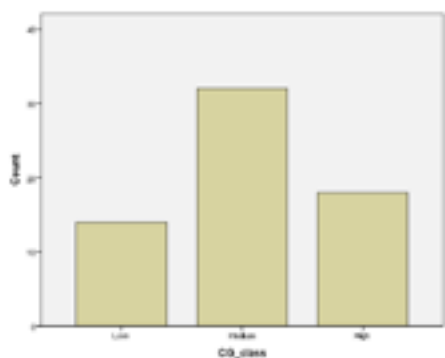


Figure 2. Firm classification according to CG class.
 Source: Calculated using researcher developed CG Index based on Annual Reports (2015-16)

Note: CG class have been classified as Low, Medium, and High according to the deviance from the mean value. Low CG class represents the range 45 percent to 65 percent and Medium class represents the range 65 percent to 87 percent and above 87 percent is considered as high CG class.

J. The Figure 2 demonstrated that more than 76 percent of companies are clustered in high CG class. And Table 4 also demonstrate that the sample shows 67 percent of companies out of total selected companies have disclosed more than the mean level of CG index. Therefore it can be denoted that Sri Lankan firms have identified the importance of good governance practices.

B. Correlation Analysis

The Table 5 presents Spearman's Correlation for all the variables in the study. It examines the association between CG index and share price and the strength of relationship. It was found that the findings do not support to conclude that there is a relationship between CG index and share price. Only transparency demonstrated a significant negative impact on the share price.

A. Regression Analysis

The study aims to answer its main research question which is whether better governed firms (high level of compliance and disclosure with CG standards) tend to have higher share price than those of poorly governed counterparts (lower level of compliance and disclosure with CG standards). The regression analysis was performed to find out the relationship between CG Index and share price. It was analyzed using two models. First to find whether overall CG index effects on the share price and the model two was an extension of model one, which divided the overall CG Index in to Sub Indexes and found whether those Sub Indexes effect the share price. Therefore, the study was performed in two steps as overall sample and sub samples.

The Share prices were not normally distributed and Quadratic relationship was identified among the share price and CG Index. The study intended to build a linear relationship between the CG index and share price. A linear relationship can be built by converting the share price in to log form. It makes share price a normal distribution. Further R2 value was increased by converting the CG index in to log form for the linear regression model. Therefore, for further analysis of the CG Index, Sub-Indexes and the share price were converted in to Log form.

Table 05. Correlation analysis of dependent and independent variables

	Log_BS	Log_CEO	Log_IV	Log_TR	Log_CSR	Log_CG	Log_Cprice	Log_Lprice
Log_BS	1							
Log_CEO	.634**	1						
Log_IV	.253*	.413*	1					
Log_TR	.312*	.520*	.633**	1				
Log_CSR	.351**	.237	.018	.297*	1			
Log_CG	.833**	.740**	.511**	.605**	.634**	1		
Log_Cprice	.226	-.005	-.226	.246	.178	.121	1	
Log_Lprice	.231	-.001	-.233	-.246*	.178	.123	.998**	1

Source: Calculated using researcher developed index based on annual reports and CSE publications (2015-16)

LOG_SPRICEI = B0 + B1 LOG_CGII.....(1) V.TR = score of sub index 4 _Transparency & disclosure

LOG_SPRICEI = B0 + B1 LOG_BODI + B2 LOG_CEOI + B3 LOG_TRI + B5 LOG_IR + B5 LOG_CSRI.....(2) W.CSR = score of sub index 5 _Corporate Social Responsibility

- N. Where,
- O. SPRICE = Share price
 - P. β = Parameters to be estimated
 - Q. i = Listed Company
 - R.CGI = Aggregate score of Corporate Governance Index as a percentage
 - S.BOD = score of sub-index _ board structure
 - T.CEO = score of sub index 2_ CEO and Management
 - U.IV = score of sub index 3_ Investor Relation
 - V.TR = score of sub index 4 _Transparency & disclosure
 - W.CSR = score of sub index 5 _Corporate Social Responsibility
- Note: All the dependent and independent variables were converted in to log form.
- X. Table 6 and 7 present the findings of multivariate regression which depict the impact of CG Index to the share price using two models separately. F-statistics is much lower and insignificant since the model contains a single independent variable, moreover the share price is not solely determined by Corporate Governance. This study only focused to build a relationship with CG and share price, and not the determinants of share price. Therefore, F-Statistic

Table 6. Findings of regression for CG index and Share price for overall sample

Independent Variable: LOG_CG Index				
Dependent Variable	Relationship	Statistical significance	Conclusion	R2
Log-Close share price	1.032	Insignificant	Do not support	1.50 percent
Log-Lag share price	1.022	Insignificant	Do not support	1.50 percent

*** Correlation is significant at the 0.01 level (2-tailed).
 ** Correlation is significant at the 0.05 level (2-tailed).
 * Correlation is significant at the 0.10 level (2-tailed).

Source: Calculated on researcher developed CG Index based on Annual Reports 2015/16 and CSE publication

Table 7. Regression of CG Sub Indexes and Share price for overall sample

Model 02				
Dependent variable: LOG_Close Share Price				
Independent Variables	Relationship	Statistical significance	Conclusion	R2
Log_BS	1.457	Insignificant	Do not support	
Log_CEO	-0.025	Insignificant	Do not support	
Log_IV	-0.622	Insignificant	Do not support	
Log_TR	-4.048	Significant*	Support	18.20 percent
Log_CSR	0.465	Insignificant	Do not support	

was intentionally ignored to consider the model validity. It was hypothesized that the CG index and each and every sub elements of CG Index has positive impact on share price. By performing the regression analysis for overall sample it was found that there is no significant impact from CG index to current share price or lead share price. This finding is in line with Owala(2010), but contradicted with other researchers findings. Further model 02 was performed to find out the impact of Sub Indexes.

The Sub Indexes also do not support the hypothesis, however only transparency had demonstrated a significant negative impact. When transparency increases the company disclosure level is high. The disclosure may effect positively or negatively for investors according to the information revealed. This

may be due to the nature of information revealed this year. As per Bistрова and Lace (2011) the most influential factors on the stock performance is information disclosure quality. The current study also is in line with that argument. The R2 showed a slight increase when comparing the current CG practice with next year average share price (Lead Price). It showed the long term impact from CG. However, the intended results were not found by overall sample. For deeper analysis the overall sample was clustered in to three sub samples as high, medium and low according to the firm size.

The results derived are provided in Table 8. CG is not significant for low and high firm size clusters to determine share price. CG level had become a ground factor over firm size for these two sub samples to

Dependent variable: LOG_Lead Share Price				
Independent Variables	Relationship	Statistical significance	Conclusion	R2
Log_BS	1.441	Insignificant	Do not support	
Log_CEO	0.016	Insignificant	Do not support	
Log_IV	-0.694	Insignificant	Do not support	
Log_TR	-3.866	Significant*	Support	18.60 percent
Log_CSR	0.443	Insignificant	Do not support	

*** Significant at the 0.01 level (2-tailed), **Significant at the 0.05 level (2-tailed),* Significant at the 0.10 level (2-tailed).

Source: Calculated on researcher developed CG Index based on Annual Reports 2015/16 and CSE publication

Table 8. Regression for CG Index and Share price for sub samples

Firm Size	Low		Medium		High	
Dependent Variable	Log_CPrice	Log_LPrice	Log_CPrice	Log_LPrice	Log_CPrice	Log_LPrice
Constant	6.128	5.799	-2.366	-2.627	5.401	5.098
Log_CG	-2.293	-2.274	2.180*	2.165*	-1.787	-1.785
R2	18.80 percent	19 percent	6.10 percent	6.40 percent	2.90 percent	2.90 percent

Note: The low size is representing total assets range below 45,197,548.28 and medium size represent the total asset range of 45,197,549 to 17,080,310,671 and above had been considered as high size firms.

N (Low = 6, Medium=45, High=13)

Source: Calculated on researcher developed CG Index based on Annual Reports 2015/16 and CSE publication

determine the share price. The overall CG does not act as hypothesized, may be due to two extremes of companies. Medium size firms demonstrated significant positive relationship as intended. Most of listed companies are included in medium size cluster (70 percent). Therefore it can be generalized that the share price is affected by CG Index with enough evidence under 10 percent significant level. When the CG Index is sub divided, using the model two the outcomes demonstrated an important finding in low size firms. For detail refer to Table 9.

Board structure (BS) and investor relation (IV) demonstrated a significant positive impact on both close share price and lead share price for smaller firms indicating the importance of those sub elements for smaller firms to be successful in the stock market. The CEO and Management (CEO) and Transparency (TR) showed a significant negative impact on the share price. It can be explained that the stock price had declined by decreasing the demand on shares due to the nature of information disclosed by the companies. As previously mentioned overall CG Index had significant effects on

Table 9. Regression for CG Sub Indexes and Share price for sub samples

Firm Size	Low		Medium		High	
Dependent Variable	Log_CPrice	Log_LPrice	Log_CPrice	Log_LPrice	Log_CPrice	Log_LPrice
Constant	21.498	20.923	6.523	6.109	7.359	7.027
Log_BS	4.598*	4.555*	1.489	1.489	0	0
Log_CEO	-1.84	-1.804*	-0.2	-0.154	0.058	0.057
Log_IV	3.965**	3.898**	-0.739	-0.898	0.019	0.019
Log_TR	-16.126**	-15.906**	-3.289	-3.09	-0.12	-0.12
Log_CSR	-0.398	-0.405	0.47	0.444	-0.004	-0.004
R2	99.90	99.90	10.70	11.10	62.10	62.20

*** Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

Source: Calculated on researcher developed CG Index based on Annual Reports 2015/16 and CSE publication

both share prices for medium size sample, however Sub Indexes did not depict any significant impact over share price. When studying the High Size cluster number, the overall CG Index nor the sub-indexes of CG had demonstrated any significant relationship. It is obvious that investors are attracted to high asset base rather than other ground factors. An important observation can be found by holistically viewing the beta values of the outcomes and that is, the higher the firm size, lower the coefficients of the independent variables. It means that the impact of governance on share price had decreased when the size increased. It can be generalized since high size firms are well established in the market. Their share prices are less likely to change with governance elements. When compared the coefficients and R2 among current share price and lag share price the coefficients were lower and R2 was higher for lag share price. By this it can be identified that the current CG practice has a long term impact. When compared the R2 of the overall CG model, share price could be highly explained by the CG compliance in low size class which was about 20 percent and when the size increases the R2 tend to decrease. It also supports the view that when the size increases the CG matters less in determining the share price. A remarkable R2 was recorded in model two in lower size class which is 99 percent almost 100 percent indicating that the findings are more important. R2 of high size firms was more than 60 percent .It demonstrates the view that when the firm size is larger the corporate governance level is a ground factor over high assets base. When one excludes those two extremes high and low, it can be concluded that the CG index (CG compliance level) significantly effects share price positively. Since more than 70 percent of listed companies were medium size it can be generalized for most of the companies.

V. CONCLUSION

The main purpose of the study was to find out the relationship between CG compliance level and the share price and the results of the analysis is utilized to explain the importance of the corporate governance to perform well in the share market. For that a self-constructed CG index was built to measure the level of compliance consisting of 40 provisions with five sub-indexes and relevant weights. Utilizing the CG Index the level of CG compliance of the selected firms were assessed by considering the 2015–16 annual reports. The study found that there is no significant relationship between overall CG index and share price. However, transparency had

demonstrated a significant negative impact on share price. When the overall sample had clustered in to sub samples as high, medium and low the medium sample demonstrated a significant positive relationship between CG index and share price. Another key finding of the current research is that current governance practices highly impact the next year share price, implying that the results of current governance practices make long term results. The important finding that were supported with enough evidence is that, lower the firm size, specially Board Structure (BS) and Investor Relation (IV) is significant to increase the share price. Therefore, small size firms should consider more CG practices compared to large size firms since, when the firm size is lower, higher the impact of governance elements on share price. The other way round it had been found that when larger the firm size CG level becomes ground factor over larger asset base.

VI. FUTURE RESEARCH

The current study used binary coding but it is more accurate to measure the level of CG compliance in liquored scale. It will provide expected outcome if the extent of compliance is assessed by comparing financial and nonfinancial firms.

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ADOPTION OF MANAGEMENT ACCOUNTING PRACTICES BY PUBLIC INSTITUTIONS: THE SRI LANKAN EXPERIENCE.

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Abstract- Scholars use new institutional sociology (NIS) theory discourse to clarify how three macro environmental institutional pressures exert pressure as to institutionalization of particular rules, norms and practices etc. mainly to gain legitimacy. Meanwhile, empirical evidence shows that, the use of advanced management accounting practices (MAPs) and in most of the cases, traditional MAPs especially by public organizations in developing countries is rather slow and low. Based on literature findings, this theoretical paper postulates that the presumed relationship between three isomorphic pressures and institutionalization of MAPs is moderated by four conformity factors which are proved to be dependent on the economic advancement of the country concerned. Thus, this research, using the mixed method, investigates this organizational phenomenon in PIs in the developing country context focussing, Sri Lanka. While this study provides a useful framework for further studies, it will also produce new knowledge concerning NIS theory by providing an alternative perspective pertaining to the application of the institutional isomorphism mechanism with moderating effects by four conformity methods. Further, this study generates novel empirical evidence regarding the level of adoption of MAPs and highlights determinants of the application of MAPs by PIs in the referred context. Also, the study may assist stakeholders of such PIs in understanding of the foregoing revelations that could be leveraged especially, in the best interest of those institutions and the countries concerned in overall sense.

Keywords- Management accounting, Management Accounting Practices, New Institutional Sociology theory, Conformity methods.

I. INTRODUCTION

The American Institute of Certified Public Accountants (AICPA) cited in Deviarti, Dewib and Sunaryo, (2013, p. 1165) defines, "Management accounting (MA) as practice extends to the following three areas: Strategic management—advancing the role of the management accountant as a strategic partner in the organization, Performance management—developing the practice of business decision-making and managing the performance of the organization, Risk management—contributing to frameworks and practices for identifying, measuring, managing and reporting risks to the achievement of the objectives of the organization."

Referring to advantages of MA, Drury (2008, p.7) states "MA is concerned with the provision of information to people within the organization to help them make better decisions and improve the efficiency and effectiveness of existing operations." Meanwhile, Ittner and Larcker (2002, p.788 cited in Alleyne and Weekes-Marshall, 2011, p. 50) defines management accounting practices (MAPs) as, "a variety of methods specially considered for manufacturing businesses so as to support the organization's infrastructure and management accounting

processes. Management accounting practices can include budgeting, performance evaluation, information for decision-making; and strategic analyses are some of the methods used among many others provide an important competitive advantage for the organization helping it to create better decision making value, and providing an integrating perspective to the management strategy with useful and relevant information." Otley, 1995; Kaplan and Atkinson, 1998; Hoque and Mia, 2001; Fullerton and McWatters, 2002; and Haldma and Laats, 2002, cited in Kader and Luther, (2006, p. 230) have emphatically pointed out that advanced techniques have impacted on the traditional process of MA as; Planning, Controlling, Decision-making and Communication and have switched its focus from a basic 'simple' role of determining costs and controlling finance to a modern role of generating value through increased deployment of resources.

Adding to that, Otley, (2009 cited in Fonseka, 2013, p. 1) has pointed out that challenges confronted by managers in complex organizations be met by implementing new cost and management accounting systems (MASs) and sophisticated MASs are central to superior organizational performance, e.g., success of Japanese companies, (Kharbanda and Stallworth (1991 cited in Joshi, (2001, p. 86) and positive responses by key players of focused entities in Barbados, (Alleyne and Weekes-Marshall, 2011, p. 49).

Despite the referred advantages of MA, it is a puzzle to find through empirical literature evidence that the adoption of, especially contemporary/advanced MAPs by public institutions (PIs), (i.e., a juristic person in the United States which is backed through public funds and controlled by the state.) (Anon., n.d. para 1) specially in developing countries as found by the following scholars are rather slow and low, (Abdel and McLellan, (2011, p. 2) – Egypt; Lin and Yu (2002, cited in Uyar, 2010, p. 114) – in developing countries; Ahmad and Leftesi, (2014, pp. 6-8) – Libya; Al-nimer, (2011, pp. 16-17) – Jordan; Joshi, (2001, p.104) – India; McLellan and Moustafa, (2011, p.11); in Gulf Cooperative Council (GCC) Countries); and Fonseka, 2013, p. 3 – Sri Lanka).

Meanwhile, Clarke, (1997, cited in Abdel and McLellan, 2011, p. 3); Uyar, (2010); Ahmad and Leftesi, (2014); Al-nimer, (2011); Joshi, (2001); Fonseka, Manawaduge and Senaratne, (2005, cited in Subasinghe and Fonseka, 2008, pp. 96-97); and Fonseka, (2013, p. 3) confirm that a gap

is noticed between the MA theory and its application in developing country context. Highlighting adverse consequences of this phenomenon, Fonseka, (2013, pp. 2-3) has found that there is a mismatch, (resulting in a dissipation of resources organizationally, nationally and internationally) between investments made by way of expenditure, time and energy deployed to propagate MAPs and returns gained as assessed in terms of their adoption, use and performance as evident in cross sectional studies from developed and developing countries. Moreover, this author has found through a preliminary survey carried out in 2016 that even traditional MAPs are not adopted by most of the focused public institutions (PIs) in Sri Lanka.

Above phenomenon is in contrary to new institutional sociology (NIS) theoretical substantiation that organizations are pressurized to adhere to isomorphic mechanism and thereby, to conform to a set of institutionalized beliefs emanated from the macro environment. (Scott, 1987, cited in Yazdifar, Zamanb, Tsamenyi, and Askarany, 2008, pp. 406, 407). Explaining the nature of macro environmental pressure, DiMaggio and Powell (1991, cited in Yazdifar, Zamanb, Tsamenyi, and Askarany, 2008, pp. 406, 407) elaborate three modes of change occurring as to institutional isomorphism which is having its own antecedent as; 1) coercive, 2) mimetic and 3) normative isomorphism that lead to institutionalization of rules, norms and practices etc., "Institutionalization, a process entailing the creation of reality." (Scott, 1987, p. 505 cited in Carpenter and Feroz, 2001, p. 569). When investigated such organizational phenomena, it was revealed through empirical literature evidence (as discussed under conceptualization below) that four conformity methods as, personal, procedural, categorical and structural, moderate the relationship between three isomorphic pressures and institutionalization of rules, norms and practices etc. in PIs in developing country context.

In this backdrop, the researcher envisages that it is worthwhile to explore and investigate this social/organizational phenomenon as it would contribute to both originality and utility as critically discussed and pointed out in this paper. Adelegan, (2000); Sulaiman et al, (2004); Ismail, (2007); Triest and Elshahat, (2007); Kattan, et al., (2007) and Billings and Capie, (2004) cited in Al-nimer, 2010, p. 2) have found that studies conducted on the adoption of MAPs in developing countries are sparse. Fonseka (2013, p. 6), has emphasized the importance of conducting research into how and

why public sector service and utility organizations in Sri Lanka do not adopt management accounting systems sophistication (MAS). Fonseka, (2013, p. 206) also states that since no any systematic and comprehensive research has been carried out concerning the adoption of MAPs by public institutions in Sri Lanka, (a developing, lower middle income country with per capita GDP in 2017 of US \$ 4,065, World Bank, Overview, Sri Lanka, (2017, p. 1), there is neither sufficient information available on the level of adoption and performance of MAPs in such institutions nor real reasons for low/non-adoption of MAPs in such institutions. (DiMaggio and Powell, (1991); Scott, (2001); Dillard, Rigsby and Goodman, (2004) cited in Moll, Burns and Major, (2006, P. 187) have found that NIS theory that spells out how the adoption of rules, norms practices etc. occur as a result of three isomorphic pressures exerted by the macro environment as opposed to a surpassing rational-optimizing drive for increased internal efficiency which is spelled out in new institutional economics (NIE) theory, is increasingly and popularly used by researchers in accounting field.

Thus, the main research issue to address and the central question to raise is: "How do the conformity methods (i.e., personal, procedural, categorical and structural) moderate the relationship between the three isomorphic pressures and institutionalization of MAPs in PIs of developing countries?" Accordingly, the main purpose of the paper is to understand how four conformity methods moderate the relationship between the independent variables (isomorphic pressures) and the dependent variable (institutionalization of MAPs) that is premised in NIS theory. Thus, in an attempt to realize the above purpose, this paper draws upon key theoretical insights of NIS theory. Further, using the mixed method, this intended research explores and investigates this weird organizational phenomenon in PIs in the developing country context, focussing Sri Lanka.

Being selection of (PIs) of Sri Lanka as the field of research is justified below. Through literature, it was found that Sri Lanka has a large public sector (Report of Committee on Public Enterprises (COPE) (2013, p. 1) incurring high costs (i.e. around 15% of annual budget) Ministry of Finance Sri Lanka, (2016,) to maintain them. Bad consequence of this situation is evident by assertions made by World Bank (WB), (2004, p.1) that emphatically point out as, "An important message of this report is that much of Sri Lanka's skewed growth record (Ex. "the

growth rate declined to a 16-year low of 3.1 percent in 2017"- the lowest it has been since 2001, WB, (2017, p. 1) and ensuing increased income inequality, spanning through alternate governments, is a reflection of the unfinished reform agenda and little progress was made in fundamentally redefining the role of the state, partly owing to Sri Lanka's strong attachment to a large public sector." WB, (2016, p. 2), further states, "Ineffective governance critically impedes the ability of the state to mobilize revenues and spend effectively owing to inter-alia, 50 percent increase in the size of the public sector in the last decade." Thus, considering the key role played by PIs in Sri Lankan economy, the selection of public sector is a useful site for this study.

The rest of this paper is outlined and organized as follows. The section two sets out the theoretical background relating to management accounting, institutional theory, isomorphism and conformity methods. This is followed by a discussion on the conceptualization and deriving propositions under the section three. Theoretical contribution and implications, managerial implications of the study and reflections on future research are then explained briefly under the fourth, fifth and sixth sections respectively. Finally, the conclusions are presented under the section seven.

II. LITERATURE REVIEW

A. Management Accounting:

The Institute of Management Accountants (IMA) (2008, cited in Deviarti, Dewib and Sunaryo, (2013, p. 1165) states, "MA is a profession that involves partnering in management decision-making, devising planning and performance management systems and providing expertise in financial reporting and control to assist management in the formulation and implementation of an organization's strategy."

Commenting on the role of a management accountant, Devie, Tarigan and Kunto (2008 cited in Sunarni, (2013, p. 618) state, "Management accountant is intended to satisfy top level management needs and to motivate in achieving organization's objectives." Meanwhile, Kaplan and Atkinson (1998, cited in Sunarni, 2013, p. 618) have stated as, "Management accountants are no longer mere scorekeepers of past performance but become value adding members of management teams." Cooper, (1996,

cited in Sunarni, 2013, p.618) asserts, "The management accountant should be highly skilled and important members of management team." Thus, "Management accountants today is metamorphosing from bean counters into financial and strategic managers." Sunarni, (2013, p. 618).

Referring to the evolution of MA, Kader and Luther, (2006, pp. 229-231) quotes International Federation of Accountants (IFAC) model of conception showing four stages as; "stage 1- prior to 1950, the focus had been for cost determination and financial control, applying budgeting and cost accounting technologies, stage 2 - by 1965, the focus had been on provision of information for management planning and control using of technologies such as decision analysis and responsibility accounting, stage 3 - by 1985, focus had been on reduction of waste in resources used in business processes, using process analysis and cost management technologies, and finally, stage 4 -by 1995, attention had been shifted to the generation of value by the productive use of resources, applying technologies which examine the drivers such as, customer value, shareholder value, and organizational innovation. As the above statement further explains, those four stages are not mutually exclusive; instead, each stage is recognizable yet, the process of change from one to another has been evolutionary."

Concerning the relevance of MA, Kaplan, (1984), (1986); Kaplan & Johnson, (1987); Cooper & Kaplan, (1991); Ashton et al., (1995) cited in Leftesi, (2014, p. 2); state, that traditional MAPs have been under criticism as being obsolete and not fitting for present day's new manufacturing and business environment. Thus, to cater to such environmental demands, it is essential for organizations, to adopt advanced MAPs such as, activity based costing (ABC), just in time (JIT), total quality management (TQM), life cycle assessment and target costing. Referring to empirical evidence in that regard, Joshi, (2001, p.86), says that findings on recent empirical studies in Western developed countries provide proofs that MA has to satisfy changing needs of today's managers so as to maintain its relevance to ever changing world requirements.

Meanwhile, the literature reveals that the adoption of MAPs by the firms in developed countries compared to developing countries is somewhat good; Chenhall and Langfield Smith (1998) in Australia, Abdel-Kader and Luther (2008) in the United Kingdom cited in,

McLellan and Moustafa, (2011, p. 2-3). As per Subasinghe and Fonseka, (2008, p. 96), "Most of the multinational companies (in Sri Lanka) use most of the MA techniques and they treat the role of a management accountant as extremely important." Further, Barbara, (2004) in Australia, Michel, (2004) in France, Thomas, (2004) in United Kingdom cited in Subasinghe and Fonseka, (2008, p. 98) have emphatically pointed out the future potential, enhanced role to be played by management accountants for the progress of different organizations.

As shown under the introductory section, global empirical evidence also show that especially, the adoption of advanced or contemporary MAPs in developing countries is rather slow and low. Subasinghe and Fonseka, (2008, p. 102) have cited the following scholars as stating that the low adoption of MAPs by private firms in Sri Lanka place them at a very serious disadvantages like; low level of operating efficiency, (Karunaratne, 2007), poor treasury management resulting some other negative consequences.(Gunaratne, 2008).

B. Institutional Theory:

Scott, (2014, cited in Hall and Scott, 2016 p. 2) has stated, "Institutional theory and analysis addresses the processes by which social structures, including normative as well as behavioral systems, maintain stability or undergo changes over time." Dillard, Rigsby and Goodman, (2004, cited in Fonseka, (2013, p. 135-143), have stated that most scholars use institutional theory (IT) for accounting related researches. Lawrence and Shadnam, (2008, p. 2288-2289) have pointed out, "IT is a theoretical framework for analyzing social, (particularly organizational), phenomena, which views the social world as significantly comprised of institutions - enduring rules, norms, practices and structures that set conditions on action." Also, these scholars have pointed out that institutions are to be conditioned by action since departures from them are automatically counter-acted by social controls which make such departure from the social acceptance costly resulting non-conformity with increased costs by way of increase in risk, greater cognitive demands, or lesser provision of resources that accompany it. Meanwhile, Moll, Burns and Major, (2006, p. 1), have asserted, "IT has become a popular choice for accounting studies that seek to understand why and how accounting becomes what it is or is not."

Moll, Burns and Major, (2006, p. 184), have emphasized that although “More general surveys are available across disciplines pursue the wider plethora of institutional approaches available across disciplines as per DiMaggio and Powell, (1991), Maki et al., (1993), Lowndes, (1996), Scott, (2001) three institutional approaches as, old institutional economics (OIE) theory, new institutional economic (NIE) theory and new institutional sociology (NIS) theory that comprise either economic or sociological theories that to date have exerted most influence on accounting research could be utilized as theoretical lens to be based for a research endeavor of this nature. Also, as Moll, Burns and Major, (2006, p. 184) have stated, given below is a brief critical assessment of the relevance and the usefulness of the NIS theory discourse on which this study would be grounded.

1) New Institutional Sociology Theory: “NIS emerged out of opposition towards the dominant rational-actor perspectives its discipline at the time. ... and it is a branch within organizational studies (hence, with immediate and direct attention to organizations, their systems and practices), which has probably had most influence on recent accounting research” Moll, Burns and Major, (2006, p. 186). Meyer and Rowan, (1977); DiMaggio and Powell, (1983); and Scott, (1998) cited in Mbelwa, (2015, p. 40), “Neo-institutional theorists argue that, organizational behavior results not only from intra-institutional pressures but also from the external environmental pressure. Adding, DiMaggio and Powell, 1983; Meyer and Roman, 1991, cited in Mbelwa, 2015, p. 40) argue “Early formulation of the NIS contended that organizations and their actors respond to environmental pressures to retain their legitimacy which is defined as, ‘a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially-constructed system of norms, values, beliefs, and definitions.’ (Suchman, 1995, p. 574 cited in Mbelwa, 2015, p. 29), and survival prospects, but not necessary for organizational efficiency.” This means that the early NIS formulation treated legitimacy and efficiency as dichotomous elements rather than integrated aspects that are both needed for the survival of the public sector organization. The later formulation of NIS states that institutional pressure can result in both legitimacy and efficiency, that these aspects are treated as intertwined aspects which can emerge to be the reasons behind the actors’ behaviors and actions towards the organization’s

form and process (Collier, 2001; Modell, 2001; Mkasiwa, 2011; Mzenzi, 2013), cited in Mbelwa, (2015, p. 40).

Drawing the attention towards negative aspects of NIS, the under-mentioned scholars cited in Yazdifar, Zamanb, Tsamenyi, and Askarany, 2008, p. 407), have stated that despite its current vogue in organizational analyses, NIS is laden with some key deficiencies as; first, criticism over its deterministic nature and neglecting of the role of active agencies and micro-level issues of power and interest, (Carmona et al., 1998), second, the assumption that practices formulated to gain external legitimacy are only symbolic which always being manipulated through adherence to decoupling from internal operating systems has been seriously questioned among scholarly circles, (Abernethy and Chua, 1996; Carruthers, 1995; Mouritsen, 1994; Zucker, 1987), and third, NIS focuses on change at an extra-organizational level and does not consider the path of change in the organizational realm. (Dillard et al., 2004).

Based on the above critics and with several similar others, such scholars conclude that the NIS suffers from inadequate consideration of the relationship between environment/institutional determinism (e.g., parent companies) and cultural and political factors within (subsidiary) organizations, and thus, NIS needs to be complemented by other perspectives, one which factors internal organizational dynamics into NIS explanation. (DiMaggio, 1988; Fligstein, 1989; Scott, 1987; Zucker, 1988) cited in Yazdifar, Zamanb, Tsamenyi, and Askarany 2008, p. 407). Drawing from this discussion, the author argues that endeavoring to showcase an enhanced model showing moderating effect by four conformity methods to existing NIS theory discourse is amply justified.

Yet, envisaging the most of the merits embodied with the NIS theory as pronounced by scholars in this domain, especially as to conducting a study of management accounting discipline and giving weightage on the main features of NIS theory discussed so far, the authors opted to ground this novel and enhanced theory building exercise on NIS theory.

Isomorphism: DiMaggio and Powell, (1983 cited in Moll, Burns and Major, (2006, p. 187) have stated, “Congruence between organizational arrangements and impinging (society-level) is explained through a process by which external institutions permeate internal

structures and procedures, called ‘Isomorphism’. Two components of isomorphism are offered, namely; (1) competitive isomorphism, (i.e. how competitive forces drive organizations towards adopting least-cost efficient structures and practices) and (2) institutional isomorphism, (i.e. portrays such permeation, i.e. from environment to organization, as a predominantly cultural and political process.”

Adding further, DiMaggio and Powell, (1983 p. 150) have identified, “Three mechanisms through which institutional isomorphic change occurs, each with its own antecedents: 1) coercive isomorphism that results from both formal and in-formal pressures exerted on organizations by other organizations upon which they are de-pendent and by cultural expectations in the society within which organizations function; 2) mimetic isomorphism, not all institutional isomorphism, however, derives from coercive authority. Uncertainty is also a powerful force that encourages imitation. When organizational technologies are poorly understood (March and Olsen, 1976), when goals are ambiguous, or when the environment creates symbolic uncertainty, organizations may model themselves on other organizations; and 3) normative isomorphism, stems primarily from professionalization.”

DiMaggio and Powell, (1983 p. 149) have stated “The concept that best captures the process of homogenization is isomorphism. In Haw-ley’s (1968) description, isomorphism is a con-straining process that forces one unit in a population to resemble other units that face the same set of environmental conditions.” Carpenter and Feroz, (2001, p. 570-572), have pointed out that the competitive isomorphism mainly relates to environs with liberalized market with stiff competition, and accordingly, it is not fitting to the analysis of public organizations.

Conformity Methods: “The basic premise of the institutional theory suggests that an organization’s tendency towards conformity with predominant norms, traditions and social influences in their internal and external environments will lead to homogeneity among organizations in their structures and practices, and that successful governments are those that gain support and legitimacy by conforming to social pressures.” Carpenter and Feroz, (2001, p. 569-570). Meyer and Rowan, (1977); DiMaggio and Powell, (1983) and Scott, (2004) cited in (“IT and Bridging Strategies” n.d. paras 1-6) have stated that the most basic principle and distinct characteristic found in

the IT is the “Conformity” and it is used to determine the legitimacy of an organization. These scholars have further stated that the concept of Conformity establishes ‘rational myths’. That is, for the purpose of an organization to be recognized and accepted as a valid one, it is expected to conform to ‘rational myths’ as; adopting similar job titles/positions, procedures, departments and organizational roles etc. as those of similar organizations. If there is no Conformity, no homogeneity, no resource allocation, no survival and firm will be considered as illegitimate. Above scholars have further pointed out that four types of conformity methods exist practically as responses to three isomorphism mechanisms as; (a) Personal conformity; many specialized roles in organizations to be filled with certified professionals as recommended by professional and professional bodies, (b) Procedural conformity; organizations are influenced to do certain things in certain ways as; adopting total quality management (TQM), program evaluation review technique (PERT) etc. (c) Categorical conformity; rules serve as guidelines to pattern organizational structures which serve as ‘vocabularies of structures’; ex. university departments, job positions and roles and finally; (d) Structural conformity; firms adopting specific structures and hiring people such as, Safety Officers, Affirmative Action Groups etc. from successful firms/consultants. DiMaggio and Powell, (1983, cited in “IT and Bridging Strategies” n.d. paras 1-6, have stated that these conformity methods are especially applicable to Western, developed countries.

III. CONCEPTUALIZATION

A. *Isomorphic Pressures and Institutionalization of MAPs:*

In the overall context of NIS theory framework and in line with the foregoing discussion on literature findings, the authors postulate that three elements of institutional isomorphism namely, Coercive, Mimetic and Normative result in institutionalization of rules, norms and practices in organizations. Based on that, it gives rise to the first Proposition as follows.

Proposition 1: Isomorphic pressures as; Coercive, Mimetic and Normative, positively influence the institutionalization of MAPs in Public Institutions.

Based on referred literature and drawing from the first Proposition, the authors have formulated the Conceptual

Model as delineated in the following Figure 1 which also, demonstrates that such relationship is being moderated by four Conformity Methods as explained and argued underneath.

B. Moderating Effects of Conformity Methods on Relationship between Isomorphic Pressures and Institutionalization of MAPs:

As already explained under literature review, i.e., in the discussion of conformity methods, the noted scholars have identified ‘Conformity’ as the most prime and distinct characteristic in the institutional theory, which is of four types as; (a) personal conformity; (b) procedural conformity; (c) categorical conformity; and (d) structural conformity, which are means of responding to isomorphic pressures emanated from macro environment). Meyer and Rowan, (1977); DiMaggio and Powell, (1983) cited in ‘Institutional Theory and Bridging strategies’ n.d. para 1), have pointed out that Isomorphism is the master bridging process in institutional environments: that occurs through the incorporation of institutional rules norms and practices etc., within particular organizational structures, through which they become more homogeneous, more similar in structure, as time goes on,’ (basically within particularly identified institutional environment and context - Scot, 2004 p. 209).

Adding to the scholarly findings critically discussed under literature review, it was found as Knetter, (1989) revealing in (‘Institutional Theory’, Anon., n.d. para. 8) that *there is quite sufficient evidence proving that organizations in different natures of economies react quite differently to challenges of isomorphism pressures.* This is well supported by the assertion made by Lin and Yu (2002, cited in Uyar 2010, p. 114) as, ‘application of management accounting in less developed countries remains unsatisfactory and studies on this area are rare in the literature, and *this may be due to the relatively under-developed status of economic and business administration in less developed countries.*’

In line with the above findings, Oliver, (1991 cited by Aier and Weiss, (2012, 1076-1078) have found that while some actors in organizations concerned may follow three referred environmental pressures almost blindly, *some other actors will perceive all such pressures as constraining (as they practically are) and unwelcome evil, and thereby, trying to defy and manipulate relevant occurrences exerting five ways of response strategies* as, to

simply explain, (1) Acquiesce; basically resembling to tame and blind adherence to new propositions coming from pressure parties, (2) Compromise; Conforming to and accommodating (new) corporate demands, through tactics like balancing, pacifying and bargaining, (3) Avoid; applying tactics such as concealing, buffering or escaping, (4) Defy; more active and unequivocal nature of resistance to arranged demands, Ex. By dismissal, challenge and attack, and (5) Manipulate; sort of controlling instituted content or the power coming by co-opting, influencing etc.

Based on some negative comments about NIS theory by scholars as shown under ‘Literature Review of NIS’, Yazdifar, Zamanb, Tsamenyi, and Askarany (2008, p. 407) conclude, ‘*NIS suffers from inadequate consideration of the relationship between environment/institutional determinism (e.g., parent companies) and cultural and political factors within (subsidiary) organizations.*’ Citing (DiMaggio, 1988; Fligstein, 1989; Scott, 1987; Zucker, 1988); Yazdifar, Zamanb, Tsamenyi, and Askarany (2008, p. 407) further say ‘*NIS thus needs to be complemented by other perspectives, one which factors internal organizational dynamics into NIS explanation.*’

Drawing from the above scholarly findings, it is argued and postulated that in one hand, three institutional isomorphic pressures do not directly result in institutionalization of rules, norms and practices by organizations (i.e. which is in contrary to NIS theory discourse) and on the other hand, aforementioned four conformity methods which are applicable contextually, (i.e. depends on the level of advancement of the economy of the country concerned), impact on such institutionalization process. Therefore, this leads to the conclusion that the relationship between the above antecedent of, three isomorphic pressures and the consequent of, institutionalization of MAPs in PIs in developing countries is moderated by above referred four conformity methods. Accordingly, the following propositions sum up the implications of this discussion and present the argument raised in the discussion.

Proposition 2: Personal conformity method moderates the relationship between isomorphism mechanisms and the institutionalization of MAPs in PIs in developing countries.

Proposition 3: Procedural conformity method moderates the relationship between isomorphism mechanisms

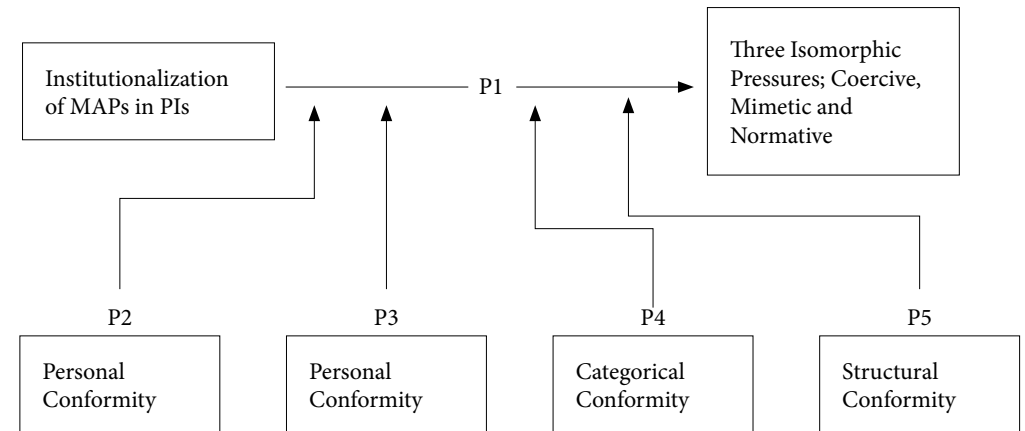


Figure 1. Conceptual Model of the Study
Source: Author

and the institutionalization of MAPs in PIs in developing countries.

Proposition 4: Categorical conformity method moderates the relationship between isomorphism mechanisms and the institutionalization of MAPs in PIs in developing countries.

Proposition 5: Structural conformity method moderates the relationship between isomorphism mechanisms and the institutionalization of MAPs in PIs in developing countries.

IV. IMPLICATIONS

A. Theoretical:

As critically discussed above, this research study which would be grounded on the NIS theory attempts to understand and explain how the institutionalization of MAPs in PIs of developing countries is moderated by four conformity methods. This is supplementary to the existing literature, as stated by Modell, (2005 cited in Fonseka, 2013,) that perceives institutional forces to be mediating the presumed relationship between the dependent and the independent variables; isomorphism pressures and the institutionalization of rules, norms and practices etc. respectively, in organizations. Thus, the main contribution of this study is to offer new operational insights into the institutionalization of MAPs with the above noted moderating effect pertaining to the NIS

theoretical framework. Accordingly, this study will help adding new knowledge to the existing body of knowledge of NIS theory by providing an alternative perspective into the practical application of the institutional isomorphism mechanism. Further, it is envisaged that this study will provide a useful framework for further studies in the same field, especially in the Asian region. In that sense, this study is a novel attempt. In addition, the use of two major inquiry approaches applying a mixed method to this research endeavour will help validate the findings of this study.

B. Managerial:

In an environment where PIs’ play a very critical role concerning development and growth of most of the developing countries, the findings of this study would generate new evidence relating to the adoption of MAPs by PIs in that context. Thus, this report highlights what determinant factors lead to the adoption of MAPs, barriers to applying MAPs in a developing country context and at which stage PIs of Sri Lanka (being a developing country) are of the IFAC-based model of evolution of MA as to the adoption of MAPs which are dire needs in developing country context. Accordingly, gaining knowledge of the organizational phenomenon discussed in this report can contribute to the taking of remedial actions for effective application of MAPs in the public sector that will result in better administration of PIs paving the way to a country’s overall development and growth. Accordingly, this study will signal a very progressive effort in the MA domain in developing countries.

V. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

As shown above, this paper introduces an enhanced model to existing NIS theory explaining moderating effect exerted by four conformity methods which would add to the existing body of knowledge and utility in MA discipline.

In terms of future research, it is suggested to test the enhanced model proposed in this paper empirically, which would lead to the provision of new vistas of development for body of knowledge of NIS theory as well as empirical research in MA domain. Thus, focusing on the literature findings that researches on the adoption of MAPs in a developing country is very sparse, future research may be conducted on different fields of public sector and private sector organizations of developing countries so as to test the enhanced conceptual model empirically. Future research may further analyse how contingent factors like organizational size, nature and key player attributes affect the four conformity methods concerning its impact on the perceived relationship between the three isomorphic pressures and institutionalization of rules, norms, and practices (MAPs), etc. Further, more research may be needed to explore the evolution of MA within the PIs in a developing country context and level of adoption of MAPs in accordance with the IFAC-based model. Besides, future research could examine the research model on different scales of PIs and private organizations in the contexts referred to.

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AN INVESTIGATION OF THE FACTORS AFFECTING EXCHANGE RATE FLUCTUATIONS: A SRI LANKAN EXPERIENCE IN RECENT PAST

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Abstract- The stability of the exchange rate is widely discussed topic, which plays a pivotal role in any economy. Miscellaneous types of internal and external factors have been directly effecting on the exchange rate fluctuations on the economic performances of the country. The main objective of this study is to examine the significant macro-economic factors that affect exchange rate fluctuations in Sri Lanka. The study results detected that, the month-end USD/LKR exchange rate is more sensitive with respect to the external factors such as changers in month-end per capita real Gross domestic product, Broad money (M2b) and Reserve Money in a short term and long term manner.

Keywords- Vector Error Correlation Model, Co-integration Rank Test and Colombo Stock Exchange

I. INTRODUCTION

The exchange rate is significant macro-economic variable which used to measure the country's relative level of economic health; especially, it plays a major role in trade, which is significantly affected to the free market economies. Several factors have been directly influenced on exchange rate fluctuations. As a general rule, the changing of inflation has been significantly affecting for exchange rate fluctuations. When the inflation is under the low level, the currency rates has been increasing rapidly low relative to other countries. As a result their goods and services have been increasing in high demands

and its purchasing power increases relative to other currencies.

Theoretically, the strength of the local currency is proportionally affecting for the economic growth of a country. In general, the economic growth measured by gross domestic product of the country (GDP), which is another significant factor effecting for currency fluctuation. The GDP is a monetary value of all final goods and services produced within a period and measures national income and output for a given country economy. According to the literature, three methods are mainly used to determine GDP, namely expenditure approach, output (or production) approach and income approach (Jayathileke, 2014).

Current account balance of the country is another significant factor which is highly effect on exchange rate variations. When, the country imports goods and services than exports, it has to be making considerable deficit on their current account balance. As a result, country has to borrow capital from foreign countries while increasing their currency value.

Reserve money and consolidated broad money (M2b) as components of supply of money are used as proxies. As monetary instruments, these variables are used by the Central Bank of Sri Lanka to control overall economy. Increase of money supply leads to increase in liquidity that eventually consequences in upward movement of

nominal share prices. It is therefore hypothesized that and increase in money supply is positively related to the exchange rate fluctuations.

Political stability and economic performance of the country is another significant factor which effects directly on exchange rate demands. In general, stable country with strong economic performance has attraction of foreign investors. Because of the less political and economic risk, the country gains more foreign capital than other countries which has high risk in political and economic sides. The less risk of political and economic increases value of local currency and it causes to appreciate in exchange rate.

According to the literature, considerable amount of studies can be seen on forecasting exchange rate using different types of time series approaches. Among them univariate and multivariate time series approaches, such as: autoregressive integrated moving average (ARIMA), Autoregressive conditional heteroskedasticity (ARCH) model, Johansen co-integration, Vector Autoregressive Regression and Vector error correlation methodology are widely used to determine the exchange rate affects both on negatively and positively to the economy on a country.

Aristotelous at.al (2001) investigated the impact of exchange-rate volatility and exchange-rate regime on the British exports to the United States data period from 1889 to 1999. The empirical results suggested that exchange rate volatility did not have an effect on the volume of British exports to the US. The empirical results suggested that interest rate and rate of inflation have negative impact on economic growth.

Chit, et al (2018) carried out a study to examine the real exchange rate volatility with respect to the real exports of five emerging East Asian countries among themselves as well as to 13 industrialized countries. According to their empirical findings, the exchange rate volatility has a negative impact on the exports of emerging in East Asian countries. The findings confirm that, the increase in competitiveness of a country relative to others has positive impact on exports.

According to the Central Bank past trade statistics Sri Lanka (Central Bank , 2016), reveals that the trade deficit or import export gap has widened over the past years. The records clearly suggested that, the country has

failed to increase their exports significantly than imports; especially, the exports have grown a mere 4.1% (\$ 2.9 billion) while non-oil imports have grown at a faster rate of 8% (\$ 7.5 billion). Jayathileke, et. al (2013) carried out a study and investigated the long-run relationship between the economic growth and the inflation of three Asian courtiers namely Sri lanka, India and china.

In Sri Lankan context, limited number of studies can be seen in the literature to find out the macroeconomic relationships with respect to the exchange rate demands. So, the main objective of this current study is to examine the reasons for finding the month-end USD/LKR exchange rate volatility with respect to the macroeconomic relationships in a Sri Lankan context from January 2010 to December 2016 in a long term and short term manner.

The rest of the paper is organized as follows. Next section develops the hypotheses and explains the methodology used in the study. Section three briefly presents the results including VECM results and the paper ends up with the conclusion.

II. METHODOLOGY

The current study mainly deals with the empirical methodology consist of Unit Root, Johansen co-integration and Vector Autoregressive Regression methodologies which are used to explain the long term and short term predictability and profitability of technical trading strategies.

As an initial step, it is necessary to test the stationary and non-stationary conditions before using them for any further analysis. Theoretically, time series is stationary if a shift in time doesn't cause a change in the shape of the distribution and have a fine constant over the selected time interval; unit roots are one cause for non-stationary. Several methods can be seen in the literature to determine the existence of unit roots or not and measuring their statistical power. Tests include: The Dickey Fuller Test, which is mainly based on linear regression; especially, the serial correlation can be an issue, in which case the Augmented Dickey-Fuller (ADF) test can be used. The Phillips-Perron (PP) test is a modification of the Dickey Fuller test, and corrects for autocorrelation and heteroscedasticity in the errors.

B. Vector Error Correction Model

The Vector Error Correction Modelling (VECM) is Multivariate Time Series approach, which can be used to evaluate the long term as well as short term relationships between the selected variables. Current study, Johansen co-integration with VECM is adapted to examine the long-run as well as short-run dynamic equilibrium relationships between exchange rate fluctuations and related economic growth conditions related to the Sri Lanka.

The proposed methodology is running as follows in equation (1),

$$(1) \Delta y_t = \delta + \lambda t + \beta y_{t-1} + \sum_{i=1}^{p-1} \alpha_i \Delta y_{t-i} + \epsilon_t$$

Where y_t is distributed under the I(1) against the alternative I(0) and p , λ and t represent the lag length of the auto regressive process, the coefficient on a time trend and time trend variables respectively (Seneviratna et.al; 2013).

III. ANALYSIS AND DISCUSSION

A. Data Sources

The data were obtained from daily and monthly financial statements issued by the Central Bank of Sri Lanka, various types of background information and other relevant sources and etc. For Monthly data for seven year period from January 2010 to December 2016 were extracted and tabulated. All the selected macroeconomic variables are listed in Table 1 as follows.

Table 1. Definition of Variables

Variables	Definition of Variables
MAER _t	Month-end USD/LKR exchange rate
GDP _t	Month-end per capita real Gross domestic product
M2b _t	Month-end per Broad money (M2b)
RM _t	Month-end Reserve Money
GP _t	Month-end Gold Price

Time series plot of the daily USD/SLR exchange rates in Figure 1 shows a significant upward trend pattern with high volatility clustering movements in a long term manner.

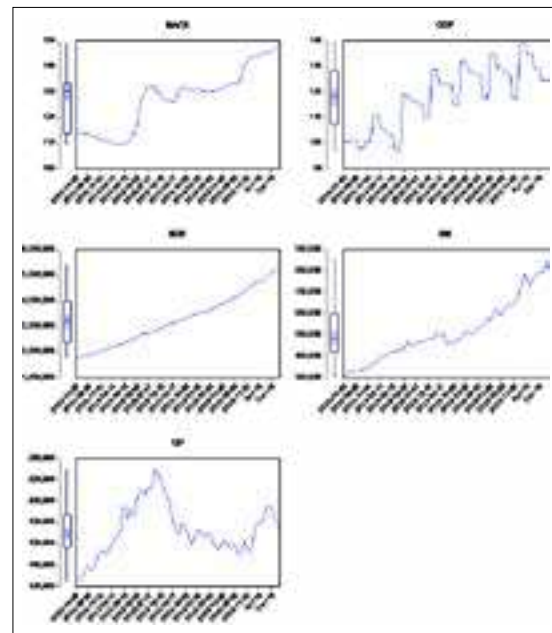


Figure 1. Time series plot of selected variables

B. Unit Root Test for Stationary Checking

As an initial step, the stationary conditions of the selected variables are tested by using two unit root test methods namely Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test.

According to the Table 2 ADF and PP results, all the variables are only stationary in a same time in their first differences under the 0.05 level of significance and can be categorized under the I(1) process.

In the next stage, Johansen (trace) co-integration rank test and Maximum Eigenvalue test were employed to test whether there is any co-integrating relationship between the variables. Table 3 shows the number of co-integrating vectors for selected variables.

Table 2. Results of ADF and PP Tests

Sector	Significance Results		Sector	Significance Results	
	Level data (Prob.*)			1st Diff. (Prob.*)	
	ADF	PP Test		ADF	PP Test
MAER _t	0.3209	0.3818	MAER _t	0.0001	0.0000
GDP _t	0.0567	0.0887	GDP _t	0.0000	0.0000
M2b _t	1.0000	1.0000	M2b _t	0.0000	0.0001
RM _t	0.9769	0.9919	RM _t	0.0000	0.0000
GP _t	0.7229	0.5302	M2b _t	0.0000	0.0000

Note : *MacKinnon (1996) one-sided p-values.

Table 3. Results of Co-Integration

Unrestricted Co-integration Rank Test _Trace

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Prob.**
None *	0.493740	98.88919	0.0001
At most 1 *	0.216880	43.75203	0.1153

Unrestricted Co-integration Rank Test (Maximum Eigenvalue)

None *	0.493740	55.13716	0.0000
At most 1 *	0.216880	19.80198	0.3550

Note : Trace test indicates 1 cointegrating eqn at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

According to the Table 3 results, Unrestricted Co-integration Rank results in trace (0.1153 >0.05) and Max-eigenvalue (0.3550>0.05) test methods suggested that there is a co-integration exist in their first stage at the 0.05 level of significance. It means that, significance association can be seen between the month-end USD/LKR exchange rate with respect to the other selected macro-economic variables in a long term manner.

In the next stage, maximum likelihood method based VECM methodology is set up to investigate the available causality relations between dependent and independent variables. Theoretically, when the variables are co-integrated in same order, maximum likelihood method based on VECM can be performed to find the causality between the underline variables.

The VECM results indicated that C(1) has a negative sign (-13.91666). This result indicates a short run joint causality causes between month-end USD/LKR exchange rate and selected variables. So, as a next step, Wald test statistic is used applied.

Table 4. Wald Test Results with Respect to the Maer

	ASPI	GDP	GP	M2B	RM
Chi-Square	10.92942	11.16415	11.30765	12.35690	
Probability	0.0042	0.0038	0.0035	0.0021	

The short-run adjustments along the co-integrating equilibrium relationships were developed to test whether any short run causality exists between independent and dependent variables. The Wald statistic results in Table 5 reveals that, short run causality running from GDP(0.0042<0.05), GP (0.0038<0.05), M2b (0.0035<0.05), and RM (0.0021< 0.05) to MAER.

IV. CONCLUSION AND POLICY IMPLICATION

This study sheds light on design and explaining the long term and short term impact of USD/LKR exchange rate movements on the economy of Sri Lanka.

The results detected that, the month-end USD/LKR exchange rate is more sensitive to external factors such as changers in month-end per capita real Gross domestic product, Broad money (M2b), Reserve Money and Gold Price. We strongly believed that these findings will be useful to investors both domestic and internationals and policy makers for make better investments based on the both long-run equilibrium and long-periodic movements.

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ENTREPRENEURIAL ORIENTATION AND TOTAL QUALITY MANAGEMENT: EVIDENCE FROM AN AUTOMOBILE SENSOR MANUFACTURING ORGANIZATION

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Abstract- Entrepreneurship plays an important role in today's dynamic business world as a driver of innovation by creating new products, services and new organizations. One of the key factors of achieving organizational success is the application of Total Quality Management (TQM). In particular, this study examines; (i) what entrepreneurial characteristics support the implementation of TQM best practices and (ii) how entrepreneurs implement TQM best practices. The study examines the proposed research objectives by referring to the case organization of Lanka Harness Limited, an automobile seatbelt sensor switches and harness manufacturer for leading automobile brands. The organization adheres to strict quality standards where the defect tolerance rate is one part per million (1 ppm) outputs. An interpretivist, inductive research approach was used to explore the said research objectives using data collected by conducting semi structured interviews with Mr. Rohan Pallewatte the proprietor of the said organisation and ten employees using purposive sampling. The results from interviews showed Mr. Pallewatte's perseverance, leadership, empathy, trust, integrity, passion, grit, kindness, subject knowledge and other entrepreneurial characteristics support the implementation of TQM best practices. Training, inculcating a quality culture, trust culture coupled with Toyota Production Quality Management System resulting a unique Lanka Harness System, adopting lean manufacturing techniques developed by Japanese quality systems were recognized as how entrepreneurs implement TQM best practices. The study concludes with a discussion of the insights generated by the findings linking with theoretical knowledge and directions for future research.

Keywords- Entrepreneurial Orientation, Entrepreneurship, Total Quality Management, Automobile Sensor Manufacturing

I. INTRODUCTION

According to management guru Peter Drucker (1970), it Entrepreneurship is a process of risk taking to exploit an opportunity in a free market system. It is a trial by error process it carries the risk of failure or success. Simply put, it can be stated as identifying market opportunity and exploiting that market opportunity to supply a product or a service in order to cater to the demand thus making a profit. Hence, an entrepreneur is an individual who exploits the market opportunity through technical and/or organizational innovation and organizing resources to support. One of the key factors of achieving organizational success is the application of Total Quality Management (TQM) (Ramlall, 2002). Total quality is a description of the culture, attitude and organization of a company that strives to provide and satisfy customers with products and services (Lakhe and Mohanty, 1994). The quality culture requires quality in all aspects of a company's operations, with processes being done right the first time and defects and waste eradicated from operations. While entrepreneurship plays an important role in achieving economic development, it is important for organizations to maintain TQM best practices in order to achieve competitive advantage (Ramlall, 2002).

Entrepreneurial orientation (EO) is a key concept when executives are crafting strategies in the hopes of doing something new and exploiting opportunities that other organizations cannot exploit. EO refers to the processes, practices, and decision-making styles of organizations that act entrepreneurially (Lumpkin and Dess, 1996). In the academic literature, EO refers to the extent to which a firm is entrepreneurial.

Entrepreneurial vision, capabilities and activities alone are not sufficient to help the organization to succeed unless there is a quality management philosophy in an organization (Al-Dhaafri, Al-Swidi and Bin Yusoff, 2016). Prajogo and Sohal (2006), reveal a partial mediation impact of TQM in organizational performance. Accordingly, entrepreneurial organizations are less likely to ensure the success unless they provide quality products and services (Al Dhaafri et al., 2016). Therefore, as per the literature it can be understood that for an organization to be successful in the long run, adoption of a quality process same or similar to TQM is beneficial. According to Economou and Chatzikonstantinou (2009), adaptation of TQM is beneficial for an organization to sustain a competitive advantage and a necessary precondition for an improved organizational performance especially in the long run. This notion is especially applicable to entrepreneurs who start business organizations with the intention of growth, sustainability, improved performance, survival and success in the long term.

Therefore, adopting TQM best practices is imperative for an organization and can be stated as a function of entrepreneurship itself (Zairi, 1994). Yet it is a major challenge for an entrepreneur especially for a one who is just starting out (Yong and Wilkinson, 1999).

A. Characteristics of entrepreneurs that enable TQM implementation

Prior studies on entrepreneurship suggests several characteristics of entrepreneurs such as leadership, self-confidence, innovation, hard work, perseverance, communication, empathy etc. that enables success (Gartner, 1985; Reader and Watkins, 2006; Peneder, 2009). As mentioned by Powell (1995), it can be stated that very similar or same characteristics enables an entrepreneur to implement TQM as well. Gharakhani (2013), supports the idea that top management's vision can create the basis for competitive advantage.

Economou and Chatzikonstantinou (2009), propose a leadership framework from a TQM perspective that transformational leadership skills can be considered as a necessary precondition for advanced organizational performance.

B. Implementation of TQM by entrepreneurs

One of the most important aspects in implementation of entrepreneurship is engaging leadership. A leader must be driven in order to implement the process of TQM (Powell, 1995). Communication of the TQM implementation process is needed from both the top strategic level and the middle tier corporate level. From the mission statement and using themes and slogans, one can disseminate the idea of TQM as the first step (Greebler and Suárez, 1989). Training employees at all levels for the process of TQM is imperative in implementing the process (Powell, 1995). Empowerment of staff to take action and find solutions to implementation problems is also a necessity (Greebler and Suárez, 1989). A less hierarchical horizontal structure without much bureaucracy helps in instilling a process (Greebler and Suárez, 1989). Theoretical as well as empirical studies based on TQM strategy support the idea that all its main principles and practices (i.e. leadership, education and training, teams and culture) either as individual components which are tacit in nature or as a complex system can create barriers for imitation, contributing to the sustainability to attain competitive advantage (Powell, 1995).

C. Philosophical paradigm

There are several studies done on entrepreneurship grounded in theories (Erdélyi, 2010). Many of these theories are based on sociological models, psychological/personality traits, and socio-economic factors influencing the success of businesses (Rigtering, Kraus, Eggers and Jensen, 2014). According to the Timmons Model of Entrepreneurship the three critical factors of a successful venture are opportunities, teams, and resources (Timmons and Spinelli, 1999). The entrepreneur searches for an opportunity, and on finding it, turns the opportunity into a potential venture by forming a team and gathering the required resources to start a business that capitalizes on the particular opportunity (Timmons and Spinelli, 1999). The Upper Echelons Theory suggested by Hambrick and Mason (1984) highlights that, "the top executives view their situations – opportunities, threats, alternatives and

likelihoods of various outcomes – through their own highly personalized lenses". Therefore the organizational strategic level executives' experiences, values, personalities and other human factors reflect on the performance and the stability of the very organization that they represent (Hambrick and Mason, 1984). Researchers have examined the effects of top management team (TMT) composition and processes on organizational outcomes, as well as the influences of chief executive officer (CEO) characteristics on company strategy and performance and there is supporting evidence for this theory (Finkelstein, Hambrick and Cannella, 2009).

Although several studies as per above have done examining several North American, European and Japanese Companies, there is a research gap in the context of Sri Lanka on the aspects of entrepreneurship and TQM. Therefore, it is important to reveal what entrepreneurial characteristics which supports the implementation of TQM best practices and how entrepreneurs implement TQM best practices especially within the Sri Lankan context.

D. Case organisation and objectives

As highlighted, there are several studies to examine entrepreneurship, entrepreneurial orientation of a firm and its role on innovation and performance implications. However, the literature is silent on the implications of TQM best practices, entrepreneurial orientation of an organization. Following a qualitative research approach, this study conducts a case study at an automobile sensor manufacturing organization, Lanka Harness Limited, in Sri Lanka. Lanka Harness manufactures impact sensor switches for seat belts and air bags for world-renowned automobile brands. The company adheres to strict quality standards where the defect tolerance rate is one part per million (1 ppm) outputs. It is the first organization in South Asia hence Sri Lanka to achieve the Zero Defects quality standard. This study aims to examine the proposed research questions by referring to Lanka Harness Limited in order to identify the characteristics, behaviour, aspirations, features and the specialties which enabled the company to succeed through TQM best practices in the Sri Lankan context. Accordingly, the objective of this study is to examine (i) what entrepreneurial characteristics support the implementation of TQM best practices (ii) how entrepreneurs implement TQM best practice. In doing so, this study attempts to expand the

boundaries of the knowledge pertaining to TQM and Entrepreneurial Orientation.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

Research questions were derived from perusing academic literature and discussions with the academic supervisor. On research philosophies, Creswell (2014) suggests, traditional and quantitative assumption of research by post positivist worldview. Constructivism is frequently combined with interpretivism and is usually known as qualitative research (Creswell, 2014). Therefore, based on the nature of the research questions under investigation, this study refers to a constructivist/interpretivist inductive research design and approach. This approach was used interested in insight, discovery, and interpretation rather than hypothesis testing. Qualitative studies are used to investigate how and what type of research questions (Creswell, 2014). The case organization is a unique organization achieving the highest quality possible (Zero Defects – 1 PPM). Therefore, a qualitative case study method was used to address the research questions. The subject organization has no competitors in Sri Lanka and is thus very unique. The case study method was employed as a result. In this case, the researcher also did not have any personal contacts with the case organisation. Accordingly, this research takes an interpretivist view with an inductive research approach whilst using a case study to gather qualitative data to address the research objectives spanning a time horizon of ~ 7 months, thus making this a cross sectional study.

A. Data collection

The study collected data using semi-structured interview, observations, and documentary evidence. Using the said instruments, the intention was to triangulate data in supporting the research objectives and explain the case mentioned. The first stage of the research was doing an extensive literature on the subjects of EO and TQM studied. This was done by computer and manual methods.

B. Piloting interview questions

As the interview was the primary data gathering instrument for the research a semi-structured interview

was chosen where questions are carefully designed. Major questions are developed in the form of a general statements. The questions were in English language. A pilot study was carried out by visiting a supplier factory of Lanka Harness. This pilot assessment was conducted to detect weaknesses of the design and also to identify the usage of research instruments, with the intention of minimizing the research inconsistency. Formulation of the final semi structured interview was done after this pilot assessment.

C. Semi-structured interviews

The choice of semi-structured rather than structured interview is employed because it, offers sufficient flexibility to approach different respondents differently while still covering the same areas of data collection. The interview is tape-recorded to secure an accurate account of the conversations and avoid losing data since not everything can be written down during interview. Every audio file was numbered and labelled in order to avoid complication. Interview was conducted in English, however, it was translated to Sinhalese upon participant's request. The responses in Sinhalese were translated back to English for the write-up.

D. Documentary sources

This was important to supplement as well as to compensate for the limitations of the methods. Additionally, documents provide guidelines in assisting the researcher with his inquiry during interview. Official and unofficial documents and records pertaining to the process of training activities in the organizations were analysed.

E. Participant observation

This is where the researcher intended to observe the environment studied to gather information which was not obtainable from other methods. What had been observed by the researcher was related to the physical setting and environment within which the work activities took place. Observation generate insight and better understanding on the phenomenon under studied, especially with regards to TQM and TQM implementation.

The study is mainly based on semi-structured interviews conducted with Mr. Rohan Pallewatta the founder of

Lanka Harness Co. (Pvt.), interviews with employees of the company and observations. Ten selected employees were interviewed for accuracy, reliability and repeatability of the case study. Purposive sampling by selecting ten employees by the management of the case organization was used in this research as the sampling strategy. A set of questions were asked to investigate the research questions on i) how entrepreneurs implement TQM best practices, (ii) what entrepreneurial characteristics support the implementation of TQM best practices. The names of respondents were initially determined by the management of the organization through company record, based on their job responsibilities, position and involvement in the subject studied. However, respondents were not selected on the basis of the researcher's individual judgment. The interviews were recorded with the permission and consent of the interviewees. Several photographs were taken of the assembly line and factory premises.

The researcher did not have any personal or professional relationship with the case organisation. The researcher is not an employee of the said organisation. The researcher does not have any vested interest such as shares/equity of the mentioned organisation. Therefore, there is no conflict of interest. A similar set of questions were asked from ten employees representing the top level 2nd in charge manager to the assembly line worker. Names and details are anonymous as per the request by the employees. The employees were not informed of the questions and they were not pre-prepared to answer ensuring authenticity.

The employees were selected randomly at the premises by the organization. Four males and six females participated in semi-structured interviews. Participants were purposively selected by the case organization randomly with the educational qualification of G.C.E O. L passed and above. All ten interviews were audio recorded, and all participants granted permission for audio recording. Detailed notes were also taken to verify the record of data. Interview transcripts were sent to Lanka Harness for checking and verification, the interviews were conducted in Sinhalese except for the interview done with Mr. Pallewatta.

F. Data Analysis

The researcher interviewed the 10 employees until the data saturation level was reached. The employees were reiterating aspects Mr. Pallewatta answered and also the answers were repeated by several employees. At this

Table 1. Demographic Profile of Interview Participants

Designation	Gender	Educ...	Mins.
CEO	Male	Post Grad.	25
Manager	Male	Bachelors	20
Quality Leader	Male	Undergrad.	12
Team Leader	Female	Undergrad.	10
Team Leader	Female	G.C.E A/L	10
Team Leader	Male	G.C.E A/L	10
Assembly Line	Male	G.C.E O/L	8
Assembly Line	Female	G.C.E O/L	15
Assembly Line	Female	G.C.E O/L	10
Assembly Line	Female	G.C.E O/L	12
Assembly Line	Female	G.C.E O/L	13
		Total	145

level, the researcher felt that no significant new data or insights would be revealed and that at that point the data saturation has reached. Subject to data saturation, these 10 interviews provide sufficient information to interpret and address the research questions examined in this study. In addition to interviews, a half day visit to the assembly area was undertaken at the said organization on the same day.

Detailed notes were taken during discussions. Internal and external (publicly available) documents referred to in the study include manufacturing data reports, quality check reports, communication on progress reports submitted to the mother company (Ito Springs co. Japan) in English and Japanese, external notices on quality management, posters and notices on quality, human resource management documents, news archives, industry reviews and press releases, organizational charts,

magazine articles and website information, Material Lists, Material and Machine Specification Sheets (Japanese and English),ISO and British Standards Documents and Job Descriptions of Employees. Internal documents were classified as confidential documents and were not allowed to be taken away for coding and analysis purposes. However, permission was given to take notes.

Data analysis was done manually as earlier stated. This was an inductive study and a process to discover trends and themes used to systematically compare the findings and interpretations of text assigned to a particular category emerged in the analysis. The detailed description of the findings categorized in to key themes accordingly. In order to analyse data, an open coding system was utilized. Key themes of what characteristics of entrepreneurship enable TQM implementation, how entrepreneurs implement TQM and TQM methodologies utilized were investigated.

III. RESULTS

A. TQM systems

Japanese Quality Culture, Kaizen, 5S, Poka Yoke, ISO 9001:2008,14001:2004, 18001:2007, British Standards, TPM, Lean

B. Implementation of TQM

Training and Development both local and Japanese, Deming Cycle (PDCA),Daily Quality Meeting, Posters raising awareness, Inculcate Japanese Culture, Trust Culture, No peer pressure, Motivation through recognition, Multi skill training, Direct contact due to flat organizational structure, Quality Audit, Japanese principle's audit, Random Quality Checks, Quality Knowledge check on employees.

C. Entrepreneurial characteristics

Simplicity, Honesty, Persevering, Good communication, Kind, Accommodating, Listener, Loving, Empathetic, Father figure, Well read, Trustworthy, Knowledgeable, Direct, Results oriented, Motivating, Innovative, Passionate , Hardworking, Courageous, Grit, Confident, Logical, Flexible, Balanced, All-rounder, Leader, Manager, Trusts employees, Sees the bigger picture.

D. Future prospects

Working on an alternative to airbags, Expansion of Existing Factory, Mexico Factory, USA Factory, Airbus sensors, Boat Sensors, Motorcycle sensors.

IV. DISCUSSION AND CONCLUSION

In particular, this study is a response to the emerging need for qualitative research in the context of Sri Lanka. Therefore, the study examines (i) how entrepreneurs implement TQM best practices, and (ii) what entrepreneurial characteristics support the implementation of TQM best practices. The results depict thus Pallewatte is an entrepreneur and Lanka Harness is an entrepreneurially oriented organization. The findings reveal that the business model of Lanka Harness Co., is based on the concept of outsourcing. Pallewatte's entrepreneurial nature enabled him to exploit the opportunity to supply airbag sensors using labour and skills of Sri Lankan workers to Springs Co. of Japan at a reduced cost. This benefits both organizations as foreign investment and revenue is brought to Sri Lanka creating employment and lowering costs for the mother company.

Entrepreneurship involves gathering resources including man power, equipment, tools, time, raw materials and capital. In procuring these resources entails risk. Majority of new ventures fails within the first Five years of starting due to various reasons. The process of an entrepreneur remains same regardless of the sector or the industry. Lanka Harness Co. Ltd. started business with minimum capital but later on got investment from the mother company in Japan. Therefore, according to Pallewatte (2017), it is advisable for any entrepreneur to assess the risks before starting a new venture and highlighted the importance of having a contingency plan in order to alleviate/mitigate risks. In contrast, Pallewatte stated that he avoids risk as much as possible. However, one can interpret that it is a calculated risk in starting the company in Sri Lanka and achieve the quality standard. Pallewatte stated that he had always wanted to start his own business emanating that he needed to achieve something in life. He also had his own way with steely resolve and stated that he did not ask too many opinions from others. This depicts that a strong locus of inner control. Also, personal traits emphasized such as perseverance, guts, grit, creativity, optimism, hope, self-confidence, passion made it possible to face the challenges faced in starting a business as per

Pallewatte. These are the very same characteristics of a leader and that of a transformational leader.

It is known that cultural forces, sociological attitudes, environment and other sociological factors shape the behaviours and perception of one self in the context of entrepreneurship (Humbrick and Mason, 1984). Pallewatte stated that his father was very supportive to do what he wanted to do showing evidence of his supportive background. The results show many of the characteristics possessed by Pallewatte to be of same or similar nature supporting the upper echelons theory. Also, further characteristics such as Pallewatte's ethical behavior (integrity, honesty, tax payment etc...) can also be of support to the further developed and refined Upper Echelons Theory including ethics suggested by Van der Zee and Swagerman (2009). A person's formal educational background may to some degree, indicates a person's knowledge and skill base (Humbrick and Mason, 1984). Mr. Pallewatte is knowledgeable in English (First Degree) is an attorney at law and has a master's in Management. He is also an avid reader, speaks Japanese, and is self-taught on electronics and basic engineering concepts and quality. These factors are of direct correlation to the education on the upper echelon of an organisation.

The Japanese culture of politeness and other quality attributes such as 5S, Poka Yoke, Lean Management Principles are followed and inculcated along with the trust culture mentioned by the employees and Mr. Pallewatte himself. Lanka Harness has its very own production system and can be stated as a Lanka Harness System.

TQM best practices such as leadership, continuous improvement, human resource development, education and training, improvement tools and techniques, supplier quality assurance system and processes and work environment and culture were observed at Lanka Harness. Therefore, one can come to a conclusion that TQM excellence can be regarded as a fundamental criterion for achieving manufacturing excellence and thus performance as per the results for the case organisation. TQM environment is thus reliant on team work, participation, open culture, effective all-round communications, empowerment and devolution of decision making, effective measurement and fact-based decision making, motivated and trained staff, eradication of fear, removal of sources of problem and error, and continuous search for improvement regardless of its magnitude. These qualities were observed at

the case organization. In a follow up discussion with Mr. Pallewatte, he stated the need for TQM from the beginning and that notion tricked down permeating all levels of the organization enabling to achieve TQM. The importance of maintaining and improving product quality via incorporating and inculcating Japanese quality culture is the fundamental aspect in training. A salient feature of Lanka Harness Co. Ltd. is the trust culture within the organization. Human dignity is valued at the company and trust is something that is genuine and something that is carefully managed. Freedom is given to employees by not having them pushed around by supervisors and with trust, employees have kept their faith in the company. Most of the employees interviewed reciprocated this. It enhanced workers' operational flexibility, thus facilitating a more effective management of the workflow. This trust culture enabled us to minimize the resistant to change attitude.

Annual Japanese training is to improve employees' skills and competencies, and to give them the belief and confidence that they can make a different and an active contribution. Employees have taken an active part in identifying their training needs. Also, Pallewatte stated that it is "to show the world and quality culture".

Performance appraisals and rewards and elimination of supervisors hovering over employees is to motivate employees. Lanka Harness being a horizontal hierarchy less organization made it easy to convey the message of quality improvement processes. Importance of team work is highlighted especially in inculcating a feeling of one big Lanka Harness family notion. For the achievement of everyday tasks, employees were organized into multi skilled teams with responsibility for specific orders. Furthermore, teams were responsible for the continuous improvement activities. Team leaders were trained for their roles, and they were encouraged to keep up to date by attending training conducted by visiting Japanese representatives.

Employee participation was encouraged through the use of Kaizen. Employees were encouraged to put forward suggestions for improvement. They were not expected nor encouraged to provide financial justification for their proposals. Seeking improvement is now part of the culture and employees put forward suggestions without expecting a reward. This is done during the quality circle meeting in morning and evenings.

At Lanka Harness, learning that originates with top management and other individuals is transferred to groups in the organization which is known as feedforward learning. Learning is also transferred from the organization to individuals and groups through a feedback process. In general, it was observed that it was relatively easy for the management to communicate its organizational goals and provide leadership. Several staff members mentioned that they can contact the management directly.

The study shows that the necessary understanding can initially be developed through execution of careful education and training programs. The organization studied recognized that education, trust culture and training of all employees was a fundamental element of a successful TQM journey. Effective communication was an integral part of the TQM implementation process and day to day management of the company. Prominence to employees is given. Employees are informed of what is expected of them and how they can contribute to the attainment of organization's goals.

A. Limitations and recommendations

This research method is justified as it is an exploratory study focussing on how and why aspects of TQM implementation. Also, it is to note that this study is Rohan Pallewatte centric.

The case organisation is unique and there are no similar entities in Sri Lanka. There are licenced suppliers of some spare parts of to the sensor circuit and cables to the case organisation in Sri Lanka. They are also assembly plants in which they assemble their products which are shipped from Japan. It is extremely difficult to get data from organisations similar to the case organisation. Observation of the assembly plant of the case organisation was also done under careful supervision.

Interviews with at least 100 employees and the data collected through a Likert scale questionnaires could be used in the future to do an analysis on the same research questions as a quantitative study. Data could be then analysed using software such as SPSS analysis for quantitative analysis. NVivo software can be used if a qualitative study of the same nature is done. It will be possible to evaluate potential differences between organizations' groups of different typology (public /

private / service / industrial, etc.) with regard to the impact that TQM and entrepreneurial orientation have at the level of their performance.

In addition, a scale on customer relations can be added in future studies as one of the techniques of TQM. Evaluating customer relations as a technique of TQM is becoming more viable because TQM organizations are customer focused.

In addition, more in-depth case studies focussing more companies especially in Sri Lanka are needed which detail the impact of TQM elements and entrepreneurship initiatives. Study in this nature can be useful for policymakers and could be taken in to consideration when formulating economic policies especially in the Sri Lankan context.

This research can progress with greater emphasis on psychology and social psychology. However, this research is not an attempt of an in-depth foray on these subject areas. The research presents generalized statements based primarily on the case organization and its CEO's background in organizational theory and strategy.

Statistical studies may be fruitful for uncovering some broad relationships. Any such studies must be for a particular industry. These interactions could lead to increased understanding of the effects of demographic characteristics of top managers on the strategy and performance of their organizations and could be used for the betterment of Sri Lanka.

B. Conclusion

In conclusion, this study examined a unique case organization in order to investigate what entrepreneurial characteristics support the implementation of Total Quality Management (TQM) best practices and how entrepreneurs implement TQM best practices.

As observed in Lanka Harness Co. Ltd., and as stated in literature TQM is an overall administration approach on an organization based on the human aspect at the centre of the philosophy. It is based on continuous improvement of the process and mutual respect of each other. The

ultimate goal of TQM is satisfaction of both external customers and internal (employees) of the organization.

TQM philosophy is applicable to any organization and can be adopted by governments and non-governmental organizations alike. Accordingly, successful adoption of TQM best practices is somewhat complicated and is difficult to achieve without carefully managing the human resources of the organization. Also, change management is imperative when adopting TQM practices initially as by human nature, humans are somewhat resistant to change initially. The importance of training, continuous improvement come to light with this notion. With proper training, employees can be TQM inculcated. But it does take some time as in the case of Toyota Corporation as it took nearly three decades of TQM practices at Toyota for a unique system of TQM called the Toyota Production System to evolve. Modern companies like Lanka Harness has invested on human resources and has gained the advantages from adopting TQM as analysed in this study.

Pallewatte mentioned during a follow up interview that tacit knowledge of employees and unique skills is something that cannot be imitated and then replicated by the competitors. With good communication and work ethic and team spirit, employees of Lanka Harness have truly harnessed the synergy or collective energy that has led to the meteoric rise of this unique organization and it is the key to improved performance.

Also, it has to be noted that every organization has a unique culture of its own and likewise, Lanka Harness also has its own collection of norms (TQM), values (Respect), beliefs (Continuous Improvement) and expectations (Trust) held by the members of the organization. It depends upon management policies and employee actions. TQM has benefited the case organization as it eliminated errors, reduced waste thus improving company performance while achieving sustainability and customer satisfaction covering all TQM aspects.

The results showed several entrepreneurial characteristics that supported the implementation of TQM best practices and how entrepreneurs implement TQM best practices. In doing so, this study attempted to expand the boundaries of knowledge pertaining to entrepreneurial orientation and TQM especially within the Sri Lankan context.

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IMPACT OF MULTI-SENSORY BRAND EXPERIENCE ON IMPULSE BUYING TENDENCY: WITH SPECIAL REFERENCE TO SUPER MARKETS IN SRI LANKA

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Abstract- It is important to understand sensory stimulation of people in human environments in designing super market. Human senses play significant roles in human experience and the memories. In retail design brands related to sensory experience attract customers and stimulate strong, positive, and distinctive impression across all five senses. In this study multiple sensory cues are found in relation to sight, sound, scent and touch. The main objectives of executing this research is to investigate the impact of multi-sensory brand experience attributes; sight, sound, scent and touch on impulse buying tendency of Sri Lankan Super market consumers and to identify the most influential sensory attribute that impacts impulse buying tendency.

A quantitative study carried out under this research using a survey method and convenient sampling techniques was used. The researcher used regression analysis technique in order to test the hypothesis and identifying the impact multi-sensory branding experience on impulse buying tendency, addressing the significance of each independent variable.

According to the findings of the study it was revealed, there is no significant influence of sound and touch on impulse buying tendency whereas there is a significant impact of sight and scent on impulse buying tendency. Further finding revealed that Sight is one of the most important sensory channels in comparison to other sensory receptors such as sound, smell, touch, and taste on impulse buying tendency of Sri Lankan super market consumers.

Keywords- Multi-sensory branding, experiential marketing, Super market, Impulse buying tendency

I. INTRODUCTION

The concept of 'Super Markets' has been originated in between 1920s to 1930s. Further it has become to a dominant situation in late 1950s. Before the concept of 'Super Markets' the name of 'chain stores' had been used which started in late 1870s (Reardon and Gulati, 2008). Though in the early days customers more focused on product functioning or attributes, at present day's customers are more concerning the added benefits given to them and one of those is the store experience which cannot be neglected (Turley and Milliman, 2000). In addition to that brands that are more responsive to the consumers' changes have been able to survive from the cluttered marketing environment in the present (Fournier, 1998). In the current technologically sound era with more informed customers with higher expectations, it has become imperative to shift attention from the features and benefits based approach where experiences are capitalized. The constantly growing competition in the market requires companies to come up with new methods to differentiate from others (Wanivenhaus, 2015). Based on this context companies have the opportunity to stage differentiated experiences using sensory stimulations which make their offerings more unique and memorable. Added to this the senses play significant roles in consumer experience and emotions tied to it. In retail design brands related to sensory experience attract customers and

stimulate strong, positive, and distinctive impression across all five senses.

Therefore marketers need to provide an enjoyable shopping experiences and to reach the minds and heart of the customers, and this shopping experience can lead to the impulsive buying behaviour of the consumers (Unsalan 2016). The term impulsive buying is generally considered to be synonymous with "unplanned buying" which describes any purchases made by the customer without previously planned in advance (Stern, 1962). While there are number of factors affected on the impulsive buying of the consumers, in this study has been focused on multi-sensory brand experience on the impulsive buying decision of the customers of Sri Lankan super markets. The connection that could exist between multi-sensory brand experience and impulse buying tendency of customers in particular, rarely has been researched by scholars before. Hence, researcher intends to build a unique conceptual argument, empirically test its relevance and add novel knowledge in an area where existing literature is minimal.

Further Ghani and Jan (2011) have mentioned that factors such as the shopping environment, product display, shelf location and space and mood which are the element of multi-sensory brand experience, can effect on the impulsive buying behaviour and influences of these factors need to be examined on the future researches.

II. LITERATURE REVIEW

"In branding literature, the concept of brand identity is defined as a unique set of brand associations that a firm can create or maintain" (Aaker, 2014). In other words, it is the impression or the unique space the brand intends to occupy in the consumer's mind. It may involve a value-proposition with functional, emotional or self-expressive benefits. The emotional linkage between a brand and a consumer is important in building strong brands. Researchers also confirms that consumers look for and buy emotional experiences around what has been bought and no longer buys products and services alone (Brembeck and Ekstro, 2004). Hence, the modern marketing practitioners have realized the need to go beyond conventional methods of creating brand identity. With that arena sensory elements are increasingly becoming important when conceptualizing a revised corporate identity construct (Bartholmé and Melewar,

2011). Furthermore it is essential to move attention from the features-and-benefits approach advocated by traditional marketing to given that customers with experiences. In contrast to its narrow focus on functional features and benefits in traditional marketing, experiential marketing focuses on customer experiences. Experiences occur as a result of encountering, undergoing or living through things. Experiences provide sensory, emotional, cognitive, behavioural, and relational values that replace functional values (Schmitt, 2014).

C. Sensory Branding

Sensory branding is based on the phenomenon that human beings most likely to form, retain and revisit memory when all five senses (taste, smell, sight, sound and touch) are engaged (Hussain, 2017). Sensory branding uses these human instincts as a strategy to sell their goods or services by creating such environment that appeals to senses at the point of sale.

D. Multi-Sensory Branding

"A multi-sensory brand-experience takes place when more than one of the five senses contributes to the perception of sensory experiences" (Hultén, 2011). The multi-sensory brand experience is defined as a multi-sensory brand-experience supports individual value creation and refers to how individuals respond when a firm interacts, and supports their purchase and consumption processes through the involvement of the five senses in generating customer value, experiences, and brand as image (Hultén, 2011).

Building on Bitner's (1992) categorization of the three environmental dimensions of retail atmosphere which are; ambient conditions; space/ function; and signs, symbols and artefacts, and drawing on Kotler's (1973) categorization of store atmosphere (visual, aural, olfactory and tactile), Soars (2009) categorized retail atmosphere according to the four senses of sight, sounds, smell and touch. (Clarke, Perry and Denson, 2012)

E. Impulsive Buying Behavior

Impulse buying behaviour is a sudden, persuasive, hedonically complex buying behaviour in which the rapidity of an impulse decision process precludes thoughtful and deliberate consideration of alternative

information and choices (Park, Kim and Forney, 2011). Given the focus on experiential aspects of consumption, it seems vital that marketers understand impulse buying behaviour at super market from an experiential perspective. Further sensory branding strategy aims to generate positive emotional state in the minds of the consumers and thereby influence impulse buying tendency.

Hence following research main questions and sub research questions were developed for the study:

1. Is there an impact of multi-sensory brand experience on impulse buying tendency in super markets
 - a) Is there an impact of sight on impulse buying tendency in super markets?
 - b) Is there an impact of sound on impulse buying tendency in super markets?
 - c) Is there an impact of scent on impulse buying tendency in super markets?
 - d) Is there an impact of touch on impulse buying tendency in super markets?
2. What is the most influencing sensory branding element/elements that stimulates impulse buying tendency in super markets

With the intention of coming with answers for the research questions developed under the study the following objectives were established.

1. To examine the impact of multi-sensory brand experience on impulse buying tendency in super markets
 - a) To examine the impact of sight on impulse buying tendency in super markets.
 - b) To examine the impact of sound on impulse buying tendency in super markets.
 - c) To examine the impact of scent on impulse buying tendency in super markets.
 - d) To examine the impact of touch on impulse buying tendency in super markets.

F. Multi-sensory brand experience and Impulsive Buying Behaviour

It is evident that the types of senses that build a multi-sensory brand experience have been categorized as attributes of store atmosphere by well reputed researchers. Namely they are sight, sound, scent and touch. Taste is not given prominence by researcher in this context as it is less applicable pertaining to the multi-sensory experience created within Super markets. Further it is emphasized that the stimulating positive sensorial emotional states and providing customer with a favourable shopping experiences within the store has a high possibility on resulting in impulse buying. There for it is rational to build following hypothesis.

Music refers to a complex set of expressive sound collection since it contains some key elements like rhythm, pitch, melody and harmony. According to preview studies music not only stimulate impulse buying independently but also interact with other factors to affect impulsive buying behaviour (Demoulin, 2011). Background music coordinating with other factors, has such effects like reducing consumers' time perception of purchase and waiting (Gelinac-chebat and Filiatrault, 1993) affecting consumers' perception of the entire environment (Hui, Dube and Chebat, 1997) Increasing sales (Morrison et al., 2011) influencing consumers' impulsive buying tendency (Morrison et al., 2011) changing consumers' experiencing attitude (Morrison et al., 2011) and promoting consumers' interaction with the environment (Morrison et al., 2011). Considering about the above facts background music is able to influence consumers' perception and stimulate consumers' positive emotion, so that consumers can enjoy the shopping experience and be more likely to have impulsive buying behaviour. Hence second hypothesis aims to discover whether music has a significant impact on impulsive buying tendency

H1: Music has a significant impact on impulsive buying tendency.

As well as music, the smell of the store can also directly influences on the emotions and moods of the consumers (Levy and Weitz, 2002). Further the pleasant environment of the store makes customers to spend more time looking through merchandise,

which will result in impulse buying. Moreover, how the store smell impacts on the impulse buying behaviour has been identified by Matilla and Wirtz (2008) and Mohan (2013) in their studies. Hence the next hypothesis of this study is that:

H2: Smell has a significant impact on impulsive buying tendency.

Retailers use window displays in the façade of the store to attract customers into the store and provide message about the products offered inside the store (Levy and Weitz, 2002). As cited in Levy and Weitz (2002), Cornelius (2010) mentions that well designed storefront window displays are regarded as useful technique to attract the attention of new customers and motivate them to visit the store. Further Mehta (2014) suggested that there are positive relationships between window display and impulse buying and therefore, this research proposes the hypothesis as:

H3: Sight has a significant impact on impulsive buying tendency.

The sense of touch, also called tactile sense, allows humans to have physical contact with their surroundings.(Hulten, 2011) The providing opportunity to touch products has been shown to have an influential impact on customers' attitudes and behaviour (Peck and Wiggins, 2006). Further peck and wiggins (2006) mentioned tactile encounters are likely to persuade people to make impulse purchases and even buy items they usually do not recognize. Therefore it is rational to suppose an optimistic impact of touch on impulse buying tendency

H4: Touch has a significant impact on impulsive buying tendency

III. RESEARCH METHODOLOGY

The considered research design for the study is positivist / scientific research where the researcher is concerned with gaining knowledge in a world which is objective using scientific methods of enquiry. A quantitative study carried out under this research using a survey method within the premises of western province. The study was considered as single cross sectional design which uses one sample and carried under non-contrived settings. In this study population was identified as Super market consumers and convenient sampling used as a sampling techniques. "A sample size should be adequate enough that can serve

our purpose. If should have efficiency, Flexibility and reliability" (Kothari, 2010). Hence Sample size set in 200 super market consumers. Data were analysed through both inferential and descriptive statistics. As an inferential statistical tool, the researcher used regression analysis technique in order to test the hypothesis and identifying the impact multi-sensory branding experience on impulse buying tendency, addressing the significance of each independent variable.

Reliability were tested and computed Cronbach's Alpha measures are greater than the standard 0.7, except for the variable Touch. However, according to Naresh K. Malhotra, if a dimension or variable has at least a Cronbach's Alpha value of 0.6 it is sufficient for reliability. Hence, it could be concluded that the data collected for this study are highly reliable. As per results generated in KMO, Bartlet's test of sphericity, composite reliability, AVE evident that all criteria testing convergent validity has been satisfied. In other words, it is ensured that the items developed to measure a specific dimension/variable highly correlate with the specific dimension/variable. Reliability and Validity tests were satisfied according to their tests and standards. Hence, it is revealed that the data collected through the questionnaires are pure and valid.

IV. DATA ANALYSIS AND FINDINGS

In order to test the developed hypothesis, Multiple Linear Regression is used. It is being used to infer the impact of independent variables on the dependent variable.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.487a	.237	.222	.33584	1.812

It is a statistical technique that simultaneously develops a mathematical relationship between two or more independent variables and inter-scaled variables. In this study a multiple linear regression is carried out to examine the impact of the four independent variables; sight, sound, scent and touch on the dependent variable; impulse buying tendency.

Table 2. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.938	4	.734	3.746	.006a
Residual	40.195	205	.196		
Total	43.133	209			

Model summary (Table 1) computed through regression analysis, the R square value is 0.237. R square value represents the total variation of the dependent variable; Impulse Buying Tendency that can be explained by the independent variables; sight, sound, scent and touch. In this study it could be interpreted as, 23.7% variance of impulse buying tendency could be explained by the sensory stimuli created through sight, sound, scent and touch.

The regression model is evaluated to identify the impact of independent variables on impulse buying tendency. According to the ANOVA table P value is less than 0.05 at 95% level of confidence interval. It indicates that the overall regression model that's been generated is statistically significant and is a good predictor of the dependent variable. In other words, the regression model is well fitted and predicts the dependent variable; impulse buying tendency significantly well.

In hypothesis testing, analysed with the outcomes of the regression analysis. The regression model is evaluated to identify the impact of independent variables on impulse buying tendency, and to identify the most significant variable affecting impulse buying tendency. In order to do so, coefficients table is scrutinized.

When investigating the Sig. value of the independent variables of the model, it is evident that Sig. value of Sight and scent are less than 0.05 with a positive standardized coefficient of 0.208 and 0.089 respectively. However, the Sig. values of Music and Touch are greater than the alpha level 0.05.

Hence it could be concluded that, there is no significant impact of sound and touch on impulse buying tendency whereas there is a significant impact of sight and scent on impulse buying tendency.

Table 3. Coefficients

Mode	Unstandardized		Standardized	t	Sig
	B	Std. Error	Beta		
(Constant)	2.406	.286		8.423	.000
MUSIC	0.037	.063	.053	0.598	.551
TOUCH	0.046	.066	.057	0.692	.490
SIGHT	0.208	.084	.221	2.461	.015
SCENT	0.089	.042	.160	2.099	.037

V. DISCUSSION AND CONCLUSION

As consumer decision making has shifted from the rational to the emotional and experiential, consumers subconsciously require engagement of five senses within the shopping environment to be induced to purchase (Kim et al., 2009). This study was carried out with main five objectives in mind. That is to examine sight, sound, touch and scent individually impacts impulse buying tendency and to identify the sensorial element that influences impulse buying tendency the most. According to the Data analysis, it was identified that sight and scent are the sensorial element that has a significant impact on impulse buying tendency; with regard to Super market consumers in Sri Lanka. Further sight is the most important and influential factor on impulse buying tendency with standardized coefficient of 0.221. Sound and Touch did not reveal to be having such impact on impulse buying tendency.

Hence, the empirical findings of this study agree with the fact that, "Sight is one of the most important sensory channels in comparison to other sensory receptors such as sound, smell, touch, and taste" (Krishna, 2007). Lindstrom (2005) mentioned that sight often over rules the other senses, and has the power to convince us against all rational. As per existing literature, shoppers are able to form images, associations, perceptions, and memories of their shopping experience through visual experience (Bagdare and Roy, 2016). Vieira (2010) found aesthetic design factors to influence consumer patronage, satisfaction, and money spent in a store. It was revealed

in this research that sight has a significant impact on impulse buying tendency. Further Visual merchandising practices, serving as stimuli that incite a desire that eventually motivates a consumer to make an unplanned purchase decision upon entering the store, significantly influence consumers' impulse buying behaviours.

Further, conceptual literature about sensory branding speaks about certain industries which would be have a richer impact of non-visual stimuli. "Floor (2006) stated that coffee shops, candle stores, perfumeries, bakeries, and lots of other stores are characterized by the smell of their products as part of their experience". Specific fragrances perform precise functions. Similarly this study reviled scent have a significant impact on impulse buying tendency.

However, as per the research findings, it was clearly revealed that even though multi-sensory brand experience (sight, sound, scent, touch) may be able to provoke other consumer behavior patterns, through this study, it was revealed that, sight and scent are the only influential variable in inducing impulse buying tendency Super market consumers in Sri Lanka.

Therefore, super market store owners are suggested to involve sight related, visual tactics and scent related stimuli in order to stimulate impulse/unplanned purchases. Because according to the research finding, if visual experience and scent related stimuli were at its optimal level, it would motivate the customer to spend more time and buy more than what they had planned.

VI. LIMITATION AND RECOMMENDATION FOR FUTURE RESEARCH

Main limitation of this study was effects of sensory branding strategies occur subconsciously through the sensory stimuli provided however, when gathering data for the research respondents were asked to fill in the questionnaire in a fully conscious state. Thus, there is a possibility of the respondent not being able to comprehend and capture his or her subconscious state of mind that existed within the staged sensory shopping environment at the point of purchase. Since this research involves psychological variables, direct human interaction would aid in deriving a deeper understanding

of the phenomena and identifying overlooked factors of structured questions. Hence, it is suggested to research in qualitative approach as well as in quantitative approach for further research purposes.

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FACTORS INFLUENCING THE USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN SMEs IN BALANGODA AREA

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Abstract- Small and medium enterprises are the main influencing business sector of the Sri Lankan economy as well as all the developing countries. Information and Communication Technology is playing a major role in Small and Medium Enterprises. The main objective of this study is to examine the factor influencing the ICT adoption in SMEs in Balangoda area. The study examined the effect of cost of ICT, knowledge about ICT, ICT infrastructure and Perceived benefits associated with Information and Communication technology on its usage. Primary data were used as the data source of the study. As the sample of the study, researcher selected 50 SMEs established in the Balangoda area. Data were collected using a structured questionnaire and analyzed those using descriptive statistics, correlation and regression analysis. The results reveal that cost, knowledge, infrastructure and benefits of information and communication technology effect its use in small and medium enterprises. According to finding of the research, cost of ICT negatively affect for the usage of ICT in SMEs. But knowledge about ICT, ICT infrastructure and perceived benefits positively affect for the usage of ICT in SMEs. Therefore, owners of the SMEs should increase their knowledge about new ICT usage within the business organizations, should know how use ICT infrastructure to increase ICT usage in the organization. Perceived benefits is the strongly affective variable than the other Therefore, SME must apply the effective, efficient and employee friendly ICT system.

Keywords- ICT, Cost, knowledge, infrastructure

I. INTRODUCTION

SMEs (Small and Medium Size Enterprises) are defined in different ways by various countries using some features such as number of employees, capability of capital investments, amount of turnover as well as business nature etc. In Sri Lanka, there are different criteria to identify SMEs such as the number of employees, the size of fixed investment, and the nature of the business and the sector. In addition, there are different terms are used to identify this sector as well as SMEs. Small and Medium activities, Micro Enterprises, Rural Enterprises are the various names which are used to called SMEs.

Using as the criteria, the size of capital and the number of employees, the Industrial Development Board (IDB) defines a small industry as an establishment whose capital investment in plant and machinery does not exceed Rs.4 million (US\$42,000) and the total number of regular employees does not exceed 50 (Lanka, 1998).

Companies today are adopting ICT in all aspects of their businesses, not only improving business processes and task efficiency, but also for improving engagement and communication with their customers (Mutula & Van Brake, 2007) and also SMEs across the world are currently developing their businesses by adopting ICT. They have, market changes, controlling business cost, customer expansion, and wealth creation just to mention a few (Olatokun & Bankole, 2011). ICT is one of the forces in the economic growth (Kiveu & Ofafa,

2013), thus a reason why small and medium enterprises (SMEs) adopt it in order to promote their business performance. Consequently, ICT enables other sectors to develop economically, and yet SMEs are not quickly adoption and use (Ongori & Migiro, 2011). Because of local and global competition, every businesses trying to use ICT in their Business activities using phones, emails, fax video conferences etc. Using ICT in business activities is generated effective and efficiency operational in SMEs such as growing their operational activities, promoting their business activities not only local but also global, and also innovating using ICT?

ICT is viewed as a main factor of productivity, growth and economic progress and is an essential component in the knowledge based economy. In Sri Lanka both of large enterprises and SMEs are using ICT. Nowadays usage of ICT become very essential for survive in the market and achieve each and every objectives of the business. ICT plays a important role, because it can help SMEs both create business opportunities and combat pressures from competition (Swash, 1998). Adoption of ICT can help SMEs reduce costs by improving their internal processes improving their product through faster communication with their customers and better promoting and distributing their products through online presence. Therefore, ICT has to improve the core business of SMEs in path of the business process. Therefore, every business is trying to use ICT in the business activity. Business should know the determinants of ICT usage and factors that drive or constraint its adoption and use. While most of SMEs are using ICT some similar SMEs are not using ICT at all or ICT adoption in SME is still limited for their business purposes.

In Sri Lanka there is a few number of research regarding factors effecting the usage of ICT in SMEs. Balangoda is a rural Area. Balangoda Area also has more SMEs. So that more factors are influencing for ICT usage SMEs in Balangoda Area as well as the other Area. Researcher

unable to found out Research from Balangoda Area to identify the factors that affect the use of ICT in SMEs. This study aims to examine the factors influencing the use of ICT in SMEs in Balangoda Area. There for research problem is, identifying Factors which are influencing the Usage of Information and Communication Technology among SMEs in Balangoda Area. Questions of the research are,

1. What are the factors influencing to the usage of ICT in SMEs in Balangoda Area?
2. How are those factors affecting to the usage of ICT in SMEs in Balangoda Area?

Main objective of this study is to examine the factors that affect the use of ICT in SMEs. This objective is satisfied achieved through following sub-objectives.

1. To identify the factors that influence on usage of ICT in SME in Balangoda Area.
2. To examine the impact of various factors on usage of ICT in SME in Balangoda Area.

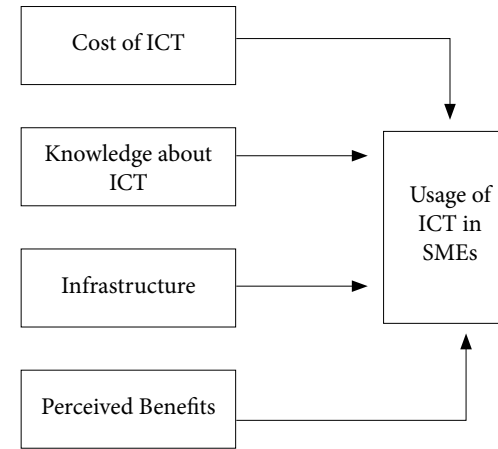
II. METHODOLOGY

The population of this study was SMEs in Balangoda Area. Researcher selected a sample of 50 SMEs population to carry out this study. Primary data were used for this study. 100 questionnaires were distributed among the SMEs to collect the primary data. Secondary data were taken from previous research, article, newspapers and thesis.

Collected data were analyzed by using SPSS – version 20 to find descriptive statistical measurement such as Mean correlation, Regression, Descriptive analysis, Standard deviation. Analyzed data was used for test the stated hyp

A. Conceptual Framework

Figure 1. Conceptual Framework



Source: develop by researcher

B. Research Hypotheses

- H 1: Cost of ICT adoption discourages the use of ICT in SMEs.
- H 2: Knowledge of SMEs owners about ICT has an impact on usage of ICT in SMEs.
- H 3: ICT infrastructure and facilities promote usage of ICT in SME.
- H 4: Perceived benefits of ICT encourage usage of ICT in SME.

B. Descriptive Analysis

Table 2. Descriptive Statistics

Variable	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std.Error	Statistic	Std.Error
Cost of ICT	2.06	.489	.282	.337	.021	.662
ICT Infrastructure	3.78	.642	-.215	.337	-.612	.662
Knowledge about ICT	3.61	.596	-.118	.337	-.524	.662
Perceived Benefits	3.70	.552	.125	.337	-.753	.662
Usage of ICT	3.74	.598	.046	.337	-.711	.662

III. DATA ANALYSIS

A. Reliability Analysis

To identify the internal consistency of the all constructs that were used to evaluate the key research variables was measured using Cronbach's alpha.

Table 1. Result of Reliability Test.

Variables	No of Item	Cronbach's Alpha
Cost of ICT	4	0.709
ICT Infrastructure	5	0.850
Knowledge about ICT	4	0.715
Perceived Benefits	4	0.711
Usage of ICT	4	0.792
Overall	21	0.889

According to the result of reliability test, each construct received alpha value over 0.7. This value is generally considered as the standard value. Therefore, reliability of all constructs are accepted.

Result of table 2, indicate that selected SME owners perceive that cost of ICT is a huge constrain to them, SMEs have sufficient ICT infrastructure in their region to carry out their business, they have moderately high level of knowledge about the ICT, and SMEs owners have good understanding about the benefits that can be achieved through the use of ICT.

C. Correlation Analysis

Table 3. Results of Correlation analysis.

		Usage of ICT
Usage of ICT	Pearson Correlation Sig. (1-tailed)	1 -
Cost	Pearson Correlation Sig. (1-tailed)	-.258 .070
infrastructure	Pearson Correlation Sig. (1-tailed)	.772 ** .000
Knowledge	Pearson Correlation Sig. (1-tailed)	.677 ** .000
Perceived benefits	Pearson Correlation Sig. (1-tailed)	.836** .000

*. Correlation is significant at the 0.05 level (1-tailed).
 **. Correlation is significant at the 0.01 level (1-tailed)

According to Table 3 results, there is an insignificant negative relationship between the cost of ICT and ICT usage in SMEs. Therefore, this results not support to the first hypothesis (H1) of the study. ICT infrastructures affect positively way to usage of ICT. Those values indicate that ICT infrastructure promote usage of ICT in SMEs and there is a positively relationship between knowledge about ICT and ICT usage. That means there is a significant relationship between perceived benefits and ICT usage. Therefore, H2, H3 and H4 can be accepted.

D. Regression Analysis

Table 4. Results of Regression Analysis.

R Square	Adj. R Square		Sig. value	F value	
	0.802	0.784	0.000	45.523	
Mode	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	0.502	.350		1.435	.158
Cost	-.209	.083	-.171	-2.531	.015
infrastructure	.286	.095	.307	3.008	.004
Knowledge	.225	.087	.224	2.591	.013
Benefits	.479	.119	.441	4.031	.000

Table 4. 1. Correlation and Regression Analysis.

Accepted	Correlation analysis			Regression analysis		
	Sig	P	Result	Sig	B	Result
H ₁	0.070	-0.258	Rejected	0.015	-209	Accepted
H ₂	0.000	0.772	Accepted	0.004	0.286	Accepted
H ₃	0.000	0.677	Accepted	0.013	0.225	Accepted
H ₄	0.000	0.836	Accepted	0.000	0.479	Accepted

Correlation analysis, second hypothesis which is Knowledge of SMEs owners about ICT has an impact on usage of ICT in SMEs accepted at 0.000 significant level. And also under the regression analysis second hypothesis accepted under the 0.044 significant level. Third hypothesis which is ICT infrastructure and facilities promote usage of ICT in SME accepted at 0.000 significant level. And also under the regression analysis third hypothesis accepted under the 0.013 significant level

And fourth hypothesis which is Perceived benefits of ICT encourage usage of ICT in SME accepted at 0.000 significant level. And also under the regression analysis fourth hypothesis accepted under the 0.000 significant level. Under the both of Pearson correlation and regression analysis indicates that, there is a significant and positive relationship between infrastructure, knowledge about ICT and Perceived benefits and Usage of ICT in SMEs. According to Regression analysis, F value represents that whether overall regression model fit to the data or not. In this study F value was 45.523 and it shows that there is a good fit with overall regression model. The adjusted R2 was 0.784 (78.4%) and adjusted R2 value represent that Cost of ICT, ICT infrastructure, Knowledge about ICT and Perceived benefits have ability to influence 78.4 percent to total variation of ICT usage.

IV. CONCLUSION

According to the results of regression analysis, Cost of ICT negatively affect for the ICT usage in SMEs. Knowledge about ICT, ICT infrastructure and Perceived benefits positively affect for the ICT usage at standard significant level. According to the results of correlation of analysis, cost of ICT negatively impact on usage of ICT in SMEs. Knowledge about ICT, ICT infrastructure and perceived benefits positively impact on usage of ICT in SMEs. But, only Cost of ICT not influence at standard significant level. Knowledge about ICT, ICT infrastructure and Perceived benefits have significant relationship with Usage of ICT in SMEs. When consider about results of regression analysis, Cost of ICT plays a major role when using ICT in SMEs and there is a negatively relationships between Cost of ICT and Usage of ICT in SMEs. The other selected independent variables like Knowledge about ICT, ICT infrastructure and Perceived benefits are affecting to the Usage of ICT in a positive way.

V. RECOMMENDATION

According to Study, SME owners should give priority to knowledge about ICT. Because, knowledge about ICT is affecting in significantly positive way and owners can control their knowledge than the other factors. When increase the knowledge about ICT owners will expect to use ICT for their business than current ICT usage level. Then, their perceived benefits of ICT also will increase than the current level. Following recommendations can be

made based on the research findings. SME owners should increase their knowledge about new ICT trends and new practices within the industry and their competitors. Manual bill systems, inventory control systems and other manual process should be reduced to increase efficiency of the business process and reduce business cost. Conduct an ICT training program for employees based on their jobs.

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ANALYSIS OF KNOWLEDGE SHARING BARRIERS IN SRI LANKAN SOFTWARE COMPANIES

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Abstract- Knowledge sharing is a cornerstone for software companies as they are knowledge intensive organizations and expertized knowledge generates the key to success of organization. This study is a survey-based empirical investigation which conducted to identify current status and the existing knowledge sharing barriers in software companies in the context of Sri Lanka. In order to provide a more comprehensive and complete description to the related study, quantitative research method is used to conduct the survey with staff of the development teams in selected software companies. The Theory of Planned Behaviour is applied as the basis of this study in order to create the relationship between knowledge sharing behaviour, intention and attitude for knowledge sharing. Questionnaire was designed considering individual, organizational and technical factors based on previous literature covering dependent variable; attitude for knowledge sharing; and independent variables; motivation and willingness, trust, time, power relationships, expected reciprocity, communication skills, organizational culture and structure, leadership, reward systems, and technology. Structural equation modelling is used to analyse data, in order to assess both measurement model and structural model. According to findings, hypothesised associations with motivation and willingness, time, power relationships, expected reciprocity, communication skills, organizational culture and structure, and leadership were identified to have a significant impact on knowledge sharing attitude while, trust, reward systems, and technology depicts no significant relationship. Findings further emphasize lack of time, improper organizational structures, power relationships and language as the main barriers in software companies.

Keywords- Knowledge sharing attitude, Quantitative research method, Structural equation modelling

I. INTRODUCTION

Knowledge is a critical organizational resource and the management of this knowledge is key to long-term sustainability and success of organizations. Efficient management of knowledge is not possible without a proper process of knowledge sharing (Paulin and Sunneson, 2012; Andreasian and Andreasian, 2013). Knowledge sharing is the process which integrates and merges knowledge among each individual and teams in an organization by exchanging each other's tacit knowledge, and explicit knowledge (Paulin and Sunneson, 2012; Andreasian and Andreasian, 2013). Most of the issues arising in the software companies are identified as a result of inefficient knowledge sharing. To improve the organizational performance, knowledge should be shared in a structured way that the right knowledge is conveyed to the right person at the right time. Knowledge sharing in software companies has been attained a considerable attention of researchers in recent years. This paper focuses on identifying the current status of knowledge sharing and its barriers in software companies in the context of Sri Lanka by employing an empirical investigation. Moreover, this study focuses on the concept, 'Theory of Planned Behavior' (TPB); an extended concept of predicting behavior in any social situation; and applies this theory as the basement of this research work. The contribution of this study consists of baseline data and recommendations which could be a source of general guidance for academic researchers in

stimulating future research in the context of knowledge sharing. This research presents a description to research problem, a literature study that integrates studies of current status of knowledge sharing behavior and studies of knowledge sharing barriers in the context of software industry, overview of the research method, and analysis of the survey results, discussion of the study and finally conclusion and future research possibilities.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

G. Research Design and Hypothesis

Taking previous research into account and concerning insights from earlier empirical investigation into knowledge sharing in software companies, a number of hypothesis have been formulated. The proposed hypothesis are listed below; **H1.** Motivation and willingness influence on employee attitude towards knowledge sharing, **H2.** The level of trust among individuals influences on employee attitude towards knowledge sharing, **H3.** Time influences on employee attitude towards knowledge sharing, **H4.** Power relationship influences on employee attitude towards knowledge sharing, **H5.** Expected reciprocity influences on employee attitude towards knowledge sharing, **H6.** Communication skills influence on employee attitude towards knowledge sharing, **H7.** Organizational culture and structure influence on employee attitude towards knowledge sharing, **H8.** Leadership influences on employee attitude towards knowledge sharing, **H9.** Reward systems influence on employee attitude towards knowledge sharing, **H10.** Technological infrastructure influence on employee attitude towards knowledge sharing.

H. Questionnaire Design and Data Collection

The primary objective of this study is to provide a more complete and a comprehensive description of

the knowledge sharing and the obstacles against knowledge sharing in Sri Lankan software industries engaged in software development by following a survey based empirical research method. In order to provide a more comprehensive and complete description to the related study, quantitative research method is used to conduct the survey, which is a questionnaire based survey study.

The questionnaire was designed with three main dimensions based on previous literature; individual factors, organizational factors and technical factors (Kukko, 2013). These three dimensions were divided into eleven subsections based on the factors which affect each dimension as found in previous literature. According to previous literature, above-mentioned variables could be identified as dependent variables (attitude for knowledge sharing) and independent variables (motivation and willingness, trust among individuals, time, power relationships, expected reciprocity, communication skills, organizational culture and structure, leadership, reward systems, technological infrastructure). Based on these dependent and independent variables the research model is created. The research model in Figure 1 shows the variables which used to design the questionnaire. First, the profile and demographics of the participants (age, gender, current position, and work experience) were questioned and continued with the questions focused on eleven subsections. Five-point Likert-type scale was used as the scaling method in order to scale the responses provided by the respondents. Respondents had to make their level of agreement for each item such as strongly agree, agree, no idea, disagree and strongly disagree. For each of these levels of agreement, assigned scores 5,4,3,2, and 1 respectively, and score 3 was considered to be the middle value, where it represents neither negative nor positive response (Vasanthapriyan et al., 2017). The purpose of introducing Five-point Likert-type scale in this survey is to measure the level of favorable attitude towards the dependent variable (attitude for knowledge sharing) with contrast to the level of each independent variable.

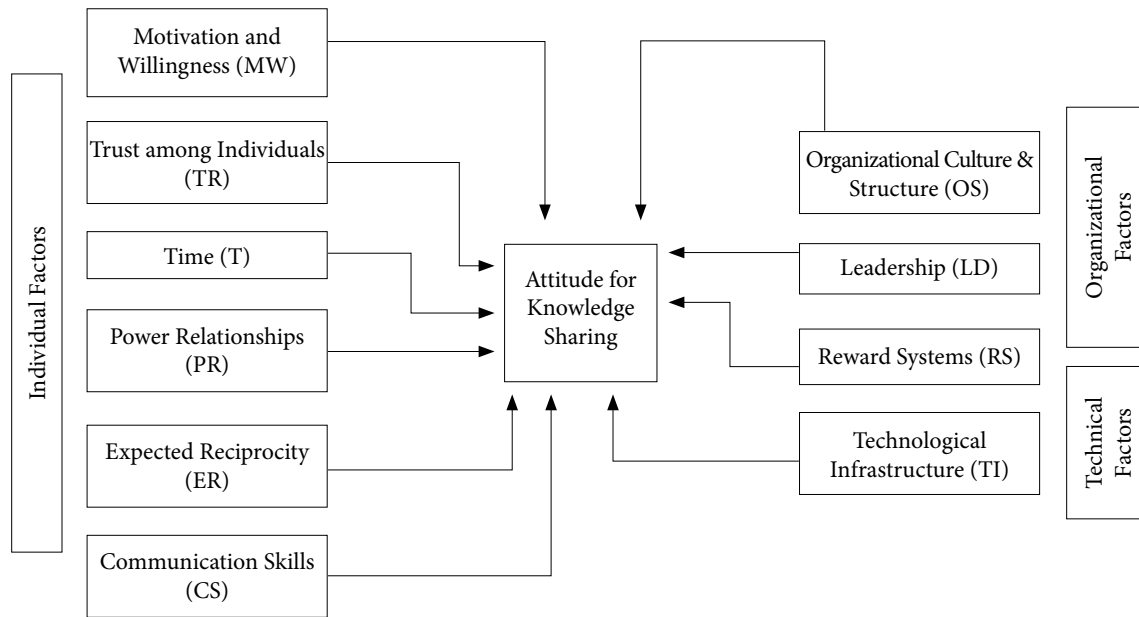


Figure 1. The research model

The preliminary designed questionnaire was pilot tested with 30 individuals from Sri Lankan software industries to check whether the survey items were clear, meaningful and understandable (Vasanthapriyan et al., 2017). They were asked to provide comments and feedback on the questionnaire regarding readability and understandability of the questionnaire and improvements for the design of the questionnaire. Based on their feedback minor modifications were made to the survey items such as wording and formatting. Few items were found difficult to understand by majority of the respondents. Hence, these items were modified in order to remove the ambiguity and to provide required meaning in an understandable format. Finally modified questionnaire was distributed online among employees in three selected software companies for conducting the survey study. Software companies were selected to cover major growth dimensions; organic growth, acquisition growth and network growth. This resulted in collecting overall 130 responses with a considerable amount of responses from each company. Demographic variables of the responses were analyzed using the frequency of each variable and it represented a considerable participation of both male and female respondents, which are approximately 60.8% and 39.2% respectively out of 130 respondents. Therefore, it is concerned that the results will not be biased due to influence of gender.

III. RESULTS

The dataset collected through questionnaires were analysed using SPSS version 20 and structural equation modelling was used in order to assess both measurement model and structural model. In this section, details related to the analysis of collected data are presented.

A. Measurement Model Analysis

Taking Measurement model was analyzed prior to the testing of hypothesis, in order to ensure the validity and the adequacy of the used measures in the latent variables. Analysis was performed based on validity and internal consistency (Vasanthapriyan et al., 2017). Validity provides the evidence on the correctness of the assumptions made on the questions that the study was intended to answer, while reliability measures the stability and consistency of the result (Vasanthapriyan et al., 2017).

Validity analysis was performed using Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's Test of Sphericity (BTS). Value of KMO measures the adequacy of sampling, while BTS statistically tests the soundness of correlations within correlation matrix factors in general (Vasanthapriyan et al., 2017). KMO value is ranked,

marvellous if 0.9s, meritorious if 0.8s, middling if 0.7s, mediocre if 0.6s, miserable if 0.5s, and unacceptable if below 0.5s (Vasanthapriyan et al., 2017). Authors selected 0.8 as the threshold to assess KMO value. Analysis produced 0.84 for the KMO value, and BTS alongside ensures the soundness of the strength of association as shown in Table 1. Hence, both tests strongly indicate that the analyzed sample size is adequate.

Table 1. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.841
Bartlett's Test of Sphericity Approximately Chi-Square	3390.532
Df	780
Sig.	0.000

Internal consistency was tested using Cronbach's alpha. In this study, 0.5 was selected as the benchmark for Cronbach's alpha for indicating ample reliability as recommended by Vasanthapriyan et al. (2017). Table 2 shows Cronbach's alpha coefficient of each construct. According to the analyzed results, Cronbach's alpha

coefficient for each construct are greater than 0.5. Therefore, internal consistency and the reliability of the questionnaire could be considered high, since, reliability values are exceeding the recommended threshold.

Correlations of the constructs are shown in Table 3. According to the depicted data, all constructs seemed to have a considerably positive correlation with each other, instead of none significant correlations between reward systems (RS) and power relationships (PR), and between leadership (LD) and power relationships (PR). Technological Infrastructure (TI) and organizational culture and structure (OS) were identified to have the highest correlation ($r=0.743$, $p<0.01$) among all the latent variables. Also motivation and willingness (MW) and organizational culture and structure (OS) seemed to have a significant correlation ($r=0.688$, $p<0.01$ and $r=0.609$, $p<0.01$ respectively) with attitude for knowledge sharing (AT). Leadership (LD) and organizational culture and structure (OS) could be identified to have a positive correlation coefficient of 0.655. Moreover, the results reveal that each correlation has a p-value which falls under 0.01 with attitude for knowledge sharing (AT) and there is a positive correlation between dependent variable (AT) and selected independent variables. Hence, it accepts all the proposed hypothesis.

Table 2. Descriptive Statistics and Reliability Analysis

Construct Deviation	Number of Items	Mean	Standard	Cronbach's Alpha	Reliability
AT	130	4.13	0.95	0.876	Very high
MW	130	3.58	0.75	0.532	Relatively high
TR	130	3.14	0.80	0.803	Very high
T	130	3.58	0.67	0.530	Relatively high
PR	130	3.51	0.93	0.827	Very high
ER	130	3.45	0.79	0.714	High
CS	130	3.47	0.73	0.629	Relatively high
OS	130	3.49	0.65	0.693	Relatively high
LD	130	3.42	0.96	0.922	Very high
RS	130	3.05	0.90	0.823	Very high
TI	130	3.28	0.71	0.731	High

Table 3. Correlations of Constructs

Construct	AT	MW	TR	T	PR	ER	CS	OS	LD	RS	TI
AT	1										
MW	.688**	1									
TR	.414**	.528**	1								
T	.619**	.510**	.366**	1							
PR	.474**	.383**	.476**	.423**	1						
ER	.484**	.299*	.275**	.348**	.503**	1					
CS	.549**	.413**	.258**	.371**	.210*	.372**	1				
OS	.609**	.510**	.408**	.449**	.288**	.395**	.523**	1			
LD	.532**	.492**	.310**	.383**	.110	.197*	.395**	.655**	1		
RS	.241**	.214**	.281**	.204**	.073	.216*	.293**	.488**	.460**	1	
TI	.484**	.456**	.398**	.356**	.264**	.408**	.503**	.734**	.595**	.482**	1

B. Structural Model Analysis

In order to assess the structural model, hypothesis were tested using linear regression method. Then, path coefficient of the hypothesized relationships and the variance (R2) explained by each path were estimated. According to the estimated values, H2 ($\beta = -0.051$, t-value = -0.774), H9 ($\beta = -0.064$, t-value = -1.044) and H10 ($\beta = -0.111$, t-value = -1.368) did not depict a direct influence over attitude for knowledge sharing. Therefore, H2, H9 and H10 were eliminated from the research model

since they were showed as negative relationships. Other hypothesis represented a significant relationship with knowledge sharing attitude. Hence, H1, H3, H4, H5, H6, H7, and H8 were supported. The R2 value of 0.697 and adjusted R2 value of 0.672 ($F = 27.382$, $p < 0.001$) which is approximately 69% indicate the adequacy of the overall model in explaining the variance in attitude for knowledge sharing. Results of the analysis are shown in Table 4. Taking the results into account, the research model was refined in order to represent only the significance associations as shown in Figure 2.

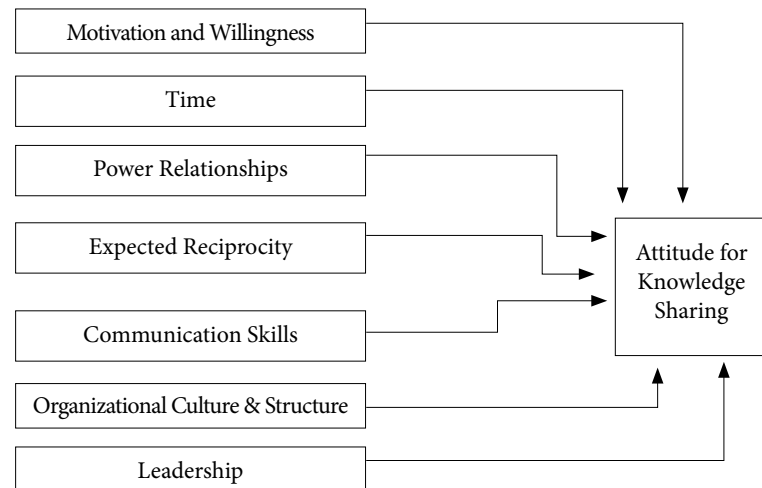


Figure 2. Refined research model

Table 4. Summary of hypothesis test

Hypothesis	Path Coefficient	Result
H1	0.330***	Supported
H2	-0.051	Not Supported
H3	0.199**	Supported
H4	0.138*	Supported
H5	0.147*	Supported
H6	0.180**	Supported
H7	0.183*	Supported
H8	0.170*	Supported
H9	-0.064	Not Supported
H10	-0.111	Not Supported

*.p<0.05 **.p<0.01 ***.p<0.001

IV. DISCUSSION AND CONCLUSION

In considering overall results of the analysis, both positive and negative features related to knowledge sharing attitude were identified. The study has proposed an initial research model which represents factors affecting knowledge sharing attitude in software companies consists of ten associations among latent variables. According to the results of this investigation, only seven relationships which proposed in the model were supported in the context of Sri Lanka. Therefore, this model was later refined to make it fit into the Sri Lankan software companies by eliminating unsupported relationships as shown in Figure 2. According to the performed analysis, motivation and willingness, time, power relationships, expected reciprocity, communication skills, organizational culture and structure, and leadership convey a considerably positive impact on knowledge sharing attitude. This impact regarding time, organizational culture and structure, and leadership is a well-treated aspect in most of the previous literature (Seba et al., 2012; Mas-Machuca and Costa, 2012; Kukko, 2013; Phung et al., 2016; Zammit et al., 2016). Most importantly, this study proposes four significant factors (motivation and willingness, expected reciprocity, power relationships and communication skills) which are not frequently included in previous

research models but mentioned important in many locations (Seba et al., 2012; Heeager and Nielsen, 2013; Hau et al., 2013; Endres and Chowdhury, 2013). Applying these factors in the proposed research model in this study, reveals their positive effect on knowledge sharing attitude. In contrast to previous literature, the results of this study show a deviation regarding two factors; trust and technology. Even though, literature suggest these two factors as influencers on knowledge sharing attitude, this study has identified no relationship between these factors and knowledge sharing attitude. Hence, it paves the way to more future research aspects regarding the effect of trust and technology on knowledge sharing.

The study considers the organizational aspect and individual aspect regarding rewards separately, as the previous research have been concluded with an ambiguity regarding this fact. Expected reciprocity was found to have a positive influence on knowledge sharing attitude. There can be seen a greater desire of receiving increased promotions in return for actively engage in knowledge sharing activities relative to monetary incentives, reputation and recognition. When considering the mean of expected reciprocity derived through the analysis, it shows a positive but a moderate value which falls around the decision criteria. Contrast to that, organizational aspect of rewards, such as having a reward system and rewarding employees etc. do not show a significant relationship with attitude for knowledge sharing. Hence, considering both aspects together, rewards do not have an overall positive influence over knowledge sharing attitude according to this study. Literature also show an ambiguity over the significance of rewards on knowledge sharing and still there is no general agreement. Therefore, future research should be implemented to investigate the involvement of rewards in knowledge sharing.

Most of the previous studies have mentioned time as a huge barrier for sharing knowledge (Seba et al., 2012; Mas-Machuca and Costa, 2012; Kukko, 2013). This study further proves this evidence. According to this study, it is found that employees do not have enough time to search and locate appropriate knowledge, as well as apply or realize that knowledge. Results show that the high pressure and tight schedules as a cause of reducing knowledge sharing. As found by authors, organizations generally provide all the required facilities such as formal, and informal spaces, resources etc., except the required time. Moreover, employees are strictly bounded to the organizational structure and they are not allowed to go

beyond this structure for acquiring the knowledge they need. When the organizations have a larger hierarchy, knowledge sharing has been negatively affected due to dispersion of knowledge. According to majority of the respondents of this survey, they do not have enough time to attend workshops and training courses held in their organizations due to rush schedules.

Communication skills are not much mentioned in previous literature. But one of the recent papers (Heeager and Nielsen, 2013) have been mentioned language and absorptive capacity as barrier factors for knowledge sharing and therefore, this factor was included in the study. The study reveals that employees have enough absorptive capacity while they face difficulties due to existing language barriers among individuals. Apart from that, power relationship was found to have a negative effect on knowledge sharing due to employees become bottlenecks in sharing knowledge as they believe that they can obtain more power by owning knowledge others do not have. Most significantly, employees avoid sharing knowledge with the purpose of making their position in the organizational hierarchy by owning specialized knowledge. Even though, there is a good motivation and willingness to share and acquire new knowledge, some employees who are over-estimated on their available knowledge could be seen less motivated to go beyond their knowledge circle.

Even the overall attitude of knowledge sharing has a positive contribution to sharing knowledge, these barriers act as an obstacle for efficient and effective knowledge sharing. Therefore, these factors should be concerned by the companies in order to eliminate them by providing the appropriate solutions. Sri Lankan companies generally have a multicultural environment with people who speak different languages. Hence, it is important to encourage employees to become fluency in languages which are used within the organization in order to eliminate language barriers which negatively effects on the efficiency of knowledge sharing. Moreover, organizations have to provide a prior consideration on knowledge sharing activities when allocating time in schedules and should minimize organizational structures which keep employees bounded to a specific knowledge circle. These solutions will provide a significant support to reduce most of the discussed issues in knowledge sharing in the context of Sri Lankan software companies. According to results and findings of this study, following conclusions are highlighted:

- Motivation and willingness, time, power relationships, expected reciprocity, communication skills, organizational culture and structure, and leadership have a significant influence over knowledge sharing attitude.
- Lack of time, large organizational hierarchies, power relationships, language barriers and lack of willingness to obtain new knowledge due to over-estimation on personal knowledge are the major barriers in knowledge sharing in the context of Sri Lankan software companies.
- Allocating appropriate time for knowledge sharing in working schedules, improving language skills, and minimizing organizational structures which keep employees bounded to a specific knowledge circle could be solutions to overcome many obstacles.

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INFLUENCE OF ANTECEDENTS ON CONSUMER ATTITUDES TOWARDS FUNCTIONAL FOOD: EMPIRICAL STUDY IN SRI LANKA

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Abstract- Food is one of the basic needs to be satisfied for the survival of a human being. “Functional Food” is food and food components that may provide benefits beyond basic nutrition, and it includes a wide variety of foods and food components believed to improve health and well-being of people which help to reduce the risk of specific diseases. This paper investigates the influence of antecedents (Customer knowledge, Necessity, Safety, Confidence, Rewards) on consumer attitudes towards functional food within the Sri Lankan context. It is important for marketers to understand the attitudes in relation to functional food so they can properly implement in marketing strategies. In addition to the main objective of identifying influence of antecedents on consumer attitudes, the most influencing antecedent was also established. Convenient sampling method was used in collecting data from the respondents which consisted of 280 respondents from Colombo district within the age group of eighteen to sixty. Inferential statistics were used to analyse and interpret the data by Correlation and Regression. Validity and reliability were tested for all the measures. The results indicate that customer knowledge, necessity and safety have a negative impact while confidence and rewards have a positive impact on the consumer attitude towards functional food. Rewards from functional food were derived to be a crucial factor for the consumer attitudes on functional food. These findings will provide food processing organizations and policy planners with valuable insights on consumer behaviour.

Keywords – Antecedents, Consumer Attitudes, Functional food, Knowledge, Necessity, Safety, Confidence, Rewards

I. INTRODUCTION

Food is any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth. With the evolution of time now people are very busy in their lifestyles and might not pay attention on their food as it was done in the early times. Therefore what we can observe is that there are so many different kinds of health issues arising day by day. As a result we have to think of a way of being healthy by consuming healthy food. But now we have come to a point where we cannot be healthy by just having healthy food as we have been poisoning ourselves throughout the years passed with junk foods. As a result we need to take measures to cure the poisoned parts of our body first and that is where functional food comes into place.

One of the recommendations of the research “An assessment of consumers’ knowledge, attitudes and habits in relation to functional foods” is that; functional foods should be promoted among the people (Zoysa, et al., 2014).

Another research done on “Assessing the Factors Affecting the Extent to which Consumers Incorporate Functional

Ingredients in to their Diets: A Case of Sri Lankan Urban Consumers” states in their conclusion that promoters of functional foods must direct their promotions towards changing the attitudes of consumers about the effectiveness of the functional ingredient (Attanapola, Udugama, & Mudalige, 2011).

Most of the past researches done on the functional food, based on the attitudes towards the purchase intention are under the study of either Theory of Reasoned Action or Theory of Planned Behaviour. Also the antecedents of consumer attitude of functional food have only been assessed with the “Willingness to use Functional Food”. But this research would cater in identifying the impact of antecedents of consumer attitudes of functional food on the consumer attitude towards functional food which is not a research area that has been catered before for functional food.

Globally there are many researches that have been carried out on the antecedents of attitudes on functional foods, while in Sri Lanka only two prominent researches that have been done are as follows.

With the above evidences what we can understand is that there is a need for the functional foods to be promoted among the people. Promotion is obviously an automatic concern of responsibility of the marketers of the functional food producers.

Therefore this study focuses on what the antecedents of consumer attitudes towards functional food are and their impact on consumer attitudes towards functional food.

Based on the antecedents identified from the previous studies which are customer knowledge, necessity, safety, confidence and rewards from functional food that may influence the consumer attitudes towards functional food, the following two research objectives were established.

1. To elucidate the impact of customer knowledge, necessity, safety, confidence of functional and rewards from functional food on the consumer attitudes towards functional food.
2. To identify the most influencing antecedent on the consumer attitudes towards functional food.

Introduction catered in explaining the background of the variables of the research and how the research problem

has arisen. In the context of human life Food is a major necessity for survival. The urbanization and busy lifestyles of people are making them more and more vigilant in facing with many health issues. That is why Functional Food now plays a major role in our lives with or without our knowledge. With that basic understanding it gives the approach to study by introducing the variables, the research purpose and the research objectives to proceed on to the literature review and the methodology of the research.

II. LITERATURE REVIEW

A. Nature of food and human behaviour

Food is something that is considered as a basic need of the human beings. With that people have started following different patterns of consuming food depending on the lifestyle they spend. Their lifestyle depends upon the attitudes they have and those will play a major role in them deciding what they would be consuming as food for their survival.

B. Food and Functional food

Food is any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth. Functional food is a rather new concept, and was developed in 1984 which was created by Japanese scientists, who studied the relationships between food products fortified with particular ingredients and the physiological effects they had on the body. The Japanese revolution in functional food increased the awareness for functional food in both the US and Europe according to (Lopez, González, & Marcos, 2002; Menrad, 2003; Moller & Rowland, 2002). Doyon & Labrecque (2008) depicted that “a functional food is, or appears similar to, a conventional food. It is part of a standard diet and is consumed on a regular basis, in normal quantities. It has proven health benefits that reduce the risk of specific chronic diseases or beneficially affect target functions beyond its basic nutritional functions.”

C. Functional Food in Sri Lanka

According to Ranaweera (2017) Medicines, Super Food and Fortified Food cannot be considered as Functional Food. In the context of Sri Lanka we can see Gotukola and

Karawila (Bitter gourds) contain bioactive chemicals that brings us medicinal benefits according to (Ranaweera, 2017). Ranaweera (2017) stated that some functional foods are generated around a particular functional ingredient, for example foods containing probiotics (Beneficial microorganisms that improve our gut health and produce compounds like vitamins in our intestine) and prebiotics (Foods for probiotics, but be cannot digest them (E.g. Dietary fibre). In Sri Lanka we have yoghurts containing probiotic bacteria Other functional foods or drinks can be foods fortified with a nutrient that would not usually be present to any great extent (e.g. folic acid fortified bread or breakfast cereals) as per noted by (Ranaweera, 2017) Turmeric (Kaha) is a well know spice used in Sri Lanka for cooking as well as for many other things including treatment of wounds. Curcumin, an antioxidant present in turmeric, helps in lowering inflammation and speeding up the healing process. Similarly, Moringa (Drumstick), Oats, Sweet potato and many fish containing Omega 3 fatty acids (e.g. Hurulla – mackerel) are functional foods referring to what (Ranaweera, 2017) said. According to Ranaweera (2017) major examples of functional food available in Sri Lanka at present are Probiotic, Prebiotics and Stanols. Probiotics are defined as live microorganisms – mostly bacteria – which when taken in adequate amounts confer a health benefit. Prebiotics promote the growth of particular bacteria in the large intestine that are beneficial to intestinal health and also inhibit the growth of bacteria that are potentially harmful to intestinal health. Stanols and sterols, which occur naturally in small amounts in plants and fruits, are thought to have a cholesterol lowering effect and are added to products such as reduced/low fat spreads.

D. Food consumption behaviour and attitudes

Consumer behaviour is the process consumers go through in different stages of the consumer purchasing a product or service as per stated by (Blythe, 2008). Understanding consumer behaviour is important to marketers in order to develop successful marketing strategies regarding the pricing, product placement, design, positioning and promotion of the product as what (Askegaard, et al., 2006) stated in their studies. Examining attitudes is a good way to get a better understanding of consumer's behaviour in regards to a product, idea or service as per (Ajzen, and Fishbein, 2005). Attitudes have been found to affect food choice behaviour and they provide a useful tool for explaining food choices according to (Tuorila, 1997). "Attitude is a psychological tendency that is expressed by

evaluating a particular entity with some degree of favor or disfavor". (Eagly & Chaiken, 1993). As most of the researches have used the existing theories such as Theory of Reasoned Action and Theory of Planned behaviour in studying their analysis, this study focuses on a model developed with the factors affecting the attitudes towards functional food.

E. Factors affecting the attitudes towards the purchase intention of Functional Foods

A consumer's attitude towards functional foods can have significance on their purchase decision on certain goods. According to Lähteenmäki and Urala (2007), "When consumers make a food choice, it can be divided into three central factors: the food, the consumers, and environmental and economic issues". A major factor that has not been taken into consideration so far in relation to the attitudes towards on functional food which is the "Customer Knowledge" will be considered as factor to be measured under this study along with the factors affecting the attitudes towards functional food which have been introduced by the "Functional Foods in Finland" study by (Lähteenmäki & Urala, 2005) which are Necessity, Safety, Confidence and Rewards. The knowledge component is especially essential for an area such as functional foods, in which the cost of engaging in health-related behaviours significantly exceeds the cost of conventional behaviour. Thus knowledge is crucial in this kind of product setting that is characterized by features that are more numerous and complex than those of food in general, and in which the benefits yielded by functional foods cannot be easily assessed. Across all product categories, functional foods tend to be significantly more expensive than the corresponding conventional products as per stated by (Sääksjärvi, Holmlund, & Tanskanen, 2009). With reference to the previous literature H1 was developed.

H1: Customer knowledge has a significant impact on the consumer attitudes towards functional food

Necessity is a more general factor describing the necessity of functional food concept from society's point of view according to the discussions by (Lähteenmäki & Urala, 2005). Necessity of functional food is how consumers perceive the need for functional foods as a medicine as per (Chen, 2011). "Necessity for functional food is mainly concerned about if consumers feel that functional food is necessary for society" according

to (Lähteenmäki & Urala, 2007) Based on the above literature H2 was developed,

H2: Necessity of functional food has a significant impact on the consumer attitudes towards functional food

Safety of functional foods is concerned with how consumers perceive the possible risks associated with consumption of functional foods as per stated by (Lähteenmäki & Urala, 2007). Yet in consideration to the previous literature in relation to the safety in terms of Functional Food what we can observe is that if something negative happens, confidence and safety aspects are likely to rise as active parts of willingness to use functional foods as per stated by (Lähteenmäki & Urala, 2005). But according to Chen (2011) "Consumers who believe that functional food is safe are more willing to consume functional foods". But it is better if we keep in mind that depending on the situations that might be working different in different countries and may change the results which were indicated in the research in Finland in terms of safety of functional food. With reference to the above arguments H3 was developed.

H3: Safety of functional food has a significant impact on the consumer attitudes towards functional food

Confidence in functional food is that consumers think functional food can be used in order to maintain their health or "The level of confidence

consumers have in functional foods and whether or not they perceive functional foods as something that is safe and healthy to consume" according to (Lähteenmäki & Urala, 2007). Following the above arguments H4 was developed.

H4: Confidence in functional food has a significant impact on the consumer attitudes towards functional food

In relation to the Rewards from Functional Food it considered as the strongest predictor for the acceptance of functional foods according to (Lähteenmäki & Urala, 2005). At the same time Urala (2005) states that the rewarding feeling delivered from the use of functional food products gives the manufacturers attractive possibilities to communicate the health effects of the functional foods.

H5: Rewards from functional food has a significant impact on the consumer attitudes towards functional food

Along with the above developed hypotheses the following hypotheses was developed to analyse the objective of identifying the most influencing antecedent of consumer attitudes towards functional food on the consumer attitude towards functional food.

H6: Antecedents of consumer attitudes on functional food has not equally influenced on the consumer attitudes towards functional food

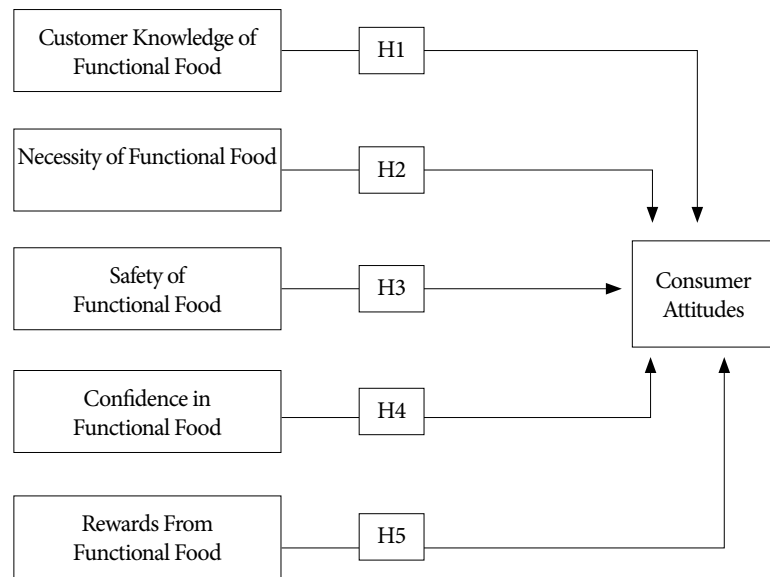


Figure 1. shows the conceptual framework developed with reference to the previous literature taken into consideration for the study in relation to the particular requirements catering to the current study.

III. METHODOLOGY

Convenient sampling method was used to study the focused population between the ages of eighteen to sixty. Questionnaire based survey method was used for data collection. Two hundred and eighty participants were asked to respond for the questionnaire which was distributed both by hand and using online platforms using Google sheets. The questionnaire was designed to initiate with a section catering to the Recognizability of functional food which provided an understanding on the extent to which the respondents were familiar about functional food. All the antecedents of consumer attitudes towards functional food were measured using 7 point Likert Scale with 1 as “Strongly Disagree” and 7 as “Strongly Agree” except customer knowledge which has a 5 point Likert Scale ranging from “Strongly agree” to “Strongly disagree” with a “Not sure” option. Customer knowledge was measured using five items as; Some foods have specific health benefits that reduce your risk of developing chronic diseases, Functional foods include whole, enriched, or enhanced foods that have ingredients incorporated into them to provide a specific health benefit, The only foods that can be categorized as a functional food are foods with a health claim on the nutritional label, Eating is a better way to obtain health-enhancing substances than taking dietary supplements

like vitamins, Eating is a better way to obtain health-enhancing substances than taking dietary supplements like vitamins (Munene, 2006). Necessity was measured using nine items as; “Functional foods are completely unnecessary”, “The growing number of functional foods on the market is a bad trend for the future”, “Functional foods are a total sham”, “For a healthy person it is worthless to use functional foods”, “I only want to eat foods that do not have any medicine-like effects”, “Health effects are not appropriate in delicacies”, “Functional foods are consumed mostly by people who have no need for them”, “It is pointless to add health effects to otherwise unhealthy foods”, “It is great that modern technology allows the development of functional foods” (Lähteenmäki & Urala, 2007). Safety was measured using five items as; “In some cases functional foods may be harmful for healthy people”, “Using functional foods is completely safe”, “The new properties of functional foods carry unforeseen risks”, “Exaggerated information is given about health effects”, “If used in excess, functional foods can be harmful to health” (Lähteenmäki & Urala, 2007). Confidence was measured using four items as; “The safety of functional foods has been very thoroughly studied”, “I believe that functional food fulfil their promises”, “Functional foods are science-based top products”, “Functional foods promote my well-being” while Rewards was measured using eight items as; “The

idea that I can take care of my health by eating functional foods gives me”, “My performance improves when I eat functional food”, “Functional foods help to improve my mood”, “Functional foods can repair the damage caused by an unhealthy diet”, “I can prevent disease by eating functional foods regularly”, “I am prepared to compromise on the taste of a food if the product is functional”, “Functional foods make it easier to follow a healthy lifestyle”, “I actively seek out information about functional foods” (Lähteenmäki & Urala, 2007). The consumer attitude towards functional food had three items with a 7 point Likert Scale using three items as; “I think it is good to buy” (Tarkiainen & Sundqvist, 2005), “I think it is important to buy” (Thogersen, 2009), “I think it is wise to buy” (Aertsens, Verbeke, Mondelaers, & Huylenbroeck, 2009). Demographic questions referring to the age, gender and the level of education were used at the end of the questionnaire which provided the data for the analysis of the profile of the respondents. IBM SPSS Statistics 22 software package was used for the analysis of the study in performing the tests for Frequencies and Descriptive Statistics, Pearson Correlation and Regression analysis. Initially to check the internal consistency and the validity of the measures Cronbach’s alpha was calculated relevant to all the constructs being considered and a factor analysis was carried out. As all the Cronbach’s values relevant for the constructs being considered were greater than 0.7 the reliability of the measures were established. As per the initial factor loading, two items were removed under the knowledge variable, four items were removed under the necessity variable and one item was removed from both safety and confidence variables while no items were removed from rewards variable. With the items being removed as mentioned in the final structure of the Rotated Component Matrix each component matrix value is greater than 0.5 (Fornell & Larcker, 1981) which would validate each question. Items of each variable loaded in one component validating uni dimensionality of each items of each variable. Referring to the Skewness and Kurtosis has been calculated for the test of normality. All components are well within the limits of ±1.96, suggesting that the normality is not too extreme.

IV. RESULTS

A total of 280 questionnaires were received, only 263 questionnaires were usable for this study and met the required inclusion criteria. 17 questionnaires deemed unusable, because the identified outliers were omitted for the further studies. As per the Table 1 the sample consists of 129 Females and 134 Males. It shows that approximately equal percentages of Females and Males have participated as respondents with 49.05% and 50.95% respectively. 114 respondents are in the age category of 18-30 representing 43.35% of the sample. 44 respondents are in the age category of 31-40 which is 16.73% of the sample. 64 respondents and 41 respondents are within the age categories of 41-50 and 51-60 representing 24.33% and 15.59% respectively. A substantial amount of the respondents are Graduates or have completed higher qualifications representing 42.59% of the sample. The next highest set of respondents have passed up to GCE (O/L) with a count of 69 respondents and representing 26.24% of the sample considered. 21.67% of the respondents have passed up to GCE (A/L) while the least representation is from the undergraduate with a percentage of only 9.51%.

Table 1. Frequencies and Descriptives for Demographic Variables

Variable	Category	Frequency	Valid Percent
Gender	Female	129	49
	Male	134	51
Age	18-30	114	43.3
	31-40	44	16.7
	41-50	64	24.3
	51-60	41	15.6
Level of Education	Passed up to GCE (O/L)	69	26.2
	Passed up to GCE (A/L)	57	21.7
	Undergraduate	25	9.5
	Graduate or above	112	42.6

Table 2. Results of Reliability and Validity of Measures

Construct	Cronbach's Alpha	Composite Reliability	AVE
Customer Knowledge	0.648	0.769	0.526
Necessity	0.813	0.889	0.576
Safety	0.737	0.839	0.568
Confidence	0.698	0.850	0.587
Rewards	0.896	0.919	0.588

AVE (Bolded values along the diagonal) > r2 value of other dimensions

The internal consistency was ensured as the Cronbach's values for all the constructs were closer or above 0.7, the threshold as per presented in Table 2. Content, construct, convergent and discriminant validity were also tested to validate the measurement model used for the study (Hair et al., 1998). The content validity was validated through a proper literature review being conducted for the study. Average Variance Extracted (AVE) should be greater than 0.5 for construct validity and convergent to be established (Ha & Jang, 2012). Table 2 presents the AVEs for the measured constructs being validated on construct validity and convergent with their values being greater than 0.5. According to Hair et al., (1998) the composite reliability should be greater than 0.7 to accept the dimension under the factor analysis which is presented in relevance to the study by the Table 2. Discriminant validity can be assessed by comparing the shared variances among constructs with the AVE (average variance extracted) on the individual constructs as explained in (Sekaran & Bougie, 2010). The respective constructs have been validated on the discriminant validity too as per the Table 3.

The measurements for the consumer attitude were also validated under the reliability analysis with a Cronbach's Alpha value of 0.874.

According to the Table 4 there exist a weak negative relationship between customer knowledge and consumer attitude, necessity and consumer attitude and also safety and consumer attitude. Between confidence and consumer attitude there exists a closer to moderate positive

Table 3. Discriminant Validity

1	2	3	4	5
0.526				
.024336	0.576			
.02402	.25603	0.56860		
.01768	.05808	.00067	0.587	
.0225	.18232	.0529	.25200	0.588

relationship while between rewards and consumer attitude there exists a strong positive correlation. According to the Table 5, it can be stated that all the antecedents of consumer attitudes towards functional food are proved to be significant in relevant to the impact they may have on the consumer attitude towards functional food as all the relevant significance values are less than 0.05 the alpha value considered as the level of significance for the study and accepting all the hypothesis developed under the first objective of the study.

As per the Table 5 we can conclude that it is only 1.9% of the variation in the consumer attitude towards functional food is explained by the customer knowledge on functional food. Coefficient value -.504 for customer knowledge, implied that there is a strong negative impact from the customer knowledge on functional food on the consumer attitude towards functional food as per the Table 5. Also a Table 5 show that it is only 17% of the variation in the consumer attitude towards functional food is explained by the necessity of functional food. Coefficient value -.439 for necessity implies that there is a weak negative impact from the necessity of functional food on the consumer attitude towards functional food as per the Table 5. According to the Table 5 only 4.4% of the variation in the consumer attitude towards functional food is explained by safety of functional food. Coefficient value -.220 in Table 5 implies that there is a weak negative impact from the safety of functional food on the consumer attitude towards functional food. As per the Table 5 only 19.5% of the variation in the consumer attitude towards functional food is explained by the confidence in functional food. Coefficient value .530 in Table 5 implies that there is a strong positive impact from the confidence in functional food on the consumer attitude towards functional food. As per the Table 5 53.3% of the variation in the consumer attitude

Table-5. Simple Linear Regression Analysis

Two variables		Pearson's Correlation	Relationship
Customer Knowledge	Consumer attitude	-.139	Negative – Weak
Necessity	Consumer attitude	-.413	Negative – Weak
Safety	Consumer attitude	-.210	Negative – Weak
Confidence	Consumer attitude	+.441	Positive – Closer to moderate
Rewards	Consumer attitude	+.730	Positive – Strong

towards functional food is explained by the rewards from functional food. According to the Table 5 coefficient value .806 which implies that there is a strong positive impact from the rewards from functional food on the consumer attitude towards functional food. According to the Table 6, significance values of the constant and the independent variables were less than 0.05 indicating that indicators were significant. The Coefficients (B statistics) of the independent variables are; Customer Knowledge: -.048, Confidence: 0.114, Necessity: -.127, Rewards: 0.695 Safety: -.329

Hence it can be concluded that the most influencing antecedent of consumer attitudes on functional food is rewards.

Table- 4. Pearson Correlation among the relationships of the constructs

Antecedent	Coefficient	Significance value	Variation explained
Customer Knowledge	-.504	.024	1.9%
Necessity	-.439	.000	17%
Safety	-.220	.001	4.4%
Confidence	.530	.000	19.5%
Rewards	.806	.000	53.3%

Table 6. Multiple Linear Regression

Model	Unstandardized Coefficients	Sig
	B	
(Constant)	1.559	.000
CKNOW	-.048	.002
NEC	-.127	.024
SAF	-.329	.000
CON	.114	.023
REW	.695	.000

V.DISCUSSION AND CONCLUSIONS

Under the discussion in order to check the consistency of the results generated on the influence of the antecedents of consumer attitudes of functional food on the consumer attitudes towards functional food, it was simply harder to find previous literature particularly that have measured a similar relationship. The researches those were found relative to this subject area have only measured the relationship between the different attitudes catering as the antecedents of consumer attitudes of functional food and the willingness to use functional food, not the consumer attitudes towards functional food. Therefore to refer as

literature in comparison to the results generated under this research study, the researches that have measured the relationship between the antecedents of consumer attitudes of functional food and the willingness to use functional food have been taken into consideration as a near similar relationship to the relationship between the antecedents of consumer attitudes of functional food and the consumer attitudes towards functional food for Hypothesis two, three, four and five, as it is based on the favourable consumer attitudes, the willingness to use functional food will also improve. The first hypothesis was developed to analyse whether there is an impact from customer knowledge of functional food on the consumer attitudes towards functional food. The coefficient implies that there is a strong negative impact from customer knowledge on the consumer attitudes towards functional food according to the regression analysis. In contrast to what is said by Sääksjärvi, Holmlund and Tanskanen (2009) as, the knowledge component is especially essential for an area such as functional foods, in which the cost of engaging in health-related behaviours significantly exceeds the cost of conventional behaviour and the knowledge being crucial in this kind of product setting that is characterized by features that are more numerous and complex than those of food in general, and in which the benefits yielded by functional foods cannot be easily assessed, this research has derived that the significance of customer knowledge on the consumer attitudes is very low compared to the other antecedents. It might be due to the proper management of the other antecedents affecting the consumer attitudes. According to Zoysa, et al. (2014) even though the research has been carried out targeting Colombo, it has a recommendation to identify the importance of promoting the functional foods. Therefore in the Sri Lankan context we can identify that there is a need to properly promote functional food to make customer knowledge a significant impact on the consumer attitudes towards functional food as what was derived from the study was that there exists a negative relationship between customer knowledge and the consumer attitudes. The second hypothesis was developed to analyze whether there is an impact from necessity of functional food on the consumer attitudes towards functional food. The coefficient implies that there is a weak negative impact from necessity on consumer attitudes according to the regression analysis. The necessity for Functional Food (FF NEC) affected positively the willingness to use functional food products according what was concluded by Lähteenmäki & Urala (2004). But this research study has derived there is a negative impact from necessity of functional food on the consumer

attitudes towards functional food with reference to the Sri Lankan context which is still might be because people not clearly recognizing the necessity of functional food due to the lack of proper marketing strategies in promoting them. The third hypothesis was developed to analyse whether there is an impact from safety of functional food on the consumer attitudes towards functional food. The coefficient implies that there is a weak negative impact from safety on consumer attitudes according to the regression analysis. The results generated on the analysis of the impact of safety of functional food on the consumer attitudes towards functional food seems to comply with the results generated on a research that has analyzed the impact of safety of functional food on the willingness to use functional food which was considered to be a closer concept to the relationship to consumer attitudes as no significant researches have been conducted on the same relationship considered for this study. According to Lähteenmäki and Urala (2007) the Safety of Functional Food (FF SAF) decreased respondents' willingness to use organic bread an example of Functional Food. Neither in 2001 or 2004 did the safety of Functional Food affect the respondents' willingness to use Functional Food products. The consumers seem to be aware of the possibility that use of Functional Food may have risks, but the possible risks do not affect the evaluated behaviour tendency. The fourth hypothesis was developed to analyse whether there is an impact from confidence in functional food on the consumer attitudes towards functional food. The coefficient implies that there is a strong positive impact from confidence on consumer attitudes according to the regression analysis. In 2002, the Confidence in Functional Food (FF CON) had a statistically significant effect on the willingness to use the Functional Food. Also the mistrust and the risks may not affect the personal behaviour as per stated by (Lähteenmäki & Urala, 2007). Therefore it can be concluded that confidence might be influencing similarly on the consumer attitudes towards functional food as it influenced on the willingness to use functional food resulting a strong positive impact from confidence in functional food on the consumer attitudes towards functional food. The fifth hypothesis was developed to analyze whether there is an impact from rewards from functional food on the consumer attitudes towards functional food. The coefficient implies that there is a strong positive impact from rewards on consumer attitudes according to the regression analysis. Respondents who obtained rewards from using functional food were those most willing to use all the functional food examples and by choosing and using functional food consumers may achieve a modern and positive impression of themselves

according to (Lähteenmäki & Urala, 2004). Therefore the impact of rewards from functional food on the consumer attitudes towards functional food might be similar to the impact on the willingness to use due to the underlying consumer behaviour with respect to the impact from rewards from functional food on the willingness to use functional food depicting a strong positive impact might be similar with the rewards from functional food on the consumer attitudes towards functional food. The sixth hypothesis was developed to analyse what the most influencing antecedent of consumer attitudes of functional food on the consumer attitudes towards functional food was. From the coefficients of the relevant variables it represented that Customer Knowledge (-.048), Necessity (-.127) and Safety (-.329) has a negative impact, Confidence (.114) has a weak positive impact and Rewards (.695) has a strong positive impact on the consumer attitudes towards functional food. The perceived reward from using functional food and confidence in functional food seems to be the most crucial factors in consumer's willingness to use functional foods according to (Lähteenmäki & Urala, 2004). Therefore it could be observed that the results of the research comply with the previous literature conducted under this area of subject.

VI. LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH AREAS

As the population area was limited only to age eighteen to sixty for the easiness of study purposes, it was harder to take real picture about age categories. On the use of Online Google sheets the researcher was not able to actually be present at the respondents' requirements. Difficulties were faced by the researcher in finding previous research and articles, especially for measurement scales with Attitudes related to Functional Food in Sri Lankan context. As only the Colombo area was considered to conduct the survey this study will not be able to provide the Sri Lankan context exactly. Therefore it could be recommended to get a sample, island wide representing all the districts. It can be suggested to carry out this research under different cultural settings in order to look into potential differences in attitudes depending on different cultures as Sri Lanka is a multi-cultural country. Convenient Sampling method was used for the study. Therefore it can be recommended to test the study using another sampling method to test the consistency of the conclusions derived.

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THE IMPACT OF WORK-LIFE BALANCE ON EMPLOYEE JOB PERFORMANCE: A STUDY OF AN OFFSHORE OPERATIONS OFFICE OF A PRIVATE UK HIGHER EDUCATION INSTITUTE BASED IN SRI LANKA

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Abstract- Work-life balance (WLB) is generally associated with equilibrium between the amount of time and effort somebody devotes to work, family, and personal activities in order to maintain an overall sense of harmony in life. Employee performance is the extent to which an employee executes his/her set work tasks, duties and responsibilities to the level of expectation set out by the management. This paper explores Work-Life Balance and Employee Job Performance (EJP) with the main objective of identifying the impact of Work-Life Balance on Employee Job Performance. This study is referred to the Offshore Operations Office of a private UK Higher Education Institute based in Sri Lanka. Personal Engagement (PE), Family Engagement (FE) and Work Engagement (WE) were identified as the main independent constructs of the study while the dependent construct as Employee Job Performance. A sample of one hundred and fifty employees were selected from the organization, and data for the study was collected from the sample through the means of a questionnaire. The collected data was analyzed through correlation and regression analyses. The findings of the research determined that Work-Life Balance positively impacts on Employee Job Performance while Work Engagement was highlighted as the most prominent factor affecting on Employee Job performance.

Keywords- Work-Life Balance, Employee Job Performance, Personal Engagement, Family Engagement, Work Engagement

I. INTRODUCTION

According to Bohlander & Snell (2013), balancing work and family continues to be a major concern for organizations and their employees. Employees are engaged with their work for longer hours than prescribed since 1973, and now more than ever employees are chained to their companies around the clock through means of communication technology (Bohlander & Snell, 2013). In the current context, many individuals face the common issue of balancing work, family and personal matters. The drawbacks associated with work-life-balance can affect both the employer and the employee. From an employee's perspective, improper work-life-balance can have a negative impact on work and life satisfaction, physical and mental well-being, and on individual work performance in the organization (Guest, 2002). For employers, improper work-life-balance may result in poor performance, absenteeism, employee turnover, recruitment and training costs, complaints and grievances (Department of Trade and Industry, 2001). According to Mendis & Weerakkody (2014), work-to-family conflict takes place when experiences at work obstruct with family life inflexible work hours, work overload, interpersonal conflict at work, unsupportive supervisor organization. Family-to-work conflict occurs when experiences in the family interfere with work life, primary responsibility for children, elder care responsibilities, interpersonal

conflict within the family unit, unsupportive family members. The research provides reference to a Higher Education Institute based in the UK. Out of the several offices the company operates, the offshore operational office based in Sri Lanka was selected for this study. Work performance of employees have been decreasing in comparison to past performance records. It has also been identified that employees are not highly comfortable with the latest working arrangements of the company. As a result, the company has faced issues such as employee turnover, absenteeism, multiple grievances, and where performance is at its lowest, the need for redundancy has risen. Decreased performance of employees has made it difficult for the company to cope up with the industrial changes that affect the internal environment of the company, and any new strategies implemented to increase work performance. Based on this background the researchers are going to investigate the influence of work life balance on employee performance through following objectives,

1. To study the impact of work-life-balance on employee job performance.
2. To determine the most prominent factor among work engagement, family engagement and personal engagement which effect for employee performance.
3. To provide practical recommendations to increase employee job performance through work-life-balance.

II. LITERATURE REVIEW

“Work Life Balance isn’t only about families and childcare. Nor is it about working less. It’s about working smart. According to Clarke, et al. (2004), work-life balance is generally associated with equilibrium between the amount of time and effort somebody devotes to work, family, and personal activities, in order to maintain an overall sense of harmony in life. According to Munn (2009), WLB is defined as a person who prioritizes their work, family, individual and community responsibilities. The means and way to prioritize individual work, family, personal and community responsibilities are influenced by the availability and knowledge of work-life initiatives as well as the organizational culture. Performance is defined as the record of outcomes produced on a specified job function or activity during a specified time period. (Bernadin & Russel, 1998). According to this definition

performance is set of outcomes produced during a certain time period. Hence the researchers have developed the working definition of employee performance for study purpose is that, “achievement of targets of the tasks assigned to employees within particular period of time”.

Management support for employees work life balance fosters a good relationship between the work force and management which improve effective communication in the organization (Obiageli et al., 2015). Achieving work-family balance is very significant for personal success and the success of the organization. Work-to-family conflict and family-to-work conflict have caused lower performance of individuals at the workplace and their personal lives and ultimately it leads to withdrawal from work (Hammer et al., 2003). Naithani (2010) stated that individuals with successful work-life balance will contribute to the success of the organization and those who receive workplace support through family-friendly policies have a high productivity level at the workplace. Gomez et al. (2010) mentioned that a balance between work responsibilities and marital obligation is a key to achieving success in family and the organization. Guest (2002) showed that work-life balance not only contributes, to the satisfaction and wellbeing of life, but also for the performance of work and family.

Mendis & Weerakkody (2014) found that there is a positive relationship between Work-Life Balance and Employee Job Performance. They state that Work-Life Balance of employees ultimately lead to increased employee performance. Similarly, Benito-Osorio, et al. (2014) conclude that work-life balance helps improve employee productivity. In line with Cotter (2000) high employee performance leads an organization to have greater opportunities for employees than those who have low performance. Therefore, it is important for employer to look for better ways in improving employee performance. This can be done by helping them prioritize their work and life activities. When this is achieved, employee is motivated to render their service efficiently and effectively. Obiageli et al., (2015) state that although family relates to personal needs, personal needs could have many other contributors apart from family, such as social activities and sparing time for one’s self. Family responsibilities such as household time demands, family responsibility level, household income, spousal support and life course stage have been found to be sources of work-life stress (Jennings & McDougald, 2007).

While the Sri Lankan interest in work-family balance is gradually increasing, most employees give first priority to work-related activities as compared to their family involvement. The employees’ awareness and perception about work-family balance is very little in comparison to European countries. The employers also have not given much consideration to work-family balance (Arachchige, 2013). Employees are happier when they are able to balance their work life demands. Management also experience improve relationship with employees. Management support for employees work life balance fosters a good relationship between the work force and management which improve effective communication in the organization (Obiageli et al., 2015).

III. METHODOLOGY AND EXPERIMENTAL DESIGN

Based on existing literature, the independent and dependent variables for the research were developed. According to following Conceptual Model, the main independent construct is considered to be Work-Life Balance, and is represented by three dimensions; Work Engagement, Family Engagement and Personal Engagement. The dependent construct is considered as Employee Job Performance.

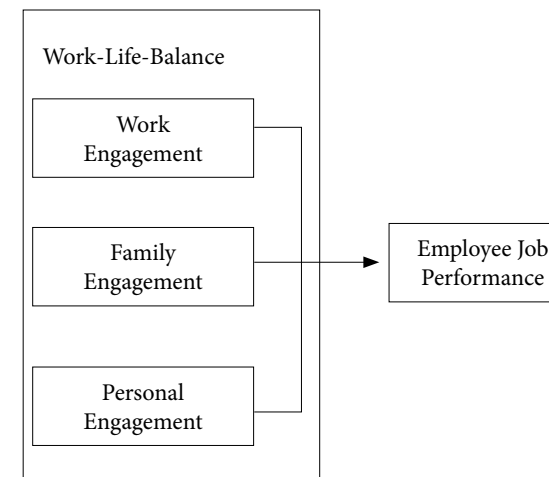


Figure 1. Conceptual framework
Source: Developed by the researcher based on literature

Based on the above Conceptual Framework, following hypotheses were formulated;

1. There is a significant relationship between work engagement and employee job performance
2. There is a significant relationship between family engagement and employee job performance
3. There is a significant relationship between personal engagement and employee job performance

Through a survey questionnaire, data were collected from one hundred and fifty employees who are working in Offshore Operations Office of a private UK Higher Education Institute based in Sri Lanka. In order to ascertain whether the instrument is effective for the current study, a pilot study was conducted by distributing the questionnaire to a sample of 10 respondents. The data obtained through the pilot study was examined through reliability test as per the following table.

Table 1. Pilot Survey – Reliability Statistics

Variable	No. of Items	Chronbach's Alpha
Personal Engagement	5	0.870
Family Engagement	5	0.900
Work Engagement Employee Job	5	0.758
Performance	5	0.919

Source: Survey Data, 2017

IV. RESULTS

The Pearson’s Correlation test was carried out to establish the relationships between the variables of the study. The correlation matrix will indicate the direction, strength and significance of the bivariate relationship among all the variables (Sekaran & Bougie, 2010). In general, a significance of 0.05 is accepted in social science research.

Table 2. Correlation Analysis

	WE	FE	PE
EJP	.591**	.661**	.589**

** Correlation is significant at the 0.01 level (2-tailed).
N = 150
Source: Survey Data, 2017

According to the correlation matrix presented above, Work-Life Balance factors are strongly associated with Employee Job Performance. All correlation coefficients of Personal Engagement, Family Engagement and Work Engagement have strong relationships with Employee Job performance. The strongest positive significant association is between Family Engagement and Employee Job Performance, which portrays a coefficient of correlation of 0.661 at a 0.01 level of significance ($r = 0.661$, $p < 0.01$), after that Work Engagement and Employee Job Performance, which is depicted by a coefficient of correlation of 0.591 at a 0.01 level of significance ($r = 0.591$, $p < 0.01$), and the next relationship being between Personal Engagement and Employee Job Performance. The correlation of coefficient stands at 0.589, at a 0.01 level of significance ($r = 0.589$, $p < 0.01$).

A. Hypotheses Testing

In order to test the developed hypotheses, the researchers conducted a regression analysis as depicted follows.

Table 3. Model Summary

Model	R	R ²	Adjusted R ²	F	Sig
1	.798 ^a	.637	.614	.299	.000

Source: Survey Data, 2017

Table 4. Model Parameters

Work-Life Balance	β	t	Sig
Personal Engagement	.089	1.040	.304
Family Engagement	.339	3.545	.001
Work Engagement	.378	4.689	.000

Dependent Variable: Employee Job Performance

Source: Survey Data, 2017

In accordance with the model summary derived from the regression analysis, the R value is at 0.798, which indicates that the model is successful in predicting the elements. The R² value of this study values to 0.637. Hence, 64% of the variation in Employee Job Performance is explained by Work-Life Balance factors. The F value of the study is

26.95 and the P-value is 0.000, which is significant at a 0.01 level. This indicates that the variance in Employee Job Performance is significantly explained by the set of independent variables which stand as the Work-Life Balance factors.

Based on the coefficients table, the regression coefficients of Family Engagement and Work Engagement are statistically significant, while the regression coefficient of Personal Engagement is statistically insignificant. As portrayed by the results of the regression analysis, the highest impact is represented by 0.378; the Work Engagement. It indicates that a positive relationship exists between Work Engagement and Employee Job Performance. Here, the regression coefficient is 0.378 at a 0.01 level of significant. The next highest impact is portrayed by Family Engagement with a regression coefficient of 0.339, which is significant at a 0.01 level. This indicates that there is a positive relationship between Family Engagement and Employee Job Performance.

Based on the results of the regression analysis, the status of the hypotheses were derived as per the following table.

Table 5. Status of Hypotheses

Hypotheses	Status	Justification
There is a significant relationship between personal engagement and employee job performance Reject Statistically insignificant	Reject	Statistically insignificant
There is a significant relationship between family engagement and employee job performance Support Significant at 0.01 level	Support	Significant at 0.01 level
There is a significant relationship between work engagement and employee job performance Support Significant at 0.01 level	Support	Significant at 0.01 level

Source: Survey Data, 2017

V. DISCUSSION AND CONCLUSION

The main aim of this research was to examine the impact of Work-Life balance on Employee Job Performance. The findings of the study recognised that Work Engagement depicts the highest relationship with employee performance while Family Engagement also shows a relationship with employee performance. Personal Engagement doesn't depict a significant relationship with employee performance. The company should regard work-life benefits for its employees at a department-wide level. Work-life benefits have proven to bring about increased effectiveness in employees both personally and professionally. The possibility of work-life benefits such as tele-working and flexible working hours for employees could be considered and implemented as part of the company's work-life balance policies. Workload management is another aspect which Managers at the company could look at. Currently, many employees face the burden of work overload. Getting work done on time and with precision is therefore a huge challenge for employees. A study found that reduced work option positively influence employee performance (Aslam, 2015). An appropriate distribution of work should be executed by managers to each of their employees, with clear instruction on task prioritization and execution. The redesign of work tasks could be considered in this context if an employee is faced with overstress due to excessive work. Work-life balance policies are an essential component that needs to be embedded into the company's policy structure. Reasonable working hours, recognizing signs of overwork, employing flexible work arrangement, communicating work-life balance with employees are crucial to sustain employee satisfaction and performance. Managers should take up the role of being accountable for measuring work-life balance progress and ensuring that work-life balance goals are achieved.

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ORGANIZATIONAL ELECTRONIC KNOWLEDGE REPOSITORY USE AND PROJECT SUCCESS IN SRI LANKAN SOFTWARE DEVELOPMENT ORGANIZATIONS

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Abstract - Electronic Knowledge Repository (EKR) is a type of Knowledge Management Systems which is widely used for the knowledge management activities in software organizations. It should be effective enough for the success of the software project and for the continuous use of it. However, it was poorly examined what factors affect to EKR use and how it affects to software project success in Sri Lankan software development organizations. The main objective of this research was to find out how codification effort, task interdependence and perceived task-technology fit affect to EKR use for software development activities and how EKR use affect to software project success in term of team performance and team members' success. An empirical study was conducted in the Sri Lankan software development organizations to test the validity of the conceptual model. The results show that even though codification effort has no significant relationship with EKR use and task interdependence, perceived task-technology fit has a significant positive relationship with it. EKR use has a significant positive relationship with team performance and team member success. The findings provide suggestions for Sri Lankan software development organizations for designing and implementing EKR in order to support organizational goals in term of software project success.

Keywords- Electronic Knowledge Repository, Software project success, Software development organizations.

I. INTRODUCTION

Software development is a complex business which involves many professionals working in different phases and activities. New problems are solved, new knowledge is created every day and technology changes constantly within this industry. Since knowledge in software engineering is varied and its proportions, massive and growing day by day, keeping track of that knowledge, is a big organizational problem (Rus & Lindvall, 2002). Since software engineering is a human and knowledge intensive activity, there are different types of knowledge that required for software development activities. Information Technologies (IT) have become commonplace as efforts to improve the processes of capture, store, transfer and reuse of existing knowledge which is important for software development activities. Such technologies are often labelled knowledge management systems (KMSs) (Alavi & Leidner, 2001).

In the information systems literature, two models of knowledge Management Systems (KMS) have been identified. They are the repository model and the network model (Alavi & Leidner, 2001). A key technological component of this repository model is electronic knowledge repositories (EKRs). This study focuses on EKRs since they are fundamental to organizational

knowledge capture and dissemination. But the factors affecting EKR use are not well understood in software development industry (Markus, 2001). The effectiveness of the systems in facilitating knowledge management and project performance remains unclear (Wu & Wang, 2006).

Previous studies suggest that people will be motivated to perform an activity when they anticipate positive outcomes from doing so. Same applies to the EKR use also. Stakeholders of the EKR like management and employees of the organization expect positive outcomes from EKR if they intend to continue the use of EKR for knowledge management activities. Most of the software organizations are project based organizations. They measure their success by measuring the success of the projects they perform (Wieringa et al., 2005). Previous studies define project success in term of project team performance and team member success. So, people who use EKR expect an increase of team performance (achieving project goals such as time and cost) and team member success (work life satisfaction and learning) within the organization. However, little is known about

how they reuse the information in order to enhance the team performance and team member success. Knowledge acquisition and storage play an important role in building organizational memory. But the process of knowledge retrieval, transfer, and application result in enhanced organizational performance as well as employee work life satisfaction.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

A. Hypotheses

Through this study the relationship between these factors and the organizational use of EKR for software development activities of employees and the connection between the use of EKR and the success of the project of the Sri Lankan software organizations was tested. Hypotheses showed in Table 1, were investigated in order to answer the research questions.

Table 1. Font sizes for this publication

	Hypothesis	Independent variable	Dependent variable
H1	Codification effort is negatively related to EKR use for software development activities.	Codification effort	EKR use for software development
H2	Task interdependence is positively related to EKR use for software development activities	Task interdependence	EKR use for software development
H3	Perceived task technology fit is positively related to EKR use for software development activities.	Perceived task technology fit	EKR use for software development
H4	EKR use is positively related to team performances	EKR use for software development	Team performances
H5	EKR use is positively related to Team members' success	EKR use for software development	Team members' success

B. Sampling procedure

The quantitative research method was used to test the research model in order to establish the generalizability and has statistical power. The unit of analysis for the research model was individual employees from all kinds of software development organizations in Sri Lanka. A Survey questionnaire was developed as an electronic form (Google Form) since it is easy to distribute among the employees of software development organizations. The sample frame included software developers from ten software development organizations in Sri Lanka which use Electronic Knowledge Repositories as knowledge management system within the organization. The respondents were asked to respond to the questionnaire with respect to the EKR they used for knowledge seeking, contributing and reusing. Since the online form was programmed to request all the participants answering each measurement item, no missing values were found in the final result.

C. Operationalization of constructs

Where available, constructs were measured using tested questions from prior studies or were modified to enhance content validity of the scales used. The questionnaire was designed in English with eight subsections based on the existing literature. Five-point Likert-type scale was introduced to capture respondents' self-reported attitudes. The questionnaire was pilot tested with eleven software developers and two doctoral personals contributing. Only 5% use it for knowledge contributing not for knowledge seeking.

III. RESULTS

Data were collected during a 4-week period time. From 150 questionnaires that were sent out, 100 complete responses were received. The major reason for nonparticipation was mainly due to lack of time for them to complete the survey. Statistical Package for the Social Sciences (SPSS) were used to present statistics for comprehensive understanding of data collected from the questionnaire.

D. Demographic variables summary

Demographic variables like gender, age, role, work setting, and work function were collected from each respondent. Nearly 74% of the participants are male. Most of the participants are in between 25-35 years old (72%) and nearly half of them were programmers. In terms of the role they perform in software development activities, most of the participants are team members (86%) and 73% of them work at their office with other team members. Most of the participants were programmers (48%). The survey included two questions regarding usage of the Electronic Knowledge Repositories (EKR) by the participants. When asked about the frequency of EKR use, 45% of the participants indicate that they use it daily and 20% of them indicate they use it more than once a week. In terms of the primary purpose for using EKR, 67% of them use it for both knowledge seeking and knowledge. This shows that all participants have a good experience in using EKR for software development activities.

E. Assessment of the measurement model

- 1) Reliability and validity: To ensure the measures used are valid and that they adequately reflect the underlying theoretical constructs, a measurement model analysis was done. The test of the measurement model includes the estimation of internal consistency (reliability) and the validity. Reliability is assessed with both Cronbach's alpha. A value of at least 0.70 was used as the threshold to indicate adequate reliability (Nunnally, 1978). Table 2 displays the descriptive statistics and reliability for each variable. All of the constructs scored well above 0.70. Thus the reliability of the questionnaire is high and the internal consistency is good. Validity analysis was done with Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity (BTS). As Table 3 shows KMO value obtained is 0.89 and BTS also proved significantly on the strength of relationships. Thus, both tests provide a strong indication of the adequacy of the sample size for the analysis conducted.

Table 2. Descriptive Statistics and Reliability

Construct	Number of Items	Mean	Standard Deviation	Cronbach's
Codification Effort	5	2.768	0.7695	0.836
Task Interdependence	5	3.254	0.7584	0.752
Perceived Task-Technology Fit	5	3.508	0.8759	0.920
Team Performance	5	3.810	0.8473	0.926
Team Member Success	5	3.726	0.8916	0.926
EKR Use	5	3.552	0.8111	0.892

Table 3. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.864
Bartlett's test of sphericity		
	Approximately v2	337.159
	Df	15
	Sig.	.000

- 2) Correlations: Table 4 presents correlations of the constructs. It was found that codification effort (CE) has significant correlation only with perceived task- technology fit (PTTF) but it has small effect on PTTF. Task interdependence (TI) was found to have positive correlation with and large effect on Electronic knowledge repository use (EKRU) ($r=0.666, p<0.01$). Perceived task-technology fit (PTTF) was found to have positive correlation with and large effect on Electronic knowledge repository use (EKRU) ($r=0.663, p<0.01$). EKR use (EKRU) was found to have a positive correlation with and large effect on Team performance (TP) ($r=0.673, p<0.01$) and team members' success (TMS) ($r=0.725, p<0.01$). Since all the correlations well below 0.9, there wasn't found any problem with multicollinearity.

F. Assessment of the measurement model

Fig 1 and Table 5 shows the results of hypothesis test. Regression analysis method was used to test hypotheses. Research model was divided into three sub models for the convenience of the analysis.

Model 1 contains codification effort, task interdependence and perceived task-technology fit as independent variables and EKR use for software development activities as the dependent variable. Multiple regression analysis was done to this model and according to the results, codification effort ($\beta = -0.035, t\text{-value} = -0.493, p=0.623, VIF=1.045$) did not show a significant relationship with EKR use for software development activities. Therefore, hypothesis 1 wasn't supported since it was hypothesized as a negative relationship. Task interdependence ($\beta = 0.403, t\text{-value} = 4.329,$

$p=0.000, VIF=1.781$) and perceived task-technology fit ($\beta = 0.403 t\text{-value} = 4.262, p=0.000, VIF=1.832$) showed a significantly positive relationship with EKR use for software development activities. Therefore, hypothesis 2 and 3 were supported. Model 2 contains EKR use for software development activities as the independent variable and team performance as the dependent variable. Model 2 was analysed using simple linear regression. According to the results of model 2, EKR use ($\beta = 0.673, t\text{-value} = 9.001, p=0.000$) showed a

significant positive relationship with team performance. Hence hypothesis 4 was supported. Model 3 was analysed using simple linear regression and it contains EKR use for software development activities as the independent variable and team members' success as the dependent variable. According to the results of model 3, EKR use ($\beta = 0.725$, $t\text{-value} = 10.430$, $p=0.000$) showed a significant positive relationship with team members' success. Hence hypothesis 5 was supported. Figure 1 shows summary of the test results of research model.

Table 5. Construct Correlations

Hypotheses	Coefficient	T-value	Result
H1: CF related to EKRU	-0.035	-0.493	Not Supported
H2: TI related to EKRU	0.403	4.329	Supported
H3: PTF related to EKRU	0.403	4.262	Supported
H4: EKRU related to TP	0.673	9.001	Supported
H5a: EKRU related to TMS	0.725	10.430	Supported

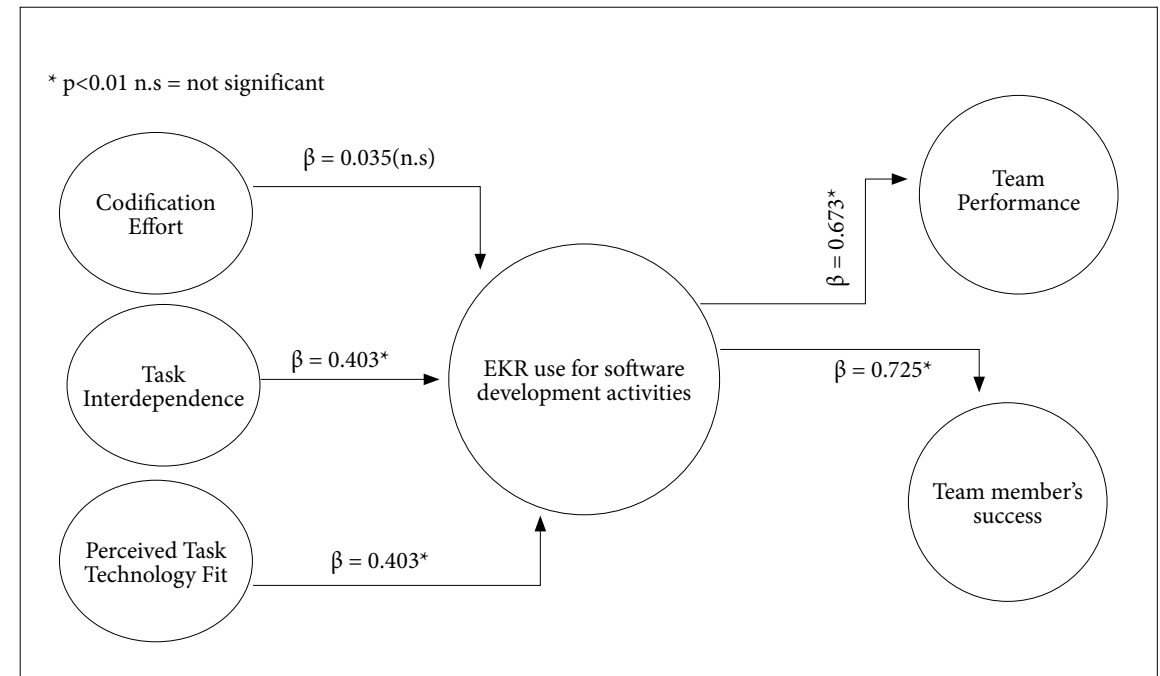
IV. DISCUSSION AND CONCLUSION

The objective of this study is to examine the factors that affect Electronic Knowledge Repository (EKR) use and how EKR use affect to project success in software development organizations in Sri Lanka. The results provide empirical support for the proposed theoretical model and all the hypothesized relationships. Furthermore, the results indicate that codification effort has a negative relationship with EKR use for software development activities. Task interdependence and perceived task-technology fit has a significant positive relationship with EKR use for software development activities. These results agree with prior literature.

EKR use has a significant positive relationship with team performance and team members' success. Therefore, it can be identified that EKR use has a significant impact on software development project success in term of team performance and team member's success. The findings were discussed in detail as follows.

First this research tested the relationship between codification effort and EKR use for software development activities. It was found that there is not a significant relationship between those two constructs and that result is partly consistent with Kankanhalli's study, which found that codification effort had a significant negative relationship with EKR usage under conditions of weak generalized trust, but not under conditions of weak pro-sharing norms and weak identification (Kankanhalli et al., 2005b). In order to use EKRs for software development activities, there should be required knowledge, such as knowledge about the domain for which software is being developed, knowledge about constantly changing new technologies, Specific knowledge concerning the existing software base and local programming conventions in the organization. So employees need to contribute those knowledge in term of contracts, project plans, requirements and design specifications, source code, test plans and related documents. But if the amount of effort and time need to codify knowledge is high they don't tend to contribute knowledge, especially since software development is a time sensitive activity.

As a result of this research it was found that task interdependence positively relates to EKR use for software development activities. This result is consistent with findings of Wang et al. and Lin & Huang (Wang et al., 2014; Lin & Huang, 2008). But this result is inconsistent with Thomson & Bing's findings who investigated about knowledge repository use in Chinese firms (Teo & Men, 2008). The majority of the participants said that they must coordinate their efforts with others, and their performance depends on receiving accurate knowledge from others. Hence, it can be understood that most of the people who are involved in software development activities, have to perform interdependent tasks. As hypotheses testing results and participants' responses show, people who perform interdependent tasks tend to use EKRs regularly in order to obtain the required knowledge to perform intended tasks. For an example business analyst may need knowledge of finance



officer in order to perform a feasibility study, software architecture may need knowledge of business analyst to understand the requirements and programmer may need knowledge of software architecture to understand the design since it's very hard to perform individual tasks all by his/her own knowledge. Hence this finding is very important for decision makers of software development organizations, when making investing and designing decisions regarding EKR within the organization. As the results shows software developers expect to have necessary knowledge when they require it for software development activities. Therefore, managers of the software development organizations should understand the need of an organizational electronic knowledge repository. They need to understand the characteristics of tasks that are performed by their employees and increase the functionalities of EKR by integrating it with effective collaborative technologies such as real time discussion boards and Q and A sessions.

Perceived task- technology fit was found to have a significant positive relationship with EKR use. This result is consistent with Lin & Huang's findings, but not consistent with Thomson & Bing's findings, which found no significant relationship (Lin & Huang, 2008; Teo & Men, 2008). Participants were questioned

about the functionalities of EKR in term of adequacy, appropriateness, helpfulness and compatibility with the tasks they perform. The majority of the participants mentioned that they were satisfied with the functionalities of EKRs they use in the organization. Because of that, they use EKRs for software development activities that they perform. Therefore, it can be understood that if the functionalities of the EKR adequately compatible with the tasks that are performed by the users, they tend to use it regularly for software development activities. This finding is important for designing decisions regarding EKR. Therefore, managers of the software development organizations need to rethink about the adequacy, capabilities of EKR and how compatible it with the tasks that perform by their employees in order to influence them to use it regularly and continuously.

According to the research findings, EKR use positively relate to the team performance in software development. This result is consistent with the Goodhue and Thompson's findings (Goodhue & Thompson, 1995). This research considered about team performance in term of achieving project goals such as time, cost and quality. As Mitchel and Seaman (2015) reveal that software engineers perceive that the removal or mitigation of project-level knowledge flow obstacles generally reduces the time to perform their

work, helps them to meet their deadlines, and improves their work quality, thus resulting in software process improvement (SPI). EKR can be identified as effective tool which remove knowledge sharing barriers. This research confirms that EKR can be effectively used for software development activities and it has a significant effect on achieving software project goals such as time, cost and quality. It was found that EKR use has a significant positive relationship with team members' success in term of increasing quality of work life, increasing efficiency in job performance and innovative ideas. This result is consistent with Sutanto et al.'s findings, but not with Teigland and Wasko's findings (Sutanto et al., 2017; Teigland & Wasko, 2008). The majority of the participants said that EKR helped them to enhance their efficiency, job performance and quality of the work life. There can be several reasons for this finding. EKRs normally help employees to obtain assistance from other team members or any other colleague in an efficient and effective way when they have any problem performing their job and they can avoid mistakes that others have previously done. Therefore, from these findings it can be understood that EKR use have a significant positive impact on software project success in term of team performance and team member success. These findings are very important for managers when taking investing decisions regarding implementing an organizational electronic knowledge repository because this findings prove the positive impact of EKR on organization's ultimate goal, the software project success.

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IMPACT OF CROSS CULTURE ON EMPLOYEE SATISFACTION OF EMPLOYEES OF NON GOVERNMENTAL ORAGANISATIONS IN SRI LANKA

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Abstract - Non-government organizations are the most impacted organizations by the cultural determinants. This research study was set out to explore the impact of Organizational Culture on the Employee Job Satisfaction with special reference to Non-Governmental Organizations operating in Sri Lanka. The objective of the research was to explore whether there is an impact on Employee Job Satisfaction from the Culture of Non-Governmental Organizations. The research was conducted through a field survey by a structured Self developed questionnaire comprising the parameters coming under the Harrison and Stokes (1992) organizational culture model & Developed Maslow's Hierarchy of Needs Theory. The survey was carried out covering a sample of hundred and fifty staff members employed under the four (04) job positions which includes Senior Executives, Junior Executives, Staff Assistants & Trainees to collect the primary data. Researcher used the random sampling method. A conceptual framework is drawn based on the literature in the subject area. Six hypotheses were developed and tested based on the results obtained by the correlation & regression analyses. Responses were analyzed using Microsoft Excel Package software in order to identify the correlation coefficients, regression models and SPSS version 20. The research conducted by using mixed method both quantitative and qualitative. The results highlighted that there is a positive impact by Organizational Culture on Employee Job Satisfaction of Non-Governmental Organizations. Methods that have to be implemented and adopted in addition to the existing practices to improve Employee Job Satisfaction were recommended in order to overcome the shortcomings and improve current practices based on the research findings and the ideas generated through the findings.

Keywords- Job Satisfaction, Organizational Culture, Culture Gap, Culture Typologies

I. INTRODUCTION

Along with the volatile and uncertain world with high competitiveness for any organization in the world and mainly for those in developing countries like Sri Lanka with limited skilled resources, ensuring a loyal, satisfied, committed and able work force is crucial. Therefore Job Satisfaction plays a vital role. Satisfied employees are an asset to any organization since they can work one step harder than others in achieving and attaining goals of the organization. Further their participation and engagement in work could be corporate advantage of the organizations' PR actioners pointed that less than one third (1/3) of total workforce is really engage in work, (Perrine, 2007) Word of mouth of satisfied employees will enhance the company image as top employer brand. Satisfied loyal employees will enhance the company goodwill and image as a top employer brand by promoting company through word of mouth specially. Thus the topic of study on Job Satisfied do have wide interest to both people who work in organizations and people who study about them. Researchers in the field of human relations argue that individuals job satisfaction sentiments are the best achieved through maintaining balanced and positive social and organizational environment (Michael s Cole and Larry E Cole), further argue that such as by providing autonomy, participation, and mutual trust (Likert, 1961) Cole et al (2005) suggest that workplace attitudes (e.g.,

job satisfaction) might be positively connected with performance outcomes.

Therefore dissatisfaction might reduce their performance and finally may enter in to avoidances and leading to organizational ineffectiveness. Moreover one may argue that individual performance levels could be maintained by supervisory control however employees would not engage in collective directed towards the organizations goals is necessary for achievement of organizational objectives, with unhappy employees failing to participate (effectively) in such efforts.

In terms of healthy organizational culture leads organizations to reduce turnover rate, decreased absenteeism and reputation as an employer of choice.

Furthermore organization could attracting the best candidates to reduce operational costs and achieves high performance levels. (Sarah, 2010)Therefore it would be important thing to identify the factors would affect to the Job Satisfaction. Another aspect is Job design which aims to enhance job satisfaction and performance methods include job rotation, job enlargement and job enrichment. Other influences on Job Satisfaction include the management style and culture, employee involvement, empowerment and autonomous workgroups. (Kabir, 2009) According to above definitions researcher draw framework of factors affecting to the employee satisfaction as below.

Personality of the organization is means by the organizational culture. Being a member of an organization then it sense the particular culture of an organization. It is difficult to express distinctly the term Culture where everyone knows it when only they sense it. Understanding of what factor/s that motivates your employees is a major key to any front line or executive people in any organization that leads to achieve the human resource advantage and it leads to reach the success in the challenging and dynamic business world.

Healthy and strong Organizational Culture provides employees an understanding of the way the things are gone around here and there. It provides stability to an organization. However, the major barrier to change for the success. Therefore Organizational Culture can have significant influence on the attitudes and behavior of organizational members, in other words it can be greatly

effect to the motivation of the people. Through this study the researcher would be expect to identify and observe the relationship between the Organizational Culture and Job Satisfaction of employees in Non-Government Organizations.

II. PROBLEM STATEMENT

According to the definitions, culture vary from industry to industry and organization to organization etc. Where culture makes through the organizations strategy as well. The type or nature of the culture represents that particular organization is important for both of its employees and for clients. It provides common direction for all stake holders about the behaviour of the organization. Along with the definitions it emphasizes that each and every employee of the organization should learn the cultural aspects of the particular organization and if it is not they will be in a cultural unfit. Highly rewarded NGO employees expect from their professional. In certain extent they have being received all the expectations with their profession. However, still there is a higher level of resignation rate in NGOs in fact of job dissatisfaction. Since all the economic conditions and all needs according to “Maslow’s Needs Hierarchy”, had being fulfilled socio factors and cultural influence left behind to discuss according to the empirical findings. Hence, this research, the researcher hopes to examine the impact of culture on job satisfaction.

Research Questions

Based on the problem statement develop as above, the following research questions are derived

- a) What is the dominant culture type at NGOs in Sri Lankan context?
- b) What are the type of organizational culture in the NGOs and there is difference between preferred organizational culture type and existing organizational culture type?
- c) Whether the Culture effect on Job Satisfaction?

III. RESEARCH OBJECTIVE

To identify the whether there is a significance impact between organizational culture and level of individual employee Job Satisfaction at Non-Governmental

Organizations. For the purpose of addressing the core objective of the study, the secondary objectives developed include, a) To identify dominant culture type at NGOs in Sri Lanka context. b) Identifying the type of organizational culture in the NGOs and there is difference between preferred organizational culture type and existing organizational culture type within NGOs. c) To identify the most important factors on Job Satisfaction in NGOs.

IV. CONCEPTUAL FRAMEWORK

In this study the dependent variable is job satisfaction whilst five independent variables are Power Culture, Support Culture, Role Culture and Achievement Culture as shown in Figure 1. The following conceptual framework is consistent with the study objectives and review of literature.

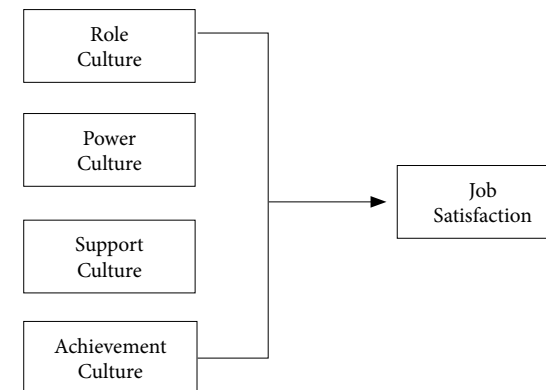


Figure 1: The Relationship between Dimensions of Culture and Its Impact on Employee Satisfaction
Source: Author

Understanding and identifying based on the literature review, the nature of the connection between organizational culture, job satisfaction and service quality would enable academics and administrators to reflect critically on the quality of teaching and quality improvement decisions and actions, by ensuring through the evaluation and successful implementation of service quality processes. (Trivellas & Dargenidou, 2009) In terms of impact of person organization fit (P-O fit) on Job Satisfaction and organizational commitment findings indicate organizational culture plays an important role in the level of two variables. (Silverstone, 2004)An innovative culture was next highest and a supportive

culture had the highest level of employee job satisfaction and organizational Commitment.

V. FORMULATION OF EMPIRICAL MODEL

A formulae was derived as follows:

$$Y_i = f(x_1, x_2, x_3, x_4, x_5) \text{ err}$$

Where, Y_i = Vectors of Employee Satisfaction | x_1 = Vectors of Power Culture | x_2 = Vectors of Support Culture | x_3 = Vectors of Role Culture | x_4 = Vectors of Achievement Culture | err = Error term

VI. SAMPLE PROFILE

The study has both quantitative and qualitative components. Hence for the qualitative part, 10 numbers of employees were selected based on snow ball sampling methods while for the quantitative components, 40 numbers of employees were selected using simple random sampling method

VII. DATA COLLECTION METHOD

For the qualitative analysis, interview method is used while for the quantitative method, semi structured questionnaire method is used.

VIII. DATA ANALYTICAL METHODS

All primary data collected was analyzed through the ordinal regression logit model to test the empirical model of the research for the quantitative analysis. For the qualitative analysis, case study approach and thematic approach was used.

IX. ANALYSIS

Quantitative Analysis

Sample Adequacy: Sample adequacy results of KMO and Bartlett’s test fall under the range of above 70 percent generally considered as the ideal sample. The sample adequacy of the study derived using SPSS revealed the

sample adequacy of 79.5, which can be considered as a sample with ideal sample adequacy.

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.840	5

Reliability: Cronbach alpha is generally used to measure inner consistency and shows the correspondence with each other. Cronbach's alpha for the most part increments when the relationships between the factors increases, and it is generally considered adequate when the alpha is more than seventy percentages, and the reliability of the study is 0.84.

Model fit: Model fit test precise the inconsistency between observed values and the values expected under the model in question, R-squared ranges from zero to one, with one indicating perfect prediction. Improvement in the regression model results in proportional increases in R-squared. Model Fit was measure using Pseudo R Square, where analysis derived as Cox and snell as 0.761, Nagelkerke as 0.723 and finally McFadden as 0.645 as per the Table 2 & 3

Table 2. Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	39.460			
Final	.000	39.460	4	.000

Link function: Logit.

Table 3. Pseudo R-Square

Cox and Snell	.761
Nagelkerke	.723
McFadden	.645

Link function: Logit.

Source: Survey Data (2018)

Goodness of Fitness: Analysis of variance method is used to identify whether the means are distinctive, where significance value below 0.05 shows statistically significant difference. Data analyzed using SPSS software, where Model fitting and goodness of fitness showed the significance of 0.000.

Coefficient Analysis: Coefficient analysis is done as show in Table 04. Parameter Estimates, to distinguish the significance of the relationship between dependent variable and the independent variable. It shows by increasing one odd of employee Power Culture, Employee satisfaction increased by 4.363 odds positively.

Accordingly, by increasing one odd of Support Culture, Role Culture and Achievement Culture show that Employee Satisfaction through by 3.705 odd, 0.995 odd and 0.844 odd positively.

Finally it can be articulated that both power culture and support culture are positively and significantly influential on employee satisfaction as shown in the Table 4

Further, according to data analysis researcher found that the dominant culture type for overall measurement is A-Power Culture and next dominant type is B-Role Culture & D-Support Culture. However the C-Achievement Culture Type is scores lower range than other three types.

As a summery 58 of responders identified power culture as Dominant organizational culture which is more than 91 percent, and the mean scores for power culture, Role culture, achievement Culture and Supportive culture are consecutively A=3.05, B=2.69, C=1.93 and D=2.32

According to the percentage analysis of questionnaire-section C (Job Satisfaction Measurement questions) and from the figure 4.14 shows that overall job satisfaction is under disagreeable level from 41 percent from the responses received. And also shows that strongly agreed level from very few amount as average of 3 percent.

Average Job Satisfaction indicates that employees are not fully satisfied in other word if someone ask them "are

Table 4. Parameter Estimates

	Estimate	Std. Error	Wald	df	Sig.	95 percent Confidence Interval	
						Lower Bound	Upper Bound
[Employee.Satisfaction = 8.00]	29.671	30.186	.966	1	.326	-29.493	88.835
[Employee.Satisfaction = 10.00]	36.027	31.793	1.284	1	.257	-26.285	98.340
[Employee.Satisfaction = 12.00]	46.359	35.613	1.694	1	.193	-23.442	116.159
[Employee.Satisfaction = 13.00]	51.519	35.281	2.132	1	.144	-17.630	120.668
[Employee.Satisfaction = 14.00]	56.735	35.274	2.587	1	.108	-12.400	125.870
[Employee.Satisfaction = 15.00]	61.706	36.453	2.866	1	.090	-9.740	133.152
[Employee.Satisfaction = 16.00]	66.383	38.430	2.984	1	.084	-8.938	141.704
Power. Culture	4.363	12.741	.117	1	.032	-20.609	29.335
Support. Culture	3.705	3.766	.968	1	.025	-3.677	11.087
Role. Culture	.995	5.884	.029	1	.166	-10.537	12.526
Achievement.Culture	.844	6.806	.015	1	.201	-12.496	14.183

Link function: Logit.

Source: Survey Data (2018)

you satisfied with your job?" reply probably be "I'm not satisfied".

Therefore researcher build the model to indicate the relationship between job satisfaction and cultural gap where cultural gap will be the independent variable as it is the measurement of Organizational Culture.

Job satisfaction = C ± percent of cultural gap

The regression equation is, according model summary which was taken by using SPSS V 20 statistical viewer to the dissertation hypothesis testing, the regression equation is as follows,

Job satisfaction = 0.934 - 0.615Organisational Culture/Culture Gap

Prior Notes to the Analysis the relationship between Organizational Culture-Culture Gap with the Job Satisfaction.

Qualitative Analysis

As per the research study content Organization Culture and Job Satisfaction is interconnected. According to the literature says "A positive organizational culture strengthens the fundamental beliefs and the behavior that a leader appreciate, weakening values and actions that the leader does not consider right for the company. On the contrary, negative culture becomes toxic, poisons the life of the organization and hampers the growth potential" (Kaufman, 2002) .The vital questions are "What will be the preferred level of authority that would be in the organization in you? What kind of changes you expect for future of NGO sector in Sri Lanka in terms of careers development?" "Which areas you would prefer to retain employees with the high level of job satisfaction irrespective of the culture?" According to the participatory observation and discussions with the employees and most of the junior management, the situations were seen differently and logically same of which cannot be assessed in a quantitative way. Hence researcher investigate

the impact of organizational culture and Cultural Gap Existing on Job Satisfaction through qualitative analysis as well by random sampling basis.

According to the qualitative questions given to the survey researcher enclosed here some statements which interviewees given.

"I would say that from the level of hierarchy the authority should be delegated promptly. Authority goes to high levels above managers only, therefore the decision making delayed. When it comes to field level authority given to take decision without taking the prior approvals from country delegation. But when it comes to solve the matter again the given authority level had being questioned. Therefore there must be clear cut on Job Description and the authority should be assigned properly in written."

Basically theoretical underpinning of the research was Harrison's and Stoke's model of organizational culture. Accordingly, NGOs have the multinational and multi-dimensional work activities based on project base and also powered by diversified workforce. As per Hofstede's Cultural Dimensions theory (1965) on nations, different factors aligned with NGO sector with cross-cultural differences. Therefore the term delegation of authority may be identified in different scenarios by multinational staff. The term, delegation refers to the process used by a manager to shift some of the responsibilities for the task implementation to another team member so thereby team members improve their thinking that they are involved with the project and also feel ownership. Thereby decision complied with the statements are fully compliant with the major ideology of Human Resource Management.

"No career development path. Irrespective to the organizational culture impact and less focus on individual development in terms of training and development. Since the organization is more towards to international and local mixed culture it is complicated to develop training plans."

According to the Hofstede's Cultural dimensions NGOs, especially INGOs have to work with different nationalities. From one end this diversified work force is an asset to the organization while for certain extent it creates difficulties and boundaries due to cultural mismatches. As per observations on financial background of NGOs

with the limited funds available and growth of projects and growth of NGOs sector suffered with competition to capture projects and donors. Along with the charismatic leadership with power influencing on others individual development plans can be implemented in these organizations as well. As per empirical evidence on Asian Development Bank which is an INGO is backing by the leadership to influence growing individual profiles through in-house and career development trainings. So in Sri Lankan context NGOs can implement individual qualification base platform for employees' willingness to enhance their careers.

"No career development plan was prior decided for NGOs sector in Sri Lanka. And the hierarchy not clear. So expect there must be well designed career path as in other organizations. Not found any career development just found the career changes for higher responsibilities and higher salaries. With the project management aspects can not specify exact career path. But with the seniority and experience and qualifications which could individuals should gain for their selves there are certain career development aspects."

Learning and Development is vital for any organization whether it is non-governmental or Governmental or private. Therefore, management should put greater effort to satisfying needs of this particular group who seek for personal career development within the organization since they represent the organization's future for sustainable competitive advantage. Concurrently, with the competition organizations must consider to retain employees. Due to certain reasons like lack of donor funds and fundraising incapability on higher management decisions NGOs are not capable to provide such kind learning culture. However comparatively high rate of group trainings are being considered to develop the job skills since those trainings are not enough to satisfy individual needs. Since the NGOs offering certain career development aspects based on experiencing, delegation and management should have the aim of particularly challenging, where structured career paths and job stability can be developed though it is more difficult to provide expected dynamic environment, as long as they changed the traditional practices to creative ways to address the attraction and bond of employees to organizations.

Practically, the responses of employees mean that their working environment is so rigid and characterized

with formal rules and policies, while they would rather work with loyalty and mutual trust. In addition although the dominant culture type identified as power culture, preferred strategies go to role culture which would focus on human development, high trust and participation. Further, quite a big number of employees prefer to work in a frame of new creation and opportunity provision. Therefore, the conclusion of the study is that there is a significant difference between the preferred organizational cultures with the existing culture. The majority of employees prefer to work in role culture which gives a friendlier environment with more trust and informal relationships to accomplish the work targets and team reward culture. The present study showed that organizational culture can partially predict the levels of employees' job satisfaction. Moreover, as the recommendation first of all NGOs may indicate to managers which are the essential features of an organizational culture that positively influence job satisfaction, and in particular to introduce in career ladders and forms of participation. The theoretical perspective as Harrison and Stoke's model of Organizational Culture with four dimensions of Power, Role, Achievement and Support Culture NGOs are preferred to be in the middle of Role and Achievement Culture.

X. CONCLUSION

Organizations believe in cultural types that believe to be successful in achieving success, they manipulate successful organization and build their own which can give solution to their problems. Researchers have developed model culture that can classify organization culture. Thus we can conclude that NGOs have an organization culture that dominated by one dominant culture type and other cultural type has blended within it. There for researcher identified that the dominant culture type at NGOs as Power Culture and other Culture types as Role Culture and Support Culture. However in the sense researcher identified achievement culture is lack behind from the existing culture mix.

The mean value for existing power culture which 3.05 which clearly higher than other culture profile indicates that the power culture dominates in NGOs. This further certified by having responders identifying power culture as dominant culture profile. All Role Culture, Achievement culture and Support Culture very much equally by responders score 2.69, 1.93 and 2.32 consecutively.

However the dominant existing culture (power culture) seems to have rejected in preferred list having scored 1.72 which is lowest by considerable distance. Average culture gap in NGOs is 1.81 (where maximum gap would be 4-1=3) indicates that there is considerable cultural gap exists in the NGOs. Employee satisfaction in NGOs are also low (0.18) which shows that employees are not satisfied with their job. And there is a difference between preferred organization culture and existing organization culture of NGOs. That means the Culture Gap exists. R refers to the correlation coefficient between independent variable and dependent variable. Here $R=0.518$ (-.495) if independent variable change by 1, dependent variable will change by 0.518 (negatively). R^2 shows the proportion of change in dependent variable caused by the independent model, here in this model $R^2 = .268$ means 26.8 percent variability of dependent variable is described by the independent variable. As in this research $F=20.552$ and significance level shows as .000 and $P=0.000 < 0.05$, relationship between two variables is statistically significant.

XI. RECOMMENDATIONS

The research findings highlight that there is a high positive relationship between Organizational Culture and Job Satisfaction in certain factors at NGOs. Hence, there is a need to overcome such situations as soon as possible. So it is recommended that following methods are used to enhance Job Satisfaction.

- 1) A high level of positive relationship exists between the Dominant Culture Type of Power Culture and Employee Satisfaction at NGOs. As per the Data Analysis there are some people weren't satisfied with existing Delegation of Authority. So, here it is recommended that there should be proper plan for delegating the authority among the people at there.
- 2) The People Involvement for decision making has a moderate relationship with Employee Motivation. So, here it is recommended that it should be better, if the Management can increase the participation of people when they are making the decisions and make programs to identify and develop the creativity and innovative ideas of the people at there.
- 3) Team Culture has high level of positive relationship with Employee Job Satisfaction at there. Majority of respondents (at around 85 percent) are satisfying with the Team Culture at NGOs. So, researcher

recommended that management should have to maintain the current context regarding the Team Culture and introduce new techniques for team building to improve the Employee Satisfaction at there. 4) The Respect for Individual Differences has a moderate relationship with Job Satisfaction at there. So, here it is recommended that to improve the degree of respecting Individual Differences by the management and if it is better to change the mind set of management towards the Individual Differences at there.5) The majority of the people at NGOs believe that Ethical Code of Conduct makes their behavior. As well as they believe Physical Conditions are very well there. So, researcher recommended that management should have to maintain it continuously improving way. 6) Research brings somewhat worrying sign for NGOs, first is their selection of power culture. Power culture is usually benefits at small organizations and helps swift decisions, in considering the size of the organization centralized authority may sometimes leads to fault dictions, stressed top management and frustrated frontline employees. Role culture usually is most suitable selection for non-government social service providing institute of this category.

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OPTIMIZING THE ALLOCATION OF TRAINING PROGRAMMES TO MAXIMIZE THE ORGANIZATIONAL GOALS

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Abstract- All Human Resource managers commit for dedicated corporate trainings to ensure that their employees have a better understanding of their assigned work and be able to achieve the organizational goals. Due to resource scarcity, any company could offer a limited number of training opportunities based on the allocated training budget. The main problem that encounter in the current system is, that it unable to identify the most value adding training programmes which are aligned to the company goals. However, when a limited budget is allocated the best decision must be taken to optimize the allocation of right people to the right training programs to fill the competency gap. Decision making in HR Management tends to be more subjective, if multiple aspects are not considered while making decisions. Unless the trainings are not aligned with the organizational goals, organizations may not be able to achieve the expected company goals in short term and also competencies will be stagnated in the long run. Therefore, the main objective of this study is to optimize the most beneficial and value adding training programmes which align with each departmental goals of the organization and to assign the optimal number of employees for each training programme. In the study, Analytical Network Process (ANP) is used to prioritize the training programmes, considering employees' individual needs, departmental needs and other requirements to achieve the company goals. Then, an Integer Linear Programming model has been developed to maximize the priority values of training programmes and to find the number of programmes that should be conducted within the allocated budget. This proposed model facilitates to map the most value adding training programme with the departmental training requirements.

Keywords- Analytical Network Process, Training programmes, Integer Programming, Optimization, employee allocation

I. INTRODUCTION

Human Resource Management is a strategic approach in managing employment relations which emphasizes that leveraging people's capabilities is critical to achieving competitive advantage, though it has been achieved through a distinctive set of integrated employment policies, programmes and practices. (Bratton and Gold, 2007).

Starting from the recruitment till the employee becomes a stable asset in the organization, HR manager needs to take decisions about the employees. As HR professionals work less with numbers they tend to make decisions mostly based on their intuition, experience and personal preferences. Therefore, there is a high subjectivity lies with the HR decisions in most of the instances. When the current system is explored, the training and development context is congested with several issues where they could block millions of dollars' income in the long run. One of the major problems faced by the Training manager is quantifying the training benefit. Before delivering a training programme the training manager is obliged to decide on the most effective set of training programmes to be implemented in the coming year. Not only that, he should decide which department to be invested more on employee training based on the value that the departments are adding to the organization. It is an

instance where the decision making comes to play. Human Resource Management consists of practices where most of the subjective decision-making processes backed by qualitative facts take place. Resource allocation is such a critical decision happen to be taken by managers. Wrong decision made to invest in the less return generating programmes will be an additional cost to the organization. Selection of most appropriate training programmes and allocation of resources on them to leverage a better return on investment.

Training always incurs a considerable cost always. Starting from the learning materials, space, trainer's fees, refreshments incur an inevitable cost. As the training manager, the always tries to maximize the training opportunities provided for the employees while minimizing the cost incurring. Even though, the cost spent is the minimum, if the training programmes do not address the required strategic skill efficiencies, they add no value to the organization. Therefore, the proposed model will incorporate benefit hierarchy of the training

programmes of each department and try to maximize the benefit given by the training programmes under the allocated budget amount.

In this study the authors have systematically reviewed the usage of multi criteria decision making in Human Resource Management and the best combination of training programmes to be implemented has been identified. Moreover, the authorshave developed a model to optimize the selection of training programmes and maximize the benefit gained from the training programmes.

II. METHODOLOGY

Initially a detailed literature review was done. Further to incorporate with the real world, and interviews with experts were conducted. During the discussions, several criteria which were considered in selecting training programmes were identified.

Phase 1- Prioritizing the training programmes using ANP (Analytical Network Process

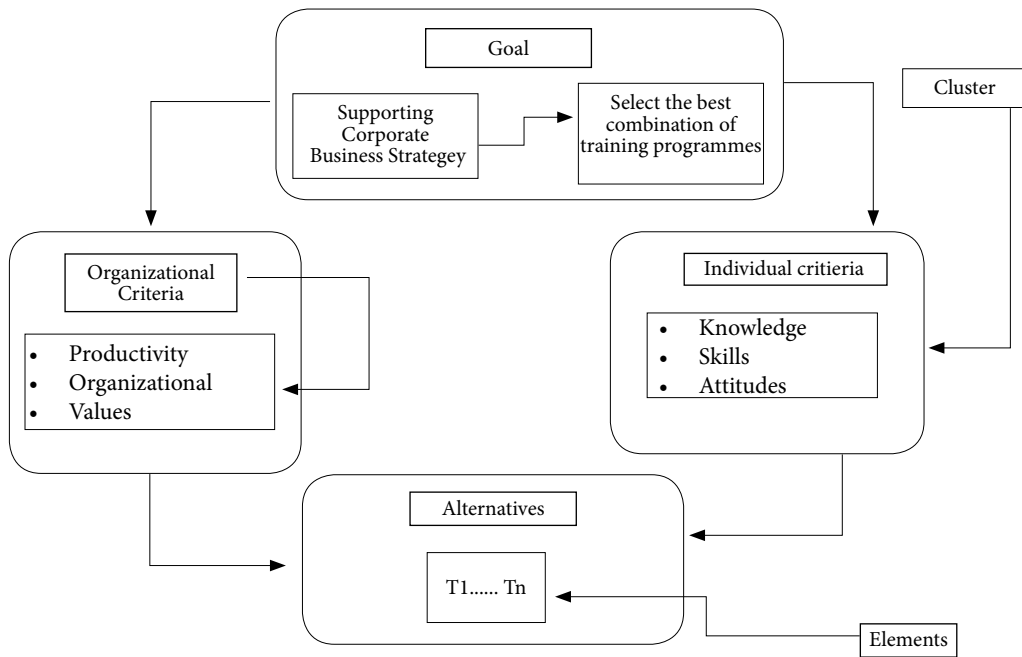


Fig 1. Network illustration of the problem

Above diagram illustrates the problem context. It consists of a number of clusters of elements. The different clusters are the goal, organizational criteria, individual criteria and the alternatives. The inner dependency within the same cluster and the outer dependency among the clusters are displayed in the network model.

After modelling the problem, SuperDecisions software has been used to do the Analytical Network Process analysis and prioritize the training programmes. In this example ANP analysis has been carried out three times for three departments of an organization. Ultimately, one training programme has received three different priority scores. Those values were merged in to one value by applying weighted average score. Finally, priority scores have been obtained for the training programmes.

B. Phase 2- Optimization using ILP (Integer Linear Programming)

After obtaining Weighted Benefit scores for each training programme, ILP model has been formulated to select the optimum number of training programmes from each category under different set of constraints. The obtained Weighted average benefit scores have been used as the coefficient values of the objective function. The optimization model developed to allocate the training programmes which align with the company goals.

1) **Objective Function:** Benefit scores of each training programmes are taken as the coefficients of the objective function

$$Max Z = \sum_{i=1}^n |a_i X_{T_i}|$$

$$2) \sum_{i=1}^n |B_i| \geq |X_i| \leq A \dots (1)$$

$$\sum_{i=1}^n |X_{T_i}| \leq d \dots (2)$$

$$\sum_{i=1}^n |C_i X_{T_i}| \leq D \dots (3)$$

Equation 1 - Total number of training programmes from all the categories

Equation 2 - Minimum number of training initiatives from each category

Equation 3 - Total budget of the training programmes

a_i : Benefit score of ith training category computed using ANP, a constant value

X_{T_i} : Number of training programmes from category i

D : Total training budget

A_i : Minimum number of ith category training programs

B_i : Maximum number of ith category training programmes:

C_i : Cost of each training category

D_i : Minimum number of training initiatives from each training category

III. RESULTS

A. **Phase 1** After applying SuperDecisions software to conduct the ANP Analysis, training benefit scores have been obtained for three departments. But a weighted average score has been applied for each department based on the value proposition added to the organization's vision and goal. Ultimately, weighted average benefit score has been obtained for each department for different training programmes. Following formula shows the way of calculating the weighted average benefit score. Following formula shows the way of calculating the weighted average benefit score.

$$a_i = \sum_{j=1}^n K_{ij} \cdot WS_{ij}$$

K_{ij} - benefit score calculated for each ith training programme of department j using ANP

WS_{ij} - weighted average score given for each department jth for different training programs of ith after prioritizing the needs for training

Table 1. Weighted Average Benefit score for each training category computed using ANP

Training category	Department of Manufacturing	Department of Finance	Department of Engineering services	Weighted Average benefit score = ai
Quality related training	0.203239 WS=0.50	0.142129 WS=0.25	0.131241 WS=0.25	0.1699
Technical training	0.156511 WS=0.30	0.135480 WS=0.20	0.119801 WS=0.50	0.1339
Engineering related training	0.191853 WS=0.25	0.126456 WS=0.15	0.151569 WS=0.60	0.1578
Soft skills training	0.137334 WS=0.25	0.147926 WS=0.50	0.148544 WS=0.25	0.1974
Computer Literacy training	0.123754 WS=0.60	0.160253 WS=0.20	0.146773 WS=0.20	0.1356
Lean six sigma training	0.078101 WS=0.33	0.155144 WS=0.33	0.163686 WS=0.33	0.1052
Safety training	0.109207 WS=0.50	0.132613 WS=0.20	0.138387 WS=0.30	0.1226

The results depict that the Soft skills trainings have the highest value addition to the organization while the Lean six sigma trainings have the least value addition to the organization.

B. Phase 2: In the Integer Linear Programming model, when A=50, B=20, D=50000

After running the ILP model on Excel Solver following final results have been generated

Training Category	# training programmes	Benefit score
Quality related training	4	0.1699
Technical training	3	0.1339
Engineering related training	6	0.1578
Soft skills training	3	0.1974
Computer Literacy training	3	0.1356
Lean six sigma training	4	0.1052
Safety training	7	0.1226

Based on the above optimized solution derived, it can be concluded that though the Soft skills trainings carry the highest benefit score, the organization cannot allocate the major portion of their training budget on it. The other constraints have influenced on deciding the number of training programmes to be conducted.

IV. CONCLUSION

Decision making always plays a vital role in Human Resource Management. As its decisions are mostly made by people on people, there is a high probability that decision may be influenced by subjectivity and biasness. Therefore, the HR experts in the industry have emphasized the importance of Multi criteria decision making. The literature witnesses a less contribution of research on applicability of multi criteria decision making in Human Resource Management. The research work done mostly were on practices like Recruitment and Performance Management. One research article was found on application of Multi criteria decision making on Training and Development where it was a case study related to an expansion of a company. Therefore, the flexibility of the model they have developed was less. This study will contribute to the literature of the Human Resource Management related research, by quantifying the intangible criteria which will support heavily in making decisions regarding real world problem. Moreover, the model can be customized according to any organization and in any industry in order to optimize the most beneficial training categories which will achieve the desire organizational goals and objectives.

The main objective of this study is to identify the most beneficial number of training programmes to be conducted while prioritizing the need of the organization. Moreover, the selected training programmes should be within the limited budget and aligned with the organizational goals and objectives. Also, the model will maximize the benefits gained from the training programmes while striking a balance between organizational benefits and individual benefits.

The criteria needed for the model were defined in order to select the most beneficial training programmes in terms of the value they are adding to the organizational corporate business strategy or the organizational

goals and objectives. Criteria were identified with the knowledge and the experience of the industry HR experts. The identified criteria were divided in to two main sectors as organizational criteria and individual criteria. Organizational criteria consist of Productivity, Culture and Organizational value. Individual criteria consist of Knowledge, Skills and Attitudes. Using these identified criteria, a multi criteria decision making model was developed to evaluate the training categories in terms of the strategic value added by them to the organization. The first phase of the model has been successfully developed by using ANP method and the most beneficial training categories were identified. The accomplishment covers the first objective of the research. Moreover, the results show the ability of the model to assist the decision makers to examine the benefits of the training programmes by comparing them against several criteria.

As the second phase, an ILP model has been developed in order to maximize the benefit gained from the training programmes. The model has been validated qualitatively using the real-world data from a well-recognized Global protection ware manufacturing company. Past year data related to their business strategy, departments maintained by them, training categories used were obtained to run the model. After running the model, a set of training categories were prioritized with the number of training programmes to be conducted from each category. The result was compared with their last year training calendar. Feedback was obtained from a few department heads regarding the result generated from the model compared with the last year training opportunities received from them. They were much satisfied with the result of my model compared to the last year training calendar.

Therefore, the developed model will be appropriate for any organization for any level of employment who are always trying to align their Training and development strategy with the organizational business strategy. Moreover, the model allows HR department to consider the requirements of every department when preparing the training calendar. Moreover, it will strike a balance between the addressing organizational requirements and the individual requirements by organizing the training programmes. Additionally, the model will support the HR department of an organization to take an extra leap by acting the role of a strategic partner in the long run of company existence by developing the competencies of their employees.

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FORECASTING DOMESTIC GUEST NIGHTS IN ANCIENT CITIES OF SRI LANKA: HYBRID APPROACH

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Abstract- The Ancient Cities are highly occupied by domestic tourists after 2009. The high occupancy increases the demand for accommodation. Hence, the hotel industry should adopt various practices to maximize profits and minimize the risk. This can be achieved by accurate forecasting. But, there were least attempts on forecasting occupancy guest nights of domestic tourist in Ancient Cities of Sri Lanka. Therefore, this study was focused on forecasting occupancy guest nights of domestic tourist in Ancient Cities of Sri Lanka. Monthly data of domestic guest nights for the period of January 2008 to December 2016 were obtained from Sri Lanka Tourism Development Authority (SLTDA). Descriptive statistics were obtained. The trend models; Linear, Quadratic, Growth Curve and S-Curve models were tested. The Anderson-Darling test revealed the residuals of Linear and Quadratic were normally distributed, but Ljung-Box Q-test and Auto-Correlation Function (ACF) does not confirm the independence. Therefore the de-trended data were further analyzed; the stationarity of the series was tested by Augmented Dickey-Fuller (ADF) test and ACF. Then the Auto-Regressive Integrated Moving Average (ARIMA) model was tested on each series. The ARIMA model was well fitted for de-trended series of Linear trend and Growth Curve models. Hence, the residuals of two hybrid models; Linear trend-ARIMA and Growth Curve trend-ARIMA models were tested for model assumptions. It was concluded that both hybrid models; Linear trend-ARIMA and Growth Curve-ARIMA are suitable for forecasting occupancy guest nights of domestic tourist in Ancient Cities of Sri Lanka.

Keywords - Trend, ARIMA, Ancient Cities, Occupancy

I. INTRODUCTION

Sri Lanka is a home to eight UNESCO world heritage sites. Kandy, Sigiriya, Anuradhapura, Polonnaruwa, and Dambulla are named as Ancient Cities of world heritage sites in Sri Lanka. It is flooded with opportunities for experiencing ancient history. There is evidence left by a proud civilization stretching back more than two thousand years. Today these cities are highly visited and occupied by domestic tourists. The domestic travel refers to travel within their own country, the word domestic originating from the Latin word “Domus” meaning home. The domestic tourist travels from one to another place during their leisure time or other purposes. After 2008, there is an improvement of traveling culture of domestic travellers in Sri Lanka. The Ancient Cities are one of the highly visited and occupied regions by domestic tourist (SLTDA, 2016).

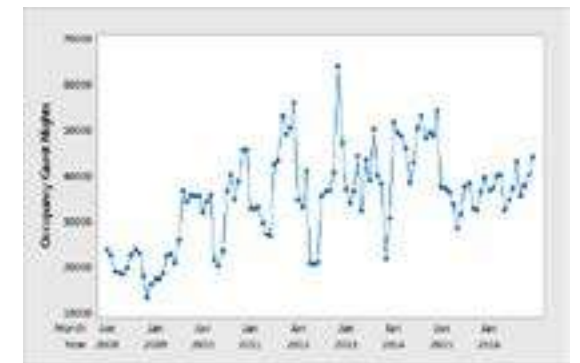


Figure 1. Time series plot of domestic occupancy in Ancient Cities

Figure 1 clearly shows an increasing trend with fluctuations of occupancy of domestic tourist in Ancient Cities over the years.

Problem Statement

The high occupancy increases the demand for accommodation and other tourism-related business. Hence, the hotel industry and other business should adopt various business practices to maximize benefits and minimize the risk. This can be achieved by accurate forecasting of occupancy by tourist (Schwartz and Hiemstra 1997). It is a well-known fact that accurate forecasting is a critical component of efficient business operations. But it was hard to find attempts of forecasting occupancy guest nights of domestic tourist in Ancient Cities of Sri Lanka.

The objective of the study

To forecast occupancy guest nights of domestic tourist in Ancient Cities of Sri Lanka

I. The significance of the study

The results of this study can be used for strategy and policy development of tourism-related business and local government authorities of Ancient Cities of Sri Lanka.

II. LITERATURE REVIEW

The studies focusing on forecasting number of occupancy guest nights are very limited across the world. Brannas, and Nordstrom (2000) model the number of Norwegian guest nights in Swedish hotels and cottages and demand analysis. The study used Integer-valued autoregressive model. Autoregressive Moving Average (ARMA) and Seasonal Autoregressive Integrated Moving Average (SARIMA) used to examine and forecast tourist accommodation demand in New Zealand using hotel-motel room nights by Lim, Chang and McAleer (2009). In Sri Lanka, SARIMA and Decomposition methods used for forecasting foreign guest nights in Colombo and Greater Colombo by Konarasinghe (2017-a). SARIMA used for forecasting foreign guest nights in Southern Cost and Ancient Cites of Sri Lanka (Konarasinghe, 2017-b) and (Konarasinghe, 2017-c). Univariate and Multivariate time series techniques were used in forecasting hotel

room occupancy rates and guest nights. Brannas and Nordstrom (2000), Lim, Chang and McAleer (2009) confirmed that the Integer-valued autoregressive, ARMA and SARIMA models are suitable for forecasting guest nights. In Sri Lankan context SARIMA performed extremely well in forecasting occupancy of foreign guest nights. It was confirmed by Konarasinghe (2017-a), (2017-b) and (2017-c).

III. METHODOLOGY

Monthly domestic Occupancy data for the period of 2008 to 2016 were obtained from annual reports of Sri Lanka Tourism Development Authority (SLTDA). At first, the Descriptive statistics of occupancy were obtained. Figure 1 is the time series plot of domestic occupancy guest night in Ancient Cites. It is clear that there is an increasing trend. Therefore the trend models; Linear, Quadratic, Growth Curve and S- Curve were tested on log-transformed series. Four trend models were tested with log transformation. They are;

Linear trend model: $\ln Y_t = \alpha + \beta t + \varepsilon$ (1)

Quadratic trend model: $\ln Y_t = \alpha + \beta_1 t + \beta_2 t^2 + \varepsilon$ (2)

Growth curve model: $\ln Y_t = \alpha(\beta^t) + \varepsilon$ (3)

S-Curve model: $\ln Y_t = \frac{A}{\alpha + \beta(Y^t)} + \varepsilon$ (4)

Trend analysis revealed that the residuals of models 1 and 3 are normally distributed but not independent. The residuals of models 2 and 4 did not follow the normally distribution and independent.

Therefore de-trended data were analysed and it was intended to model them. The Auto-Regressive Integrated Moving Average (ARIMA) model was tested for the purpose. An ARIMA model is given by;

$\varphi(B)(1-B)^d y_t = \theta(B)\varepsilon_t$ (5)

Where;

$\varphi(B) = 1 - \varphi_1 B - \varphi_2 B^2 - \dots - \varphi_p B^p$
 $\theta(B) = 1 - \theta_1 B - \theta_2 B^2 - \dots - \theta_q B^q$

ε_t = Error term

D = Differencing term

B = Backshift operator ($B^a Y_t = Y_{t-a}$)

The time series plots used for pattern recognition. The Anderson-Darling test, Ljung-Box Q (LBQ) test, Auto-Correlation Function (ACF) and Augmented Dickey-Fuller (ADF) test were used to test normality, independence of residuals and stationary of the series. Forecasting ability of the models was assessed by considering Mean Absolute Percentage Error (MAPE), Mean Square Error (MSE) and Mean Absolute Deviation (MAD). This approached applied for Sri Lankan tourism industry by Konarasinghe (2017-d).

IV. RESULTS

Data analysis is organized as follows;

- (1). Descriptive Statistics
- (2). Trend analysis
- (3). Model de-trended series
- (4). Testing the validity of hybrid models

Outliers are the extremely large or small values of a data set. They were identified with the help of Box Plot (Figure 2) and replaced by moving an average of order three. The study adopted the technique used by Konarasinghe, Abeynayake, and Gunaratne (2016), Konarasinghe (2016) and Konarasinghe (2017-d) for outlier adjustment. That is; if the *i*th value of a series is an outlier;

$i^{th} \text{ value} = [(i-1)^{th} \text{ value} + (i-2)^{th} \text{ value} + (i-3)^{th} \text{ value}] / 3$ (6)

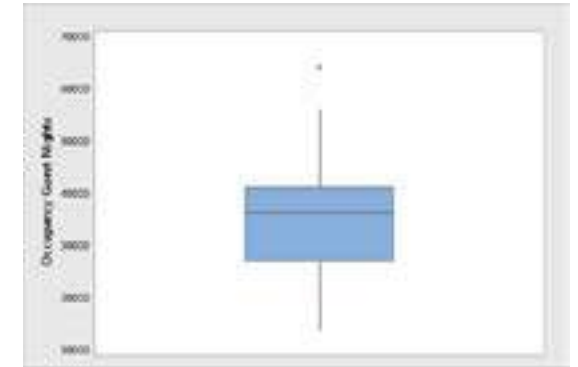


Figure 2. Box plot of occupancy guest nights

D. Descriptive Statistics

Graphical summary of descriptive statistics is shown in Figure 3.

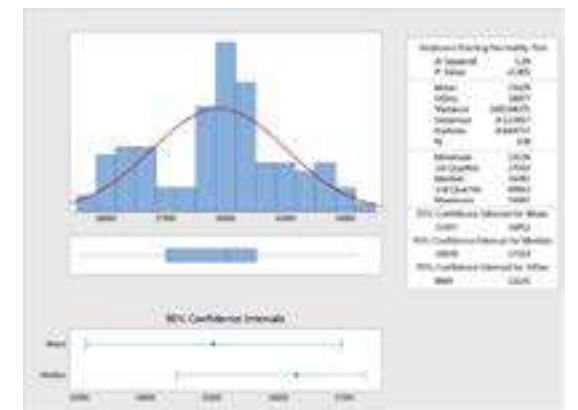


Figure 3. Graphical summary of occupancy guest nights

Minimum occupancy recorded from domestic tourist was 13576 whereas maximum was 56047 during the period. The first quartile of occupancy is 27015. It means ¼ of the months had at most 27015. A median occupancy is 36281 and the third quartile of occupancy is 40662. Histogram of the arrivals does not look symmetrical.

The p-value of the Anderson-Darling test is less than the significance level (p-value <0.005). As such, the number of arrivals does not follow the normal distribution. They are negatively skewed.

E. Trend analysis

All four trend models were tested. The relative and absolute measurements of errors of all fitted models were small. The Anderson-Darling test confirmed the normality of residuals of Linear and Growth Curve models. The residuals of Quadratic and S-Curve trend models were not normally distributed. The LBQ-test and ACF did not confirm the random of residuals of all four trend models. Therefore none of the trend models can be recommended for forecasting. Two trend models were selected in model de-trended series based on the normality of residuals. Table 1 is the results of selected trend models.

Table 1. Model summary of selected trend models

Model	Model Fitting	
Linear trend model	MAPE	1.86092
	MAD	0.19182
	MSE	0.06139
	Normality	P = 0.355
	Random of Errors	No
Growth curve model	MAPE	1.86457
	MAD	0.19226
	MSE	0.06171
	Normality	P = 0.347
	Random of Errors	No

F. Model de-trended series

The de-trended data of Linear and Growth Curve trend models were extracted and plotted.

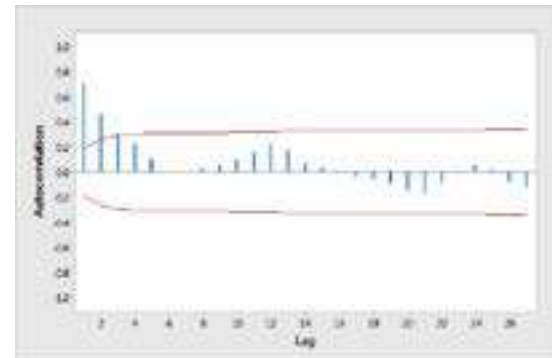


Figure 2. The Auto Correlation Function for de-trended data from Linear trend model



Figure 3. The Partial Auto Correlation Function for de-trended data from Linear trend model

Figure 2 and Figure 3 are the ACF and Partial Autocorrelation function (PACF) of de-trended series of Linear Trend model. They were tested for stationery by ADF test, ACF, and PACF. The ADF test, ACF, and PACF confirmed the stationary of the series.

Figure 4 and Figure 5 are the ACF and PACF of de-trended series of Growth Curve trend model. They were tested for

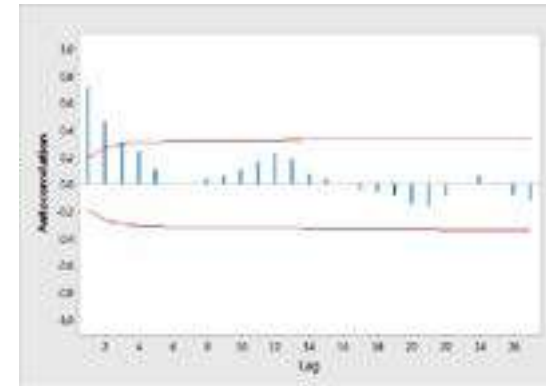


Figure 4. The ACF for de-trended data from Growth - Curve trend model



Figure 5. The PACF for de-trended data from Growth - Curve trend model

stationary by ADF test, ACF, and PACF. The ADF test, ACF, and PACF confirmed the stationary of the series.

Then the ARIMA (p, d, q) model was tested on them. ARIMA (1, 0, 0) was the suitable model for de-trended series of; Linear and Growth Curve trend models. Table 2 is the summary of best-fitting ARIMA models. The residuals of ARIMA (1, 0, 0); fitted to de-trended data of Linear and Growth Curve trend models were normality distributed and random. The results of the table 2 confirmed that the ARIMA model can be used to model the de-trended series of Linear and Growth Curve trend models. Measurements of errors of these two models were also satisfactory small.

Table 2. Summary of ARIMA (1,0,0) models

De-trended data of Model	Model Fitting		Model Verification	
	MSE	MAD	MSE	MAD
1	0.037507	0.144494	0.056832	0.223278
3	0.037489	0.144450	0.0628412	0.235893

G. Testing the validity of hybrid models

Based on the results of E and F of the analysis, following two hybrid models were selected for forecasting;

Hybrid Linear -ARIMA model

$$Y_t = a_1 + \theta^t + a_2 + \sum_{i=1}^p \phi_i G_{t-i} + \varepsilon_t \quad (7)$$

Where; L_t = De -trended Series of the Linear Model

Hybrid Growth Curve -ARIMA model:

$$Y_t = a_1 + \theta^t + a_2 + \sum_{i=1}^p \phi_i G_{t-i} + \varepsilon_t \quad (8)$$

Where; G_t = De -trended Series of the Growth Curve Model

Forecasts were estimated for both hybrid Linear - ARIMA and Growth Curve -ARIMA models. According to table 3, the residuals of both models were normally distributed and random. Measurements of errors of both models were very small. Fitted models as follows:

Hybrid Linear- ARIMA model:

$$\ln V_t = 9.97026(100100^t) + 0.6947G_{t-1} \quad (9)$$

Hybrid Growth Curve -ARIMA model:

$$\ln V_t = 9.96833 + 0.01030t + 0.6953L_{t-1} \quad (10)$$

Table 3. Summary of hybrid models

Model	Model Fitting		Model Verification	
	9	MAPE	1.47749	MAPE
	MAD	0.15519	MAD	0.51324
	MSE	0.04295	MSE	0.27002
	Normality	P =0.066		
	Random	Yes		
10	MAPE	1.48410	MAPE	5.05858
	MAD	0.15595	MAD	0.53108
	MSE	0.04329	MSE	0.28870
	Normality	P = 0.073		
	Random	Yes		

Figure 4 and figure 5 are the time series plot of actual vs fits of Hybrid Linear - ARIMA and Hybrid Growth Curve - ARIMA models. These figures clearly show that the actual data and fits are very close. Hence, these two models are selected as suitable models for forecasting domestic guest nights in Ancient Cities of Sri Lanka.

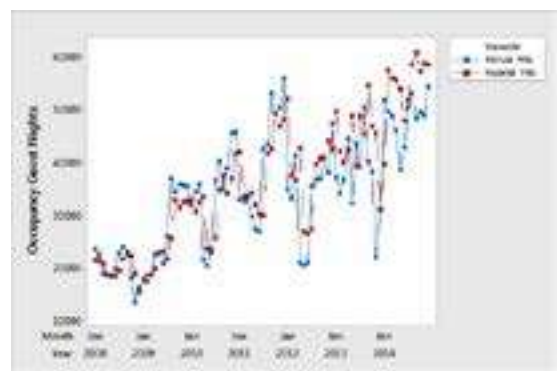


Figure 4. Actual Vs Fits of Hybrid Linear -ARIMA

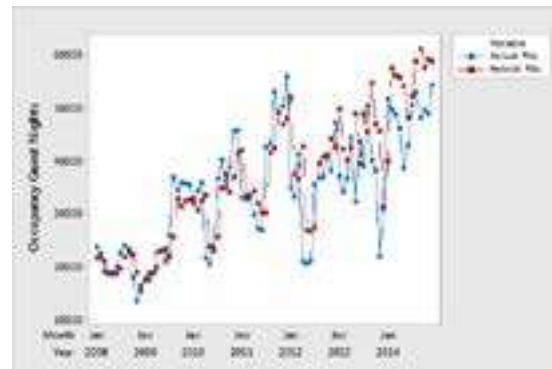


Figure5. Actual Vs Fits of Hybrid Growth -ARIMA

Estimated domestic guest nights of Ancient Cities for the period of January 2019 to December 2019 show in table 4.

Table 4. Summary of hybrid models

Year	Month	Hybrid Linear -ARIMA	Hybrid GC -ARIMA
2019	January	59745	60909
	February	60171	61373
	March	60597	61839
	April	61026	62308
	May	61457	62779
	June	61890	63253
	July	62325	63731
	August	62763	64212
	September	63204	64696
	October	63647	65184
	November	64093	65675
	December	64542	66170

V. CONCLUSION AND DISCUSSION

The study concluded that hybrid models; Hybrid Linear trend - ARIMA and Hybrid Growth Curve trend - ARIMA models are suitable for forecasting domestic guest nights in Ancient Cities of Sri Lanka.

The results of this study can be used to forecast the number of domestic occupancies in Ancient Cites of Sri Lanka. This is useful for strategy development of tourism-related business located in Ancient Cities. These strategies can be used as a lighthouse of the business journey of the tourism industry. Businesses can decide various product developments and increasing or decreasing their production volume by observing the occupancy behaviour. They can plan for various promotional offers, pricing of accommodation and other products and services based on the results of this study.

Financial controllers in the hotel need information from forecasting to understand cash/ credit flow for the hotel as that needs to be considered for multiple expenses will be generated from different departments in hotels such as food and beverages, laundry, transport etc., and including rooms. In hotels, requirements of food and beverages, purchasing decisions of perishable and non- perishable items, hiring employment, and maintenance decisions can be decided by accurate forecasting of occupancy guest nights. During high occupancy period, the host community can be a focus on new business opportunities for their additional revenue. Accommodation, food and beverages and transport are some of the business avenues for host communities. Therefore, the local government can provide guidance, facilities, and employment opportunities to host communities for business avenues based on forecasting occupancy guest nights.

There could be negative and positive consequences can exist in Ancient Cities due to high occupancy of tourist. The results of this study could be a light house to minimize the negative impacts and maximize the positive gains. During high or low occupancy periods the visitors could show the little respect for the sanctity of spiritual places, practices, and traditions. Then the local government authorities should impose control methods to avoid such situations. Their concentration should be pre-planned by observing the results of this study. Promotions,

distribution, and sales of local crafts and other products could be poorly managed during high occupancy periods. It could be degrading cultural integrity. The results of this study could be useful to overcome these impacts. And integrate education and training opportunities for policymakers, planners, researchers, designers, architects, interpreters and tourism operators to avoid, conflicting issues, opportunities, and problems encountered by host communities. High occupancy will be increased traffic, noise and air pollution of Ancient Cites. Local government can plan and adopt better practices to avoid negative consequences from traffic, noise and air pollution during high occupancy periods with the guidance of the results of this study. Authorities can be introducing local transport systems to overcome these issues during the higher occupancy period and it will be the benefit to the economy and environment of Ancient Cities as well.

A large number of vehicle movements cause significant damages to all kind of roads and culverts at Ancient Cities. Authorities can be classified these roads and restricted for vehicle moments by observing the occupancy rate. The significant increase in occupancy resulted in heavy volume of garbage. Then the local government can maintain and improve the standards of formal waste collection services in Ancient Cites based on the results of this study. Wastewater management is another issue during the high occupancy periods. Authorities should implement, practice and monitor the wastewater management systems to avoid water pollution of Ancient Cites. Increasing the occupancy could result in disturbance of wildlife of Ancient Cites. Therefore, wildlife authorities should implement, practice and monitor their conservation policies following the results of this study.

Various forms of treats could be results due to occupancy of tourists. Security services implement, practice and monitor security and safety measures to protect tourists, host community and wildlife of Ancient Cites by observing the results of this study. The series of occupancy guest nights follow the wave-like pattern; as such may contain both seasonal and cyclical variation. The Decomposition technique is the commonly used technique to capture this variation. But it will be a long process. Therefore, it is recommended to test the Circular Model; in order to see whether the forecasting ability improves.

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ASSESSING SERVICE QUALITY FACTORS FOR BUILDING A LOYAL CUSTOMER IN LIFE INSURANCE INDUSTRY

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Abstract– During the recent years, life insurance industry experienced great reforms to improve their market density and penetration. When it comes to provide service to the customers, they lack behind in resulting to customer dissatisfaction. Therefore there is a need to understand the quality of service required by the customers and meet their need successfully. Then it creates the loyal customers. After reviewing several specialized papers, the underpinnings of service quality are Tangibility, Reliability, Responsiveness, Empathy, Assurance, Helpfulness and Problem solving. As sample frame, personal administrated survey questionnaire with randomly selected 100 sample life insurance customers as unit of analysis are targeted to investigate their loyalty towards the life insurance industry. Responses were measured on a 5 point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). A number of quantitative and qualitative methods including correlation analysis and regression were used to analyse the data Using SPSS version 23. According to the findings Tangibility, Reliability, Responsiveness, Assurance, Helpfulness and Problem solving have positive relationship with customer loyalty in life insurance industry. Assurance and Problem Solving highly relate with customer loyalty. That means Assurance and Problem Solving are the main issues of service quality towards customer loyalty. In order to build a loyal customer there is a need to improve the quality of the delivering services. Organizations that are aiming to nature loyal customers should pay close attention to issues of service quality.

Keywords- Service Quality, Customer Loyalty, Life Insurance

I. INTRODUCTION

Insurance is playing an important role with in the society as well as economy. Insurance is representing one pillar of the commerce.

Growth of the insurance industry manly depends on the quality of the service they already provided to the society. In an social aspect life insurance plays major role within Sri Lankan insurance industry.

According to IBSL annual report (2016) the total premium income and contributions from all the classes of life insurance business was Rs. 63,495 million in the year 2016 compared to Rs. 53,691 million in 2015, representing a growth of 18.26%. But the market penetration as percentage of GDP increased to 0.54% in 2016 compared 0.49% in 2015. Low growth rates and low penetration levels recorded for long term insurance businesses reflect the greater need to promote benefits of insurance among all segments of the society and to develop and offer insurance products which meet diverse needs of customers. The GDP growth rate declined from 4.84% in 2015 to 4.38% in 2016. This means that other sectors of the economy grew faster than life insurance. Compared to the other sectors, life insurance contribution to the economy is almost negligible (IBSL 2016). It is therefore worth finding out what ails the life insurance industry in Sri Lanka. Various life insurance companies have invested heavily in marketing to increase awareness and market share. But despite these efforts, life insurance penetration remains extremely low in Sri Lanka.

A. Objectives

The overall purpose of this study is to analyse the service quality factors for building loyal customers in long term insurance industry in Sri Lanka.

II. LITERATURE REVIEW

Many studies provided multiple service quality dimensions based on their empirical findings. Two dimensions were proposed by Gronoos (1983), ten dimensions were proposed by Parasuraman, Zeithaml and Berry (1985). Similarly, Parasuraman, Zeithaml and Berry (1988) confirmed five dimensions whereas; six dimensions were proposed by Bahia and Nantel (2000).

A. SERVQUAL Dimensions

According to Zeithaml, Berry, and Parasuraman (1996) service quality involves evaluation of the results that customers actually receives in the form of service along with the superiority of service experienced by customers with the global judgment. This study considers the service quality dimensions first provided by AnantharathanParasuraman(1985) which was then later adopted by many studies Eboli&Mazzulla, (2007),Olorunniwo, Hsu, & Udo, (2006),Sureshchandar, Rajendran, &Anantharaman(2002), Wong &Sohal, (2003) till present investigating service quality and customer satisfaction relationships.

Academicians like ArunParasuraman (1988) have used 22 items for investigating influence of SERVQUAL factors on perception of service quality. The five dimensions of service quality were refined to be Tangibility, Reliability, Responsiveness, Assurance and Empathy. SERVQUAL was having only five dimensions and this study found that service organizations can rely on the effect of SERVQUAL factors in assessing the perception and expectations of customers. The model was also found to be helpful in improving service quality. In addition, ArunParasuraman, Berry, and Zeithaml (1991) refined the SERVQUAL model provided in 1988 by investigating in different sectors like retail banking, insurance sector, and service provided for telephone repair.

B. Tangibility

Tangibility is defined as the extent to which the insurance industry staffs or agents are well uniformed and organized along with the comfort atmosphere in the office where customers are waiting (Moon, 2013). Customers compare the service of one company to the other and identify the expectations based on their service encountered and knowledge gained. Rodrigues (2013) explained tangibility as physical facilities, equipment and the appearance of individuals. Tangible assets for the service providers are the facilities and behaviour of employees. Service quality in the life insurance industry is divided into tangible and intangible aspects. Tangible aspects of service quality include factors that assure overall perception of the customers.

C. Reliability

Reliability is based on evaluation of customer's physical service factors like design. However, AnantharathanParasuraman (1985) found reliability as the consistency of performance and dependability. Providing right service at right time confirms reliability service of insurance industry. Furthermore, Moon (2013) found that reliability of the service providers are linked to web security and ease to use. Reliability is in the form of accessibility, continuity and performance that is able to meet customer's expectations. Rizan (2010) stated that "Reliability also helps to increase customer's value by providing appropriate service requirements, customer's participation to fulfil their needs and solving operational issues wherever it is required".

D. Responsiveness

Responsiveness is defined as the willingness of insurance industry staffs to provide service on time (Arasli, Mehtap-Smadi, &TuranKatircioglu, 2005). Some of the examples of such services are giving feedback to customers immediately and easy to give appointment to customers. When insurance industry staff deliver service to customer promptly it shows attitude of the employee which in turn is perceived by the customer as service to be good (Grönroos, 2007). It is always difficult for the customer to judge service quality. Thus trust plays an important role for judging service quality.

E. Empathy

Providing individual attention to the customers by the insurance industry staffs is termed as empathy. If the staff is not able to provide person attention, it found negatively correlated to service quality. Some scholars found empathy to be an important dimension of service quality (Johnson &Sirikit, 2002; McKeecnie, Ganguli, & Roy, 2011).

F. Assurance

The ability of the insurance industry staffs to increase trust and confidence of the customers is termed as assurance. However, Saleeby (2008) examined on the relationship between service quality and purchase intention and found that assurance is highly correlated to purchase intention. The dimensions of service quality like responsiveness, assurance, empathy, reliability and tangibles are judged by the customers. Thus it is important to meet customers' expectations that require the element of surprise for the service providers to interact with the customers.

G. Helpfulness

Insurance industry staff's interpersonal relationship with its customers is important to perceive the staff to be warm, friendly and impulsive by customers. For instance, Kim, Jin, and Swinney (2009) and Lewis (1991) expressed helpfulness as respect and consideration shown by an individual towards other by providing an adequate explanations about the product or services. According to Sahin, Demir, Celik, and Teke (2006) measuring service quality is very important in order to identify service quality issues to make improvements in the service providers. Thus the attitude of helpfulness of the employees plays an important role in increasing service quality.

H. Problem solving

Problem solving is considered as part of SERVQUAL and is defined as the addressing of customer service recovery and customer retention (Dabholkar, 1996). The problem solving skills of the employees is very important to delimit the work uniquely in the topic of service quality and customer satisfaction.

I. Customer Loyalty

The aim of relationship marketing is the establishment and maintenance of long-term relationships with customers (Zeithaml2006:182). Organizations understand that it is considerably more profitable to keep and satisfy existing customers, than to renew a strongly-churning customer base constantly. To make relationship marketing work, marketers have adopted a customer management orientation, which emphasizes the importance of customer lifetime value, retention and the dynamic nature of a person's customer-organization relationship over time (Reinartz and Kumar, 2003:77).

There are two major approaches when defining and measuring loyalty; one is based on behavior and the other on attitude. The behavioral loyalty refers to a customer's behavior on repeat purchase, indicating a preference for a brand or a service over time. There are two behavioral dimensions to loyalty. Firstly, the question must be asked if the customer is still active. Secondly, the organization must determine if they maintained their share of the customers spending. Attitudinal loyalty refers to a customer's intention to repurchase and recommend, which are good indicators of a loyal customer. A customer who has the intention to repurchase and recommend is very likely to remain with the organization (Buttle, 2004:21-22; Kandampully and Suhartanto, 2003:346-347).

III. RESEARCH METHODOLOGY

A set of attitudinal statements explaining the underlying phenomenon of these customer loyalty were formulated and administered with a sample of customers (n=100) at randomly selected markets located in Western, Sabaragamuwa, Central, and North-Western provinces. The questionnaire is the primary research instrument that was used in the study. The questionnaire included self-developed items, as well as items from questionnaires used in previous research. And the indicators have found through the interviews and the past researches. Questionnaire was in the format of a five-point Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

A number of quantitative and qualitative methods, including Correlation analysis and Regression were used to analyse the data using the SPSS (version 23) software.

A. Conceptual Framework

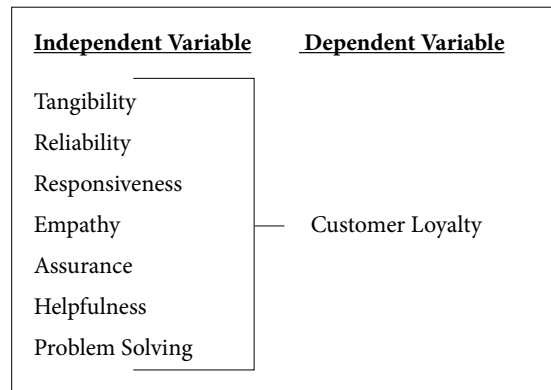


Figure 1. Conceptual framework

Indicators have selected through interviews and past researches to measure the variables.

Variables and indicators as follows,

Variable	Indicator
Tangibility	Attitudes of employees Respect
Reliability	Reliability of promise Confidence
Responsiveness	Extensive, Timely Accuracy of information
Empathy	Flexibility
Assurance	Personalized service
Helpfulness	Committed employees
Problem Solving	Discuss solutions Detection, Compensation
Customer Loyalty	Extensive relationship Understanding needs Increase business

B. Hypothesis

- H1** : Tangibility has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka
- H2** : Reliability has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka
- H3** : Responsiveness has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka
- H4** : Empathy has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka
- H5** : Assurance has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka
- H6** : Helpfulness has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka
- H7** : Problem Solving has positive relationship with Customer Loyalty in Life insurance industry in Sri Lanka

IV. DATA ANALYSIS

A. Demographic Analysis

Following tables show the frequency of the demographic variables of the respondents.

Table 1. Demographic Analysis

Gender	Frequency	Percent
Male	69	69.0
Female	31	31.0

Marital Status	Frequency	Percent
Single	48	48.0
Married	52	52.0

Age	Frequency	Percent
20-30	58	58.0
31-40	26	26.0
41-50	16	16.0

Policy Status	Frequency	Percent
In Force	85	85.0
Lapsed	15	15.0

Experience years with Industry	Frequency	Percent
1 Year	22	22.0
2 Years	39	39.0
3 Year	26	26.0
4 Years	6	6.0
>4 Year	7	7.0

Above table shows that more males (69%, n = 69) than females (31%, n =31) participated in the study. The majority of the respondents were married (52%, n =52). The balance of the respondents were single (48%, n = 48). The majority of the respondents belonged to the 20 -30 years age group (58%, n =58). The smallest percentage of the respondents belonged to the 41 -50 years age group (16%, n = 16).

The majority of policies are in force (85%, n=85). Only 15 policies are lapsed in selected sample. The most of the respondents (39%, n =39) also hold policies with life insurance industry more than 1 year but less than 2 years. The respondents (7%, n=7) have experience with life insurance industry more than 4 years. This may be an indication that sample customers have no much experience with life insurance industry.

B. Correlation between the independent and dependent Variables

Pearson correlation was performed to assess the relationship between the independent variables (Tangibility, Reliability, Responsiveness, Empathy, Assurance, Helpfulness and Problem Solving) and the dependent variable (Customer Loyalty).

Table 2. Correlation between independent variables and dependent variable

		customer loyalty
Tangibility	Pearson Correlation Sig. (2-tailed)	.088 .382
Reliability	Pearson Correlation Sig. (2-tailed)	.023 .817
Responsiveness	Pearson Correlation Sig. (2-tailed)	.081 .424
Empathy	Pearson Correlation Sig. (2-tailed)	-.095 .348
Assurance	Pearson Correlation Sig. (2-tailed)	.279** .005
Helpfulness	Pearson Correlation Sig. (2-tailed)	.175 .081
Problem solving	Pearson Correlation Sig. (2-tailed)	.532** .000
Customer loyalty	Pearson Correlation Sig. (2-tailed)	1

Above table 2 indicates that the correlation between the different variables tested is significant, all above the 0.01 level. Tangibility, Reliability, Responsiveness and Helpfulness have positive relationship with Customer Loyalty and no significant at 0.01 level. Empathy variable has negative relationship with Customer Loyalty and

insignificant. Both Assurance and Problem Solving variables have positive and significant relationship with Customer Loyalty. So H₁, H₂, H₃, H₅, H₆ and H₇ hypothesis are accepted and H₄ hypothesis is rejected.

ANOVA

Table 3. Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.533	7	3.648	10.349	.000b
Residual	32.427	92	.352		
Total	57.960	99			

- a. Dependent Variable: customer loyalty
- b. Predictors: (Constant), problem solving, Empathy, Helpfulness, Tangibility, Responsiveness, Assurance, Reliability

From the structural model provided in the table 3, it shows that the majority of the fitness indices for absolute, incremental and parsimonious values were significant.

Model Summary

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.664a	.441	.398	.59369

- a. Predictors: (Constant), problem solving, Empathy, Helpfulness, Tangibility, Responsiveness, Assurance, Reliability

And the table 4 multiple regression results indicate that high level correlation with dependent variable and independent variables as R value is 0.664. High level of model fit with observed in 0.398 R² value. Tangibility, Reliability, Responsiveness and Helpfulness accounted for a significant 39.8% of the variability in Customer Loyalty. Table 3 affirm the overall model fit of the study with significant P value which is 0.000.

According to the test results of the regression analysis, the above table 5 shows the significant of the tested variables of the study. Reliability, Empathy, Assurance and Problem Solving variables are statistically significant for predict the variable of Customer Loyalty.

Assurance and Problem Solving variables are highly impact on Customer Loyalty with a B value 0.417 and 0.621 (p = 0.000). And Tangibility, Responsiveness and Helpfulness variables are not statistically significant for predict the dependent variable of the study.

Coefficients

Table 5. Coefficient for the Regression Analysis

Model	Unstandardized Coefficients		Standard Coefficients	t	Sig.
	B	Std. Error			
(Constant)	1.593	.524		3.043	.003
Tangibility	-.004	.098	-.004	-.040	.968
Reliability	-.291	.100	-.321	-2.908	.005
Responsiveness	.042	.085	.046	.496	.621
Empathy	-.227	.087	-.237	-2.615	.010
Assurance	.417	.098	.450	4.266	.000
Helpfulness	.055	.094	.056	.584	.561
Problem solving	.621	.093	.540	6.696	.000

- a. Dependent Variable: customer loyalty

V. CONCLUSION AND RECOMMENDATION

The study shows that service quality plays a vital role in customer loyalty. In order to test this hypothesis the result of final model was identified as reasonable to investigate. The p value for the path between service quality factors and customer loyalty noted that assurance and problem

solving skills of the life insurance industry highly increase customer loyalty. Similarly, the direct effect between majorities of service quality factors to purchase intention were significant.

In a tangibility aspects of the service are not fulfilled by the insurance industry staffs to their customers in the form of quality product and services, the quality is still considered as low. Reliability also helps to increase customer's value by providing appropriate service requirements. Responsiveness is defined as the willingness of insurance industry staffs to provide service on time and it is not significantly impact on customer loyalty. An individual attention to the customers by the insurance industry staffs is negatively correlate with customer loyalty. The ability of the insurance industry staffs to increase trust and confidence of the customers is highly impact for create the loyal customer. The attitude of helpfulness of the employees plays an important role in increasing service quality but it not significantly impact on customer loyalty. The problem solving skills of the employees is very important to delimit the work uniquely in the topic of service quality and customer loyalty.

It is recommended to increase trustworthiness, appropriate service and problem solving skills of the life insurance industry staff will be increase the customer loyalty and reduce the policy lapsation.

VI. ACKNOWLEDGEMENT

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MIDDLEMEN ON COCONUT PRICE BEHAVIOR IN SRI LANKA

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Abstract– This research studies producer and retail's behaviour towards coconut price, and assesses middlemen's impact and the influence of inflation on it. Coconut contributes 0.6 % to the total GDP. Though researches attributed the recent price hike to droughts, the consumers view middlemen influence it. The influence was analysed considering the market margin of middlemen. Secondary data were on nominal market price (NMP), producer's prices (PP), retail prices (RP) of coconut, and Colombo consumer price index for 25 years from 1993-2017. The impact of Middle men on coconut price was analysed by considering the market margin of middlemen mainly focussing the Agents and Brokers, Merchant Wholesalers, Distributors and retailers. The analysis revealed that the nominal market price of coconut had increased by 828% and increased by 10% per annum. The producer's price showed a positive specular trend, increasing by 851% and by 10 % per annum. The retail and producer prices varied largely during the study period 74% and 76% respectively; the real retail price and real producer price over the time behaved with no significant increase. The Coefficient of Variation (CV) of real retail and real producer prices were 23% and 25% respectively revealed the absence of drastic growth or decay. Further, a decreasing tendency of Marketing Margin (MM) with time for real prices expressed a negative variation of 76% of CV. The market margin of middlemen was not influencing the retail price of coconut. The increase in retail price in the market during the recent past was due to the increased inflation by 8%. However, the growth rate of the MM of coconut was less than 1%, and it was to manage the fluctuations in inflation. Though there is criticism against middlemen, they are the risk takers and entrepreneurs in the market ever. Further the market

middlemen are not an unwanted market elements nor exploiters of consumers and producers as people view.

Keywords- Market Channel, Retail Price, Middlemen, Producer Price, Market Margin, Fluctuation.

I. INTRODUCTION

Coconut is one of the major plantation crops in Sri Lanka which occupies the second largest area after rice. Coconut contributes 0.6 % to the total GDP. The production of coconut is conducted in 1,088,377 acres of land. 173, 974 acres of land is used in estate sector, 914,403 acres of land is used by small holding producers and 15,658 acres of land is used for cultivation of king coconut. The sector provides various livelihood opportunities for around 850,000 people in all parts of Sri Lanka. The local consumption of coconut accounts approximately for two thirds of the production, and the remaining is exported as processed products to different locations. (EDB, 2017)

The "Coconut Triangle", the areas where a massive production occurs, consists of three administrative districts, Kurunegala, Puttalam and Gampaha, and contains 57 percentage of the total coconut land. In the south, Galle, Matara and Hambanthota areas are also known as Mini-Coconut Triangle, and it contains 12 percent of the total coconut land. Coconut and its by-products play an important role in Sri Lankan agriculture market by contributing almost 12% of all agriculture produce (Lanka, 2017). Annual production of coconut in 2016 was 3011.28 million nuts and the local consumption

was 1,786.69 million nuts, and it is almost more than 50% of the total production. The Plantation Industry has decided to form the second coconut triangle which consists of the areas of Jaffna, Mannar and Mulaitivu Districts, which include 300,000 new coconut plants and other development projects funded by government backed loans and subsidies. (The coconut coporative, 2017)

Coconut Cultivation Board has started financial and technical assistance programs under "Kapruka" programs, and targets to achieve sustainable coconut based commercial agriculture in coconut lands, and to enhance the productivity of coconut lands while expanding the market opportunities for coconut and coconut based products locally and globally. It ease the efficiency of coconut market in future. Coconut marketing in Sri Lanka was generally under private ownership with an arable farm of less than 1.2 hectares (The Coconut Industry in Sri Lanka, 2015). As coconut has a crucial impact on the life and culture of the people in the country, the financial security of the community highly depends on the marketability and price realisation of coconut.

Justification and scope of the study

The price of coconut in Sri Lanka was on the rise in the recent past and the price of a single nut reached 100 LKR in certain parts of Sri Lanka (Lanka, 2017). According to Nanayakara (2009) and Denzil (2017), the substantial drop in production was caused due to the prevailing drought. Inadequate water due to less rainfall in 2016 was the main reason for the hike in the price of coconut. (The coconut coporative, 2017). Apart from this, as the influence of middlemen also determined the price of coconut by using the market inefficiency

Availability of coconuts to the consumer and profit for the coconut farmer depend on the efficient marketing operations. The cost of transportation and the market margin matter in this scenario. The margin was fixed by the middlemen and he engaged in the process of selling to diverse group of buyers. (Sandika, 2011) The marketing channel existing in Sri Lanka is shown in figure 1.

The paper announcements on the coconut price by Coconut Cultivation Board that government stocks of coconut would be distributed to the market at a price of LKR.60 – 65 per coconut and the coconut stocks owned

by the State Plantation Corporation would be released to the market. The price of a single coconut has reached LKR. 100 in certain parts of Sri Lanka. (Time Sri Lanka.com, 2017). This reveals that the issues are to do with unusual fluctuation of coconut price. Price determination was occurring according to the market functions of supply and demand which incurred the cost of production, cost of marketing, and consumer preference over available alternatives (Sandika, 2011).

Middlemen are those who facilitate the market flow by connecting the farmer/ producer and the ultimate consumer. In this context, they buy the products from farmers, store them, and transport them to the consumers. Thus, they have to tolerate high cost and risk. By ensuring a continuous flow of goods in the market and matching the supply and demand, the middlemen take an inevitable part in coconut marketing. Further, the market margin (MM) must cover all the expenditure he bears. This exchange inflates the price and more than two exchanges increase the ultimate price (Adams, 2011). In this background, there is a common belief that the middlemen are the exploiters who intervene the market to make profit by just gathering the products to a minimum price and sell them on a higher price with minimum efforts. Though the middlemen are pointed out thus, they play a vital role in collecting, grading, storing, distributing, selling and easing the market access of both farmers and consumers. There were many studies related to the price behaviour of coconut mentioning the climate constraints, production failures price risk etc. conducted by scholars. However, none of the studies have considered to investigate into the impact of middlemen on coconut price.

The present study examines only marketing of coconuts, and the impact of middlemen on coconut price in Sri Lanka in terms of market margin, nominal and real market price variations, inflation and annual production. The study has been undertaken from the point of view of the farmers, market functionaries and end consumers.

Objectives of the study

This study attempted to

1. Study the behaviour of producer and retail prices of coconut.
2. Assess the impact of middleman on coconut price

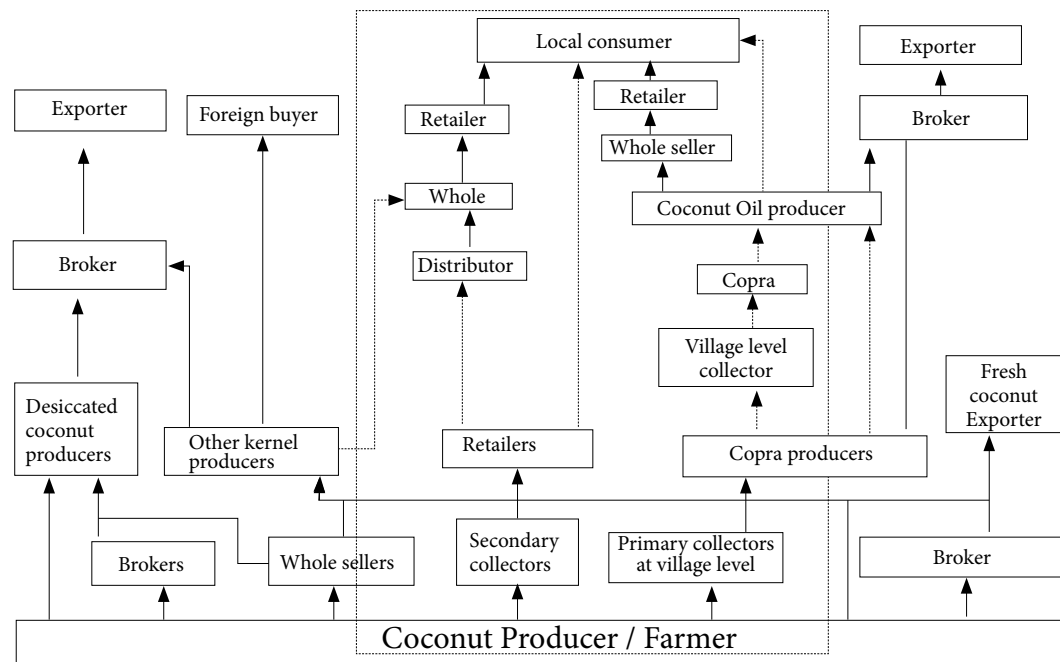


Figure 1. Market channel of coconut Sri Lanka Local Distribution (Source: Pathiraja, 2015)

- Investigate the prices of coconut over the years
- Investigate the influence of inflation on the price of coconut

II. MATERIALS AND METHODS.

Secondary data on nominal market price (NMP), producer's prices (PP) of coconut, retail prices and Colombo consumer price index for 25 years from 1993-2017 were used for this study. The data were collected from Central Bank reports over the years while the retail prices from Coconut Cultivation Board, Department of Agriculture and other allied departments were used for the analysis.

The impact of Middle men on coconut price was analysed by considering the market margin of middlemen (Agents and Brokers, Merchant Wholesalers, Distributors and retailers).

The marketing margin of a product was the difference between what a company paid for the product and what it charged for the product, and it comprises all assembling,

transporting, other retailing charges and profit margin added to the farm products. i.e., the cost of providing a range of marketing services.

Marketing Margin (MM) of middlemen was quantified by adopting the following equation (1):

$$MM = \frac{RP - PP}{RP} \quad (1)$$

PP - Producer Price
RP - Retail Price

Overall Growth of RP, PP, and MM were calculated using the following formula.

$$\frac{(Q_f - Q_i) * 100}{Q_i} = \text{Overall growth,} \quad (2)$$

Q_f = Final Price (RP, PP, MM)
Q_i = Initial Price (RP, PP, MM)

The Compound Annual Growth Rates (CAGR) which elaborate the price behaviour of coconut were estimated by fitting an exponential function of the type (3):

$$Y = AB^t \quad (3)$$

Where, Y = Annual average farm gate price of coconut, A = intercept, B = regression coefficient of the equation assumed to be (1 + r) and t = time variable. The logarithmic transformation of the function was read as (3):

$$\ln Y = \ln A + t \ln B$$

$$\hat{Y} = a + bt$$

Where, $\hat{Y} = \ln Y$, $a = \ln A$ and $b = \ln B$,

The Compound Growth Rate (CGR) was found from Antilog $(b - 1) * 100$.

$$CGR = (b - 1) * 100 \quad (4)$$

According to Hadley (1969) and Sandika (2011), Time Series (TS) plots were used to identify the price behaviour patterns against the time period considered. Nominal Market Prices (NMP) and Real Market Price (RMP) of coconut were analysed with the time. Colombo Consumer Price Index (CCPI) (2010 = 100) was used to calculate the RMP

The formula (5) was applied to calculate the RMP was:

$$RMP = (NMP \times 100) / CCPI \quad (5)$$

The validity of model was tested by using coefficients of determination (r²), (Sandika, 2011). Coefficient of determination was measured by applying the formula (6):

$$R^2 = \frac{\hat{a}(y - \bar{y})^2}{\hat{a}(y - \bar{y})^2} \quad (6)$$

The instability of coconut price was determined using the coefficient of variation. It was arrived by the formula (7):

$$CV = \frac{\sigma}{\bar{y}} * 100 \quad (7)$$

CV - Coefficient of variance in %
σ - Standard deviation
y - Arithmetic mean of time series

Further, inflation rates, annual the production of coconut land extend and cost of production were used as per the requirement. The estimations were carried out using Excel 2013, the tables and plots were used to present the outcomes of this study.

III. RESULTS AND DISCUSSIONS

Retail Price of coconut had significantly increased during last 25 years (Figure.2). The nominal market price of coconut had increased by 828% and increased by 10% per annum (Table 3). The trend of producer's price showed a positive specular trend (Figure.3) and it increased by 851% and by 10 % per annum (Table 3). The retail and producer prices have resulted in large variations in prices during the study period, 74% and 76% respectively (Table 3).

The key indicator of price change is how the margin of middlemen has changed with the time. There is no any considerable change in the margin of middlemen (Figure 4). It had a very small negative compound annual growth rate -0.002% or 0.000 and -4% of overall growth; thus, the margin of coconut is not ensured. The year on year MM growth calculated and categorized in to two groups "A" and "B". In the years categorized in to group "A", the year on year margin increased by 31%, 62%, 40%, 49%, 21%, and 158% respectively, and contributed towards the rise of coconut price. This could be well described as seasonal trend of time series (Table 2). A close look at Figure 6 illustrates the increase market margins once every three years 1997, 2000, 2003, 2006, 2009, 2012, respectively, and exceptionally in 2016 (Table 2). The decrease also follows a similar trend, 1995, 1998, 2001, 2004, 2007, 2010, 2013, respectively, and exceptionally in 2015. Further, the year on year prices of retailer and the producer exhibit a similar fluctuation. It is better explained by the Coefficient of Variance (CV) which was 23% for MM (Table 3). It expressed that only 23% variation from the mean price of 25 years (Mean MM=29%).

The growth of inflation was measured by CPI increment, and it was 8 % per annum. (b=1.08 and R²= 95.6%) (Figure 8). This result revealed that the price of coconut was increased due to the inflation. Sandika (2011) reported a similarity in the retail price and producer price growth with the inflation rates for vegetables. To ensure a sustainable income, all the parties of the market flow increased their share. But coconut did not result in such margin growth, and it showed a fluctuation. Percentage of MM in 1993 (34%) and in 2017 (36%) were more or less similar, and the middlemen only recover the cost they bear, and a small portion of the profit as rational entrepreneurs (Table 4). The CV of CPI (57%) and

Inflation (53%) reveal the instability and upward growth of the retail and producer prices (Table 3).

CV of real retail and real producer prices were 23% and 25% respectively. This also reveals the absence of drastic growth or decay. Further, the MM for real prices expressed a decreasing tendency with time. It expressed a negative variation of high value of 76% of CV (Figure 12).

The real retail price and real producer price were plotted with time. They behaved with no significant increase during the study period (Figure 10, 11). The

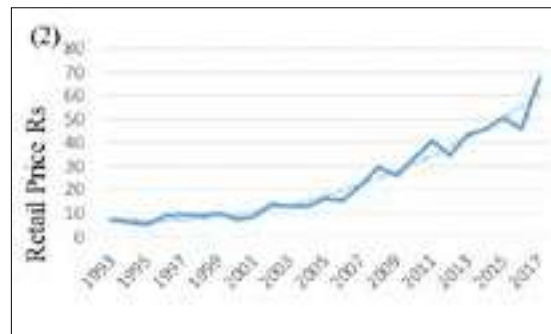


Figure 2. Retail price

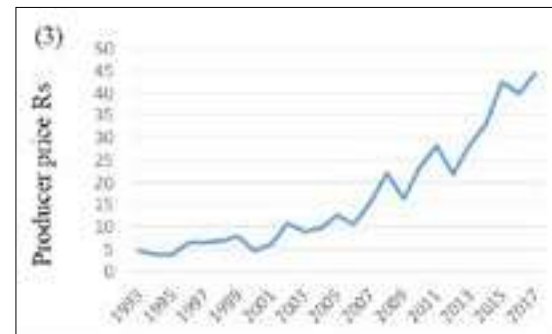


Figure 3. Producer price

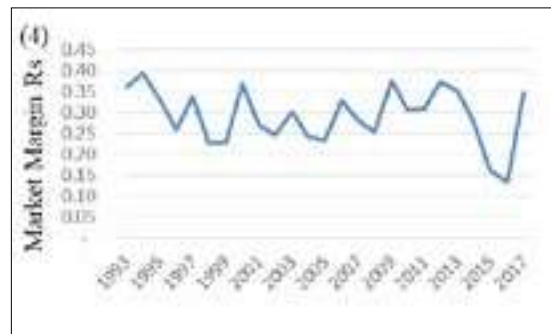


Figure 4. Market margin

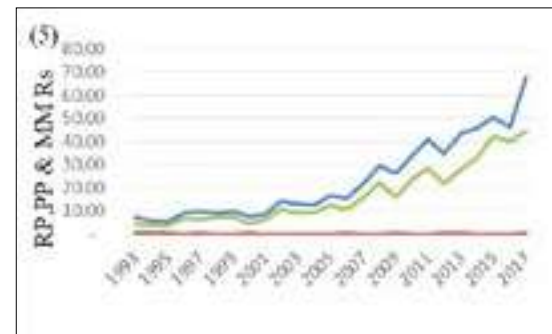


Figure 5. RP, PP and MM



Figure 6: Year on Year retail Price change



Figure 7: Year on Year producer price change

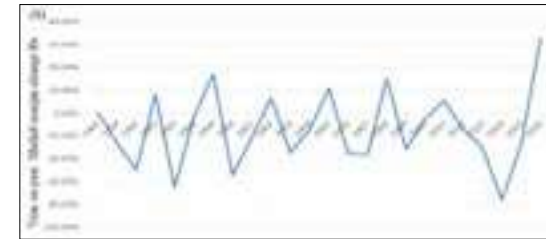


Figure 8: Year on Year market margin change

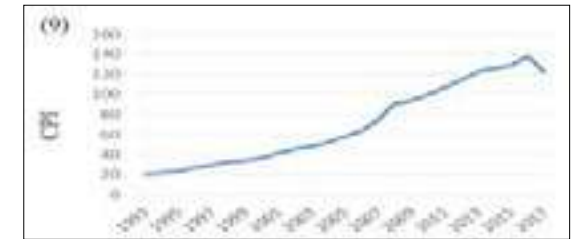


Figure 9: CPI

Table 1. CGR, Overall growth, b and R square for RP, RP real, PP, PP real, CPI, MM, Annual production and Land extend.

	Compound growth rate	Overall growth	b(1+r)	R2
Retail price(RP)	10%	828%	1.097	96.1%
RP real price (CPI)(2010=100)	2%	53%	1.017	3.2%
Consumer price index CPI	8%	508%	1.078	61.0%
Producer price(PP)	10%	851%	1.098	96.8%
Market margin %	-0.002 % (Ω = 00)	-4%	0.998	0.0%
Annual production	1%	13%	1.005	0.3%
Land extended	0.549%	14%	1.005	0.3%

Table 2. Year on year change of Market margin (MM)

Year on Year	MM Chance %	Category (more than 5%=a, less than 5%=b)	Year on Year	MM Chance %	Category (more than 5%=a, less than 5%=b)
1993-1994	9%	A	2005-2006	40%	A
1994-1995	-15%	B	2006-2007	-14%	B
1995-1996	-23%	B	2007-2008	-10%	B
1996-1997	31%	A	2008-2009	49%	A
1997-1998	-34%	B	2009-2010	-19%	B
1998-1999	1%	B	2010-2011	1%	B
1999-2000	62%	A	2011-2012	21%	A
2000-2001	-26%	B	2012-2013	-6%	B
2001-2002	-10%	B	2013-2014	-21%	B
2002-2003	23%	A	2014-2015	-42%	B
2003-2004	-20%	B	2015-2016	-16%	B
2004-2005	-3%	B	2016-2017	158%	A

Table 3. Coefficient of variance for RP,PP,MM,CPIRP real, PP real,MM real, Annual production, Land extend and Inflation

	CV		CV
Retail price(RP)	74%	PP real price	25%
Producer price(PP)	76%	MM real	76%
Market margin(MM)	23%	Annual production	8%
Consumer price index CPI	57%	Land extend	6%
RP real Price (CPI) (2010=100)	23%	Inflation	53%

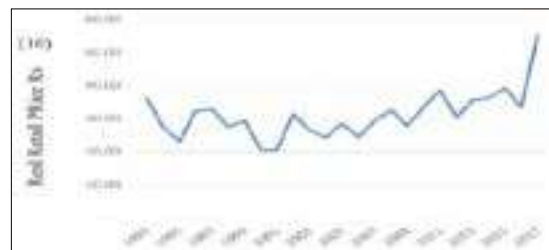


Figure 10. Real retail price

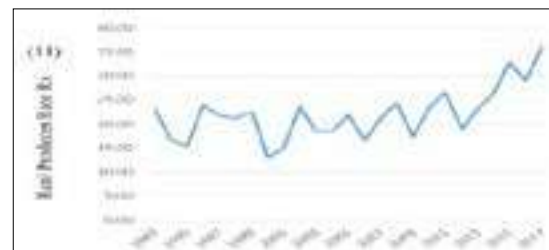


Figure 11. Real producer price

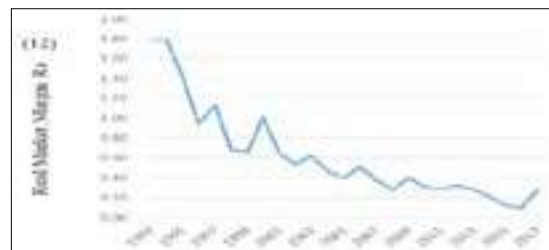


Figure 12. Real market margin

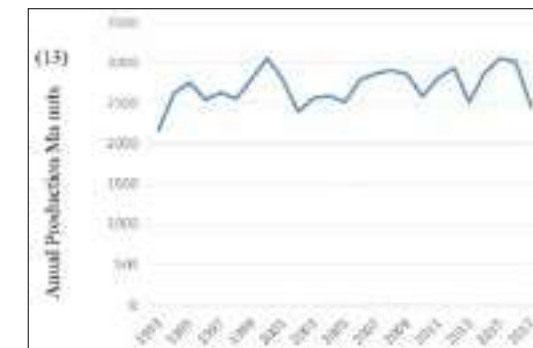


Figure 13. Annual production



Figure 14. Cultivated extend

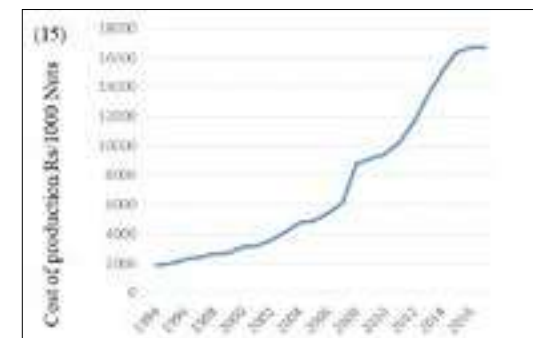


Figure 15. Cost of production

The market margins of middlemen shown in Table 4 clearly illustrates that the margins during past two decades were less than 40% of the retail or final consumer price. This results was supported by, Sandika (2011) study in the vegetable market. He proved that the MM of middlemen was not more than 50%. Figure 5 on

Table 4. Market margin of coconut

Year	Market margin	Year	Market margin	Year	Market margin	Year	Market margin
1993	36%	2000	37%	2007	28%	2013	35%
1994	39%	2001	27%	2008	25%	2014	27%
1995	33%	2002	24%	2009	38%	2015	16%
1996	26%	2003	30%	2010	30%	2016	13%
1997	34%	2004	24%	2011	31%	2017	34%
1998	22%	2005	23%	2012	37%	CV	23%
1999	23%	2006	33%				

comparison of retail, producer prices and the margin of middlemen, clearly showed the growth of retail price and producer price while the market margin remained at the same level. Further, the increase of RP and PP by the equal percentage resulted in more or less equal margins continuously with little deviations. Further, the annual production and cultivated extent of coconut might have an indirect influence on the price rise.

From 1993 to 2017, compound annual growth rate of coconut production was 1% and compound annual growth rate of cultivated extent was less than 1% (Table 1). There was a growing demand observed with the increasing population and the domestic consumption. To compensate the growing demand, there must be a flow of supply. The insufficient production may lead the middlemen to pay a higher price to the producer and buy as early as possible, where the competition for purchasing in the farm gate was high. However, as a typical entrepreneur, middlemen raised and lower their margins irrespective of the PP rise. He had also to recover his cost he bear, and he tried to maintain a constant margin at least. The cost of production was also on a rise and it results in the rise of producer price. This entails the retail price rise with producer price rise with the market margin.

to 2017. The market margin of middlemen did not influence the retail price of coconut. The growth rate of MM reveals the even-handedness of MM on the price of coconut during the past 25 years. The inflation increased during the study period by 8%. It is quite clear that the RP rise resulted due to the fluctuating inflation in the country. This causes an overall increment in the prices of all the products in the markets to ensure the income of market players. MM of coconut throughout the study period was less than 40%. Arithmetic mean of the MM for last 25 years was 29%. Irrespective of price, smaller changes were made in the MM in some years. However, the growth rate of the MM of coconut was less than 1%, and it was to manage the fluctuations in inflation. The trend of coconut production and cultivation extent of coconut land in the country may have an impact on price rise, where it creates a competition among primary dealers who deal with the farmers, and they pay high to ensure the availability of stocks in the primary collecting centres. The increasing cost of production also results in the rise of producer price. Finally, the results explain that the market middlemen are not an unwanted market element nor are exploiters of consumers and producers as people view. The critic against middlemen is one sided, and they are the growing risk takers and entrepreneurs in the market ever.

IV. CONCLUSIONS

Both the retail and producer prices of coconut increased by 10% each throughout the study period from 1993

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STUDY OF VULNERABILITIES AND CAPACITIES FOR NATURAL COASTAL HAZARDS IN NEGOMBO, SRI LANKA

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Abstract- Vulnerabilities and capacities for natural coastal hazards (Tsunami, Cyclone, Flooding, Sea level rise and Salt water intrusion) of selected GN divisions of Negombo, Sri Lanka were studied, estimated and gradient maps were prepared using the software Arc GIS.

Descriptive qualitative research methods were mainly used to develop a data base under three categories: personal profile, capacity and vulnerability which was quantified to produce five personal profile indicators, PPI), nine capacity indicators (Nano Capacity Indicators (NCI) and ten vulnerability indicators (Deca Vulnerability Indicators (DVI) respectively.

Capacity and vulnerability ranking of selected GNs was carried out. Accordingly, Thalahaena has the highest capacity strength and the second lowest vulnerability strength. Also, Kapungoda has the highest vulnerability strength with the lowest capacity strength.

Unemployment rate of 18% and education level below ordinary level of 14%, were the two key factors to be addressed seriously in terms of enhancing capacities and decreasing vulnerabilities of Negombo DS. Providing information for policy developers is also important as lack of proper drainage system in Negombo DS was 96%, especially in proper land use planning and development. Statistical analysis revealed a moderate positive relationship between Infrastructure and Educational level, Technology vs Age Range, Cope up

vs Age Range and Cope up vs Educational Level. A positive weak relationship between wealth vs Educational Level, Technology vs Educational Level and Information vs Status. And also a very weak negative relationship between Awareness vs Gender and a very weak positive relationship between Information vs Educational level and Institutional vs Educational level were identified.

Keywords- Capacity, Vulnerability, Coastal hazards, Gender, Negombo, Disaster

I. INTRODUCTION

Disaster increasing, deaths down but number affected sky rocketing, even before recovering another disaster hitting the same population, recurrent disaster occurring with no ceasing, before getting up knocked down again, very difficult to recover and build a resilience despite the huge amount of financial spending, people always dependent on outer sources for living, putting a great burden to the society by very same people who had lived fully independent high neck people, economically, socially, and even psychologically no good and significant amount of revenue of the country is needed to compensate or to rebuild or to basically to look after them (Table 1, <https://www.emdat.be/database>, <https://www.unocha.org/events>, <https://www.preventionweb.net/english/professional/statistics/>).

Therefore it is very important to study what is making them susceptible to be affected by disasters, what are the capacities they have in order to recover, what are the vulnerabilities they possess keeping them susceptible all the time and what are the capacities they lack.

Clearly, people are the most important; even a single death due to a disaster is not an option. Also homeless/affected with no capacity to recover should not be an alternative option too. Prevention/ mitigation must be the very first option. To make decisions about above proper scientific transparent assessment has to be done, for a start clear assessment of what is at risk has to be performed.

Coastal community account for between 15% to 20% of the global community. This make it highly susceptible to the damaging effects of a hazard. (UNISDR, 2009, Hanson

2011). Any effective disaster's response as a community is imperative and vital in understanding and in awareness of capacities of a community to cope up with or to withstand a disaster. This is to minimize both tangible and intangible damages, to safeguard coastal cities, to conserve eco systems and to protect the environment where people live. Being a coastal with a population of 142,136 (About 48% of whole District) Negombo is under high risk to all types of coastal hazards. It is vital to understand and estimate the different components in order to safeguard the people and prevent any loss of lives thereby minimizing tangible and intangible damages due to coastal disasters.

Disaster risk is the potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity (UNISDR 2017).

Table 1. Disaster Profile of Sri Lanka: 2001-2015

Year	Occur rence	Total deaths	Injured	Homeless	Total affected	Total damage
2000	4	12	-	-	775113	3000
2001	2		-	160	1000160	
2002	1	2	-	-	500000	
2003	1	235	-	-	695000	29000
2004	3	35493	23176	480000	1234306	1316500
2005	1	6	-	-	145000	
2006	1	25	2	-	333002	3000
2007	3	33	-	-	406000	50
2008	4	57	-	-	826905	
2009	4	349	-	60000	415007	
2010	2	35	10	-	770265	105000
2011	5	254	92	106023	1355308	500000
2012	3	53	21	69000	2316021	58200
2013	3	117	15	3861	81300	
2014	7	336	29	330	3005826	25000
2015	2	10	9	-	27309	-

Capacity is the combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience. Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management. (UNISDR 2017).

According to UNISDR 2017, vulnerability is defined as the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

In this study vulnerability and capacity of 10 GN divisions of Negombo DS division has been measured by undertaking descriptive statistical methods.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

ii. a. : Data Collection:

This study was carried out using a questionnaire and other data gathering methods among randomly selected sample population in different GN divisions in the study area. Questionnaire was designed to collect social economic parameters in a systematic way by presenting in each respondent by assigning values to a series of yes/no answers, a set of questions based on a Licket scale and a group of questions assessed according to a pre designed key.

Secondary data were collected from the Resource Centre: Negombo, AGA Office (Negombo, Wennappuwa and Kochchkade), Community Organisations, Religious Leaders and Senior citizens/ Retired Government Offices.

Primary data were collected mainly by field survey methods: focus group discussions, structured interviews, semi structured interviews and participatory activities.

ii. b : Preparation of Data Base:

Data were entered in Microsoft Office excel spread sheets and in SPSS 13.01 Data view and Variable views, arranged into three scales systematically: individual base, GN division base and DS division base.

Data base was prepared using soft wares Microsoft Word 2007, Microsoft Office Excel 2007, Arc GIS 10.1, ArcMAP10.1 and SPSS 13.01 for window, 13.01 eventually data base was arranged to build up personal profile indicators (PPI), Nano Capacity Indicators (NCI) and Deca Vulnerability Indicators (DVI).

ii. c. : Indicators

- PPI includes six indicators: Gender, Age Range, Status, Educational level and Number of members in the family and Residence ownership
- NCI includes nine capacity indicators: Wealth, Technology, Information, Infrastructure, Institutional, Skills acquired, Ability to cope up, Awareness and Preparedness.
- Ten vulnerability indicators under DVI were Gender, Age range, Status, Income level, Residence, Safe Drinking water. Proper sanitary, Drainage system, Past experience and Distance to the ocean.

iii. Results:

Three major categories studied in this research were: personal profile, capacities and vulnerabilities for natural coastal hazards in Negombo area (Table 2). A sample size of one hundred respondents in ten GN divisions was questioned using a questionnaire with 37 questions. Responses were quantified and strength of each 19 indicators were analysed, assessed and calculated.

Table 2. Major Categories of Data Collected for Natural Coastal Hazards: Risk Components with their Relevant Indicators

Population Profile Indicators	Capacity Indicators	Vulnerability Indicators
Gender	Wealth	Gender
Age range	Technology	Age range,
Status	Information,	Status Infrastructure
Educational Level	Institutional Skills acquired,	Income level, Residence
Number of Members in Family	Awareness Preparedness.	Safe Drinking water.
Income level	Ability to cope up	Proper sanitary, Drainage system, Past experience
Residence ownership		Distance to the ocean

iii. a.: Results for Nano Capacity Indicators:

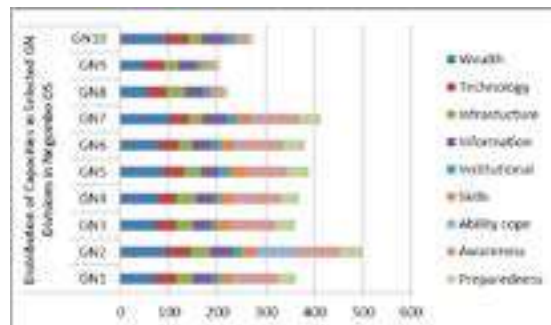


Figure 1. Strength Distribution of NCI in Selected GN: Negombo DS

From the graph above GN2: Thaladena has the highest NCI whereas GN9: Kapungoda has the lowest all NCI values. . Ascending order of NCI is as following; GN2: Thaladena, is the highest; GN7 is the second highest following closely. GN6>GN5>GN4 =GN1>GN3>GN10>GN8>GN9: Kapungoda.

Under wealth GN7 has the highest capacity in terms of wealth, whereas GN8 and GN9 showed very low values of wealth.

Technology GN2 highest, GN10 next, GN1, GN3, GN4=GN5=GN6=GN7=GN8=GN9. Under infrastructure GN7 highest, GN2 close and second, GN9 lowest. GN2 the highest with highest preparedness, equal highest of awareness, cope up extremely high 8 times higher than others, Skills equal highest, institutional in the middle which may due to the presence of foreigners.

iii. b.: Results for Deca Vulnerability Indicators:

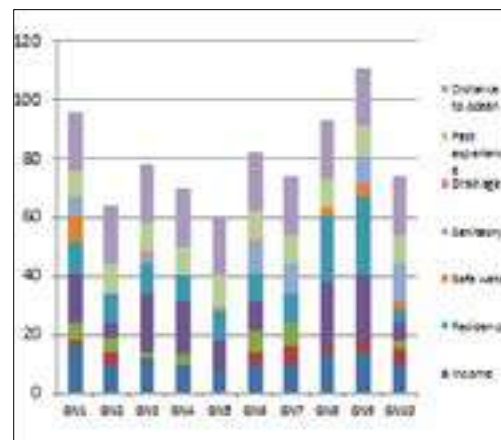
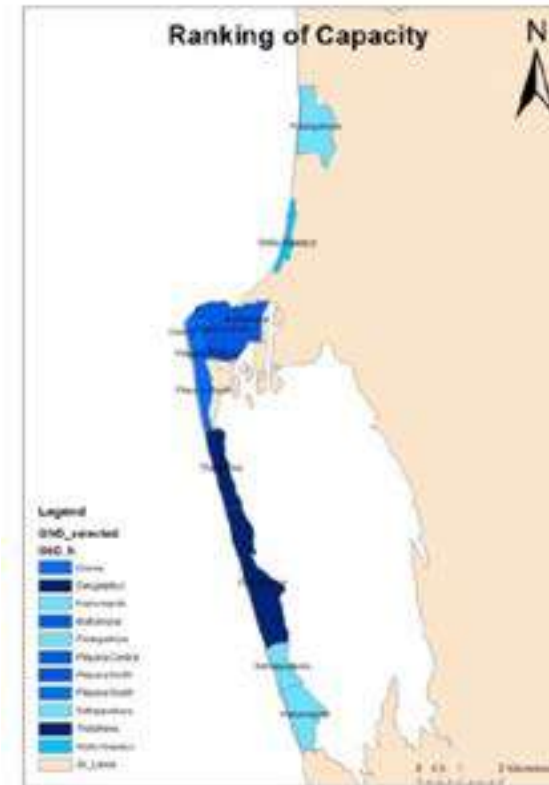
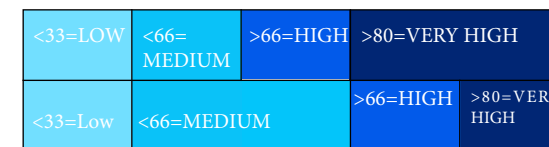


Figure 2. Strength Distribution of DVI in Selected GN: Negombo DS

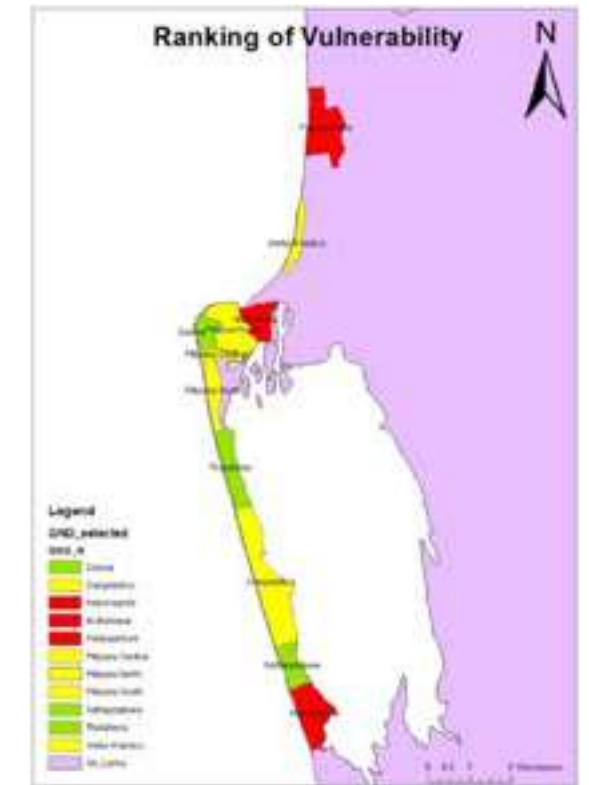
iii. c.: Preparation of Capacity Ranking Maps Using ArchGIS Software



Map 1: Ranking of NCI: Capacity of Selected GN :Negombo DS



iii. d.:Preparation of Vulnerability Ranking Maps Using ArchGIS Software



Map 2: Ranking of DVI: Vulnerability of Selected GN :Negombo DS

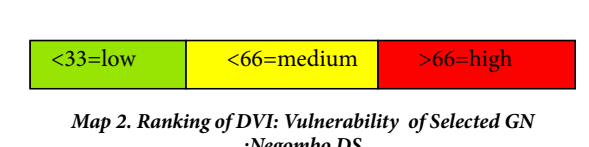


Table 3. Statistical Analysis: Computing Pearson's Correlation Coefficient

Pearson's Correlation coefficient of PPI Vs NCI and DVI				
	Gender	Age Range	Educational Level	Status
Wealth	-0.15	-0.13	0.39	-0.16
Technology	0.10	0.40	0.33	0.05
Infrastructure	0.00	-0.01	0.51	-0.15
Information	-0.07	0.20	0.21	0.34
Institutional	-0.12	-0.19	0.23	-0.07
Skills Aquired	0.19	0.07	0.05	0.07
Cope up	-0.04	0.40	0.45	-0.12
Awareness	-0.24	0.00	0.14	0.10
Preparedness	-0.18	0.02	0.05	-0.11
TOTAL	-0.10	0.15	0.53	-0.19

The Pearson's correlation coefficient was computed and calculations revealed that there was a moderate relationship between following two variables with a respected values. Between Infrastructure and Educational level with a correlation coefficient of 0.51, between Technology vs Age Range with a correlation coefficient of 0.40, between Cope up vs Age Range with a correlation coefficient of 0.40 and between Cope up VS Educational Level with a correlation coefficient of 0.45.

There was a weak relationship between Wealth VS Educational Level with a correlation coefficient of 0.39, Technology VS Educational Level with a correlation coefficient of 0.33 and Information VS Status with a correlation coefficient of 0.34. Also a very weak negative relationship between Awareness vs Gender with a correlation coefficient of -0.24 and a very weak positive relationship between Information vs Educational level 0.21 and Institutional vs Educational level 0.23 were identified.

III. DISCUSSION

From the results obtained there is a variation of strength of capacities and vulnerabilities in ten selected GN divisions.

By looking at the relationship between, it seems there is a negative correlation between capacity and vulnerability values obtained for each GN division. However, no strong correlation was obtained. There is a gap in the research done in the field, as not much research has been done to identify vulnerabilities and capacities in the study area.

The population profile indicators studied were gender, working status, age range, educational level and residence. Percentage of male population in the sample population studied was higher in GN divisions, GN5 and GN7, lower in GN1, GN8 and GN9 whereas other GN divisions showed equal gender distribution in the sample population. A higher ratio of female was observed in the total sample population of Negombo DS similar to what UNHABITAT 2011 reports. The percentage of working force or the population from 20-65 years was 4/5 the of (80%) total similar to annual report of Negombo Municipality 2012. The aggregated value of population with age range above 65 and below 20 years came to 20% or one fifth of the total sample population of Negombo DS much higher than the values reported in UNHABITAT 2011. In GN5, GN8 and GN9 all the respondents were employed whereas there was a higher population of students; almost 2/3 of the sample population in GN7 (60%) which has not been reported earlier this may be due to the fact that few

enthusiastic school children were involved themselves in the survey. There is an unemployment rate of 1/5 th or 20% in the sample population of GS Negombo much higher to the value reported in Similar to annual report of Negombo Municipality 2012. Working force was only 2/3 of the respondents of the whole DS division of Negombo.

The 1/7 the of the population has education level below ordinary level. Only 1/10 the of the population holds a degree or a diploma, in accordance with the value reported in Sri Lanka Statistical Survey 2012. More than 4/5 the of the sample population have more than 4 members in the family living under one roof. Half of the sample population has 5 members in their family. This may be an important factor in strategies to cope up as more support could be expected from a larger extended family. One in every 20 people has no house/place of their own to stay, therefore living in illegal dwellings.

The indicators assessed under NCI were: Wealth, Technology, Information, Infrastructure, Institutional, Skills acquired, and Ability to cope up, Awareness and Preparedness.

Under wealth GN7 has the highest capacity in terms of wealth, whereas GN8 and GN9 showed very low values of wealth. Under the indicator Technology GN2 has the highest value followed by GN10, GN1, GN3, GN4=GN5=GN6=GN7=GN8=GN9. Index the indicator infrastructure GN7 highest, GN2 close and second, GN9 lowest. GN2 shows highest preparedness, equal highest of awareness, cope up extremely high 8 times higher than others, Skills equal highest, institutional in the middle. Residing of some foreigners may be the reason for those values of GN 2 for information is second only by 1 point, Infrastructure is second to GN 7 by 3 points, Technology is highest, wealth is second highest with only 5 point less. GN2 has the highest NCI total whereas GN9 has the lowest. Ascending order: GN2 is the highest; GN7 is the second highest following closely. GN6 > GN5 > GN4 = GN1 > GN3 > GN 10 > GN8 > GN9. Thalahoma and Dungalpitiya GN Divisions showed higher ranking capacities. Thalahoma GN division exhibited highest ranking distribution of capacity with technology Thalahoma and Dungalpitiya GN Divisions recorded highest capacity distribution regarding infrastructure. Lowest capacity distribution for information showed by Kapungoda while highest was shown by Thalahoma and Dungalpitiya GN Divisions. Muttakkare has the lowest institutional capacity among all the ten GN divisions

studied Highest capacity distribution for skills exhibited by Thalahoma, Dungalpitiya and Pitipana South whereas lowest exhibited by Palangathurei and Wella veediya. Kapungoda and Wella Veediya GN divisions showed lowest Awareness from selected GN divisions in the study. Dungalpitiya and Palangathureyi were among the GN divisions with lowest capacity in Preparedness.

IV. CONCLUSIONS

Among the ten selected GNs, (Munnakkare ,Thalahoma , Pitipana , Pitipana south, Duwa, Basiyawaththa, Dungalpitiya, Palagathurei, Kapungoda, and Lellama) in Negombo, Thalahoma has the highest capacity and second lowest vulnerability. Concerning Vulnerabilities, Kapungoda has the highest values and it happen to have lowest capacity value too. GNs 1,8and,9;Munnakkare, Palangathurei.and Kapungoda have high vulnerability ranking. And Doowa and Thalahoma have the LOW ranking whereas other GNs have MEDIUM ranking.

Table 2. Final Vulnerability and Capacity Ranking for Selected GN Divisions

GN	Capacity Ranking	Vulnerability Ranking	Name of the GN Division
GN1	H	H	Muttakkare
GN2	H	L	Thalahoma
GN3	H	M	Pitipana
GN4	H	M	Pitipana south
GN5	H	L	Doowa
GN6	H	M	Basiyaw aththa/ Pitipana central
GN7	H	M	Dungalpitiya
GN8	M	H	Palanga thurei
GN9	M	H	Kapungoda
GN10	M	M	Lellama/ Wella veediya

Among 10 selected GNs Lellama, Palangathurei and Kapungoda are the places with MEDIUM capacity. All other seven GN divisions showed comparatively higher values to each other.

The following recommendations are the results of analysis of data of the present study:

1. There is an unemployment rate of 18% in the DS Negombo and is a key issue to address. This need to achieve by increasing the education, institutional skills and the computer literacy which is only 22% for the whole Negombo DS.
2. Drainage facilities are the worst of all the infrastructure facilities, only 4% and need to be addressed by better and proper land use planning. Here implementation of proper land planning policies could be recommended.
3. By providing education, skills and capital needed to start new or alternative livelihood option also recommended

In turn which means the special objective ii of providing recommendations has been also accomplished.

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FACTORS AFFECTING COACH LEADERSHIP BEHAVIORAL STYLES AND TEAM SUCCESS: THE MEDIATING ROLE OF COACH LEADERSHIP BEHAVIOR

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Abstract - The main purpose of this study is to determine if coach leadership behavior serves as a mediator between factors affecting said leader behavior and team success in sports. The research data were obtained from one hundred and sixty (n=160) athletes participated in inter university games with special reference to Western Province Sri Lankan. Team sports considered included, hockey, basketball, volleyball and Elle. Revised leadership scale for Sports questionnaire (RLSS) was used to access the coach leadership behavior and a modified questionnaire was used to access the factors affecting to it and the team success. The method used to collect data was cross sectional. SPSS version 16.0 was used for data analysis. Methods used to analyze data were General Linear model and Multiple Linear Regression. The Cronbach's alpha obtained with the present sample was 0.891. Appropriate correlations with theoretically linked constructs demonstrated criterion and concurrent validity. The results revealed coach leadership behavior as a mediator of the relationship between and factors affecting to coach leadership style and team success suggesting that factors affecting to coach leader behavior may enhance coach behavior in the task of successful performance. Mediating effect was first tested through calculating path coefficients and further conducted the Sobel's test to validate the previous results.

Keywords- Coach leadership behaviour, mediator, sports, team success

I. INTRODUCTION

A Sport is generally described as an organized, a competitive and a skillful physical activity which entails devotion and fair play. Sports contribute towards cultivation of national peace and harmony. Therefore the United Nations had recognized sports as an important phenomenon in achieving their millennium goals (UN Inter-Agency task Force on Sports for Development and Peace, 2005). International Olympic Committee had also documented that sport can help in bridging cultural and ethnic divides, create jobs and businesses, promote tolerance and non-discrimination (International olympic Committee, 2009).

Therefore there arises a necessity to study and address the issues persist with sports by any nation.

The success records in Olympic and other international sports events especially in team sports are not at all appealing with regard to Sri Lanka (Perera & Pushpakumari, 2016). There are many factors that are affecting to the success of sports. Therefore there is a essential requirement to study the factors that influence the team success in sports. Hence this study focused to assesses the impact of coach leadership behavior on team success in sports. Among the objectives of the study the core objective is to ascertain the relationship between

coach leadership behavior and team success and the sub objectives were to assess the impact of factors affecting to coach leadership behavior on coach leadership behavioral styles and to measure whether coach leadership styles mediate the relationship between factors affecting to it and team success.

II. LITERATURE REVIEW

Factors Affecting Coach Leadership Behavior (FACLb) comprises of three facets (Smoll & Smith, 1989) namely, situational characteristics, leader (coach) characteristics, and team member characteristics. The factors were derived from the multidimensional model of Leadership developed by Chelladurai and Saleh in 1980.

Situational characteristics are the factors that are beyond the control of the coach and the athletes/team players. A model developed by Smoll and Smith (1984) identified factors such as level of competition, nature of the sport, and previous track records of success as situational factors that influence on coach behavior styles. Leader characteristics are the factors inherited with the coach and includes, age of the coach (Chelladurai & Carron, 1983; Smoll & Smith, 1989), gender (Rintaugu, Bailasha, & Toriola, 2011; Smoll & Smith, 1989), and the explanation of tactics and the trust he has on his own skills (Smoll & Smith, 1989; Rotter, 1966). Team member characteristics that influences on coach leadership styles includes age of the player (Smoll & Smith, 1989), gender of the player (Chelladurai & Arnott, 1985; Terry & Howe, 1984) and the nature of the sport that the players are involve in (Chelladurai & Saleh, 1980; Terry, 1984; Terry & Howe, 1984). Nationality and culture from which athletes/team players are from, also considered under the present study even though it was found that there is no significant differences in preferred coaching style due to the impact of nationality in previous studies (Terry, 1984). Sri Lanka is considered as a multicultural country and since this factor is yet not considered under Sri Lankan context, the present study used it as an influential factor for coach leadership styles.

The Coach Leadership Styles (CLS) specified in Leadership Scale for Sports (LSS) includes five styles specifically training and instruction behavior, democratic

behavior, autocratic behavior, social support and positive feedback behavior (Chelladurai & Saleh, 1980). If a coach possesses training and instruction behavior, he would help athletes to acquire their extreme physical potential by provision of required training and technical support (Chelladurai, 2007). Autocratic style indicates that the coach keeps authority in decision making with him and stresses athletes when dealing with them and in contrast democratic style reflects the fact that the coach practices participative decision making process where athletes also considered as a part of it (Chelladurai, 2007). A coach who possesses social support behavior would involve in satisfying the interpersonal needs of the athletes/players. Verbal and visual compliments and reinforcements make by coach depicts his positive feedback behavior (Chelladurai, 2007). Situational consideration behavior specified in Revised Leadership Scale for Sports (RLSS) by Zhang, Jensen and Mann (1997), elaborated as Coaching behaviors aimed at considering situational factors such as time, game, environmental factors, individual, skill level, gender, and health condition (Zhang, Jensen, & Mann, 1997).

There are different methods of accessing team success. Team success was operationally defined as the total winning percentage of a team for which games played in their regular competitive agenda. A percentage score will be calculated by dividing the number of points obtained by the maximum number of possible points (Carron, Bray, & Eys, 2002; Perera & Pushpakumari, 2016). A research conducted to examine the relationship between coach leadership, the athlete relationship, team success, and the positive development experiences of adolescent soccer players measured team success by the total number of competition points accumulated during a season (Vella, Oades, & Crowe, 2012).

The conceptual framework developed to the study is as follows.

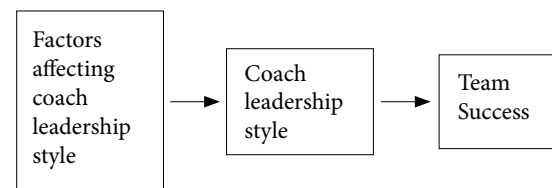


Fig. 1. Conceptual Framework of the study

III. METHODOLOGY AND DATA ANALYSIS

Participants completed The Revised Leadership Scale for Sports (RLSS) (Zhang, Jensen, & Mann, 1997) and a self-developed questionnaire under the supervision of the researcher in order to obtain relevant information for the study. The population of the study was 160 team players from the teams representing Basketball, Volleyball, Field Hockey, and Elle, and the sample derived was also 160. The reliability of the questionnaire was assessed by calculating Cronbach's Alpha. The Cronbach's alpha obtained with the present sample was 0.891.

Correlations matrix for each coach leadership behavior style were developed and the values lied between 0.3 and 0.8. Cohen uses a benchmark of minimum correlation value of 0.3 (Cohen, J, 1988), for convergent validity. The correlation coefficients reported in this study vary from 0.3 to 0.8 and hence considered to have discriminant validity also. The data collected were also subjected to Kaiser-Meyer-Olkin (KMO) and Bartlett test analyses to test the scale's structure validity, yielding to the results of KMO for training and instruction behavior 0.919, Democratic behavior 0.756, Social support behavior 0.751, positive feedback behavior 0.748, and situational consideration behavior 0.745. The Average Variance Extracted (AVE) was calculated to ascertain construct validity, and all the values were more than 0.5. This elaborates that at least as much explained compared to unexplained.

Methods used to analyze data were General Linear model (GL) and Multiple Linear Regression (MLR). MLR was conducted to analyze the relationship between factors affecting leader behavior styles and coach leadership behavior and coach leadership behavior styles and team success. Sobel's test was used to analyze the mediating effect of Coach Leadership behavior styles which depicts in Fig.2. Additionally, the results of direct and indirect effect of path coefficients also used to further prove the mediating effect.

A total of 160 subjects participated in the study. The descriptive statistics are as follows.

According to Table 2, most of the participants were male (56.88%) and females were 43.12%. Age of team players ranged from 20 to 28 years. The age was categorized into three groups as 20-22 years (23.12%), 23-25 (67.5%),

Table 2. Descriptive Statistics

Variable	Frequency	Percentage
Gender		
Male	91	56.88%
Female	69	43.12%
Age		
20-22	37	23.12%
23-25	108	67.5%
26-28	15	9.38%
Living Area		
Urban	45	28.12%
Suburb	54	33.75%
Rural	61	38.13%

Source : Survey data 2017

and 26-28 years (9.38%). The living areas were categories into three groups (Table 2). As Table 2 illustrates, more participants are from rural area (38.13%).

The impact of factors affecting coach leadership styles (FACLb) on coach leadership behavior (CLB) was also analyzed.

Table 3. The Relationship Between FACLb and CLB

FACLb	Mean comparison
Situational Factors	3.30
Characteristics of the Coach	3.58
Team member Characteristics	3.63

Source : Survey Data 2017

According to the mean figures depicts in Table 3, it can be concluded that the above mentioned characteristics make impact on coach leadership behavior.

The impact of CLB on team success was also analyzed. According to Table 3, only training and instruction

behavior is the significant predictor of team success which is measured through winning percentage.

The overall effect of coach leadership behavior on team success was also analyzed and found that CLB is a significant predictor of team success (p=0.000).

Table 3. The Relationship Between Coach Leadership Styles and Success

Mode 1	Unstandardize d Coefficients		Std. Coeff	t	Sig.
	B	Std. Error	Beta		
Cons.	-.030	.231		-.129	.897
TIB	.268	.028	.707	9.53	.000
DB	-.042	.031	-.102	-1.36	.174
AB	-.021	.027	-.054	-.787	.433
SSB	.000	.028	-.001	-.013	.990
PFB	-.031	.052	-.049	-.587	.558
SCB	-.022	.058	-.031	-.377	.707
CLB	.270	.060	.336	4.48	.000

DV: Team Success

The model used to analyze the mediation effect using path coefficient and Sobel's test depicts in Figure 2. The Sobel test is a statistical method of testing the significance of a mediation effect. The test is based on the work of Michael E. Sobel, (Sobel, 1982).

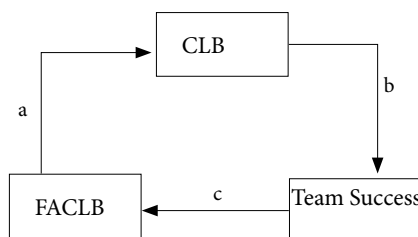


Fig. 2. Mediation model

According to Fig.2, the independent variable (IV) is Factors Affecting Coach leadership Behavior (FACLB), the mediating variable (MV) is Coach Leadership

Behavior (CLB) and the dependent variable (DV) is Team Success. In Fig.2, “a” denotes the effect of FACLB on CLB, “b” denotes the effect of CLB and team success and similarly “c” represents the effect of FACLB on Team Success.

Mediation effect was first tested through generating path coefficients. The summary results of path coefficients estimates are as follows.

Table 1. Coefficient for Mediating Effecr

Testing Paths	B	SE(B)	95% CI	B	Sr2
Path c -DV= winning/Team success					
R2=0.113 , F(1,160)=0.179, p=0.673					
IV =FACLB	0.049	0.115	-0.179, 0.276	0.036	3.6%
Path a; DV=Coach leadership style					
R2= 0.038 , F(1,160)=6.16, p=0.014					
IV =FACLB	-0.418	0.169	-0.751, -0.085	-0.194	-19.4%
Path b and c; DV; winning/Team success					
R2= 0.144 , F(1,160)=11.263, p=0.000					
IV =FACLB	0.168	0.110	-0.049 -0.385	0.125	12.2%
IV=CLB	0.320	0.068	0.186 -0.453	0.388	37.8%
Total				-0.07527	

Source: Survey Data 2017

According to Table1, the p value resulting for FACLB, CLB and team success is 0.000 (p<0.05) and therefore found that CLB mediates FACLB to team success relationship. FACLB to CLB is not significant since p-value= 0.673 which is more than 0.05 and hence not significant. Therefore it can be concluded that CLB is a total mediator between FACLB and team success.

Subsequently, Sobel's test (Sobel, 1982) was conducted. Values were substituted to the following Sobel's formula.

$$z\text{-value} = a'b/\text{SQRT}(b^2sa^2 + a^2sb^2).$$

The value derived by Sobel's Model was -1.12538014. The ab product is judged to be statistically significant if 'z' is greater than +1.96 or less than -1.96. Because z = -1.125, with p = 0.000, two-tailed, the ab product that represents the effect of FACLB on team success mediated by CLB can be judged statistically significant.

IV. DISCUSSION

The primary intention of the study was to examine the relationship between factors affecting coach behavior and coach leadership styles. The previous studies prove that the factors dealt with coach (leader characteristics) for instance coach's age level relate with coach behavior (Riemer & Toon, 2001; Rintaugu, Bailasha, & Toriola, 2011) are consistent with the present study. According to the preset study, age level of the coach is affected to the coach leadership styles but less likely in case of autocratic behavior which is partially consistent with the previous studies (Rintaugu, Bailasha, & Toriola, 2011; Terry & Howe, 1984). Furthermore it is found that there is a moderating impact of said variables on coach leadership behavior which is consistent with the previous studies conducted in Sri Lanka with a sample size of 291 athletes (Perera & Pushpakumari, 2015; Perera & Pushpakumari, 2015).

The findings of this research on relationship between coach leadership behavior and team success revealed that CLB is a significant predictor of team success and further found that training and instruction behavior of coach as the most influential factor affecting team success. The results of the study on coach training and instruction style are in agreement with the findings of Rintaugu and Bailasha (2011), Alemu & Babu (2012), Vahdani et al (2012) and partially agree with Terry (1984) on preferences made by them on training behavior. But the results are not consistent with the research findings made by Bahrami et al (2011). The results of the study partially agreed with the findings of Perera & Pushpakumari (2016), in relation to Sri Lanka Context.

The results of this study provide strong support for the proposed model in which coach leadership behavior mediates the relationship between factors affecting coach

leadership behavior and team success. The main intention of the study is to evaluate the validity of the mediation model developed by Smith and Smoll in 1989

V. CONCLUSION

This study, at the inception, examined the relationship between factors affecting coach behavior and coach leadership styles and found that these factors make an impact on coach leadership behavior. The impact of CLB on team success was also analyzed and the results concluded that training and instruction behavior is the significant predictor of team success which is measured through winning percentage. The overall effect of CLB on team success was also analyzed and found that CLB is a significant predictor of team success. Furthermore the results obtained relating to above mentioned relationships found consistent with previous studies.

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AN INTELLIGENT COST OPTIMIZED CENTRAL WAREHOUSE AND REDISTRIBUTION ROOT PLAN WITH TRUCK ALLOCATION SYSTEM IN COLOMBO REGION FOR LION BREWERY CEYLON PLC

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Abstract- This thesis is a case study based on Lion Brewery Ceylon PLC, Biyagama, which is a famous beer company and the market leader in Sri Lanka. Company outbound logistics has been considered in this research and it is mainly focuses on distribution and redistribution process in Colombo region. A Centralized distribution strategy has been applied for the region under three ways in order to find an optimal location of new facility through determining a route plan with cost optimized truck allocation system. Current trucks have been allocated to new roots and the purpose is to find a cost optimized distribution system.

To find an optimal location, Gravity model has been used and Hamiltonian cycle was used to find an optimal path between sub clusters. Lingo software has been used to solve Hamiltonian cycle problem and linear programming model solved using MS excel solver. According to the unit cost, linear programming model result has been manually adjusted. Central warehouse capacity plan, cost comparison of existing model and proposed model including milk run and the labour cost has been embedded to this research. Finally, author has compared total cost of centralized distribution and decentralized distribution while proving a huge cost benefits/savings (21.8% savings) than decentralized distribution.

I. INTRODUCTION

The Beer brewing industry is a sub category of alcohol brewing industry because alcohol percentage of beer

is less than 10%. Beer demand (Beer culture) in Sri Lanka has a volatile market and it is steadily increasing, due to the influence of Social, Cultural, Seasonal and environment factors. Demand patterns are different from provisions to provisions. Maintain high service level brings competitive advantage in beer industry. To maintain service level there should be a master plan for the distribution and redistribution with reducing transport cost. Because of some difficulties in outbound supply chain, some companies outsource their outbound process to third party logistics providers. transport costs, capital cost and risk can be minimized by outsourcing.

There are three beer companies in Sri Lanka. Among them, Lion Brewery Ceylon PLC is the market leader. When comparing beer demand in Sri Lanka, Colombo region has the highest demand and Lion beer brands are the most popular brands in Colombo region. Lion Brewery Ceylon PLC has 18 consignment agents in Sri Lanka. Consignment agent can be defined as stock hold by one party and operate by another party. Distribution operation is done by freight link international with special design 21 Prime movers. Redistribution operation is done by Lion Brewery Ceylon PLC and there are 81 redistribution Lorries involved in redistribution operation. That means they outsourced their primary distribution and operating secondary distribution part.

The company has 25 stock keeping units (SKU) including Lion Lager, Lion Strong, Carlsberg and Carlsberg Special

Brew etc. Bottles, Cans and Kegs used for fill beer. Especially Kegs designed for the parties, events and matches. There are three agents operating in Colombo region and 16 redistribution Lorries involved in redistribution operation. Those Distributors locations are Boralasgamuwa, Colombo 6 and Colombo 13.

The researcher case study is based on Lion Brewery Ceylon PLC. Core function of the Company is manufacturing and distributing beer in domestically and internationally. According to the monthly sales, it is showing a huge growth of the Company's beer brands in Sri Lanka than other beer brands. Current Lion Brewery monthly beer sale is performed 13 million dozen.

2013/14 annual report shows a sales revenue of Rs 25804 million.

Lion Brewery manufacturing 25 Stock keeping Units including Strong, Lion Lager, Carlsberg, Carlsberg Special Brew and Stout are the most popular brands and there are few imported beer brands including Corona, Somersby etc. As well as Lion Brewery is the Diageo & Moet Hennessey agent in Sri Lanka and import Whiskey, Brandy, Vodka, Rum etc. Johnny Walker, J & B, Hennessey, Smirnoff and Dom Perignon are the popular brands among them. In past, there were three beer companies in Sri Lanka. Those were Lion Brewery Ceylon PLC, McCallum Brewery (MBL) and Asia Pacific Brewery (APBL). After, McCallum Brewery has been bought by Lion Brewery with all brand names. Now Company has only one competitor and only few competitive brands in the market. Tiger, Heineken, Anchor and Tui Beer are the most popular brands among them.

When concerning about company's total supply chain, highest budget is allocated for outbound Logistics operation. Research area is distribution and redistribution lion beer process in Colombo region

In supply chain management, logistics plays the main role. To be the market leader in the industry, need customer attraction and brands or goods should be fulfilled customer satisfaction. To maintain above two key aspects there should be an intelligent, fast, reliable and interconnected logistics system. Because logistics represent the image of the company and generally it maintains service level. To increase service level there must be a keen system. Lion Brewery Logistics can be

divided in to two sectors. Those are Inbound Logistics and Outbound Logistics. Procurement, including Imports can be categorized under Inbound Logistics. The role of Procurement department is purchasing goods and raw materials in domestic and international suppliers, selecting suppliers, importing beer and etc.

Excise Department operation {Store FG in Bonded Warehouse, Clear Bond (Pay Excise Duty)}, Warehouse operation (Finished Goods store in Own Warehouse), Domestic distribution (for sale), Reverse Logistics (collects empties, Sort empties, store and feed for re production) and Export are under Outbound Logistics. After brewing beer, still it is not an asset of a company until pay the tax for the government. Finished beers are stored in covered warehouse until clear the tax and it is called bonded warehouse. There are four bonded warehouses in Lion Brewery. Two rooms are used for store Bottles and kegs and another two is used for store Cans. It is the first duty of outbound department. After paying tax, finished goods must be stored in their own warehouses and transport between Lion Brewery to warehouse also under outbound department. Domestic distribution should be very fast and there must be an on-time delivery process to keep service level. Selling beer is the main purpose of the domestic distribution.

Reverse logistics is the difficult process in beer industry it is including empty bottles and kegs operation, pallet return process and empty creates operation. There is an empty returned policy. Distributors are liable for returning equal empty bottles which are including GRN (good receive note). As well as, they must send ERN (empty receive note) when they return their empties. If they fail to send equal empties, they should pay for the balance. The balance should be paid by distributors at the end of the month.

Empty bottles should be stored distributor wises when unloading. But Distributors are not sending their empties brand wise. It means all empties are assorted. Damage empty bottles are divided in two sectors.

- Major damages
- Minor damages

Under Major damages, if there are bottles with thinner, cement patches and bottles belong to other companies are completely destroyed.

Under Miner damages, if the bottles have small chips and those bottles are being taken for re production.

Distributor should pay for major damages because their negligence. But crates damages are not claimed by Lion Brewery.

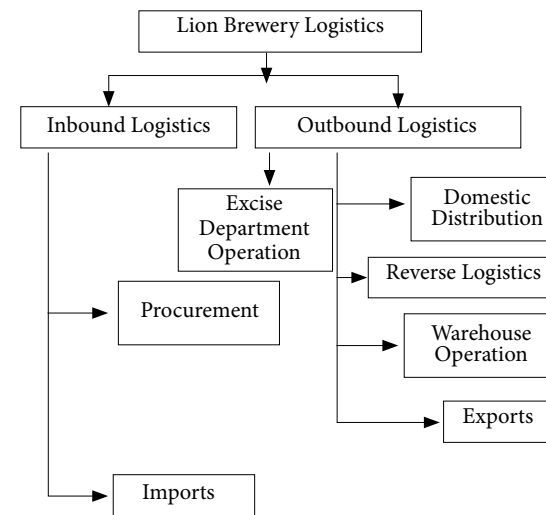


Figure 1.1. Lion Brewery Logistics Process
Source: Author

For distribution, Company has used decentralized distribution strategies and Company has 18 consignment agents in Island wide including Jaffna and Trincomalee. Those 18 agents cover 2972 outlets in Sri Lanka. Consignment agent can be simply defined as Stock hold by one party and operate by another party. That means Lion Brewery stocks hold by those 18 consignment agents and operation is done by the organization. Freight Link international has been outsourced by Lion Brewery for their distribution operation and they provide 21 specially designed Prime movers. Lion Brewery operates 81 vehicles for Redistribution process. That means, company has outsourced primary distribution part and handling secondary distribution part. It is including milk run, as well as reverse logistics part also.

Research Question

How can Lion Brewery realign its distribution process by using centralized distribution strategies in Colombo Region?

When considering outlet outbreak in Sri Lanka, there are approximately 2972 outlets maintained by 18 consignment agents. But when considering distributors outbreak in district wise, there are three consignment agents operating Colombo district (Colombo Region). They are,

- Colombo 6 (Victory) – outlets 120
- Colombo 13 (Modern) – outlets 183
- Boralasgamuwa (Abeyawardhana) – outlets 189

That means, majority of distributors represent (16.56%) by the Colombo Region and there are 491 outlets

Research Objectives

- Determination of centralized warehouse location and Safety stock
- Determination of a cost optimized redistribution route plan and trucks allocation system
- Identification of a capacity plan and Milk run kilometers
- Comparison of costs in existing model and proposed model

Description of Data

For the purpose of this research, researcher has used secondary data from SAP ERP system and other required data has been collected from agent operation database system. As an example, monthly target demand, monthly actual demand, daily demand and all the charges of each distributor etc. this research has considered two-month daily demand because agent data base keep only two months outlet daily demand

Significance of the research

Distribution and Redistribution concepts are the most important and most critical processes in outbound supply chain. In other way, redistribution shows company image and market stability. So, it should be under effective process because it is a key factor of maintaining service level. Trucks allocating process is very difficult in this field. So, there should be a keen truck allocation system while minimizing cost of transportation with

maintaining maximum service level. Trucks capacity utilization directly effect to the profit of the business. If priority is not given for redistribution process, total supply chain will break up. Currently, Lion Brewery is using decentralized distribution strategies in Colombo region because there are three distributors operating redistribution. But through this research they can allocate centralized distribution strategies and it will help to increase service level while optimizing cost, as well as cost of transportation.

Having a robust and an efficient distribution and redistribution system is the main competitive advantage of the brewery industry. Through the research, researcher finds an exact location for redistributing beers in Colombo region. And Applies a master plan for distribution system in high demand area for the purpose of gaining a cost benefit.

Centralized distribution strategies will help for

- Determining an ideal central warehouse location
- Reducing safety stock
- Smoothing redistribution root plan
- A Cost optimized redistribution Lorry allocation system

This research will guide LBCL on the importance of having an intelligent centralized warehouse with a new root plan and a truck allocation in Colombo region.

Methodology

This chapter will explain the methods which are used for finding the exact location of the new facility, intelligent route plan with truck allocation while maintaining same service level of Lion Brewery Ceylon PLC. These methods will bring quantitative results to achieve objectives and these methods introduce cost optimized truck allocation method. sales data, truck rates and Return on Investment (ROI) data were used to find and build models

Model Development

This research is based on mathematical approaches than statistical approaches to achieve research objectives. secondary data are used for the all mathematical models

and they are taken from SAP system of Lion Brewery and agent operation data base. SAP is the intelligent Enterprise Resource Planning system and it increases efficiency and effectiveness of supply chain while updating actual information.

Finding an exact location according to the demand variation and building an optimal route plan with truck allocation will minimize overall logistics cost. Gravity model is used to find exact location and Hamiltonian cycle is used to find the optimal path of sub clusters (route plan). Linear programming is used for allocating truck in each route.

Some limitations were concerned in this research.

- (1) Research was limited in Colombo region due to intricate of daily demand and redistribution routes.
- (2) Google map was used to find clusters locations and distance between clusters.
- (3) Short distance was not considered due to complexity of measure.
- (4) Not considered time factor and other factors which was affected to the redistribution process
- (5) All costs were fixed including transportation cost and it is based on present fuel prices. When changing fuel prices, model and prices should be updated.
- (6) Distance between outlets in sub clusters was not considered.
- (7) Demand is not changing rapidly.
- (8) All Stock Keeping Units (cans, paint and kegs etc.) which are used to packaging consider as equal size.
- (9) Reverse logistics is happening as soon as goods hand over to the outlet, empty bottles are equivalent to delivered amount and reverse logistics is not affected to this research.
- (10) No any barriers while delivering goods.
- (11) Allocated trucks deliver goods in allocated cluster and route and each cluster not connect each other.

This research is considering 3 distributors with 491 outlets and Figure 3.1 shows the area of the Colombo region and 3 distributors loc



Figure 3.1. Distributors and Lion Brewery Locations in Colombo Region
Source: Geographical Map Sri Lanka

Theoretical Frame Work

First objective of the research is to find optimal location of central warehouse. Gravity model is the simple and mostly used interaction model in location analysis. Gravity Model considers the Newtonian gravity formula with client locations and a weight defined by the client demands, turnover or total number of clients. The outcome gives an optimized and economical location of new facility. In order to calculate in the best way all profit and inconveniences. Research has been divided in 4 main chapters and those are the project location, stocks, transportation and warehousing. Every area has examined to find out the current situation, to estimate the possible advantages and disadvantages, and to estimate the risk of research. As a safety stock, five days safety stock policy has considered. (Geramy Bidaud.2007/08)

Optimal location has given a fixed number and the locations of the local warehouses. Solution is determined by the traditional model and it is minimized the total transportation cost. Location theory and inventory theory has considered, and numerical outcome prove that ignoring inventory costs in modeling location models might lead to inferior solution of locations. (Zvi Drezner)

“A Hamiltonian path or traceable path is a path that visits each vertex exactly once. A graph that contains a Hamiltonian path is called a traceable graph. A graph is Hamiltonian-connected if for every pair of vertices there is a Hamiltonian path between the two vertices.” (Wikipedia)

Truck-Shovel is generally used for transportation. It is expensive unit process in a truck-shovel mining system.

The current progress in computing technology offers the possible of refining truck-shovel production and subsequent savings. Introducing a truck allocation model has increased operational improvements by reducing waiting times and reached additional benefits through improved optimal routing. A model has presented to reduce the number of trucks allocated to a set of shovels with considering constraints. Queueing theory and linear programming has used to develop model assuming that single truck size has allocated to each shovel. To optimize the constraints, different linear programming methods have been suggested. (Soubhagya Sahoo.2012)

Research of Economic evaluation of a warehouse investment in central Europe was based on Nokian Heavy Tyres ltd and it was an ongoing project. It has comprised eminent analysis of warehouse physical location in central Europe. The goal is, build a warehouse for Nokian Heavy Tyres in central Europe through comparing private warehouse and contract warehouse. Hypothesis has been taken to get a result and to prove hypothesis using cost comparison. (Jana Machackova)

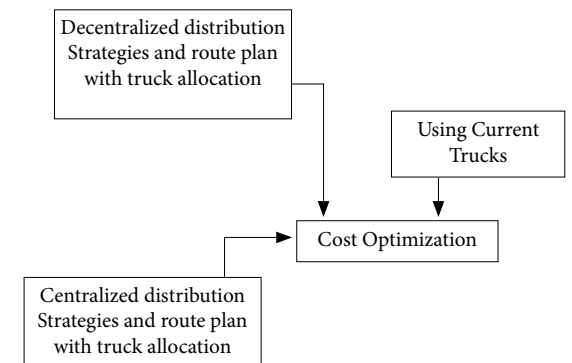


Figure 3.2: Conceptual Frame Work
Source: Author

Gravity Model Formula

Gravity model is used to find optimal location and it is proposed by Geramy Bidaud (2007/08).

$$X = \frac{\sum_1^n W_i \times x_{C_i}}{\sum_1^n W_i} \quad Y = \frac{\sum_1^n W_i \times y_{C_i}}{\sum_1^n W_i}$$

n is the no of area (cluster 1,2,3.....,35)

(yCi, xCi) is the given location coordinates with the i-th area (latitude & longitude)

Wi is the weight associated with the i-th area

(X, Y) is the unknown location co-ordinates of the new warehouse facility

Hamiltonian Cycle – Lingo Code

To find an optimal path between sub clusters Hamiltonian cycle sample problem is used through Lingo Software. It is based on model of Travelling Salesman problem between Atlanta to LA.

MODEL:

! Traveling Salesman Problem for the cities of Atlanta, Chicago, Cincinnati, Houston, LA ;

SETS:

CITY / 1.. 5/: U; ! U(I) = sequence no. of city;

LINK(CITY, CITY):

DIST, ! The distance matrix;

X; ! X(I, J) = 1 if we use link I, J;

ENDSETS

DATA: !Distance matrix, it need not be symmetric;

DIST = 0 702 454 842 2396

702 0 324 1093 2136

454 324 0 1137 2180

842 1093 1137 0 1616

2396 2136 2180 1616 0 ;

ENDDATA

!The model:Ref. Desrochers & Laporte, OR Letters,

Feb. 91;

N = @SIZE(CITY);

MIN = @SUM(LINK: DIST * X);

@FOR(CITY(K):

! It must be entered;

@SUM(CITY(I)| I #NE# K: X(I, K)) = 1;

! It must be departed;

@SUM(CITY(J)| J #NE# K: X(K, J)) = 1;

! Weak form of the subtour breaking constraints;

! These are not very powerful for large problems;

@FOR(CITY(J)| J #GT# 1 #AND# J #NE# K:

U(J) >= U(K) + X(K, J) -

(N - 2) * (1 - X(K, J)) +

(N - 3) * X(J, K)

);

);

! Make the X's 0/1;

@FOR(LINK: @BIN(X));

! For the first and last stop we know...;

@FOR(CITY(K)| K #GT# 1:

U(K) <= N - 1 - (N - 2) * X(1, K);

U(K) >= 1 + (N - 2) * X(K, 1)); END

Linear Programming Model

To find a truck a truck allocation for each path, linear programming model is developed.

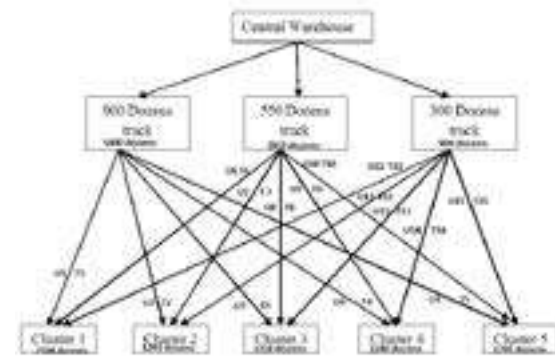


Figure 3.3. Truck allocation Structure
Source: Author

Figure 3.3 is showing truck allocation model structure of each size. Three sizes of trucks are used for redistribution

U1- No of Units/ Dozens delivers from 900 dozens trucks for Cluster 1

U2- No of Units/ Dozens delivers from 900 dozens trucks for Cluster 2

U3- No of Units/ Dozens delivers from 900 dozens trucks for Cluster 3

U4- No of Units/ Dozens delivers from 900 dozens trucks for Cluster 4

U5- No of Units/ Dozens delivers from 900 dozens trucks for Cluster 5

U6- No of Units/ Dozens delivers from 550 dozens trucks for Cluster 1

U7- No of Units/ Dozens delivers from 550 dozens trucks for Cluster 2

U8- No of Units/ Dozens delivers from 550 dozens trucks for Cluster 3

U9- No of Units/ Dozens delivers from 550 dozens trucks for Cluster 4

U10- No of Units/ Dozens delivers from 550 dozens trucks for Cluster 5

U11- No of Units/ Dozens delivers from 300 dozens trucks for Cluster 1

U12- No of Units/ Dozens delivers from 300 dozens trucks for Cluster 2

U13- No of Units/ Dozens delivers from 300 dozens trucks for Cluster 3

U14- No of Units/ Dozens delivers from 300 dozens trucks for Cluster 4

U15- No of Units/ Dozens delivers from 300 dozens trucks for Cluster 5

T1- Unit/Dozen Cost of 900 dozens trucks for Cluster 1

T2- Unit/Dozen Cost of 900 dozens trucks for Cluster 2

T3- Unit/Dozen Cost of 900 dozens trucks for Cluster 3

T4- Unit/Dozen Cost of 900 dozens trucks for Cluster 4

T5- Unit/Dozen Cost of 900 dozens trucks for Cluster 5

T6- Unit/Dozen Cost of 550 dozens trucks for Cluster 1

T7- Unit/Dozen Cost of 550 dozens trucks for Cluster 2

T8- Unit/Dozen Cost of 550 dozens trucks for Cluster 3

T9- Unit/Dozen Cost of 550 dozens trucks for Cluster 4

T10- Unit/Dozen Cost of 550 dozens trucks for Cluster 5

T11- Unit/Dozen Cost of 300 dozens trucks for Cluster 1

T12- Unit/Dozen Cost of 300 dozens trucks for Cluster 2

T13- Unit/Dozen Cost of 300 dozens trucks for Cluster 3

T14- Unit/Dozen Cost of 300 dozens trucks for Cluster 4

T15- Unit/Dozen Cost of 300 dozens trucks for Cluster 5

Objective Function = U1T1+U2T2+ U3T3+U4T4+ U5T5+U6T6+ U7T7+U8T8+ U9T9+U10T10+ U11T11+U12T12+ U13T13+U14T14+ U15T15

Constrains;

U1+U6+U11 ≥ Cluster 1 demand

U2+U7+U12 ≥ Cluster 1 demand

U3+U8+U13 ≥ Cluster 1 demand

U4+U9+U14 ≥ Cluster 1 demand

U5+U10+U15 ≥ Cluster 1 demand

U1+U2+U3+U4+U5 ≤ 900 dozens trucks total capacity

U6+U7+U8+U9+U10 ≤ 550 dozens trucks total capacity

U11+U12+U13+U14+U15 ≤ 300 dozens trucks total capacity

Non Negative Constraint; U1:U15 ≥ 0

Research Techniques

Supply chain optimization models have economical value but solving models taking more times and it is difficult

Table 4.3: Gravity Model MS Excel Work Sheet

Cluster	ADD	WAD	Latitude	Longitude	Latitude* WAD	Longitude* WAD
Colombo 1	103	3	6.9556	79.88477	20.8670727	239.6543175
Colombo 2	289	6	6.9215	79.86485	41.529183	479.1891198
Colombo 3	249	5	6.9215	79.86485	34.6076525	399.3242665
Colombo 4	71	2	6.92153	79.86485	13.843061	159.7297066
Colombo 5	301	7	6.8703	79.86456	48.092457	559.051899
Colombo 6	277	6	6.8756	79.87118	41.2540206	479.2270506
Colombo 7	58	2	6.9215	79.86485	13.843061	159.7297066
Colombo 8	160	4	6.9124	79.87895	27.6497288	319.5157828
Colombo 9	368	8	6.9044	79.85992	55.235592	638.879328
Colombo 10	170	4	6.9301	79.86257	27.7204308	319.4502816
Colombo 11	633	13	6.9380	79.85253	90.1948008	1038.082884
Colombo 12	212	5	6.9377	79.86185	34.688955	399.309245
Colombo 13	357	8	6.9480	79.86084	55.5844048	638.8867048
Colombo 14	211	5	6.9507	79.87167	34.7537645	399.3583635
Colombo 15	220	5	6.9679	79.86885	34.839867	399.344248
Athurugiriya	185	4	6.8734	79.99814	27.4936856	319.992562
Battaramulla	225	5	6.9000	79.92049	34.500296	399.6024705
Boralasgamuw	124	3	6.8339	79.90818	20.5017489	239.7245331
Dehiwala	361	8	6.8528	79.86912	54.8229576	638.9529824
Gothatuwa	291	6	6.9255	79.90553	41.553021	479.4331638
Hanwella	210	5	6.8915	80.08523	34.4578175	400.426129
Homagama	169	4	6.8450	80.00621	27.380368	320.0248516
Kaduwela	103	3	6.9299	79.98355	20.7897939	239.9506569
Kottawa	61	2	6.8396	79.96432	13.6793744	159.928645
Maharagama	245	5	6.8503	79.92474	34.251845	399.62371
Malabe	167	4	6.9043	79.96543	27.6172828	319.8617292
Moratuwa	463	10	6.7674	79.88827	67.674157	798.882677
Mt. Lavinia	122	3	6.8391	79.86623	20.5175985	239.5986999
Nugegoda	244	5	6.8656	79.90714	34.3280975	399.535686
Padukka	76	2	6.8436	80.10119	13.6872864	160.2023792
Pannipitiya	235	5	6.8382	79.95782	34.191483	399.789092
Piliyandala	339	7	6.7915	79.93651	47.540773	559.5555826
Rajagiriya	208	5	6.9119	79.89571	34.5595735	399.4785665
Rathmalana	110	3	6.8237	79.88988	20.471148	239.669646
Thalawathugoda	139	3	6.8750	79.94117	20.6252916	239.8235127
Total		175			1205.347651	13982.79018
					6.887700	79.90165

Source: Author

ENDDATA

```

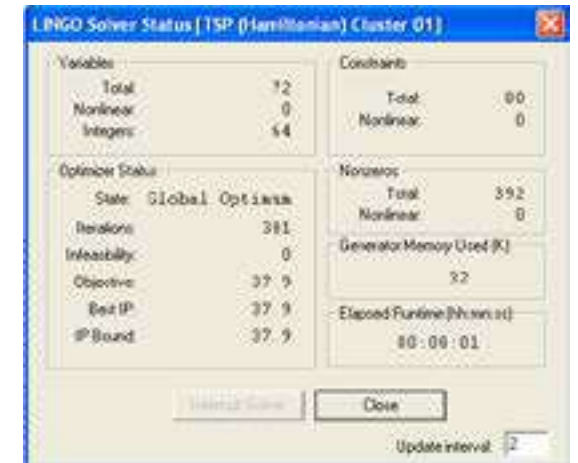
!The model:Ref. Desrochers & Laporte, OR Letters,
Feb. 91;
N = @SIZE( CITY);
MIN = @SUM( LINK: DIST * X);
@FOR( CITY( K);
! It must be entered;
@SUM( CITY( I)| I #NE# K: X( I, K) = 1;
! It must be departed;
@SUM( CITY( J)| J #NE# K: X( K, J) = 1;
! Weak form of the subtour breaking constraints;
! These are not very powerful for large problems;
@FOR( CITY( J)| J #GT# 1 #AND# J #NE# K:
    U( J ) >= U( K ) + X ( K, J) -
    ( N - 2 ) * ( 1 - X( K, J) ) +
    ( N - 3 ) * X( J, K)
);
);
! Make the X's 0/1;
@FOR( LINK: @BIN( X));
! For the first and last stop we know...;
@FOR( CITY( K)| K #GT# 1:
    U( K ) <= N - 1 - ( N - 2 ) * X( 1, K);
    U( K ) >= 1 + ( N - 2 ) * X( K, 1)
);
    
```

END

Figure 4.1 is showing Lingo model of Cluster 1 Hamiltonian cycle problem. Distance matrix, rows and columns are representing sub clusters and above matrix are showing cluster 1 sub clusters.

In other hand rows and columns are showing distance between each sub clusters. In order to above model, other four clusters also adjusted and solve using Lingo software. According to Hamiltonian cycle has given optimal paths and those are given below.

Figure 4.3. Lingo Solver window
Source : Author



Global optimal solution found – Cluster 1

Objective value : 37.90000
Branch count : 9

Figure 4.2: Lingo Solver Status and Global Optimal Solution of Cluster 1

Variable	Value	Reduced Cost
X(1, 1)	0.0000000	0.0000000
X(1, 2)	1.0000000	13.40000
X(1, 3)	0.0000000	9.700000
X(1, 4)	0.0000000	11.90000
X(1, 5)	0.0000000	11.60000
X(1, 6)	0.0000000	12.00000
X(1, 7)	0.0000000	11.60000
X(1, 8)	0.0000000	14.20000
X(2, 1)	0.0000000	13.40000
X(2, 2)	0.0000000	0.0000000
X(2, 3)	0.0000000	6.300000
X(2, 4)	1.0000000	1.900000
X(2, 5)	0.0000000	3.100000

Variable	Value	Reduced Cost	Variable	Value	Reduced Cost
X(2, 6)	0.0000000	3.200000	X(6, 6)	0.0000000	0.0000000
X(2, 7)	0.0000000	6.400000	X(6, 7)	0.0000000	2.500000
X(2, 8)	0.0000000	6.500000	X(6, 8)	1.000000	4.100000
X(3, 1)	1.000000	9.700000	X(7, 1)	0.0000000	11.60000
X(3, 2)	0.0000000	6.300000	X(7, 2)	0.0000000	6.400000
X(3, 3)	0.0000000	0.0000000	X(7, 3)	1.000000	3.200000
X(3, 4)	0.0000000	4.800000	X(7, 4)	0.0000000	3.300000
X(3, 5)	0.0000000	4.400000	X(7, 5)	0.0000000	2.600000
X(3, 6)	0.0000000	4.800000	X(7, 6)	0.0000000	2.500000
X(3, 7)	0.0000000	3.200000	X(7, 7)	0.0000000	0.0000000
X(3, 8)	0.0000000	5.800000	X(7, 8)	0.0000000	3.200000
X(4, 1)	0.0000000	11.90000	X(8, 1)	0.0000000	14.00000
X(4, 2)	0.0000000	1.900000	X(8, 2)	0.0000000	6.500000
X(4, 3)	0.0000000	4.800000	X(8, 3)	0.0000000	5.800000
X(4, 4)	0.0000000	0.0000000	X(8, 4)	0.0000000	4.800000
X(4, 5)	1.000000	1.400000	X(8, 5)	0.0000000	4.600000
X(4, 6)	0.0000000	1.300000	X(8, 6)	0.0000000	4.100000
X(4, 7)	0.0000000	3.300000	X(8, 7)	1.000000	3.200000
X(4, 8)	0.0000000	4.800000	X(8, 8)	0.0000000	0.0000000
X(5, 1)	0.0000000	11.60000			
X(5, 2)	0.0000000	3.100000			
X(5, 3)	0.0000000	4.400000			
X(5, 4)	0.0000000	1.400000			
X(5, 5)	0.0000000	0.0000000			
X(5, 6)	1.000000	1.000000			
X(5, 7)	0.0000000	2.600000			
X(5, 8)	0.0000000	4.600000			
X(6, 1)	0.0000000	12.00000			
X(6, 2)	0.0000000	3.200000			
X(6, 3)	0.0000000	4.800000			
X(6, 4)	0.0000000	1.300000			
X(6, 5)	0.0000000	1.000000			

Figure 4.2 is showing Lingo solver status menu and paths between sub clusters in Cluster 1. In value column, it is showing two values (0 and 1). When value is 1, parallel variable column is showing path between two clusters. In order to optimal path of cluster 1 is New Facility, Colombo 1, Colombo 11, Colombo 12, Colombo 13, Colombo 15, Colombo 14 and Colombo 9.

In order to the solution of each Clusters Optimal paths with distance are given below.

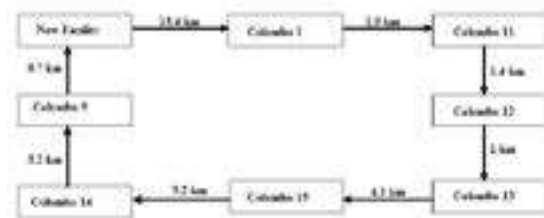


Figure 4.7. Cluster 1 – Optimal Path and Distance
Source: Author

According to Figure 4.7 is showing optimal path and distance between sub clusters of Cluster 1.

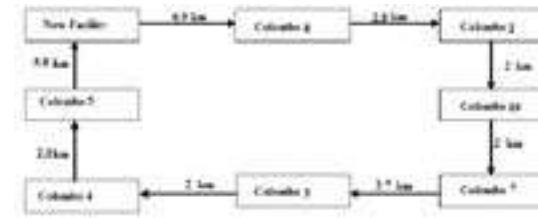


Figure 4.8. Cluster 2 – Optimal Path and Distance
Source: Author

According to Figure 4.8 is showing optimal path and distance between sub clusters of Cluster 2.

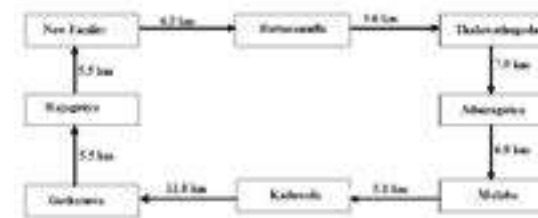


Figure 4.9. Cluster 3 – Optimal Path and Distance
Source: Author

According to Figure 4.9 is showing optimal path and distance between sub clusters of Cluster 3.

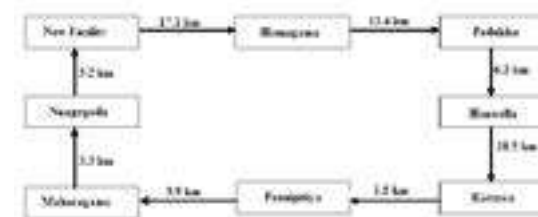


Figure 4.10. Cluster 4 – Optimal Path and Distance
Source: Author

According to Figure 4.10 is showing optimal path and distance between sub clusters of Cluster 4.



Figure 4.11. Cluster 5 – Optimal Path and Distance
Source: Author

According to Figure 4.11 is showing optimal path and distance between sub clusters of Cluster 5.

After finding optimal path of each main cluster, total milk run is calculated

Table 4.4. Daily Milk Run Kilometres

Cluster	Daily Milk Run km
1	38
2	27
3	51
4	66
5	38
Total	220

Source: Author

According to the optimal path, Table 4.4 is given daily milk run total kilometers.

Truck Allocation Model – Linear Programming Model

After finding optimal path, next step of the research is allocating redistribution trucks to the root. To solve mathematical model MS Excel is used to this research. MS excel has so many functions to solve problems. In this research MS Excel Solver is used to run mathematical model and Table 4.9 is showing MS Excel worksheet and result of optimal truck allocation. Figure 4.12 is showing solver parameters



Figure 4.12. Solver Parameters
Source: Author

Table 4.5. Linear Programming Model MS Excel work sheet

Description	Dozens(unit)		Transport Cost per dozen (Rs)	
	Unit	Quantity	Truck Type	Cost
No of units via 900 dozen trucks for cluster 1	U1	777	T1	2.04
No of units via 900 dozen trucks for cluster 2	U2	583	T2	1.88
No of units via 900 dozen trucks for cluster 3	U3	492	T3	4.28
No of units via 900 dozen trucks for cluster 4	U4	468	T4	5.88
No of units via 900 dozen trucks for cluster 5	U5	678	T5	2.31
No of units via 550 dozen trucks for cluster 1	U6	959	T6	1.65
No of units via 550 dozen trucks for cluster 2	U7	649	T7	1.69
No of units via 550 dozen trucks for cluster 3	U8	708	T8	2.97
No of units via 550 dozen trucks for cluster 4	U9	681	T9	4.04
No of units via 550 dozen trucks for cluster 5	U10	854	T10	1.84
No of units via 300 dozen trucks for cluster 1	U11	369	T11	4.29
No of units via 300 dozen trucks for cluster 2	U12	59	T12	18.62
No of units via 300 dozen trucks for cluster 3	U13	118	T13	17.84
No of units via 300 dozen trucks for cluster 4	U14	91	T14	30.33
No of units via 300 dozen trucks for cluster 5	U15	264	T15	5.95
Objective function	27315.879			
Constrains				
Cluster 1	U1+U6+U11	2104	2104	
Cluster 2	U2+U7+U12	1291	1291	
Cluster 3	U3+U8+U13	1318	1318	
Cluster 4	U4+U9+U14	1240	1240	
Cluster 5	U5+U10+U15	1795	1795	
Total 900 dozens trucks capacity	U1+U2+U3+U4+U5	2998	5400	
Total 550 dozens trucks capacity	U6+U7+U8+U9+U10	3850	3850	
Total 300 dozens trucks capacity	U11+U12+U13+U14+U15	900	900	
Non negative constrains	U1:U15		0	

Source: Author

Linear programming model is entered to the MS Solver and Figure 4.15 is showing solver parameters.

Table 4.5 is showing linear programming MS Excel work sheet and it is representing unit cost and quantity of each lorry type. Linear programming model is given optimal solution but trucks are limited and there are only 6 trucks

which can be carried 900 dozens, and only 7 trucks which can be carried 550 dozens and only 3 trucks which can be carried 300 dozens. Total 16 redistribution trucks are run in milk run. So according to transport cost and route demand, trucks should be manually allocated. Table 4.6 is showing manual truck allocation method. To find truck utilization, equation is mentioned below.

$$\text{Truck Utilization} = \frac{(\text{Total Carrying Capacity})}{(\text{Total Allocation Capacity})} \times 100\%$$

Table 4.6. Manual truck allocation with cost

Cluster	Lorry Capacity	Carrying Capacity	Transport cost per dozen	Allocation	Utilization
1	900	777	2.04	1	91%
	550	959	1.65	2	
	300	369	4.29	1	
	Total	2104	Allocation Capacity	2300	
2	900	583	1.88	1	89%
	550	649	1.69	1	
	300	59	18.62	0	
	Total	1291	Allocation Capacity	1450	
3	900	492	4.28	1	91%
	550	708	1.69	1	
	300	118	17.84	0	
	Total	1318	Allocation Capacity	1450	
4	900	468	5.88	1	86%
	550	681	4.04	1	
	300	91	30.33	0	
	Total	1240	Allocation Capacity	1450	
5	900	678	2.31	1	90%
	550	854	1.84	2	
	300	264	5.95	0	
	Total	1795	Allocation Capacity	2000	

Author: Source

According to the Table 4.6 - manual adjustment, 4 trucks allocated to Cluster 1, in order to 2 trucks allocated to Cluster 2, Cluster 3 and Cluster 4. 3 trucks allocated to cluster 5. In this proposed system, Total redistribution operation is running 13 redistribution trucks.

$$\text{Variance} = \text{Existing Milk Run Total Kilometres} - \text{Proposed Milk Run Total Kilometres}$$

Table 4.7. Milk Run Outcomes of Two Models

Existing Milk Run		Proposed Milk Run		Variance (Km)
Distributor	Daily Km	Cluster	Daily Km	
Colombo 6	153		1152	26 (Saving)
Colombo 13	115		254	
Boralasgamuwa	312		3102	
		4	4	
Total	580		5114	
		Total	554	

Author: Source

Table 4.7 is showing outcomes of Existing milk run and proposed milk run, and difference of kilometres between existing model and the proposed are calculated using above equation. Existing milk run distance is 580km and proposed milk run distance is 554km. difference 26km. Cost of redistribution truck is paid based on Kilometres

Table 4.9. Capacity Plan and Rent of Central Warehouse

Capacity Plan and Rent of Central Warehouse								
Stock	Pallet					Capacity	Cost (Rs)	
	Dozens	Dozens	Position	Length	Width		Area(Ft2)	Ft ²
37840	44	860	3.66'	3.33'	12.1878	10481.51	35	366852.8

Source: Author

and rate per kilometre is 41.71 rupees. Existing milk run, and purposed milk run daily transportation cost is given below.

Table 4.8. Cost Difference between Existing Milk Run and Proposed Milk Run

	Daily Km	Cost Per Km(Rs)	Daily Cost (Rs)	Monthly Cost(Rs)
Existing Milk Run	580	41.71	24191.8	628986.8
Proposed Milk Run	554	41.71	23107.34	600790.84
Variance(Saving)	26	41.71	1084.46	28195.96

Source: Author

According to the Table 4.8, cost of existing milk run is Rs 24191.80 and proposed milk run is Rs 23107.34. Variance is Rs 1084.46 per day.

Safety Stock Analysis

As a safety stock, five days safety stock policy has been used. It is calculated as follows.

$$\text{Safety Stock} = 5 \times 7748 \text{ dozens} = 37\ 840 \text{ dozen}$$

Central Warehouse Analysis

First step of the research is to measure central warehouse capacity. Table 4.9 is given capacity plan and total rent cost of warehouse.

According to the Table 4.9, Safety stock is 37840 dozen and each pallet can stack 44 dozen. So, central warehouse need 860 pallet positions. Area of the pallet is 12.1878 Ft² and total needed capacity of the warehouse is 10481.51 Ft². Cost of the 1 Ft² is Rs 35 and Total cost of warehouse is Rs 366852.80.

Structure of the allocating trucks and employee involvement of the redistribution operation is, in order to 6 trucks, 5 trucks and 5 trucks are operated in Boralasgamuwa, Colombo 6 and Colombo 13 distributors. Each truck contained sales ref, driver and four porters.

Second step of the research is to determine no of employees and salaries of employees. Bellow table is giving outcomes of existing system and proposed system with employee analysis and salaries.

Table 4.10 is representing salaries of the existing system and proposed system. All the salaries are fixed, and allowances are given by the distributor and Lion Brewery is not liable to pay allowances (consignment agent relationship). Existing system, total cost of salaries and wages is Rs 2,959,400 and proposed system total cost of salaries and wages is Rs 2,398,200. When loading beers to the trucks, it is handled and monitored by assistant

Table 4.10. Labour Cost Difference between Labours in Existing System and Proposed system

Description	Existing System						Proposed System	
	No of Employees							
	Salary (Rs)	Boralasgamuwa	Col 06	Col 13	Total	Cost	New Facility	Cost (Rs)
Area Manager	47000	1	1	1	3	141000	1	47000
Accountant Assistant	37000	1	1	1	3	111000	1	37000
Accountant	21000	1	1	1	3	63000	3	63000
IT Officer	28000	1	1	1	3	84000	1	28000
Logistics Officer	37000	1	1	1	3	111000	1	37000
Assistant Logistics	21000	2	2	2	6	126000	5	105000
Officer Clark	15000	1	1	1	3	45000	1	15000
Sales Ref	25000	6	5	5	16	400000	13	32500
Forklift	30000	1	1	1	3	90000	2	60000
Driver Porters	25600	24	20	20	64	1638400	52	1331200
Store Porters	25000	1	1	1	3	75000	1	25000
Driver	25000	1	1	1	3	75000	13	325000
Total						2959400		2398200

Source: Author

logistics officers. One Assistant logistics officer can handle 3 redistribution trucks and one forklift operator can handle 7 trucks (Fixed by the Company). Proposed system needed only 13 trucks and 5 assistant logistics officers, and 2 forklift drivers are enough to do operation.

Next step of the research is to determine new facility cost and compare with the cost of existing system.

According to the Table 4.11, it is showing monthly cost difference of two systems. All costs fixed by the Lion Brewery and electricity, water and even milk run total kilometres also fixed. If those costs exceed, distributor have to bare that cost. Fixed kilometres are given Table

4.7 and transport cost is given Table 4.8 existing system is operating 16 trucks (Boralasgamuwa – 6, Colombo 6 – 5, Colombo 13 – 5) but proposed system needs only 13 trucks. Total cost of existing system is Rs 6074747.8 and proposed system cost is 4750448.64. Proposed systems bring saving of Rs 1324299.16 per month and it is 21.8% savings of existing system.

II. CONCLUSION AND RECOMMENDATION

With secondary data collected from SAP and Agent operation data base in Lion Brewery Ceylon PLC, the

researcher has planned a central warehouse strategy. location was found through demand. Colombo region has been divided in to 35 demand regions and a weight was allocated to each sub cluster according to demand. After finding locations of each clusters (latitude and longitude), Gravity model has been used to get location of new facility. It is situated in latitude 6.887700861 and longitude 79.90165817.

According to location, sub clusters divided in to five main clusters and Hamiltonian cycle has been used to get optimal path between sub clusters. Hamiltonian cycle problem has been solved using Lingo software. 900, 550 and 300 dozen capacity Trucks were used to redistribute goods and those are allocated each optimal path given by Hamiltonian cycle. Linear programming has been built and it is solved using MS Solver. Given solution was critical because some trucks unit cost had been increased and need more trucks than existing trucks. Therefore, manual adjustment has been introduced by considering transport unit cost. Trucks have allocated according to the units cost while satisfying daily demand. When considering daily transportation cost between existing model and proposed model, 26 kilometres have been saved profit is Rs 1084.46 per day. Existing model is running 16 redistribution trucks and proposed system can be covered, by using 13 trucks. 5 days demand has been taken as a safety stock and Cost of the central warehouse is Rs 366852.8 and it is saving Rs 418147.2. Salaries and Wages are given cost savings Rs 561200.

When comparing total cost of proposed model and existing model, proposed model is saving Rs 1324299.16 per month. Centralized distribution strategies give cost benefit rather than Decentralized Distribution Strategies.

For the future development of this research linear programming model must be developed without manual adjustment.

III. ACKNOWLEDGEMENT

This dissertation represents the essence of the achievements during the four years of study in

International Transportation Management and Logistics in CINEC Maritime campus, Malabe, affiliated with Dalian Maritime University, China.

This research gives knowledgeable and practical experience for the theoretical subjects that we have been studying during the academic period of time with connected to supply chain managements well as in outsourcing.

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Table 4.11. Monthly Cost Difference between Existing System and Proposed System

Description	Cost	Existing System							Proposed System		
		Distributor Name						Total Cost			
		Bora		Col 6		Col 13					
Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost		
Warehouse Rent			100000		420000			265000	785000	366852.8	
Lorry Lease	75000	75000	6	450000	5	375000	5	375000	1200000	13	
Lorry Insurance	3668	3668	6	22008	5	18340	5	18340	58688	13	
Insurance for Goods	23000	23000	6	138000	5	115000	5	115000	368000	13	
License	167	167	6	1002	5	835	5	835	2672	13	
Other Expenses	3750	3750	6	22500	5	18750	5	18750	60000	13	
Transport cost	41.71	41.71								628986	
Salaries and wages			2959400		2398200						
Electricity	2000		2000		2000			2000	6000		6000
Water	2000		2000		2000			2000	6000		6000
Total Cost		6074747		4750448							

Source: Author

ANALYSIS OF FACTORS AFFECTING PASSENGER SATISFACTION ON SERVICE QUALITY IN PUBLIC TRANSPORTATION IN SRI LANKA

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Abstract - Public Transportation Service is outlined as a shared transportation service utilized by the overall public. Bus and Rail services play the most prominent roles as Public Transportation modes in Sri Lanka. Discrepancies in the quality of service provided by both the rail and bus service, has resulted in a modal shift towards privately owned vehicles. The research is conducted in order to investigate the factors that affect the passenger satisfaction on service quality in public bus and rail transportation services and attempts to identify the necessary actions and improvements to uplift the level of passenger satisfaction towards public transportation service. Using a sample of 300 public transport users, the authors conducted an empirical study on a number of variables representing the service quality in public transportation. Study discusses about the SERVQUAL model in explaining about the passenger satisfaction. Questionnaire was also designed based on the five SERVQUAL dimension; tangibles, reliability, responsiveness, assurance and empathy. Data collected were analyzed using Reliability Test, Descriptive Statistics Analysis, Factor Analysis, Chi-square Test for Association, Hypothesis test and Kruskal Wallis test. Results obtained show that the identified service quality factors affect the passenger satisfaction on Public Transportation. The study provides empirical evidence of the factors affecting passenger satisfaction on service quality in Public Transportation in Sri Lanka. The results would be beneficial for the public transport service providers to identify the gap between the quality of service demanded and the quality of service provided. It will also be useful to economists, law enforcement bodies and policy makers to create and implement new policies

and strategies for further development of the public transport service. Study emphasizes the value of Public Transportation and the importance of its improvement for the development of the country.

Keywords- Passenger Satisfaction, Public Transportation, Service Quality

I. INTRODUCTION

Transportation is a derived demand and by definition it is the movement of people and goods via a point of origin and destination, by a mode of transport (Rodrigue & et al, 2006). Most commonly used modes of transport include rail, road, air, water and pipeline.

Public Transport is a shared service available for the General Public to travel between an origin and destination (Ranawana & Hewage, 2015) Sri Lanka's Public Transport System inclusive of both road and rail are termed as least appealing aspects of the country, by its General Public.

It has been found 51.9% of population uses Public Transport, while 44.1% makes use of Private Transport (Hiranand, n.d.). Above statistics further explains that more than half of the population uses Public Transportation, even with the availability of mere 5.7% of Public Transport Service.

High private vehicle usage results in excess fuel consumption, overuse of infrastructure and superstructure facilities, pollution and furthermore. It affects the financial, economic and environmental stability of the country (Policies To Enhance Sustainable Development, 2001).

Benefits of using Public Transportation have been identified throughout the world including country's Governments, Policy Makers, Transport Operators, Economists, Health Organizations as well as Environmental Organizations. As a result most countries are continually investing more on developing Public Transport Facilities. (Ranawana & Hewage, 2015).

Efficient operation of the Public Transport is a key factor for improvement of living conditions. Exploration of service quality of bus and rail service is essential to provide a better service in the future.

A. Research Problem

At present the use of private vehicles are on the rise creating many challenges to the economy, society and environment. Use of Public Transport by Sri Lankans has dropped to 50% which was 75%, 20 years ago (The Sunday Times, 2015). Public Transport System has gravely failed to provide people an efficient service and irregularities and inefficiencies of the Public transport System has become an accepted norm (Karunaratne, 2015).

Modal shift towards private vehicles results in higher number of vehicles on the roads which further results in congestion, increase of time taken to travel between two points, increase of fuel burnt, increase of emission rates and environmental pollution as well as it affects adversely on the health of the population.

Higher the quality of service provided by the public transport services, higher will be the passenger satisfaction and more passengers will be attracted towards the use of public rail and bus transport services, which will have a positive impact on the country's economy, society and the environment.

B. Research Objectives

- To find and analyze factors affecting passenger satisfaction on service quality in Public Bus Transportation in Sri Lanka.
- To find and analyze factors affecting passenger satisfaction on service quality in Rail Transportation in Sri Lanka.
- To identify how the identified service quality factors affect the transport development of the country.
- To identify the areas of improvement required in bus and rail transportation service.

C. Significance of the Research

The study identifies the factors affecting service quality in public bus and rail transport services in Sri Lanka which will be beneficial to the Public Bus and Rail Transport service providers, economists, law enforcement bodies, policy makers and the other related authorities to identify the gap between the qualities of service provided and the quality of service demanded and to take necessary steps and actions to improve the service.

By looking in to the factors identified in the study auxiliary services provided in rail transport service including service announcements, food availability and lavatory facilities can also be improved for the betterment of the passengers by the relevant authorities.

Through the study Government can obtain an understanding on the perception prevailing among the General Public regarding the public transport service in Sri Lanka. Identified service quality attributes can be further analyzed and the Government authorities can take necessary steps to improve the quality of service and attract more passengers towards the use of public transport service which is a major requirement under the current prevailing traffic conditions in the country.

Study would be beneficial to the other researchers and academic writers to obtain information regarding the

service quality attributes that affect passenger satisfaction on both Public bus and rail transport services and to conduct further studies and analysis using the information obtained from the study.

II. METHODOLOGY

A. Sample and data

Primary Data collection technique was used in the study. It was carried out using a Questionnaire which was prepared based on published studies, in depth reviews as well as extreme brain storming. Questionnaire was designed to relate to the 5 SERVQUAL Model dimensions; tangibles, reliability, responsiveness, assurance and empathy.

Population selected for the research is the Public transport users (bus and rail) in Sri Lanka from which the sample is selected according to the simple random sampling technique. Where respondents were selected randomly at bus stands and railway stations and were asked to rate their overall satisfaction with Public bus and rail transport services and service quality attributes that influence their satisfaction. Simple random sampling was used due to the ease of assembling the sample as well as it gives an equal opportunity for each member of the population to be selected for the sample. Sample size was taken as 300 based on the service quality factors considered.

Service Quality attributes considered for the study and the overall passenger satisfaction towards public bus and rail transport service were evaluated using a 5 point Likert scale. (Highly Dissatisfied-”1”, Dissatisfied-”2”, neither Satisfied or Dissatisfied-”3”, Satisfied-”4” and Highly Satisfied-”5”)

B. Data Analysis

Reliability test, Descriptive statistics analysis, Chi Square test for Association, Factor Analysis, Hypothesis Testing and Kruskal Wallis Test are the Research Methods used for conducting the study.

Reliability test is conducted in order to identify the internal consistency of data. A Cronbach alpha value of 0.937 is obtained from the data collected to the subject study, which showed that the internal consistency is very high and the variables can be combined as a result.

Descriptive Statistics Analysis was performed to analyze the demographic variables including age, gender and purpose of travel. The relationship of the mentioned factors with the passenger satisfaction on public transportation was also analyzed.

A chi square test for association was conducted to measure the relationship between the passenger satisfaction on service quality in public bus and rail transportation services and the demographic variables; age, gender and purpose of travel.

To explore the factors which affect the service quality in Sri Lanka a Factor Analysis was conducted. Identified two factors were named as Bus Passenger Satisfaction and Rail Passenger Satisfaction based on the variables under each factor. Two factors were further subdivided and grouped based on the SERVQUAL Model dimensions for further analysis through Hypothesis Testing. Dependence of the variables under the identified two factors on passenger satisfaction in Public Transportation were measured using the Kruskal Wallis Test.

III. EXPERIMENTAL DESIGN

Service Quality is a complex multi-dimensional construct that requires standardized methods of analysis of customers’ perceived expectation and performance gaps (Mikhaylov & et al, 2015). Exploratory Research Design techniques were used for the study, where the problem statement is first stated, situation is analyzed and then the research questions are defined and finally the research objectives are stated in manner to match with the research questions defined.

Research is conducted based on Primary Data, where questionnaires were designed to match the five dimensions in the SERVQUAL model. For public bus passenger satisfaction 24 service quality attributes were discussed under the five SERVQUAL dimensions, whereas 22 service quality attributes were discussed for public rail passenger satisfaction.

Service quality attributes identified such as travel time, waiting time, punctuality, journey time, service announcement and ticketing time etc. were considered as the independent variables and the dependent variables are the level of passenger satisfaction on public bus and rail transportation service with the categorical variables, highly dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied and highly satisfied. Conceptual framework for the study is depicted through Figure 1.

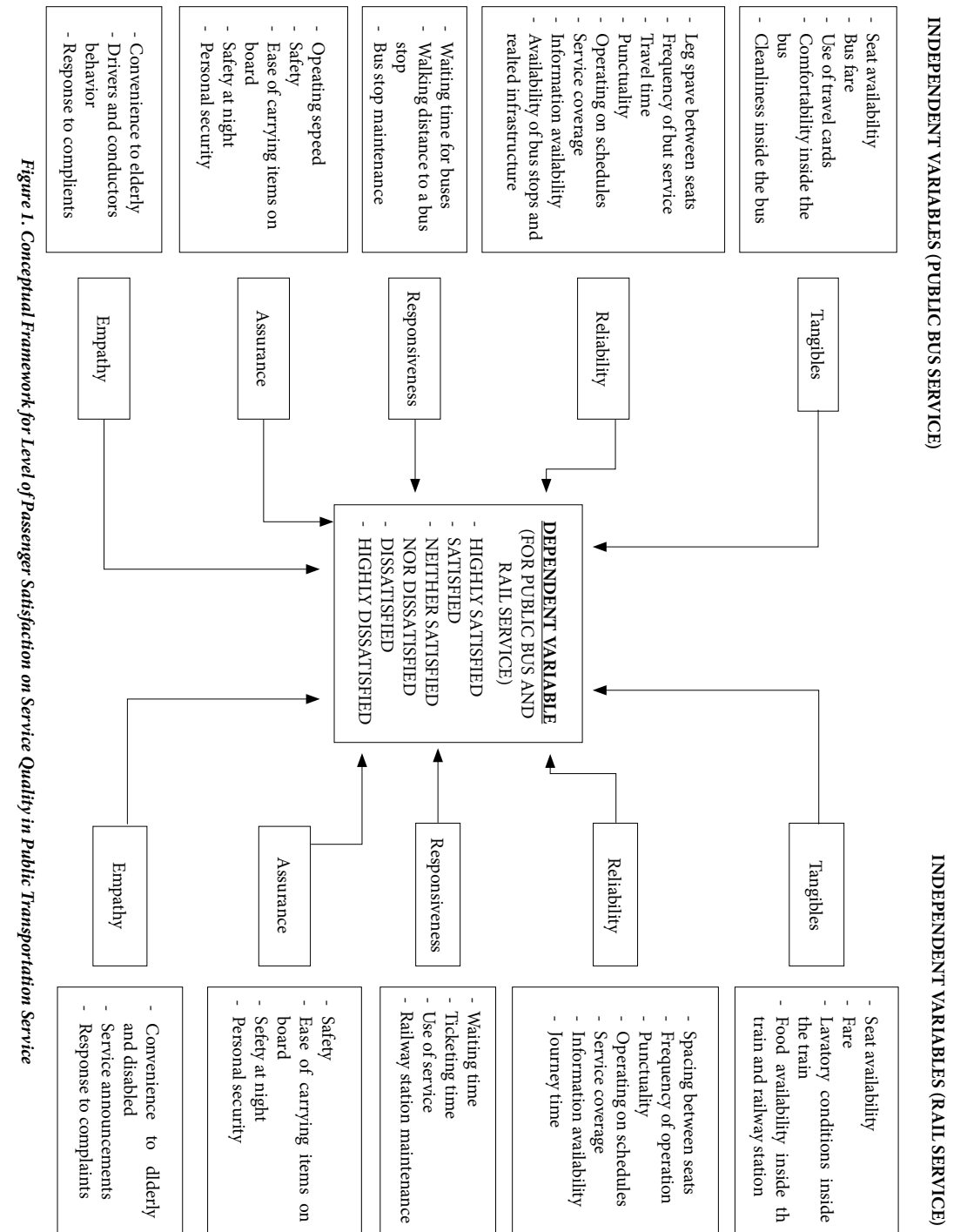


Figure 1. Conceptual Framework for Level of Passenger Satisfaction on Service Quality in Public Transportation Service

IV. RESULTS

Through descriptive statistics analysis it was found that 60% were males and 40% were females out of the total respondent population. 34% of the total respondents are between the age group of 25-35 years, while 29% of the total respondents are between the ages of 15-25 years. 54% of the respondents travel for the purpose of working, whereas 67% of the respondent population are only bus passengers and 16% utilize both the bus and rail modes of transport. Descriptive statistics further analyses that majority of both the bus and rail passengers has rated the overall satisfaction level as neither satisfied nor dissatisfied. However percentage of rail passengers who has rated the satisfaction as satisfied is almost similar to the percentage of respondents who has rated the service as neither satisfied nor dissatisfied.

Reliability test produced a Cronbach alpha value of 0.937, which showed that there is a higher internal consistency between the items. As the Cronbach alpha value is high and as a result the items can be grouped together, variables were grouped based on the SERVQUAL dimensions for further analysis.

Chi square test for Association was conducted to identify the dependence of the demographic variables on passenger satisfaction on service quality in Public bus and rail services. It can be identified that the passenger satisfaction on public bus service is dependent on the variable, purpose of travel and passenger satisfaction on public rail service is dependent on the variable gender, where (p<0.005).

Table 1. Relationship between the Demographic Variables and the Bus Passenger Satisfaction on Service Quality

Variable Name	P-value
Age	0.063
Gender	0.109
Purpose of Travel	0.001

Prior to Factor Analysis KMO and Bartlett's test was conducted to measure the adequacy of the sample and the strength of the relationship among the variables. KMO test statistic value was 0.972 which proved that the sample was very much adequate to conduct the factor Analysis.

Through the rotated component matrix, variables were categorized between two extracted variables; Bus

Table 2. Relationship between the Demographic Variables and the Rail Passenger Satisfaction on Service Quality

Variable Name	P-value
Age	0.207
Gender	0.000
Purpose of Travel	0.446

Passenger Satisfaction and Rail Passenger Satisfaction. Variables under Factor 1; Bus Passenger Satisfaction include seat availability, leg space between seats, frequency of bus service, waiting time for buses, walking distance to a bus stop, travel time, punctuality, bus fare, use of travel cards instead of tickets, operating speed, safety, comfortability inside the bus, operating on schedules, service coverage, information availability (departure times etc.) , cleanliness inside the buses, convenience to elderly and disabled, ease of carrying items on board, drivers and conductors behaviour, bus stop maintenance, safety at night, personal security and response to complaints. Variables under Factor 2; Rail Passenger Satisfaction include seat availability(capacity), spacing between seats, operating on schedules, punctuality (on time), waiting time, service coverage, frequency of operation, availability of information (departure info, destination and time), fare, ticketing time, use of e-services (book tickets through mobile etc.), journey time, service announcements, convenience to elderly and disabled, personal security, safety, railway station maintenance (adequate infrastructure and restrooms etc.), lavatory conditions inside the train, food availability inside the train and railway station, response to complaints, ease of carrying items on board and safety at night.

Figure 2 shows the scree plot which depicts that the number of factors to be retained is two as the curve begins to flatten between 2 and 3. Table 3 explains the Total Variance explained by the identified two factors.

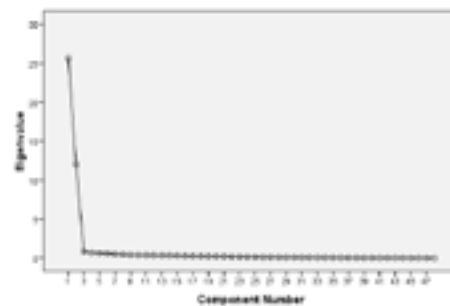


Figure 2. Scree Plot

Table 3. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	25.623	53.381	53.381	25.623	53.381	53.381	20.283	42.256	42.256
2	12.054	25.112	78.493	12.054	25.112	78.493	17.394	36.238	78.493

Variables under each factor were grouped in to the dimensions of the SERVQUAL Model and Hypothesis Testing was conducted Through the Kruskal Wallis Test dependence of grouped variables on passenger satisfaction on service quality in public bus and rail services were measured.. Significance levels of the grouped variables, where (p < 0.005) obtained from the hypothesis testing are shown in Table 4 and Table 5. All grouped variables accounted for a p-value of 0.000 which is highly significant. Hence it can be concluded that the identified service quality attributes affect the passenger satisfaction on service quality in public transportation.

a. Hypothesis Testing for Factor 01 – Bus Passenger Satisfaction

H₀: Bus Passenger Satisfaction is independent from the ith variable

H_A: Bus Passenger Satisfaction is dependent on the ith variable

ith variable – tangibles, reliability, responsiveness, assurance, empathy

Table 4. Kruskal Wallis Test Statistics

Variable Name	Kruskal Wallis Test Statistics	P-Value
1. Tangibles_B	257.97	0.000
2. Reliability_B	269.97	0.000
3. Responsiveness_B	234.15	0.000
4. Assurance_B	261.86	0.000
5. Empathy_B	236.63	0.000

b. Hypothesis Testing for Factor 02 – Rail Passenger Satisfaction

H₀: Rail Passenger Satisfaction is independent from the ith variable

H_A: Rail Passenger Satisfaction is dependent on the ith variable

ith variable – tangibles, reliability, responsiveness, assurance, empathy

Table 5. Kruskal Wallis Test Statistics

Variable Name	Kruskal Wallis Test Statistics	P-Value
1. Tangibles_R	309.72	0.000
2. Reliability_R	314.82	0.000
3. Responsiveness_R	311.97	0.000
4. Assurance_R	314.85	0.000
5. Empathy_R	312.60	0.000

V. DISCUSSION

A. Discussion of Research Questions

Findings of the study show that there is a strong opinion of the public that the public transportation service quality needs to be improved. This indicates that there is a dissatisfaction of the passengers about the current public transportation service. However only 6.7% of the rail passengers are dissatisfied of the rail transport service whereas 24% of the bus passengers are dissatisfied

of the service. 6.4% of the bus passengers are highly dissatisfied of the overall service quality, whereas only 1.5% of the rail passengers are highly dissatisfied of the service. It shows that the level of passenger satisfaction towards rail transportation is in a better position than the bus transportation and it is important to identify and take necessary actions to improve the service quality in order to retain the number of passengers using the public transportation service.

It was founded that the purpose of travel affect the bus passenger satisfaction level and majority of the respondents who travel for all the purposes including working, studying and personal activities have rated the satisfaction towards the service quality as neither satisfied nor dissatisfied, however for many service quality attributes the rating has been dissatisfied by the majority, which has to be taken in to consideration in developing the bus transport service.

Most of the bus passengers are satisfied of the bus fare whereas it is important to understand the reason for certain service quality attributes such as the use of travel cards were rated as highly dissatisfied. Major reasons would be the lack of technology utilization by the relevant authorities and the lack of knowledge among the general public on utilization of technological concepts such as travel cards.

It was founded from the analysis that the gender affects the level of passenger satisfaction towards the rail transportation service and majority of the males have responded as the level of satisfaction as neither satisfied nor dissatisfied and majority of the females have responded the rail service as satisfactory. It is important to understand that majority of the service quality factors were rated as either satisfied or neither satisfied nor dissatisfied which shows that passengers have a better perception towards the service quality of rail transport service. Through proper identification of the service quality factors that need to be improved and improving them and specially increasing the frequency of operation can make a positive impact on the passenger satisfaction towards the service quality in rail transportation service.

However it was understood that service quality of Public transportation should be improved in order to make a positive impact on the level of passenger satisfaction towards the service quality of public transportation in Sri Lanka. End result would be a major solution for the

congestion problem which Sri Lanka is currently facing in almost all the urban areas in the country including Colombo.

B. Recommendations

Study reveals that the Public Transport users are dissatisfied of the frequency of operation of both the bus and train service to a particular route, therefore the operation frequency should be increased as well as the number of trains and buses operated during the peak hours should also be increased.

Majority of the population has responded as highly dissatisfied regarding the use of travel cards which may be due to the lack of technological knowledge among the public in utilizing them. Use of Travel cards should be promoted which will be more efficient and effective as well as it will result in elimination of issues related to the bus fare.

Study also shows that the public has a negative perception regarding the comfortability inside buses and trains and the crew employed in Public Transport service. For a better service comfortability inside the buses and trains should be improved as well as qualified and trained crew must be employed. Results show that Public Transport users are highly dissatisfied of the travel times, which should be avoided through the impose of strict regulations and operation on properly managed schedules.

Based on the study, authors' perception and suggestions obtained from the respondents' technology approaches need to be adopted in development of transport infrastructure, number of train compartments need to be increased as well as behaviour of staff need to be improved with more responsiveness for a better Public Transportation service.

C. Limitations of the study

Study was mainly based on the information given by the sample respondents which were subjected to beliefs and attitudes of different individuals. Number of respondents has been limited to 300 due to time and economic constraints in conducting the research. Data was collected mainly from 5 main selected locations (Pettah Railway Station, Pettah, Malabe, Badulla and Anuradhapura Bus Stands) due to time constraints and

it was performed from 8-10 am in the morning and 3-5 pm in the afternoon. Due to different mindsets of the individuals the suggestions given for the improvement of the Public Transport Service are not constant.

VI. ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to my research supervisor Mrs. Dilrukshi Hewage for the continuous support for my research, for her patience, motivation and immense knowledge. Her guidelines helped me throughout the research and writing of this thesis.

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EVALUATION ON KEY FACTORS AFFECTING ON THE PROFITABILITY OF THE CARRIER TRANSPORTATION SERVICES FOR AUTOMOBILE: A STUDY BASED ON THE AUTOMOBILE CARRIER SERVICES FROM HAMBANTHOTA TO COLOMBO IN SRI LANKA.

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Abstract- Automobile supply chain is one of the pillar chains of operations in Sri Lanka. In the current context, the paper proposes counter measures from the core entrepreneurial level in order to evaluate key factors affecting the profitability of carrier transportation services for automobiles. The scope of the study is compressed and focused on the ongoing carrier service operation originating from the Hambantota port to its destination from Colombo metropolitan area. The study elaborates the complex practical aspects of key variables which are correlated to the chain profitability; the research initially strives to identify a hierarchy of general parameters through literature. It constitutes a decision making algorithm for major stakeholders of the supply chain which arise measures for unforeseen, disincentive circumstances. Being a lucrative venture in transportation, vehicle carrier service is extremely sensitive in safety measures along with the engagement of high value cargo. Quandary between customer satisfaction and profitability has raised concerns with service providers. Implications of the skilled human factor are immeasurable whilst aspects of modern technology reflect a major revival on the bottom line over the rivals in the market. The crucial necessities related to service quality and value additions

via an appropriate professionalism interact the client for high volumes. Trivial circumstances might claim a vast disturbance whilst hindering the operational coherence of transport networks. Accordingly, the insight of this study enhances the traditional perspective to pure moderate era that demands greater flexibility and responsiveness amongst the profitability competition. This study comprises of an aggregate of practical proposals which derived through outcomes.

Keywords - Transportation, Profitability, Automobile Supply Chain

I. INTRODUCTION

Being the best example to explain the problem of regressive taxation, importation of automobiles have been playing a major role in the high value supply chain in the Sri Lankan economy. The current fast paced development of Sri Lanka has caused a massive need for mobility. Even with a moderate pace of 4.5% increase in Sri Lanka's GDP in 2016, the number of vehicles import to Sri Lanka has

still keeps a number of 493,328. This particular demand depict that the service providers of the automobile supply chain remains stable in their position in the market. The expectation of the automobile customer is to be able to have a fast, reliable and safe transportation to the door step. In this scenario, it is challenging to find the most efficient and safe routes for delivery or pick-up from the port to different destinations of the country. The contemporary automobile supply chain can make use of a multitude of applications of modern technology to enhance performance, particularly in fleet operation. In par with that, the complexity of nodes of the supply chain or yard operations motivates adaptation of sophisticated technologies, cost savings, service level improvements, enhanced control, safety and security. Furthermore, service providers have inculcated concepts of sustainable transportation in order to go the extra mile for their customers and secure market share among other competitors in the market. Accordingly, as an untouched researched area, automobile supply chain in Sri Lanka. It looks in to the knowledge gap in the road transportation sector on evaluating the key factors affecting on the profitability of the carrier transportation service sector in automobile supply chain. The study primarily based on the automobile carrier service from Hambantota to Colombo metropolitan area. The study has selected such key variables with regards to the road transportation haulage industry. Strategies have been implemented by many rivals in order to promote their service delivery in a more efficient and productive manner. The study can be utilized by the rivals with a view to expand the share of the market while promoting a differentiated service delivery. These extend across a wide range of applications deviating from the basic features of the service. The lack of findings regarding the automobile and growing transportation sector in Sri Lanka makes the study more vital in practical applications of the modern transportation sector.

II. RESEARCH OBJECTIVES

a. Main Objectives

To evaluate the key factors affecting on the profitability of the carrier transportation services of automobile sector.

b. Sub-Objective

- Selection of key factors which affect for the profitability of the carrier transportation.
- Discuss key factors in carrier transportation services.
- Analyze the relationship between considered factors and profitability of the service.
- Relationship analysis on the key factors considered by utilizing Pearson Correlation coefficient

III. METHODOLOGY

Primarily data were gathered from distributing and administering a semi-structured questionnaire to randomly selected sample 100 professionals in the vehicle carrier industry, containing 37 responded respondents' demographic data and service delivery related data. The study continued the same questionnaire and personally interviewed 80 respondents. 68% of the total respondents are from the personally interviewed since the lack of literature review of the study.

After investigating the data gathered from primary data set, the study utilizes Pearson Correlation to describe the relationship between these factors. Here, Statistical Package for the Social Sciences (SPSS) version 21 is utilized for analyzing primary gathered data. And, several statistical tools and graphical representations are carried out in SPSS.

Using the findings from the data analysis, study prepares a decision making algorithm according to result/outcome from the study which is useful for the service providers and customers as well (included in the conclusion).

Finally, Findings on profitability measures could adjust a service provider perspective to the service offered.

IV. EXPERIMENTAL DESIGN

The data were collected from the main stake holders in the carrier operation. From the operational level, 50 numbers of respondents were personally interviewed, 30 numbers

of respondents were interviewed from the executive and managerial level out of 21 large scale and small scale companies in Sri Lanka. 37 respondents were replied out 100 sent electronic mail to the above said same 21 companies who are in the automobile supply chain trade. Total of 117 respondents have been replied with their ideas according to the semi-structured questionnaire.

V. DISCUSSION

Despite the downturn of the last two years, according to the statistics from the Department of Motor Traffic Sri Lanka, it is vivid that the average number of more than 1000 motor cars per month is registered in Sri Lanka where the study could garner the average number of vehicles which direct application towards the vehicle carrier transportation system.

In Du Tertre's typology of production systems ("configurations productive"), freight transport would belong to logistics services, the productivity of which is mainly determined by direct intensity of labor, scale economies and material integration. This review of relevant vehicle carrier transportation found that many factors affect in achieving the optimum profitability of the service provider.

Here, it is mandatory to consider the factors carefully on the process of determining the profitability since it directly affects the performance attributes. According to various literature reviews, attributes in performance of vehicle carrier transportation could be suggested as follows:

1. Cost
2. Transit time (Lead Time)
3. Reliability of the human factor
4. Service Quality and Value Additions
5. Strategies for Carrier Capacity Optimization

Cost factor mainly depends on the fluctuations of the petroleum products which is affected according to the policy makers of the government. (Figure 1) But, impact disperses equally on the rivals. But, the usage of high efficient fuel consuming carriers has made the service providers more providers by generating extra bottom line than competitors cost driving vehicle carriersw.

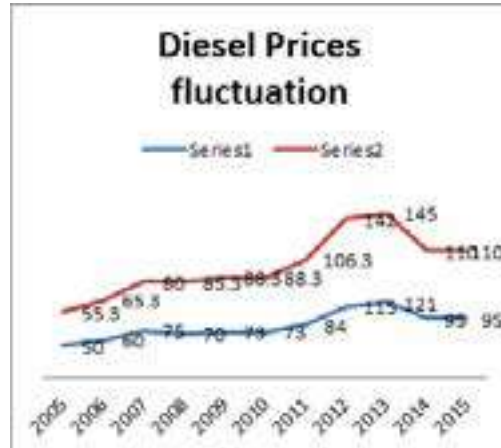


Figure 1. Fuel Price comparison in the last years from 2005-2015 using Microsoft Excell 2010 package. Source: Energypedia, Fuel Price Composition, Fuel Price Sri Lanka, GIZ International Fuel Price Database

Figure 1 depicts that the sudden downturn in 2015 for diesel prices which was crucial point for transportation sector which the market has become more competitive with the price elasticity. But, the impact has a serious influence thus the minor fluctuations do not necessarily makes a price change in the service.

The above fluctuations directly make an impact to the bottom line. Thus the figure 2 graph shows that profit margin of transportation reduces initially with the cost even though it makes a sudden hike at the end.

Accordingly, the economies of scale in the fuel prices technically makes a decision maker to manipulate his fleet of vehicles according to the efficiency of the fuel consumption of each type of vehicle does. Figure 2 depicts the inverse relationship of cost with the profit thus curve has bounced due the high rate of single carrier service which is used for emergency breakdown services.

a. Carrying Capacity

According to the "Global Truck Study 2016" by Deloitte, Rising cost pressure is leading to increased consolidation within the logistics sector. The trend towards larger fleets with more than 100 vehicles will continue to increase till 2016. Within the mode of trucks, it makes varieties of vehicles along with the capacity of each carrier. In reality, service providers are in an intense competition for a best

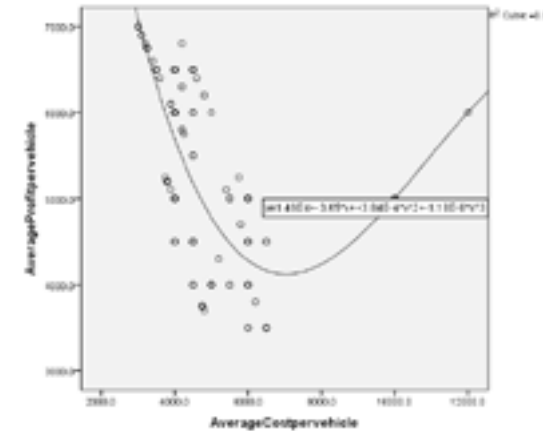


Figure 2. Average Profit per vehicle against Average Cost per vehicle unit transported.

carrying capacity. More the carrier indulge with a better capacity, more the service provider can cater the market in an efficient and productive way. Carrier can increase the number of unit-kilometers in their monthly and annually targets. Impact of the vehicle carrier capacity is crucial in vehicle carrier transportation since we experience the economies of scale with increment of the capacity. Carrying capacity has three main attributes such as maximum length of the carrier, maximum gross weight of the vehicle carrier and the maximum towing power of the trailer head.

According to the data gathered, the figure 3 suggests that an inverse relationship between capacity of the vehicles and transporting cost per vehicle. It indicates the economies of scales which the service providers achieve where the fleet increases its capacity. Here, the difference effect fluctuates upward and downward. Personal interviews suggest that it is due to different types of vehicle carrier brands. But, It shows a basic downward trend.

b. Reliability of the human factor

In the study "Critical Issues in the trucking industry" by American Transportation Research Institute, Driver shortage and driver retention are significantly become the top issues identified by the industry respondents. In transportation sector, human factor takes the most

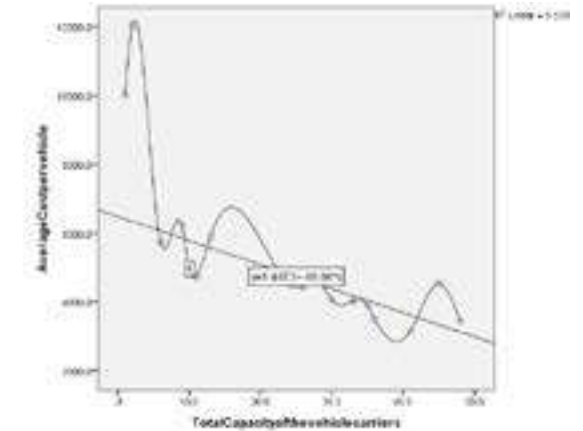


Figure 3. Average Cost per vehicle unit transported against the Total Capacity of Vehicle Carriers

prominent variable from which the organization could make profits and stimulate the customer satisfaction. Skilled driver paves the way for a safe itinerary and this intangible outcome makes a consistence customer demand in automobile supply chain. Non-familiar people with organizational systems might reduce quality of the service delivery. The study supports with its findings where the data depicts a Spearman Correlation coefficient 0.724 between "Average Experience of Drivers and "Average profit per vehicle" variables. Here, it is visible that well experienced and skilled drivers are engaged with large scale profitable companies whilst drivers with few experiences have joined with start-up type small scale organization. Basically, according to the personal interviews in the study, it was realized large scale company drivers could be benefited by the company performance reward systems.

c. Service Quality and Value Addition

Considering the type of service provided, yard operations, intermodal platforms, and other such facilities may be described as "Value Added Points" of carriers where the customer could be attracted whilst conveying more convenience and productive stance for the service. Thus the service provider is equipped with such facilities; the maintenance cost of these could be higher than maintaining a third party facility.

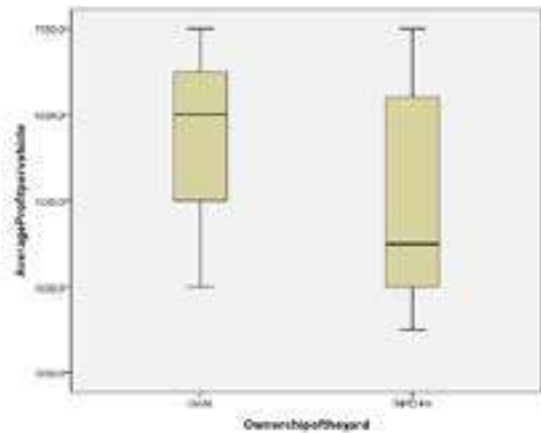


Figure 4. Box plot diagram for the categorization & comparison of Third Party yard owners and company owned yard

From the gathered data, it is graphically represented that company owned yard facility has catered higher profit margin for the service provider. Company owned and Third party yard operations mean values are indicated Rs.5, 711.00 and Rs.5, 042.53 respectively.

Accordingly, owning a company owned yard facility is crucial decision which has to be taken from the higher management of a company. It is mandatory to carry out a separate feasibility study before the implementation of the yard premises since it cost many labor and other cost such as building and security measures such as CCTV operations and so on. Complete Setting of Safety system is of vital importance.

According to the study findings, more companies have implemented security measures such as CCTV operation. In “Transportation Research Circular” by Transportation Research Board of National Academies, Transportation worker identification number (TWID) regarding the Transportation Worker Identification Credential (TWIC) can be identified in international instances, but not in Sri Lanka.

The above table is presented that majority of respondents have activated the usage of CCTV operation in organizational level and considerably invested on this regard since the operation consists of high value cargo.

d. Strategies for Carrier Capacity Optimization

According to the study “Impact of Technology Advancements on Transportation Management Center Operations by United States Department of Transportation, the convergence of big picture influences with rapidly evolving Intelligent Transportation System (ITS) technology reveals an opportunity to meet growing needs with careful application of technologies within progressive agency structures. Planning the route and optimizing is of vital importance for the road transportation services. National movements can be usually planned and co-ordinate more easily. For effective route planning and scheduling, the transport officers need to be involved in the development of the distribution plan or at least be aware of it and understand it. Vehicle routing and scheduling process needs to fulfill the following objectives such as Maximizing vehicle payload, Minimizing distance and minimizing time, Meeting customer requirements, in terms of cost, service and time and meeting legal requirements, in terms of vehicle capacity and driver’s hours.

The nature of the movement can be split into two basic types as in Primary movements are those that involve typically bulk movements between two specific locations and Secondary distribution relates to movements that may involve multiple deliveries within a defined area, such as a regional car sales to extended delivery points. In both cases, the emphasis is on achieving full utilization of the resources used; filling the vehicle to capacity minimizing the distance travelled and optimizing the hours which the driver is being paid to work. In Sri Lanka, service providers cater with single carriers with individual vehicle unit for area which could not be reached by large capacity vehicle carriers.

In such scenario, organizations utilize computer software in order to optimize the vehicle carrier usage over the fleet of trucks. With reference to the data gathered from 117 respondents, it is vivid that majority of high end companies utilize software packages in order to optimize the route map of the vehicle carrier. Introduction and Implementation of software has a positive relationship with the number of vehicle carriers in the operation, number of drivers in the operation and the capacity of the vehicle carriers. When the capacity increases, it is

mandatory to get necessary steps to organize the company assets to the best efficiency and most productive level.

Analysis the relationship between considered factors and profitability of the service

Thus, the study finds an inverse relationship in figure 3 on average cost per vehicle thus the single carrier has the highest due to the less capacity and the cost incurred whilst earning a high rate of income by transporting emergency breakdown vehicles. Here, the discussion with professionals realized that breakdown service providers who transport extremely high value automobile brands charge higher rates with the extra safety and precautionary steps taken. But, the real operational aspect depicts the initial sector of the curve.

Carrying Capacity directly makes a positive relationship with “Transit Time”, since the service provider utilizes his best strength when a bulk quantity is offered. Lower Carrying capacity leads to more itineraries in order to carry the same lot. This basically depends on the distance of the itinerary as well. Similarly, a high capacity organization has a better bargaining power against the shorter lead time where the company could really makes an impact to the bottom line. Roster basis operational schedules are given to drivers with a view to cater the bulky demand. Therefore, companies with high carrying capacity could cater giant customers, whose demand is uniform enough to have a stable and profitable supply chain for the service provider.

Consistency in the customer demand is of vital necessity. More the service provider provide a good accident free service exposure, more the customer base will be increased accordingly. Experienced and skilled drivers are engaged with large scale profitable companies whilst drivers with few experiences have joined with start-up type small scale organization. At the same time, it is mandatory to cluster a set of human resource whose experienced and knowledge is well versed in the transport section. And, the technical know-how is the basics of the venture which is quite supportive for a smooth operational schedule.

Security measures such as CCTV operation.

Vehicle routing and scheduling process needs to fulfill the following objectives such as Maximizing vehicle payload, Minimizing distance and minimizing time, Meeting

customer requirements, in terms of cost, service and time and meeting legal requirements, in terms of vehicle capacity and driver’s hours. At the same time, skilled people factor is one of the prominent which the field requires more competent labour in order to enhance the quality and accuracy of planning.

VI. LIMITATIONS OF THE STUDY

This study has been carried only under the itinerary from Hambantota port to Colombo metropolitan area. But, considering to the other areas of the island, the factors can be changed by itself or its prioritization. This is due to the geographical difference which has taken place in different parts of the country. Hill country geography is different that of the coastal areas accordingly it affects the different in profitability aspect.

Technology which organizations utilize is old comparing to the international context. Value added services has stepped upon to a next level in some other countries with reference to tracking systems, safety systems etc.

Yard facilities in the route we considered and the other areas can be differed by its design and architecture. Therefore, profitability aspects can be different. Human competencies are different in other countries. In Countries in Europe, USA or Australia, competencies have an advance stature in technology and safety measures and motor mechanical know how.

VII. CONCLUSION

In this study, it is obvious that not all the factors positively or negatively make an impact on the profitability of the carrier transportation process. But, in this scenario, the study follows the Pearson correlation coefficient since it has a parametric version of data with the more than 100 respondents and coefficient depicts the intensity of the relationship with the independent variables to the dependent variable which is the profitability of the service provided. The calculations of the Pearson correlation coefficient are as follows by using the Statistical Package for Social Sciences(SPSS) version 21. As per the discussion, the study has utilized the statistical tool of Pearson Correlation method in order to carry out the importance of each variable to the profitability. And,

the algorithm herewith indicates a method which could be used by service offered customers for checking the suitability of the service provider.

Table 1. Pearson Correlation Coefficient for the explanatory variables of vehicle carrier operation which affects to the Average Profit per vehicle variable.

Pearson Correlation	Explanatory Variable	Dependent Variable	RS
		Average Profit per vehicle	
	Average Profit per vehicle	1.000	
	Age of the Company	.559	+6
	No of Vehicle carriers operated by the company	.597	+4
	Total Capacity of the vehicle carriers	.750	+1
	Investment of the software	.630	+3
	No of Drivers Occupied	.582	+5
	Average Experience of Drivers	.697	+2
	Average Cost per vehicle	-.444	-1

Considering the factors analyzed in the study, an algorithm is developed to select the most suitable service provider for transporting automobiles. And, service providers could enhance their quality of service as well.

$$Y_i = (0.559 * C_1) + (0.597 * C_2) + (0.750 * C_3) + (0.63 * C_4) + (0.582 * C_5) + (0.697 * C_6) - (0.444 * C_7)$$

Y_i = Relevant Service Provider Score
C₁ = Age of the Company

- C₂ = Number of Carriers
- C₃ = Total Capacity of the Carriers
- C₄ = Investment for Software
- C₅ = Drivers Occupied
- C₆ = Average Experience of Drivers
- C₇ = Average Cost per vehicle

Lack of previous literature in the Sri Lankan context in automobile carrier perspective and the context of automobile supply chain is the main limitation of the study. But, the in depth analysis of the transportation industry provides a wide range of knowledge in understanding the key factors which makes an impact to the profitability of the automobile supply chain internationally. Accordingly, the research identifies a critical approach of industry analysis and supplier selection model construction. However, the findings of the study encourages that companies are eager to adapt to such practices in spite of their concerns regarding the hassle free transportation process. Thereof, the key factors underscored in the study have a vital importance of balancing the aspiration of an efficient operation in automobile transportation system.

VIII. ACKNOWLEDGEMENT

This research is accomplished to be indebted much dedication and admiration of many people who have contributed in numerous ways. We express our gratitude to each and every individual for their encouragement, values and ideas, assistance and specially their commitment towards this research to make it a success. It is our foremost duty to pay our gratitude to Ms. Sewwandi Marambe for her keen interest, continuous encouragement, invaluable guidance and precious support in making this research study a reality. We wish to express our greatest appreciation to all the professionals in the industry who contributed to this study by actively participating in the data collection process despite their busy work schedules. Unless for their valuable ideas, assistance and commitment, this study would not have been possible.

Last, but not least, I express my heartfelt gratitude to our family members, colleagues and many others, for willingly giving us their utmost support advice and continuously motivating us to carry out the work successfully.

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AUTOMATION OF SRI LANKA'S DOWNSTREAM PETROLEUM INDUSTRY SUPPLY CHAIN MANAGEMENT OPERATIONS

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Abstract - Ceylon petroleum Storage Terminals Limited (CPSTL) is the entity responsible for handling 90% of the storage and distribution of the country's fuel requirement. This encompasses providing ERP, Laboratory and tanker operations services for the entire industry. The bulk products are received as either imported finished products from oil tankers or refined products from the CPC Sapugaskanda refinery. The product ordering process has been carried manually at the 'Stock review meeting', which is a forum constituting of petroleum industry stakeholders, representatives from Ceylon Electricity Board and Department of Meteorology. Various factors are considered for the bulk product ordering process. The bulk product ordering related decisions are reached based upon the manual forecast and analysis. In order to streamline the decision making process and provide with real-time information, the process automation is implemented. SAP ERP system is being utilized to automate the various factors that are being considered for the above mentioned decision making process. The system will provide real-time information regarding the stock levels, sales, storage tank ullage etc. Several manual processes utilized earlier are being automated to facilitate the speed and availability via the ERP system, such as the tanker programme, Refinery production plan. The system gathers all factors related to bulk product replenishment and forecasts the future consumption and bulk product availability levels on both historical and real-time information. The decision taken at the forum can be implemented via the system by generating the tanker programme for the future months and initiating purchase orders. The operations performed after tanker arrival

such as offshore operations, laboratory reports, tanker outturns are being automated via the SAP ERP system.

Keywords—Forecasted consumption, Downstream petroleum industry

I. INTRODUCTION

The decisions made at the 'Stock review meeting' were partly based on SAP ERP system and manual calculations and forecasts. Since this is the most critical and sensitive decision making with respect to smooth function of the country's economy, the decision was made to utilize the SAP ERP system capabilities to facilitate the decision making. The data which were not available to the SAP ER system were gathered by automating the manual processes. The information from the newly automated processes, historical and readily available information in the SAP ERP system was utilized to forecast the future consumption. New transaction codes were introduced to implement the bulk product ordering decisions during the forum itself. Many other support applications are being developed simultaneously to facilitate other supplementary information related to the supply chain management process.

II. METHODOLOGY

The decision made at the 'Stock review meetings' were analysed and studied with respect to data availability,

via the SAP ERP system. The data gaps were bridged by facilitating the same manual data via Sap ERP system transactions.

- 1) Tanker Programme
- 2) CPC Refinery Production plan.

The factors related to tot bulk product ordering via oil tankers were studied. The study identified the factors that impact the decision making process. The following framework was developed as the base of providing the information for the supply chain management decision making process.

The SAP ERP system implementations follow the SAP Business Process Management methodology, which is a derivative of the waterfall model of software development, which has requirement analysis, design, coding testing, implementation and maintenance phases. Each of the phases was carried with development testing, software

quality assurance, user acceptance testing, processes, impact and dependency to related processes.

Once the gap in the ERP system has been addressed, real-time details will be provided to the decision makers, with respect to above factors. This will be in ERP transaction "Details for stock review meeting", which provides information on tabular and graphical forms.

As per the information analysis, decisions will be taken to order bulk petroleum product oil tankers according to forecasted ullage. The ERP transaction "Oil Tanker ordering as per ullage" will facilitate the forecast and will record the ordering decisions. It will have a link to the next week/month's tanker programme.

III. SYSTEM IMPLEMENTATION

The system implementation was carried out after the requirement analysis with the related stake holders. The

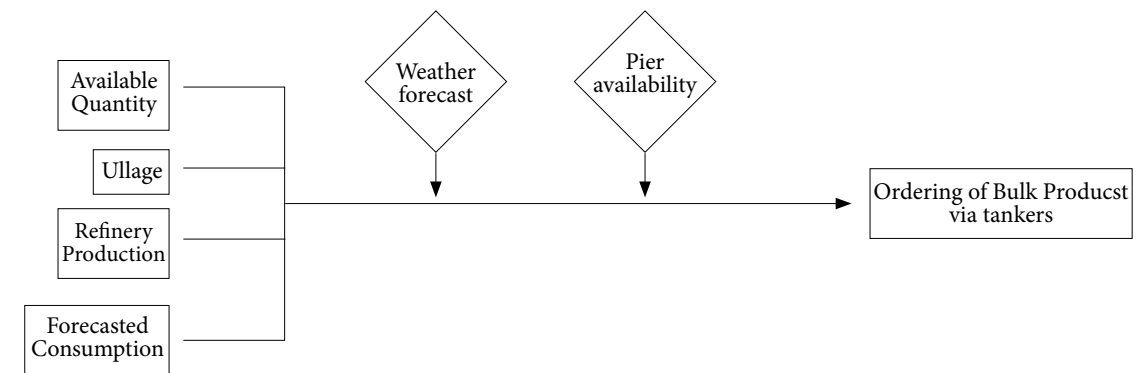


Figure 1: Framework of factors affecting product ordering. Source: Author

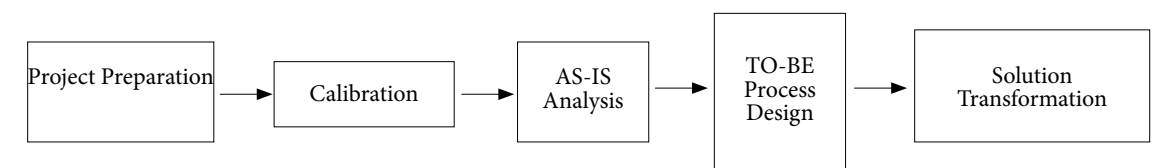


Figure 2: SAP Business Process Management methodology Source: SAP

program development was carried out. User acceptance testing with respect to data accuracy, reflection of actual user requirement and user friendliness were the key aspects focused. After user acceptance, the two programmes were used to support the manual decision making process. Once the total solution was developed and tested, the entire programme was used in parallel with the manual process initially.

Streamlining of the solution was carried out with respect to the feedback received from the stakeholders. Various business scenarios, exception handling was incorporated to the forecasting and providing of information. One of the main concerns of the users was the maintenance of historical information, of the decision made at the stock review meeting forum.

The users have fully accepted the forecasted details reports, subject to few minor modifications. The manual process is still carried out as a precaution due to the sensitiveness of the decision taken at this forum and high risk involved. The users are slowly adapting the Oil Tanker ordering as per ullage. Since, the end users are top manager of the 03 organizations; implementation progress has been time consuming, complex and requires a complex business analysis role. Thus, far there has been no resistance to the implementation, although the progress is slow.

IV. STRENGTHS

The system is providing online and real-time information against the provision of information manually. The system provides a uniformity of data among different stakeholders namely Ceylon Petroleum Corporation and Lanka Indian oil Corporation PLC. The incorporation of seemingly unrelated activities into one workflow strengthens the business process. This generated a flow of documents to provide a status, which was impossible in the manual system. The total solution has provisioned the users to access historical planning data. The entire planning eco system will reduce the risk of product shortage and will enable the stakeholders to more pro-actively mitigate scenarios uncalled for.

V. LIMITATIONS

The system does not provide real-time location of the scheduled tankers carrying bulk petroleum products. The

ERP system is not capable of catering this requirement. Therefore a separate project “CPSTL Tanker Tracker Application” has been initiated. As the case with any computer software, the system is dependent upon the user input. Therefore, any incorrect or invalid data will affect the forecasting and analysis process, and the decisions made.

VI. FUTURE APPLICATIONS

There is potential for many future applications, due the avenues and data provided by the solution. ‘CPSTL Tanker Tracer Application’ has been already initiated to track the real-time location of the tankers journey. The next phase of the project is to capture the events that take place after the tanker arrival. CPSTL Oil Facilities Office located in the Colombo harbor facilitates the tanker operation for 03 piers in the harbor including crude oil. The tanker operations will be automated via SAP ERP system. This will include the real-time event report via text messages and emails regarding events such as tanker arrival, sample drawing and unloading operations.

The next requirement will be to automate the manual process of the pier occupation scheduling of tankers. The automation of tanker scheduling via the EP system will facilitate the pier occupation scheduling process. This automation process will increase pier occupation efficiency and will facilitate optimum resource utilization.

The tanker outturn reports and CPSTL Laboratory certificates have been already automated by the SAP ERP system. Therefore, the total tanker operation process can be incorporated into a timeline and a document flow. This provides the opportunity to streamline the tanker operation as whole with respect to cost and benefits. This will facilitate devising of more cost efficient and effective tanker operations for CPSTL.

VII. CONCLUSION

The project has identified the weaknesses of the manual process and addressed the information gaps. The process has automated the existing process into a more efficient and reliable form, which provides real-time information, scientific forecast. The process has added value to the business process by features like decision

making, initiating the decisions made and keeping track of decisions. The system implementation has eliminated the drawbacks and facilitated towards making better informed decisions.

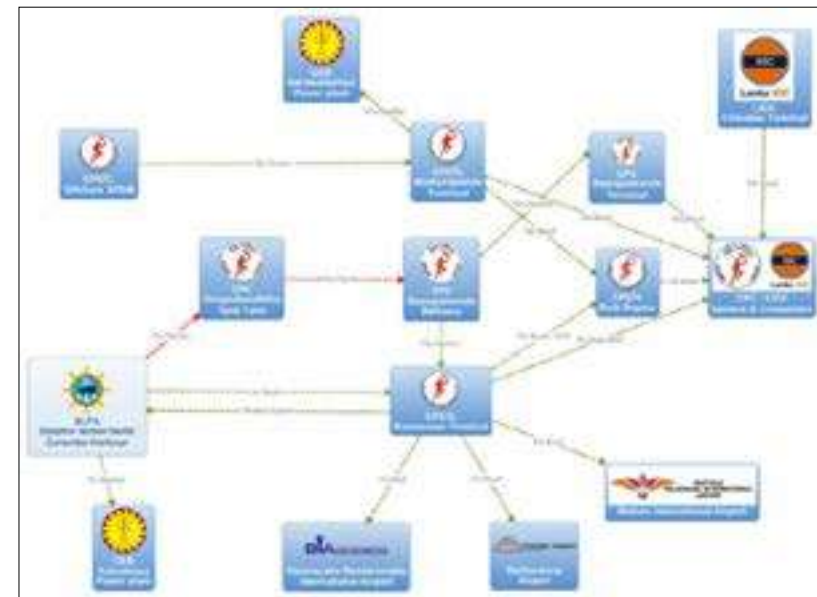
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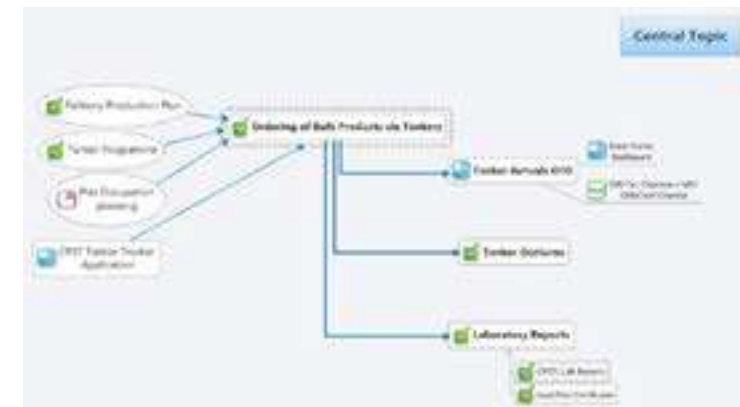
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APPENDICES

- 1) Sri Lanka’s Downstream Petroleum Industry supply chain.



2) Status of Tanker operations projects



3) Details for Stock Review Meeting

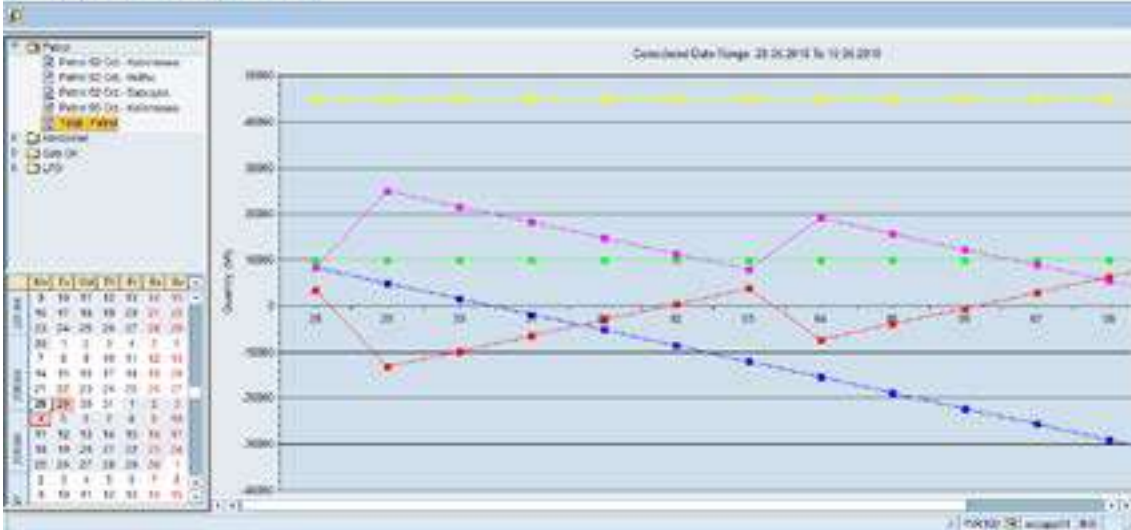
Product	Stock	Usage Sept 9	Usage Sept 10	Usage Sept 11	Usage Sept 12	Usage Sept 13	Usage Sept 14	Usage Sept 15	Usage Sept 16	Usage Sept 17	Usage Sept 18	Usage Sept 19	Usage Sept 20
Petrol													
Petrol 90 Oct - Kotte	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000	10,000,000
Petrol 90 Oct - Nellore	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000	10,000,000
Petrol 90 Oct - Battaramulla	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000	10,000,000
Summary	33,824,640	37,432,740	42	102	3,323,100	17,400	163,410	2,577,706	4,422,038	30,000,000	30,000,000	30,000,000	30,000,000
Gas Oil													
Gas Oil - Kotte	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000	10,000,000
Gas Oil - Nellore	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000	10,000,000
Gas Oil - Battaramulla	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000	10,000,000
Summary	33,824,640	37,432,740	42	102	3,323,100	17,400	163,410	2,577,706	4,422,038	30,000,000	30,000,000	30,000,000	30,000,000

4) Oil tanker ordering as per Ullage

Product	Usage Sept 9	Usage Sept 10	Usage Sept 11	Usage Sept 12	Usage Sept 13	Usage Sept 14	Usage Sept 15	Usage Sept 16	Usage Sept 17	Usage Sept 18	Usage Sept 19	Usage Sept 20
Petrol 90 Oct - Kotte	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000
Petrol 90 Oct - Nellore	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000
Petrol 90 Oct - Battaramulla	11,274,880	12,477,580	14	34	1,107,700	5,800	54,470	884,438	1,808,800	10,000,000	10,000,000	10,000,000
Summary	33,824,640	37,432,740	42	102	3,323,100	17,400	163,410	2,577,706	4,422,038	30,000,000	30,000,000	30,000,000

5) Tanker Programme

SRMD: Details for Stock Review Meeting



Ceylon Petroleum Corporation
Tanker Arrival Program on - 27.10.2017
Tanker Program No. 0

Harbour Master
Col Lanka Ports Authority

Commander
S.L.N.S. Kotte

Commander
Col Lanka Navy

Director General (Naval Operations)
Col Lanka Navy

Senior Staff Officer (Operations)
Naval Headquarters

Master (BM & RP)
CPSTL

O.M. (Oil Products)
CPSTL

Ref. No.	BK No.	PO No. / Company	Product	Description	Quantity (MT)	Allocated Laysan	Expected Arrival	Tanker	Shipping Agent
1	BK/14/017	CPC	A001SL99	LANKA PETROL 90 OCTANE	10,000.00	SFBM MUTHUKAJAGELA	02.11.2017	MY NEW LINE	AITKEN SPENCE
2	BK/10/017	CPC	A001SL99	LANKA PETROL 90 OCTANE	10,000.00	DUALSKITH	06.11.2017	MY NEW LINE	AITKEN SPENCE

Commercial Manager
Ceylon Petroleum Corporation

CC:
Chairman CPC
Refinery Manager CPC
Manager B & S CPC

Chairman CPSTL
D.O.M. (Operations) CPSTL
O.M. Muthukajavelu CPSTL

Lanka IOC PLC
Chief Laboratory Lanka Ltd
Director of Customs (Declarations)

Auto-generated Report by SAP ERP System/Doc: 0010000 Doc: 01.11.2017 Page: 01 of 01

6) Refinery Production Plan



Ceylon Petroleum Corporation
Refinery Production Plan Report

Week - 06.11.2017 - 13.11.2017

Ref. No.	Product	Description	Quantity (MT)	Comments
1	A0023L99	LANKA PETROL 92 OCTANE	10,000.000	-
2	A0039L99	LANKA FUEL 1500 OIL SEC.(LOW SULPHUR)	15,000.000	AS PER PLAN
3	A0013L99	LANKA AUTO DIESEL	50,000.000	AS PER SCHEDULE

Refinery Manager
Ceylon Petroleum Corporation

7) Proposed CPSTL Tanker Tracker Application



Tanker Operations
Latest Tanker Operation Details as at @ 09:40hrs 22/04/2018

Tanker Name	MT * Seacon MT
Expected Date	24/04/2018
Pier	SPIM Muthurajawala
Products	Gasoline 92 15,000 MT Gasoline 95 20,000 MT

APPLYING SIX SIGMA METHODOLOGY TO REDUCE THE LEAD TIME OF SERVICE PROCESS; A CASE STUDY BASED ON VISA PROCESS AT CATCH MY TOUR (PVT) LTD

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Abstract - Business organizations make an attempt to apply many strategies to enhance the productivity by improving the process to face the changes in modern competitive market. Six sigma methodology is one of the strategies that can be applied to improve the processes by reducing the variation in process. It can be applied to both manufacturing as well as to service sector. This study makes an attempt to address the lack of research on applying Six sigma to services sector in Sri Lanka. The main objective of this study is to apply Six Sigma methodology to reduce the lead time of VISA process services in air ticketing service companies to increase the quality of the service. This study was conducted based on Catch my tour pvt ltd Wellawatta. To achieve the study objective primary data are collected by using direct observation method. 30 Malaysian VISA applications processes are considered as sample of the study. Six Sigma DMAIC Process was used as methodology to reduce lead time of the Malaysian VISA process in the considered organization. Statistical regression analysis and statistical Quality control charts and other statistical tools under DMAIC process used to analyse the data. Results revealed that lead time of the Malaysian VISA process lead time is reduced from 17 days to 9 days after applying Six Sigma Methodology in Catch my tour pvt ltd Wallawatta. It is clearly highlights that it is able and suitable to apply Six sigma methodology in service sector to reduce the lead time of a service process and improve the quality of the business to address the customer's requirement of speedy service.

Keywords— Six sigma, Air ticketing, lead time,

I. INTRODUCTION

It is argued that traditional management practices and its tools and the mentalities unable to address the current high competitive market demand and satisfy the customers in effective and efficient manner (Itkin, 2008; Chee, 2008). As a result of this many organizations make an attempt to develop new concepts to improve the business processes which address the customer's requirement Lean Manufacturing, Six Sigma are few systematic approaches that can be practice for reduce waste and improve value, make products with fewer defects, customer focus (high quality, low cost, short time), robust production operations, cost reduction (Fliedner, 2008, Pettersen, 2009, Kaushik et al 2012). Six Sigma methodology is considered as one of the most well-known, well recognized and very successful management tool (Industrial Engineer, 2008).

Six Sigma originated in 1980s as a corporate strategy in aim of improvement of manufacturing processes and the elimination of defects in the Motorola company. Six Sigma is a project driven management approach for reduction of defects in an organization process and develop the process capability to address the customers' requirements. Most researches highlights that the Six Sigma generates the benefits of defects reductions and improve capabilities but it's benefits deep rooted to many areas such as improve relationships outside and within the organization (Kumar et al, 2006). Therefore, it can be

applied not only in the industrial organizations but also in the area of services sectors such as health and public administration, both in the private and public field, where there is a highly customer oriented organizations which focus on time, quality and the performance etc. but this concept of Six Sigma is widely used in manufacturing organizations rather than service organizations. But many researchers made an attempt during last few years to apply this modern management technique in service sector; and proved that this can be used as service productivity tool which can be faced the highly dynamic modern competitive world (Alan 2006, Phillips, 2002). Sri Lanka is a service oriented country and it is need of the hour to look beyond the traditional management tools which use for service improvements. So this Six Sigma is optimal solution for services sector organizations to improve their service quality which address the customers' requirements. Therefore, this study is focuses on applying Six Sigma methodology in airline ticketing organization in aim of reducing the lead time of VISA process which addressing the customers' requirement of speedy delivery service.

II. LITERATURE REVIEW

Six Sigma initiated by Motorola University design in 1988(Watson and DeYong 2010).Six Sigma is a process driven approach in aim of reduce the defect in an organizational process of production products or providing services focusing the customers' requirements in greater value (Kwak and Anbari 2006). The name of Six Sigma methodology comes from statistical where sigma (σ) means Standards Deviation. Six Sigma means ability of higher capability process to produce output within specifications.

According to (Goh and Xie 2004, McAdam and Evans 2004) identified Six Sigma Methodology as a set of Statistical tools which can be used to process improvement under the quality Management framework. The objective of this methodology is to enhance the sig sigma level of performing measurement under the Critical to Quality (CTQ)which identify the customers' requirements. Statistically indicator of this methodology is parts per million opportunities (PPMO) of confirming products (Mitra 2004) and 3.4 defects per million opportunities within the range of 6 Sigma (Coleman 2008 , Anand et 2007).It was the mostly recognized process capability in the industries but it can be taken more Six

Sigma value in critical process such as airline industry and hospitals (Sehwail and De Yong 2003).This sig sigma methodology is defined as Operational philosophy of management which generates benefits to all stakeholders in an organization (Chakraburty and ten 2007).Six Sigma methodology process usually called as DMAIC process which stands each letter respectively Define, Measure, Analysis, Improve and Control. These five stages are defined my many researches (Antony 2006 Define stage is identified as the identify the problem, scope of the work effort of the project team. Measure stage is defined as measuring the current process of performance of problem identified company. Analysis stage is defined as the process of analysis the current performance data by using statistical analysing tools with quality control tools. Improve stage is defined as improve the process stages by selecting proper and critical solutions based on analysed data. Final stage control of Six Sigma methodology is defined as maintain and improve the process. This DMAIC process is widely used methodology to quality improvement and it can be extended to total quality Management (TQM) (Black and Reverer 2006).(Kumar 2007) identified that sig sigma methodology of Define, Measure, Analysis, Improve and Control has similarities to Deming's quality cycle (Plan, Do , Check , Act). Therefore we can use this sig sigma methodology in any organization without considering the size , or the nature of the business as it has inherent similarities with Deming's quality cycle which is used for continuous improvement. This PDCA Cycle or the Deming's cycle is very important in any quality aspects of any organization as it is the basis of ISO 9000 2015 new revision. (ISO) Sig sigma methodology generates both indirect and direct advantages to any organizations in the view point of cost reduction, reduction of lead time and most important advantage of increasing the productivity of an organization (Masoud 2008). He identified that there is a positive relationship between sig sigma methodology and productivity which can be make competitive advantage in competitive market. According to (Mahanthi ANTONY 2005) this sig sigma methodology can be applied to any organization not only manufacturing organizations but all so services organizations. Therefore, it is identified as multifaceted, customer focused systematic approach for quality improvement to accelerated the speed of service and cost reduction. Kumar et al 2008 challenge the myths of Six Sigmas that can be applied necessary only to manufacturing process rather than services organizations; reason based on that the manufacturing organizations widely use this Six Sigma approach and service organizations solver in adapting this methodology

(Furterer and Elshnnas 2005)But during the last decade so many researchers drew their attention towards applying this Six Sigma methodology and it was significant contribution towards to overall economy specially in increasing Gross Domestic Products in United States of America (Tjahjono et al 2013).According to (Stollzer and Halford 2004) identified that the application of more sophisticated and relevant quality and statistical method should be needed to increase the effectiveness of the overall air programs, as well as to gain more return on investment of particular air carrier organization. This DMAIC Process was used to eliminate the defect in airline industry specially to solve the safety issues such as tail striking during take-off and in a safety incensement programs which is one of the main goals in air industry as well as ground process.

Psychogios 2010 identify that lean Six Sigma practices can be applied in airline services industry to avoid unnecessary mistakes and costs provoked by employees which can led to continuous improved programs. Based on these facts it is suitable and need of the hour to apply applying Six Sigma in service sector specially in airline industry in Sri Lanka as Sri Lanka is a service oriented country. This this study is focused on applying sig sigma process to reduce the lead time of VISA processing in airline industry in aim of looking of adopting this Six Sigma methodology in services sector in Sri Lanka business context.

III. PROBLEM STATEMENT

A. Research questions

Catch my tour (pvt) ltd is a private air ticketing company constituted in 2014 under the company act in Sri Lanka. They provide air travel requirement services such as air ticket booking, VISA processing and operating tour packages to the outbound travellers. They cater these services to customers under the rules and regulations of immigration migrations procedure of the embassies. The critical issue they are currently facing is that they usually take nearly 17 days to process the Malaysian Tourist Visa from the date of customer contact the company to deliver the VISA embossed passport. This is a long duration when compares to the other VISA processing companies in Colombo area. Obtained data from 10 air ticketing companies to identify the industry average time taken for VISA process and it is recorded as maximum 10days without considering the customers delay of submitting

relevant documents. But catch my tour is taken nearly two weeks for that purpose. Therefore, they need a proper methodology to reduce this critical long time taken to provide service. Therefore, this study question is focusing on;

Is it possible to apply Six Sigma methodology to reduce the lead time of VISA process services in considered air ticketing company to increase the quality of the service?

B. Main objective

Based on research questions following research objective is derived. The main objective of this study is to apply Six Sigma methodology to reduce the lead time of VISA process services in air ticketing service company to increase the quality of the service.

IV. METHODOLOGY

A. Population and sample

Population is considered as all the VISA application received to Catch My tour private limited within the period of 30 days (month of December 2017) as it was the highest rate of applying VISA application in Catch My Tour pvt ltd. All the VISA Application made were considered as Population and 30 applications made for requesting for Malaysian VISA are taken into consideration as sample within this time period.

B. Data and data collection

Internal primary data were considered for the study. Direct observation method is used to collect data from the sample. Total time period taken to process Malaysian VISA from inquiry stage to the stage of handing over the customer passport with VISA approval emboss is considered. Therefore, time calculation is taken from each and every step of the process for each sample unit.

C. Data analysis

Sig Sigma DMAIC Methodology was applied to analysed the data in the Analysis stage. In the analyses stage Regression Analysis, Statistical Quality Control and Quality Tools were used to analyse the data.

V ANALYSIS

Analysis stage is described based on the stages in Six Sigma DMAIC Methodology.

A. Six sigma DMAIC STAGE 01. - Define Stage

Goal define - to apply Six Sigma methodology to reduce the lead time of VISA process services in air ticketing service companies to increase the quality of the service. SIPOC Diagram show the relationship between the parties involved with the considered organization.

Table no 01. SIPOC Diagram (Appendix 01)

Diagram no 01. Current process of getting VISA approval

(This was draft with the basis of SIPOC diagram discuss under table no 01.)

Diagram no 01- Current process (Appendix no 2)

Table no 02 Highlights the Opportunities and process time of the service. All the process activities are categorized into 06 stages such as – Inquire stage, Documents stage, Submission period, checking stage and final process stage

Table no 02 Opportunities and process time of the service. (Appendix no 3.a)

Yield calculation

$$DPMO = \frac{(\text{Total Defects})}{(\text{Total Opportunities})} \times 1000000$$

$$= \frac{952}{4050} \times 1000000 = 235061$$

Sigma Level = between 1.1 to 1.2

Current sigma level is generating high level of defects in the service process.

Hypothesis testing variables are considered based on Diagram no 01.

H1: Inquire stage steps can be effected to reduce the time period of the Malaysian VISA process time.

H2: Documentation stage steps can be effected to reduce the time period of the Malaysian VISA process time

H3: Submission period stage steps can be effected to reduce the time period of the Malaysian VISA process time

H4: validate stage steps can be effected to reduce the time period of the Malaysian VISA process time

H5: checking stage steps can be effected to reduce the time period of the Malaysian VISA process time

H6: final process stage steps can be effected to reduce the time period of the Malaysian VISA process time

- X1 - Inquire stage steps time period
- X2 - Documentation stage steps time period
- X3 - Submission period stage steps time period
- X4 - validate stage steps
- X5 - checking stage steps time period
- X6 - final process stage steps time period

$$Y = \beta_0 + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5 + \beta X_6 + \epsilon$$

B. Six sigma DMAIC STAGE 02 - Measurement Stage

Table no 03.-measuring criteria Highlights the measuring criteria of the Total quality of the system process.

Table no 03.-measuring criteria (Appendix 4)

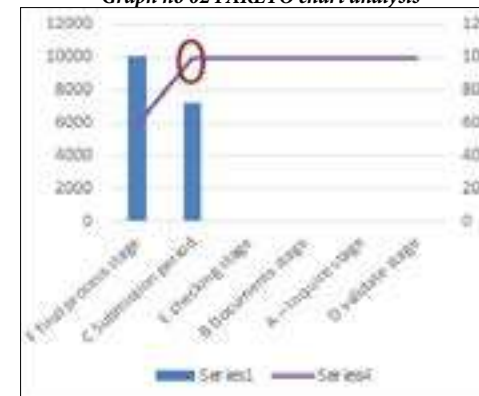
C. Six sigma DMAIC STAGE 03 - Analysis Stage

Table No 04. Highlights the descriptive statistics of measuring criteria mentioned in Table no 03.

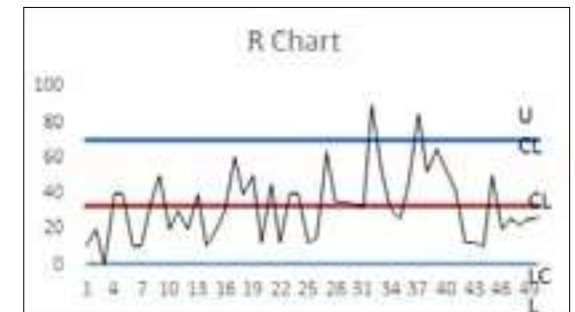
Table 4. Descriptive Statistics

Stages	Mean in min	Standard Deviation	kurtosis	skewness
A	5	1	0	0
B	10	1.32	0	0
C	7200	37.9.3	0	0
D	1	11.3	0	0
E	20	8.3	0	0
F	10140	83.6	0	0
Total Time	17376	5.31	0	0

Graph no 02 PARETO chart analysis



Graph 3. Pareto chart for cycle time



Graph no 02 PARETO chart analysis highlights that there is a special variation in the process by graphing a turned curve in the chart.

To confirm the special variation Statistical Quality Control chart is used. Therefore, R chart is drawn and it confirms that there is special variation in the system process.

This shows that few points are out of control charts and it shows that there are few special variances in the current process. Special variances can be eliminated and that is what we going to reduce in cycle time.

When we consider about correlation coefficients it clearly shows that all the hypothesis variables are effect to reduce the lead time period of the VISA process it is easy to process the next stage of the DMAIC process.

Table 5. Correlation of considered variables in Hypothesis testing.

	X1	X2	X3	X4	X5	X6	Total time
X1	1						
X2	0.0854	1					
X3	0.1972	0.35	1				
X4	-0.1188	-0.32	-0.06455	1			
X5	-0.1152	-0.05	0.239046	-0.07715	1		
X6	0.0280	-0.27	-0.18257	0.353553	-0.10911	1	
Total time	0.833	0.64905	0.751446	0.55862	0.955153	0.6395	1

D. Six sigma DMAIC STAGE 04- Improve stage

Table No 06 Highlights the Value addition of the cycle time of the VISA process

Table no 06 Value addition calculation (Appendix 3.b)

It was realized that 9 days and 9 mins are taken in the process was Non value added. It was revealed that non value added actions are taken mostly in the re confirmation. therefore, it is going to apply thrice checking system which confirm only three time in the process

Diagram no 02 focus on new concept of having only three confirmation of the process which leads to less defects happened in the process.

Diagram no 02- Proposed New flow chart for VISA process (Appendix no 5)

E. Six sigma DMAIC STAGE 05 -Control stage

Following actions are implemented in order to control the redesigned processes as to gain more advantages in future.

Table no 06 highlights control actions implemented (Appendix 06)

VI. CONCLUSION

Results revealed Six Sigma methodology was supposed to reduce the lead time from 17 Days to 09 days of Catch My Tour pvt ltd Wallawatta.Reduction time was nearly 50% of the lead time prevailed before applying Six Sigma. If we identify the non valude added activities in each stage of process will lead to reduce the lead time of a process. According to the analysed data it is clearly revealed that Six Sigma methodology can be successfully applied into services sector specially in aviation industry in Sri Lanka to reduce the lead time of the process.

VII RECOMMENDATIONS.

This six sigma methodology can be applied to various services parts of the Aviation industry. It is need of the hour to practice this in to more services organisations in order to provide more customer oriented services.

VIII. ACKNOWLEDGEMENT

Thank you all those who extended their helping hand when we were engaging in this study especially to the Catch My Tour pvt ltd Wallawatta.

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A MECHANISTIC PROBABILISTIC MODEL TO ESTIMATE TRUCK OPERATION COST

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Abstract- Truck operations cost is the major cost element in the total supply chain for a better service. In relation to such situations, estimation of the truck operation cost has become a main factor in making important decisions. Considering the truck fleet and its operations of a company, a method of estimating the truck operation cost has been developed. The Mechanistic Probabilistic Vehicle Operation Cost Model (PVOC) has been used to estimate the truck operation cost of 6-wheel trucks and 10-wheel trucks using fuel cost, tire cost, maintenance and repair cost, oil cost, capital depreciation cost, Insurance cost, operator wages and labor cost. The PVOC calculates the probabilistic estimate of truck operating costs, including expected value and the associated uncertainty of the estimate for a selected sample. Methods have been developed for measuring the identified variables. Service life of the vehicle has been found to be the leading variable that makes greater variation in the truck operation cost as per to the deterministic sensitivity analysis. As resulted by the model, the truck operation cost of 10-wheeler is 60.505-99.126 Rs per km while the 6-wheeler cost is 26.876-59.598 Rs per km.

Keywords- Truck operation cost, POVC, 10-Wheelers, 6 Wheelers

I. INTRODUCTION

The demand for transporting goods via trucks is increasing rapidly and limited resources on the sector calls for a keen planning and optimal way of utilizing the resources which are available in the transport sector. However, in utilizing the available resources in an optimal way, identifying the road user cost is vital. As suggested by (Velumuragan,

et al., 2009) road user cost is the combination of vehicle operation cost (55-75%), time cost (20-40%) and accident and safety cost (5-10%).

Berthelot et al. (1996) suggests that vehicle operating costs are the costs associated with owning, operating and maintaining a vehicle including: fuel consumption, tire wear, maintenance and repair, oil consumption, capital depreciation, license and insurance, and operator labor and wages.

The estimation of the truck operation cost helps to identify the actual cost of operation, as it is the main factor in deciding the transport cost. This provides benefits for the operator as well as the shipper by sharing economic gains in a fare manner. In the determination of the cost effectiveness in alternative road maintenance strategies, the use of the vehicle operation cost (VOC) model is significant. In such circumstances, vehicle operation costs are a part of the road user cost in cost benefit calculation, which is being conducted to determine whether the project should be funded or not.

II. LITERATURE REVIEW

Barnes and Langworthy (2003) have presented two models of calculating both car operation cost and the truck operation cost. As this study is concerned about both trucks and other vehicles some of the data have been analyzed together. Therefore, mistakes could be expected from their methodology.

Shukri et al. (2013) modelled to determine vehicle operation cost based on the Malaysian military trucks

to address their issues. Researcher insists that the driver wages, allowances insurance rates and licensing costs should be highly considered in developing the model even though they have been excluded from the study. As well as above factors, weather condition, road roughness and frequency of usage are some other factors which may affect the operation cost of a vehicle.

Akçelik and Besley (2003) have given a clear model to estimate the vehicle operation cost. But some of the important variables brought forward by previous researchers such as maintenance cost, depreciation and labor cost have not been considered in this model.

Harrison and Chesher (n.d.) have introduced a method to estimate the vehicle operation cost using a survey in Brazil. This is a result of a very large survey. Therefore, the data collection has been more complex and accurate data can be expected. Clear techniques have been used to conduct the research. Data analyzation of the study is unclear in this study. Computer software has not been used for data analysis as this research is an older one.

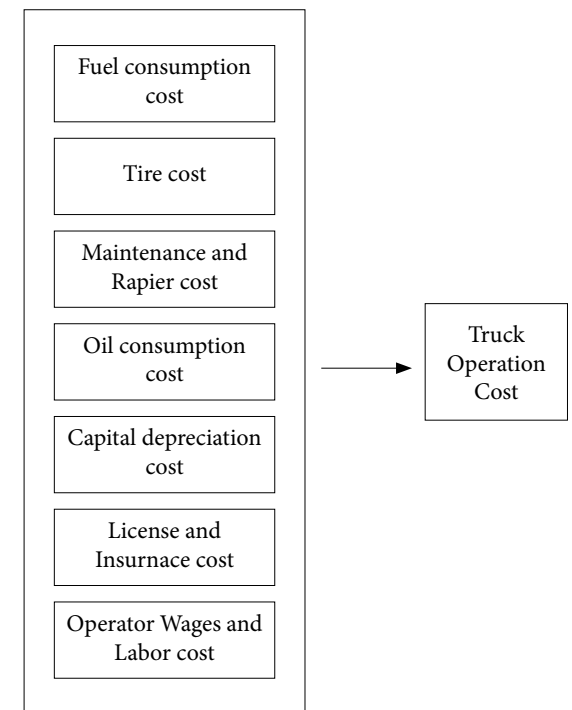
It has been suggested that the (Berthelot, et al., 1996) Vehicle operating costs are the costs associated with owning, operating and maintaining a vehicle including: fuel consumption, tire wear, maintenance and repair, oil consumption, capital depreciation, license and insurance, and operator labor and wages. Possible variables of the study are above mentioned factors. The model is based on analyzation of these factors. The relationship between above factors against vehicle characteristics, road geometrics, road surface type, road surface condition, environmental factors as well as the vehicle speed have been considered. An advantage of this mechanistic model is the model could be developed in to a sensitivity analysis and could identify the sensitive changes within the model. The inputs of the sensitivity analysis have been collected from published literature and interviews with heavy vehicle operators. Using the PVOC model deterministic sensitivity analysis has been developed, which illustrates a schematic of the sensitivity analysis output for each individual variable. It has been suggested that the annual kilometres travelled, vehicle operations speed and vehicle capital cost have greater effect on the output of PVOC model. Therefore, the sensitivity analysis indicates the better relationship between the above factors and the variables of the study. In finding VOC,

as mentioned earlier expected VOC values calculated standard deviation of the estimated VOC resulting ranges of values on 95% confidence interval has been considered.

III.METHODOLOGY

Conceptual Framework

Figure 1 shows the conceptual framework of the study. It includes how the outcome is taken by the model. The figure indicates the primary path of approach towards the study.



The fuel cost could be expressed basically in means of resistive forces which act on the vehicle, mechanical efficiency as well as energy content of the consumed fuel.

Total resistive forces acting on a vehicle is the sum of rolling resistance and aerodynamic drag (Hertz, cited in Berthelot 1996) which can be expressed mathematically;

$$R_{total} = R_{roll} + R_{drag}$$

where R_{total} = total vehicle resistance (N), R_{roll} = rolling resistance (N), and R_{drag} = aerodynamic drag (N).

The rolling resistant could be expressed by using gross vehicle weight, coefficient of rolling resistance between tire and road. It has been suggested by (Berthelot et al. 1996) that

$$R_{roll} = C_r W_{vehicle} k_r k_s$$

where R_{roll} = rolling resistance (N), C_r = coefficient of rolling resistance, $W_{vehicle}$ = Gross vehicle weight (N), k_r = coefficient of road roughness and k_s = coefficient of road stiffness.

Resistant of the aero dynamic drag is based on the shape of the vehicle, frontal area of the vehicle, air density as well as the relative velocity between air and the vehicle. As per (Hertz, cited in Berthelot 1996) it can be expressed mathematically as;

$$R_{drag} = 0.5rC_dAV^2$$

where R_{drag} = aerodynamic drag (N), r = air density (kg/m³), C_d = wind mean averaged coefficient of drag, A = frontal area of vehicle (m²), and V = velocity of vehicle (m/s).

Berthelot et al. (1996) suggests that the Vehicle fuel consumption is a function of how efficient the vehicle is at converting the potential energy of the fuel into useable energy for the vehicle. It could be expressed in an equation as follows;

$$fuel = R_{total} / [I_{total}(Ec_f)]$$

where fuel = fuel consumption rate (l/km), I_{total} = total mechanical efficiency, Ec_f = fuel energy content (kJ/l)

Total mechanical efficiency depends on the engine efficiency, transmission efficiency and differential efficiency. It has been suggested by (Hertz, cited in Berthelot 1996)

$$I_{total} = k_{engine} k_{trans} k_{diff}$$

where I_{total} = Total mechanical efficiency coefficient, k_{engine} = Coefficient of engine efficiency, k_{trans} = coefficient of transmission efficiency, and k_{diff} = coefficient of differential efficiency

Tire cost;

The tire cost includes the tire type, tire quality, road conditions, and tire maintenance practices. The effect of road surface on tire costs is primarily a function of road surface texture and roughness (Cenek, cited in Berthelot 1996). It could be expressed in a mathematical equation by;

$$TC = \frac{(C_t N_t)}{(L_t K_r K_{tr})}$$

TC= total tire cost (Rs/km), C_t =Cost per tire (Rs/km) N_t =Number of tires, k_r =Road roughness coefficient, k_{tr} =Road texture coefficient, L_t =Life of tire(km).

Maintenance and repair cost;

It has been identified that the maintenance cost has affected the VOC by many previous researchers. The road roughness is a significant factor in deciding the maintenance cost. It has also been understood that rough roads cause the cost on maintenance to be high. The proof of character on the above is as follows; (Watanatada, et al., 1987)

$$MC = M_{cf} k_{mr}$$

where MC = maintenance cost (Rs/km), M_{cf} = average maintenance cost (Rs/km) and k_{mr} = road roughness coefficient

Oil consumption cost;

The oil consumption of a vehicle depends on the ownership of the vehicle. The routine of changing oil is considered in deciding the oil consumption cost. Berthelot et al. (1996) suggests

$$OC = OCC/D0$$

where OC = oil cost (Rs/km), OCC = oil change cost (Rs/service) and D0 = oil change frequency (km/service)

Capital depreciation cost;

The capital depreciation cost is calculated by considering the present value of the vehicle and its service life. (Jayaweera, et al., 2001) Suggests that the depreciation is provided for below the apportionment of the cost of a new bus under the estimated lifetime kilometres of a bus. Assumptions have been made for the model suggested by Jayaweera, and the situation states that it indicates required values which could be functional for trucks in addition to other vehicles. It could be expressed mathematically as; V/K

Where V =value of a bus in today's prices, new or at importation and K = lifetime kilometres estimated for the bus over eight years in normal operation. Assuming the above formula is applicable for trucks as well.

License and Insurance cost;

The annual license renewing fee and insurance fee is included for this particular cost. Annual license and insurance fee is converted to the "per kilometer" value of license and insurance cost as the model decides the operation cost per kilometre.

Operator wages and labor cost;

Hence this study is based on a company, its work labor cost and operator wages highly affect in deciding the vehicle operation cost. The operator wages and the labor cost are being converted into the per kilometer value for further calibrations of the modal.

Data Collection

Apart from license, insurance cost, operator wages and labor cost all the other variables cannot be collected directly. Several inputs should be taken as data. Both primary and secondary data were used in this study. Secondary data was collected referring to the previous literature. Using a survey by interviewing the truck operators of the company, primary data was collected. The target population of the study is 160 trucks which operates in a company (10 wheelers and 6 wheelers).

60 is the sample size of the study based on the Central Limit Theorem, when the sample size is more than or

equal to 30, the data distribution becomes a normal. As there are 2 types of trucks, stratified random sampling technique is ideal. According to the proportions of the trucks the sample size of strata would be 30.

The model

The mechanistic probabilistic vehicle operation cost model is being used for this study. Microsoft EXCELTM is the data analysing software as it is more user friendly and it is capable in enabling the model. After the data collection, findings are being entered to a spreadsheet. For each input the Minimum Value, Average value and the maximum value is estimated. Using the average values, the expected value of the model is estimated using the equations for each variable. The following equation was used for the development of PVOC model and the Sensitivity analysis.

Truck operation cost= FC+TC+MC+OC+CDC+LIC+LC
Where FC= fuel cost, TC=tire cost, MC= Maintenance and repair cost, OC= Oil cost, CDC= Capital depreciation cost, LIC= Licence and insurance cost and LC= operator wages and labour cost. Deterministic sensitivity analysis is conducted to identify the variables which are being influenced and it gives closure to make sensitive changes in the model. The analysis is focused on those variables which are affected more on the VOC. In the deterministic sensitivity analysis, the changes which occur in the VOC by the changes of input are considered. For the better understanding of the reader, the results of the sensitivity analysis are being illustrated on a graph. The Mechanistic Probabilistic Vehicle operation model provides the point estimation as per the expected value. Whereas the sensitivity analysis involves in screening the data set as well as providing the effect of uncertainty in each of the model variable.

Final finding of the model was developed by the estimated expected value of the model. The expected values for each data set which had been collected in the data collection were estimated. Using the above-mentioned data set the standard deviation was estimated. The outcome is subjected to a 95% confidence interval for an accurate and robust result. Probability density function diagram determines the expected value and the uncertainty associated with each estimate of the truck operation cost. It is the variation of the truck operation cost against the relative frequency. As it is an advance analysis of data, SPSS is used for the development of the probability density function diagram.

IV. DATA ANALYSIS

One of the main advantages of mechanistic probabilistic vehicle operation cost model is the performance of sensitivity analysis to indicate which inputs are most sensitive and influential to changes within the model. By adjusting an input one at a time, sensitivity analysis has been illustrated for both 6 wheelers and 10 wheelers. Those variables which have a higher impact on the model could be identified as the dominant variables. The user should focus on developing an accurate distribution on these dominant variables as it could cause a significant variation in the outcome of the model.

Table 1 and Table 2 indicate the values which have been used for the Mechanistic probabilistic vehicle operation cost model as well as the deterministic sensitivity analysis.

These tables include the survey results which have been conducted to obtain primary data and secondary data and these data shown below have been obtained from previous literature. Average values have been used to calculate the expected value of the truck operation cost while minimum values and maximum value were the inputs for the estimation of sensitivity analysis. Table 1 summarizes the input values for 10 wheels whereas Table 2 summarizes the input values for 6 wheelers.

Using the minimum and maximum values from Table 1 and 2, Deterministic sensitivity analysis has been performed. Figure 2 illustrates the sensitivity analysis for 10 wheelers while figure 3 illustrates the sensitivity analysis for 6 wheelers. All the inputs have been subjected for the sensitivity analysis except the Number of tires and labor cost since they hold constant values which do not have any variations.

Table 1. Input values for 10 wheels

Inputs	Units	Min	Avg	Max	Data Type
Gross Vehicle weight	N	240000	245000	250000	Primary
Coefficient of rolling resistance	Dimensionless	0.003	0.004	0.005	Secondary
Coefficient of aerodynamic drag	Dimensionless	0.7	0.8	0.9	Secondary
Vehicle frontal area	square meter	8	8.1	8.2	Primary
Coefficient of engine efficiency	Dimensionless	0.35	0.37	0.39	Secondary
Coefficient of transmission efficiency	Dimensionless	0.8	0.9	0.95	Secondary
Coefficient of differential efficiency	Dimensionless	0.8	0.9	0.95	Secondary
Fuel energy content	kJ/l	35000	35300	35600	Secondary
Fuel cost	Rs/l	95	106	117	Primary
Tire cost	Rs/Tire	50000	55153.85	60000	Primary
No of tires per vehicle	Tire/veh	10	10	10	Primary
Life span of a tire	km/tire	28000	34461.54	50000	Primary
Vehicle maintenance cost	Rs/km	2.7777778	5.516683	13.75	Primary
Oil change cost	Rs/oil change	8000	15423.08	20000	Primary
Oil change frequency	km/oil change	5000	9730.769	15000	Primary
Vehicle service life	years	0.25	4.15	7	Primary
Vehicle present value	Rs	4000000	4784615	6600000	Primary
Annual kilometers traveled	km/year	20000	39020.76	60000	Primary
Annual license and insurance cost	Rs/year	75000	107153.8	150000	Primary
Average vehicle operation speed	m/s	11	14	17	Primary
Coefficient of road roughness	Dimensionless	0.85	1	1.1	Secondary
Coefficient of road stiffness	Dimensionless	0.9	1	1.15	Secondary
Road roughness tire factor	Dimensionless	0.95	1	1.05	Secondary
Road texture tire factor	Dimensionless	0.95	1	1.05	Secondary
Road roughness maintenance factor	Dimensionless	0.8	1	1.2	Secondary
Air density	kg/m ³	1.1	1.2	1.3	Secondary
Labor cost	Rs	2.65	2.65	2.65	Primary
Service life of the vehicle	Km	12000	141307.7	250000	Primary

Source: Developed by authors (2018)

Table 2. Input values for 06 wheels

Inputs	Units	Min	Avg	Max	Data Type
Gross Vehicle weight	N	171000	173000	175000	Primary
Coefficient of rolling resistance	Dimensionless	0.003	0.004	0.005	Secondary
Coefficient of aerodynamic drag	Dimensionless	0.7	0.8	0.9	Secondary
Vehicle frontal area	square meter	6.6	6.65	6.7	Primary
Coefficient of engine efficiency	Dimensionless	0.35	0.37	0.39	Secondary
Coefficient of transmission efficiency	Dimensionless	0.8	0.9	0.95	Secondary
Coefficient of differential efficiency	Dimensionless	0.8	0.9	0.95	Secondary
Fuel energy content	kJ/l	35000	35300	35600	Secondary
Fuel cost	Rs/l	95	106	117	Primary
Tire cost	Rs/Tire	50000	56846.15	65000	Primary
No of tires per vehicle	Tire/veh	6	6	6	Primary
Life span of a tire	km/tire	25000	43461.54	80000	Primary
Vehicle maintenance cost	Rs/km	2	4.161699	6.923077	Primary
Oil change cost	Rs/oil change	9000	15615.38	18000	Primary
Oil change frequency	km/oil change	5000	9192.308	15000	Primary
Vehicle service life	years	1	6.153846	12	Primary
Vehicle present value	Rs	1800000	2961538	3900000	Primary
Annual kilometers traveled	km/year	21666.67	44508.55	64000	Primary
Annual license and insurance cost	Rs/year	50000	64923.08	100000	Primary
Average vehicle operation speed	m/s	11	14	17	Primary
Coefficient of road roughness	Dimensionless	0.85	1	1.1	Secondary
Coefficient of road stiffness	Dimensionless	0.9	1	1.15	Secondary
Road roughness tire factor	Dimensionless	0.95	1	1.05	Secondary
Road texture tire factor	Dimensionless	0.95	1	1.05	Secondary
Road roughness maintenance factor	Dimensionless	0.8	1	1.2	Secondary
Air density	kg/m ³	1.1	1.2	1.3	Secondary
Labor cost	Rs	2.65	2.65	2.65	Primary
Service life of the vehicle	Km	60000	242384.6	350000	Primary

Source: Developed by authors (2018)

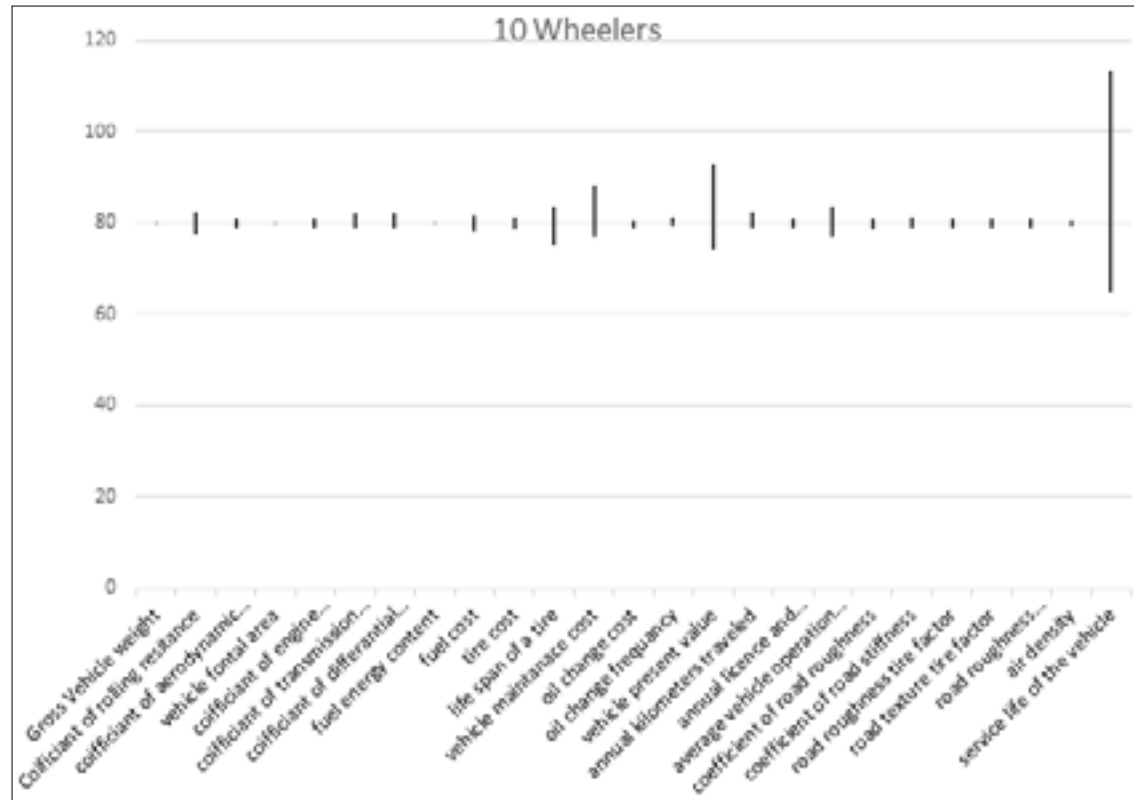


Figure 3. Deterministic Sensitivity Analysis for 6 Wheelers

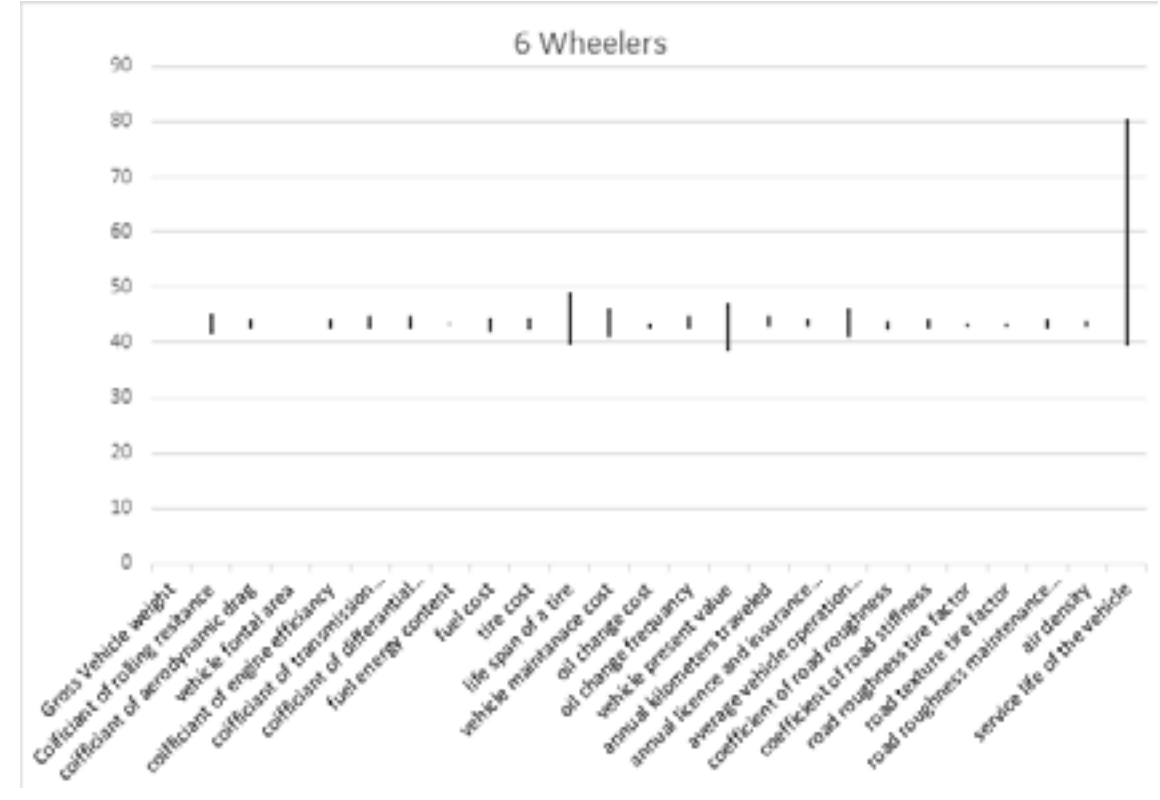


Figure 2. Deterministic Sensitivity Analysis for 10 Wheelers
Source: Developed by authors (2018)

As per the results of the sensitivity analysis service, the life of the vehicle, vehicle present value, vehicle maintenance cost and life span of a tire consume the largest effect on

the output of the model for both types of vehicles. In addition to that, the sensitivity analysis figures out the variables which have the least affecting uncertainty. The inputs which show high sensitivity towards the model should receive proper attention; hence an accurate probability distribution should be maintained.

Even though the deterministic sensitivity analysis is not used to decide which variable should be dropped, it was used in focusing more on developing an accurate probabilistic set of inputs.

In obtaining the Truck operation cost, by the usage of average values in Table 1 and Table 2, expected values have been derived. Here the mechanistic probabilistic

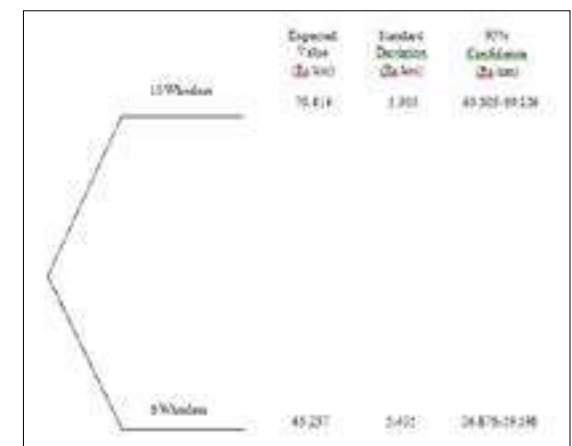


Figure 4. Truck Operation Cost,
Source: Developed by authors (2018)

vehicle operation cost model has been driven out. Also in calculating the variables, equations which

were mentioned in the methodology have been used. Furthermore, standard deviation has been calculated and the values obtained by the model have been subjected to a range corresponding to a 95% confidence interval.

Figure 4 indicates the expected values, standard deviations and 95% confidence interval range of the values taken by the mechanistic probabilistic vehicle operation cost model. The values have been obtained for both 10 wheelers and 6 wheelers.

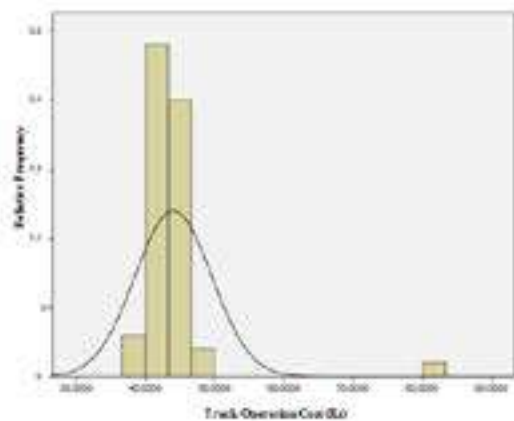


Figure 5. Probability Density Function for Ten Wheelers

Figure 5 and figure 6 illustrate the Probability Density Function of the two truck types calculated by mechanistic Probabilistic Vehicle Operation Cost Model. This is the output distribution of the study. The expected value and the uncertainty associated with each estimate of the truck operation cost could be obtained by this distribution. Identification of the uncertainty in the estimated values would lead toward a more accurate and strong analysis of the difference in cost, or the statistical significance of the estimations compared to a certain criterion. For 10 wheelers the skewness value would be 1.156 and for 6 wheelers skewness value would be 1.872. Hence both values are between -1.96 and +1.96 both the sequences are normal.

V. CONCLUSION AND RECOMMENDATIONS

Conclusion

The importance in developing a truck operation cost has been brought forward by the researcher. This subject

stream consists of a less amount of literature and models of estimating the truck operation cost. In consideration to the existing vehicle operation cost, models are found to be as follows: Firstly, the considerable amount of data is required to develop the model and the absence of a specific model for truck operation cost. Lack of flexibility of the model is considered as the third factor followed by the lack of agreement with the in conditions in Sri Lanka. The final factor is the existing vehicle operating cost whereas models do not quantify the uncertainty associated with the vehicle operating costs. As an advance method of estimating the truck operation cost, the Mechanistic Probabilistic Vehicle operating cost model could be used to overcome stated problems. The Mechanistic Probabilistic Operation Cost Model offers the following advantages aimed at the user: user definable, matching with the Sri Lankan Context, Model required minimal data collection, provides a full audit trail and Quantifies the uncertainty associated with the truck operation cost. This is basically a user-friendly model in estimating the truck operation cost which is based on basic principles of engineering that could be applicable for any truck operation scenario.

The truck operation cost which is being obtained by the model has been paired with the internationally published literature. It shows that the model could be applied in obtaining an accurate value for truck operating cost.

Recommendations

The model could be used by the researchers and users in the intention of calculating the truck operation cost. Because of its user-friendly interface, it could be used as an easier method in estimating the truck operation cost.

In relation to the development of the model a few assumptions have been made. Secondary data (coefficient of rolling existence, coefficient of aerodynamic drag, coefficient of engine efficiency, coefficient of transmission efficiency, coefficient of differential efficiency, fuel energy content, coefficient of road roughness and stiffness) for the study has been extracted from the previous literature, under conditions of Canada and the USA. Assumptions have been made that the condition in Sri Lanka coincides with those of the above-mentioned countries. The same secondary data values have been used for both 10 wheelers and 6 wheelers. Also, more assumptions have been brought upon that the secondary data values would be the same for both 10 wheelers and 6 wheelers. The

model has been developed along with the assumption that all operating roads involve the same conditions.

Several limitations have also been identified by the researcher in this study. The secondary data might not be the exact data which are accurately suitable for the conditions of the study. It could cause an effect to the final answer of the study. The growth of the range of the truck fleet could cause the primary data to be changed. As this study is based on a comparatively smaller truck fleet and smaller sample, during certain conditions the range would be inclined to differ. The following recommendations are being offered as possible ways to improve this study and to obtain more accurate results likewise; the secondary data which have been mentioned above could be collected as primary data to obtain more accurate results. To calibrate the above-mentioned data several formulas and different sources could be used. And secondly larger truck fleets could be used for the study to expand the sample size and to decrease the uncertainty of collected data.

VI. ACKNOWLEDGEMENT

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POTENTIAL APPLICABILITY OF JUST-IN-TIME TO IMPROVE PROCUREMENT EFFICIENCY REFERENCE TO SRI LANKA NAVY

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Abstract- Sri Lanka Navy (SLN) required to be equipped with resources by new acquisitions whilst upgrading inventory in hand. Meantime acquisitions are challenging as many constraints in spending government funds in peace time operations. Therefore this paper aims to identify factors relevant to procurement efficiency in SLN. The research choice is mixed method as quantitative and qualitative aspects of the research variables are being investigated. The primary data collected through surveying randomly selected procurement files during year 2017 at foreign procurement division relevant to engineering spares and through structured questionnaire responded by SLN officers in technical and logistics branches sampling of 120. Quantitative analysis carried out by descriptive statistics through multiple regressions and factor analysis. Qualitative data analyzed by contents analysis. According to the findings the procurement efficiency is affected by Duration of approval, Post tender duration, Duration prior initiation purchase, Verification of specifications, and Evaluation Committee duration. The study concludes that 'Just in Time' purchasing shall be implemented to improve procurement efficiency.

Keywords- 'Just in Time', Decision Making, Purchasing Regulations, Stakeholders Performance, Specifications

I. INTRODUCTION

"If the war is politics, the art of the possible, logistics is the corresponding science" (Kane, 2001). The defense logistics is to protect and defend the public interest and

long-term security of a State. An error in a military logistics resulted in unnecessary death or injury to personnel. Due to the risk of stock-outs and which thwarts mission critical functions the Operational Commanders store inventory more than the needed. The current society categorized inventories as a needed evil. Because there are costs accompanying with purchasing, ordering, inventory carrying, stock-out, inferior quality, obsolescence, pilferage, losses in stock, expiry and shrinkage. Thus inefficiency in the processes account for wastes. The elimination of those waste is essential.

1.1. Problem Statement

Accumulation of inventories on the basis of 'Just in Case' is foregoing the opportunities and weakening the working capital. Reduction of inventory will eliminate waste, regularize purchases, and reduction of storing related cost. Implementation of JIT related principles will help militaries to purchase inventory as and when required. SLN being the government institution required to abide with Procurement Guide Lines (PGL) 2006. The government institutes are operating under authority granted through statutory provisions, local and departmental rules/ orders. The government procurement process guarantees high magnitude of competition and equal opportunities. The weakness identified is inability to favor a well performed supplier. The fundamental of JIT procurement is long term relationship with suppliers and long term contracts yet government competitive bidding secured lowest qualified bidder therefore other criterion are overruled.

The appropriation budget allocated fixed amounts for expenditure for government institution to achieve goals during the financial year. Therefore the managers focused on efficiency than the effectiveness. At the year-end managers are concerned expenditure of appropriated amounts rather than qualitative results due to reduction of allocation in succeeding budget. As such purchases are bulk and infrequent violating the fundamentals of JIT. Also few researchers are in the opinion that JIT will endanger the operational readiness of militaries and failed concept though JIT success in commercial entities. Therefore applicability of JIT philosophy has to be investigated at SLN as procurement efficiency improving tool.

1.2. Research Questions

The following questions are formulated to the current research.

- i. What are the factors influence procurement efficiency in SLN?
- ii. What are the relationship of such factors in efficiency of procurement process in SLN?
- iii. Is JIT purchasing strategy applicable at SLN and will it improve procurement efficiency?

1.3. Research Objectives

1.4.1. Core Objective

The study focus mainly to explore the factors affecting procurement efficiency in SLN and find applicability of JIT procurement to improve efficiency in procurement.

1.4.2. Secondary Objectives

In order to achieve main objective of the study following secondary objectives are made;

- i. To explore the factors influence procurement efficiency in SLN.
- ii. To examine relationship of factors influence procurement efficiency in SLN.
- iii. To justify applicability of JIT purchasing strategy to improve procurement efficiency in SLN.

II. LITERATURE REVIEW

Oxford English Dictionary defines logistics as "the organization of supplies, stores, quarters necessary for the support of troop movements and expeditions". Evolution of military logistics over the period offers many insights for the practice of business logistics (McGinnis, 1992). The military logistics is concerned as projection and sustainment of forces in executing of mission (Tuttle, 2005). During the peacetime, militaries pursue to reduce government expenditure by minimizing the costs in logistics processes (Kovacs & Tatham, 2009) as such inventory control is a necessity.

The economics cites three theoretical reasons for Just-in Case inventory: production smoothing, avoid stock out, and reduce transaction costs. Blinder & Louis (1991) explained holding inventories secure material cost against price escalation. Keeping inventory is not free because there are opportunity costs of "carrying" or "holding" inventory in the organization. Thus, the paradox is though we need inventory, it is not desirable to have inventory. Naddor (1966) suggested that we need to decide about when to initiate a purchase and what quantity to buy. In solving these twin problems of decision making, we need to develop a scientific approach in decision making by developing an inventory model. Thus Just-in-time (JIT) is one of the most talked topic in inventory planning primarily due to success in the Japanese companies.

JIT was firstly applied within Henry Ford's manufacturing plants (Cheng & Podolsky, 2005). Taiichi Ohno implemented JIT in Toyota manufacturing in order to achieve competitive edge over the oil embargo in 1970's. Ohno applied JIT to avoid wastes, reduce inventories and increase production efficiency. JIT defined as zero inventories, zero transaction and zero disruptions (Womack, Jones, & Roos, 1991) in order to produce with the shortest possible lead-time, the lowest possible level of inventory and the fewest possible waste (Asad, 2014) (Moreira & Alves, 2006). JIT facilitate getting right quantity of raw material and processing the right quantity of products in the right place at the right time (Dange, Shende, & Sethia, 2016).

Decision making is a process of selecting a choice between numbers of options. Willis & Huston, (1990) emphasized that decision making in JIT were categorized as financial,

service, and technical. Barnett (1988) researched on financial aspects and emphasized that reduction in inventory leads to reduction in total logistics costs and allows better utilization of working capital. Phogat (2013) stated that JIT is being advocated by many defense policy planners in both the US and the UK as tool of eliminating waste and releasing capital from unnecessary stockholding in military environment.

Das & Handfield (1997) found that JIT global sourcing alliance developed through overseas supplier-selection resulted reductions in total costs of acquisition, storage, repair and warranty, and inventory audit time. Svensson (2001) asserted that global sourcing and sole sourcing becomes necessary, due to geographic location, exclusive rights, customer preference, and lack of alternatives or monopoly. Moreira & Alves (2006) asserted that JIT procurement concern suppliers' performance and quality thus reduces inventory, scrap and defectives. The improved relationship with OEM is an option for especially Made-To-Order (MTO) initiatives. Kros, Falasca & Nadler (2006) researched JIT production systems through different OEM's and asserted the differences on Made-To-Stock and MTO. In result Gahlan & Arya (2015) researched the concept of Zero inventories based on JIT purchase through Supply Hub and how inventory holding costs can be diminished. The supply-hub is promoting rapid response to customer demand reducing the total cost of supply chain (Rong & Wang, 2015). Nawanir, Teong, & Othman, (2013) asserted that specification of good is important in procurement to assured quality. Study of Aljunaidi and Ankrah (2014) found cost reduction through JIT can be achieved through quality.

III. RESEARCH METHODOLOGY

3.1. Conceptual Framework (CF)

Conceptual framework Figure 3.1. is developed in accordance with the research objectives and literature reviewed. Procurement efficiency is dependent variables which gets affected by the independent variables of decision making, purchasing regulations, stakeholder's performance, and specifications.

The justification to the CF as per the Figure 3.1, the CF is discussed as follows. The independent variables are affected by many factors. The decision makers' decisions are influenced by factors such as timely availability of spares, cost efficiency, availability of funds, transparency



Figure 3.1. Conceptual Framework
Source: Developed by the Author (2018)

and accountability (Asad, 2014). The purchasing regulations are affected by the factors such as orders, time line of purchase, stock levels and replenishment plans (Willis & Huston, 1990), (Phogat, 2013). The factors of stakeholders' performance are lead time, storage and direct vendor delivery (Kros, Falasca & Nadler, 2006). The specifications of product also affect the dependent variable and quality compliance (Nawanir, Teong, & Othman, 2013). Verification of specifications (Gahlan and Arya, 2015), post tender durations (Svensson (2001), number of quotations, duration of approval (Kros, Falasca, & Nadler, 2006), duration prior initiation of tenders, evaluation committee duration (Das & Handfield, 1997), PGL clause and quality control duration (Nawanir, Teong, & Othman, 2013) are other intermediate variables which affect dependent variables as depicted at Figure: 3.1.

3.2. Formulation of Empirical Model

Based on the conceptual framework (figure 3.1), the following empirical models have developed.

$$EP=f(Y) \text{-----} (1)$$

$$Y=f(X_1, X_2, X_3, X_4) \text{err} \text{-----} (2)$$

Where: EP stands efficiency of procurement. Y stands for Duration of Supply and vectors $X_1, X_2, X_3,$ and X_4 stand respectively decision making (X1), purchasing regulations

(X_2), performance of stake holders (X_3), and specifications (X_4). Further Table 3.1 shows the data and variables. The variables were regressed using a model and all coefficients interpreted as follows;

$$Y= \beta_0, \beta_5 X_5, \beta_6 X_6, \beta_7 X_7, \beta_8 X_8, \beta_9 X_9, \beta_{10} X_{10}, \beta_{11} X_{11}, \text{err} \text{---} (3)$$

Where: Y= Dependent Variable (Efficiency of procurement) = Time duration to supply

X_{1-n} = Independent Variable (X_5 is vectors of Prior initiation purchase, X_6 is vectors of Verification of specifications, X_7 is vectors Evaluation Committee Duration, X_8 is vectors of Quality Control Duration, X_9 is vectors of No of Quotations, X_{10} is vectors of Post Tender Duration, X_{11} is vectors of Duration of Approval)

B_{1-n} – the regression coefficient or change included in Y by each X

ϵ = error term

3.3 Operationalization

As per the empirical model developed dimension of purchasing efficiency and indicators of each dimension are as follows:

Table 3.1. Variables, Factors, Indicators and Measurement for data collection

Variable	Factors	Indicators	Measurement
X1- Decision making	Efficiency	Time consume	No of days consume
	Control budget environment	Financial situation	5 points Likert Scale
	Readiness of the force	Knowledge of resources	5 points Likert Scale
	Timely availability of spares	Risk minimization	5 points Likert Scale
	Cost-effective decision-making	Improving working capital	5 points Likert Scale
X2- Purchasing Regulations	Efficiency	Response from suppliers	No of quotations
	PGL sanctions on JIT	PGL clause selection	5 points Likert Scale
	Timeline of purchase	Availability of funds	5 points Likert Scale
	Minimum stock levels for 'Vital' and 'Essential' items	Economy of order quantity	5 points Likert Scale
	Annual procurement plan	Implementation	5 points Likert Scale
X3 -Performance of Stake Holders	Efficiency	Time consume	No od days
	Lead time	Availability of stores	5 points Likert Scale
	Storage and vendor delivery	Delivery terms	5 points Likert Scale
X4 - Specifications	Efficiency	Verifying of specifications	No of days
	Quality compliance	Quality checks	5 points Likert Scale
X5 -Prior initiation purchase	Efficiency of initiating authority	Time consumption	No of days
X6 - Evaluation tenders	Accuracy of tenders	Time consumption	No of days
X7 - Procurement Guide Line clause	Accuracy of PGL Clause	PGL Clause	No of occurrence
X8 - Quality control	Supply accuracy	Time consumption	No of days
X9 – No of quotations	Sources of supply	Response by suppliers	No of quotations
X10- Post tender duration	Timely execution	Time consumption	No of days
X11- Duration of approval	Manager efficiency	Time consumption	No of days

Source; Researcher (2018)

3.4. Sample Profile

The research population was 1164 Lieutenant Commander rank naval officers serving in SLN according to the Navy List published in 2017 (sample list). The research sample is 120 officers randomly selected according to their job description as Staff Officers in approving authority, workshop engineers, initiating certifying and paying authority, logistic officers. Kiage (2013) has also used random sampling method. This sample profile will be used address research questions 1 as per the empirical model 2. As per the procurement file register 2017 in foreign procurement division SLN there were 458 completed engineering spares files. The researcher randomly selected 50 completed purchase files as sample profile 3 to address research question 2 as per the empirical model 3.

3.5 Data Collection Methods

The researcher has selected structured questionnaires to collect the data in sample profile 1. This is consistent with Kiage (2013) and Nawaniir, Teong, & Othman, (2013). They have also used structured questionnaires method as per the primary data collection technique. Out of 120 questionnaires distributed in sample profile 1, 99 responded positively. The researcher recorded details of time consumption in major events at randomly selected 100 completed purchase files in 2017. The qualitative data for contents analysis to address research question 3 collected through publish journal articles.

3.6 Data Analysis Methods

All collected data statistically analyzed using the support of the Statistical Package for Social Science (SPSS) version 20. The validity and reliability of the data and sample assured by the use of SPSS software. As the statistical model, the regression analysis, factor analysis and model fit are utilized. Same method have been used by Kiage (2013) and Nawaniir, Teong, & Othman, (2013) in their researches. Qualitative data analyzed by contents analysis to establish facts for research question 3.

IV. DATA ANALYSIS

4.1 Summary of Reliability Test

According to Pallant (2005) if Cronbach Alpha coefficient reported of .7 or above the satisfaction of scales has good

internal consistency. In the current study the Cronbach Alpha coefficient was .723. Therefore the scale was considered reliable with the sample.

4.2 Factor Analysis (FA) to Address Research Question 1

According to the research objective 1 the study focus to identify the factors influence procurement efficiency in SLN. Therefore study carried out Principal Components Analysis (PCA) through the SPSS as both Factor Analysis (FA) and PCA produce similar result (Pallant, 2005). The 11 items of the Positive and Negative Affect Scale (PANS) were subject to PCA using SPSS version 20. Prior to performing PCA the suitability of data for FA were assessed. Inspection of the correlation matrix revealed the presence of many factors coefficients of .3 and above. The Kaiser-Meyer-Okin value was .841, exceeding the recommended value of .6 and the Bartlett's Test of Spherically reached statistical significance, supporting the factorability of the correlation matrix. PCA revealed the presence of three components with eigenvalues exceeding 1, explaining 48.11 percent, 15.12 per cent, 9.4 percent of the variance respectively. An inspection of the scree plot revealed a clear break after the second component. Therefore it was decided to retain two components for further investigation. Parallel Analysis result summary is at Table 4.1 and Monte Carlo PCA for Parallel Analysis survey data is submitted as Appendix I as Table 4.3.

Table 4.1. Result Summary - Parallel Analysis

Component number	Actual eigenvalue	Criterion value from parallel analysis	Decision
1	5.292	1.5787	Accept
2	1.664	1.3984	Accept
3	1.042	1.2713	Reject
4	.859	1.1652	Reject
5	.827	1.0611	Reject

Source: Survey Data (2018)

According to the Table 4.1 and parallel analysis Table 4.3 of Appendix I only two initial eigenvalues are larger than

the criterion value. To interpret of those two components, Varimax rotation was performed. The rotated solution revealed the presence of simple structure, with both components showing a number of strong loadings and all variables loading substantially on only one component. The two components solution explained a total 63.23 percent of the variance, with component 1 contributing 46.39 per cent and component 2, 16.84 contributing 63.23 per cent. The interpretation of the two components was consistent with previous research on the PANAS scale, with positive affect items loading strongly on component 1 and negative affect items loading strongly on component 2. Survey details of Rotated Component Matrix according to Varimax with Kaiser Normalization is submitted as Appendix I, Table 4.4.

4.3 Hierarchical Multiple Regression Analysis to Address Research Questions 2

A model regression analysis was conducted to evaluate the variables influencing effectiveness of procurement

system in SLN. The following regression model applied.

$$Y = \beta_0 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \text{err}(-3)$$

The β 's are the regression coefficients, representing the amount of dependent variable changes when independent variable changes by 1 unit. The ϵ representing the amount the dependent Y will be when independent variables are "Zero" (0). R2 multiple correlation, which is the percent of variance in the dependent variable explained collectively by all of the independent variables. The Model Summary is submitted as Appendix II, Table 4.5.

The multiple linear regression model with variables in block 1 (verification of specifications, Post tender duration, number of quotations and duration of approval) have been entered the overall model explains 59.4 percent of the variance. After block 2 variables (duration prior initiation of purchase, evaluation committee duration,

Table 4.2. Output from Hierarchical Multiple Regression-Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	120.914	36.966		3.271	.002
Duration approval	.954	.118	.677	8.119	.000
No of quotations	-12.140	11.789	-.086	-1.030	.309
Post tender duration	1.169	.182	.535	6.416	.000
Verification specifications	1.037	.655	.133	1.584	.120
2 (Constant)	64.819	34.279		1.891	.066
Duration approval	.997	.096	.708	10.383	.000
No of quotations	-9.315	9.665	-.066	-.964	.341
Post tender duration	1.126	.151	.515	7.455	.000
Verification specifications	1.099	.533	.141	2.061	.046
Duration prior initiation	1.022	.215	.322	4.747	.000
EC duration	.957	.463	.141	2.068	.045
QC duration	.832	.841	.069	.990	.328

a. Dependent Variable: Duration of Supply
Source: Survey Data (2018)

PGL clause and quality control duration) have also been included the model as a whole explains 79.4 percent. In the model 2 R Square Change explains variance after removing the effects of variables at model 1 which is 20.1 percent. This is statistically significant contribution, as indicated by the Sig. F change value is (.000). The ANOVA Table 4.6, Appendix II indicates that the model as a whole (including both blocks of variables) is significant {F (7, 42) = 25.53, p<.0005}.

In order to establish contribution of variables to the equation defining the Coefficients tables is important. Table 4.2 below summarizes survey data.

According to the survey data at Table 4.2, the model 2 summarizes the results with all the variables entered in to the equation. Scanning the Sig. Column, there are 5 variables that make a statistically significant contribution (less than .05). In order of significance they are: Duration of approval ($\beta = .71$), Post tender duration ($\beta = .52$), Duration prior initiation purchase ($\beta = .32$), Verification of specifications ($\beta = .14$), and Evaluation Committee duration ($\beta = .14$). Number of quotations, and quality control duration are not made unique contribution. The theoretical model here is:

$$Y = \beta_0 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \text{err}$$

The estimated model after removing X9 (no of quotation) and Quality Control Duration X8 here is:

$$Y = 64.82 + .32 X_5 + .14 X_6 + .14 X_7 + .52 X_{10} + .71 X_{11} + 34.27$$

4.4 Content Analysis

The qualitative data analysis conducted through contents analysis to address research question 3. According to the PGL (2006) the elements of public procurements are

maximizing economy, timeliness, quality, least cost, standards, specifications, rules, regulations and good governance by fair, equal and maximum opportunity for eligible parties, transparency, consistency and confidentiality. However the 'Pull' based JIT and promote strong buyer-supplier relationship and team work (Phogata & Guptab, 2017). The military processes high technical complexity, thus the inventory ordering to be

shifted to Make to order (MTO) strategies with standard specifications. MTO environment forces companies to deal with demand uncertainty by implementing JIT purchases (Hale, 2005). Further uncertainty shall be reduce with continuous order and periodic ordering (Qureshi, Iftikhar, Bhatti, Shams, & Zaman, 2013). The clause 3.5 of PGL and its amendments sanctions single source supply through an agreements with OEM. The clause 3.2 and 3.3 of PGL facilitate for contractor logistics support and blanket purchase agreements.

V. DISCUSSION

The research question 1 raised to find the factors influence procurement efficiency at SLN. As such $Y=f(X_1, X_2, X_3, X_4)$ err empirical model developed to find functions and vectors of decision making (X_1), purchasing regulations (X_2), performance of stake holders (X_3), and specifications (X_4). The decision makers' decisions are influenced by factors such as timely availability of spares, cost efficiency and availability of funds. The descriptive statistics attested that decision making is significantly contributed to efficiency in procurement process in SLN. The factors such as budgetary constraints, readiness of the force, JIT spares availability, cost-effective decision-making plan are significantly contributed in decision making in purchasing procedures. The research tested the vectors of purchasing regulations such as PGL sanctions on JIT, prescribed timeline for purchase, inventory minimum levels for 'Vital' and 'Essential' items and annual replenishment plan. The factor analysis confirmed that stocks levels, annual replenishment plan and time line for purchase were positively affect to the efficiency whilst sanction on JIT was negatively affected. This research inquired factors of storage and direct vendor delivery and lead time affect to test stakeholders' contribution in purchase efficiency. The descriptive statistics attested that stakeholders are significantly contributed to efficiency in procurement process. However factor analysis proved storage and direct vendor delivery and lead time are negatively affect to procurement efficiency. The descriptive statistics attested that quality compliance, vector of specifications negatively affect to the procurement process.

The research tested descriptive statistics to find relationship of factors in efficiency of procurement process in SLN through empirical model 3, $Y = \beta_0 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \text{err}$. Multiple regression of vectors of Prior initiation purchase X_5 , Verification of

specifications X_6 , Evaluation Committee Duration X_7 , Quality Control Duration X_8 , No of Quotations X_9 , Post Tender Duration X_{10} , and Duration of Approval X_{11} were surveyed to find coefficients of each variable. It was found that Duration of approval, Post tender duration, Duration prior initiation purchase, Verification of specifications and Evaluation Committee duration significantly contributed for procurement efficiency whilst Number of quotations, and quality control duration are not made unique contribution.

Poor selection of sources and long lead time in purchases are barriers for efficiency. The implementation of JIT purchasing systems is a solution to resolve this problem. Good relationships and skilled/ loyal supplier selection leads to On-time deliveries (Herzog & Tonchia, 2014). JIT global sourcing alliance through overseas supplier-selection, evaluation and buyer-logistic carrier (Das & Handfield, 1997), supply-hub which promote rapid response to customer demand (Rong & Wang, 2015) are other options. The friendly militaries shall have collaboration to support other in meeting urgent needs of crucial inventories. Also collaboration with other organization with in the country can form an alliance with improved buying power.

VI. CONCLUSION

SLN procurement procedure is a lengthy process influenced positively with the factors such as stock levels, cost-effective decision-making plan, control budgetary environment, urgency of the requirement, readiness of the force, annual replenishment plan, and timely availability of spare parts. Also storage and vendor direct delivery, lead time, PGL sanctions on JIT and quality compliance negatively affected factors. Therefore managers concern on the assert visibility, avoid expenditure on unneeded inventory, specifications, retention of contingency stock and minimum stock levels for 'Vital and "Essential items, annual replenishment plan are essential. Lack of standardization, absence of inventory categorizations caused incomplete technical evaluations, demand compliance, excess inventory. The estimated model (3) after removing insignificant variables, No of quotation X_9 and Quality Control Duration X_8 and applying the values of survey is $Y = 64.82 + .32 X_5 + .14 X_6 + .14 X_7 + .52 X_{10} + .71 X_{11} + 34.27$. Therefore it is evident that any purchase will consume more than six months. According to descriptive analysis the number of quotation become

insignificant as only one quotations received in majority of occasions even with restricted international and national competitive bidding (PGL clause 3.3). Therefore efficiency of present system in question.

PGL is sanctioning single source suppliers which support implementation of 'JIT' procurement strategy. JIT facilitate on time purchases through OEM and sole agents. Long term relationship. Alliance and agreement abide both suppliers and buyers, amalgamation with other government organization for common requirement will help manufacturer for JIT supply having larger market share. Supply hub is another JIT option available to have continuous supply at stable price. These strategies facilitate JIT application for military reducing the risk of stock out. Therefore it is proved that 'JIT' procurement is a possible solution for SLN to apply in procurement of spares parts. As such inventory cost shall be minimized and working capital could be improved. The future research shall be focused to investigate item categorization in naval environment to facilitate application of JIT as inventory reduction instrument.

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IDENTIFICATION OF FACTORS AFFECTING WAREHOUSE EFFICIENCY IN APPAREL INDUSTRY

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Abstract- Warehouse activities are now becoming the midpoint of important to ensure the effective storing, handling, receiving the goods efficiently in the manufacturing firms. Therefore, this study has been conducted to identify the factors affecting to warehouse efficiency in apparel industry. The scope of this thesis is limited to the apparel firms in western province. A quantitative research approach based on questionnaire survey conducted for this thesis. Factor analysis was conducted to identify the factors affecting to the warehouse efficiency in apparel industry. Therefore, primary data was collected from 200 respondents using structured questionnaire. In this research there are 25 independent components have been identified through past literature review and by use of the SPSS version 17 data had been analyzed. Afterward it is found that there are six factors which affecting to the warehouse efficiency namely, quality, warehouse planning, productivity, and inventory control, cost and labor satisfaction.

Keywords- Apparel industry, Efficiency, Logistics and Supply chain, Warehousing

I. INTRODUCTION

Apparel industry has been begun to expand since 1970 and it has been has been contributed 51 percent of export to the Sri Lankan economy since 2001. (Kelegama, 2004). Mainly Sri Lanka export sportswear, lounge wear, lingerie, bridal wear, children's wear, work wear, swimwear and fabrics over the world. (Jayawardana s. , 2016) MAS Holdings, Brandix group, EAM Maliban Textile(Pvt) ltd, Crystal Martin Group and Hidramany Group can be

identify as some key players in apparel industry. (BOI, 2017)

Warehouses are comprised with loading, unloading, shelving, receiving, packaging, picking, transfer, storage, handling returns and handling claims and value adding operations. There are four main warehouse processes as receiving, storing, picking and shipping can be identified in warehouse. (Rouwenhorst, Reuter, & et al, 2000) Warehouse represents around 20-24 percent of overall logistics costs while being the ending point for Supply chain (Davis H. W., 2005) (Dadzie & Johnson, 1991) Warehouse efficiency denotes the performance level which can be described a process to create highest amount of outputs by using less inputs. (Potocan, 2006)

Apparel industry in Sri Lanka has been position in the world as manufacturer of "Garments without Guilt". (Jayawardana s. , 2016) Therefore, apparel companies needed to store their raw materials, work in progress goods, maintenance items and finished goods in a safe way. Subsequently, warehouse plays a major role in apparel industry to ensure quality and the safety of goods.

Major objective of this research is to identify the factors affecting to warehouse efficiency in apparel industry and to provide guidelines to improve warehouse efficiency.

Limitations of the study: There were some responses based issues. Because majority of the data were collected through distributing printed questionnaire. Therefore it took nearly two months to collect data

II. LITERATURE REVIEW

Quality, service and cost dimensions have given growth to improve more efficient strategies for warehousing. (Kaur & Batra) As per research of Francielly et al., they have been included replenishment accuracy, storage accuracy which is mentioned as product store in proper location, receiving accuracy, accuracy of physical inventory count, delivery and order shipping accuracy under quality indicators. Also, on time delivery, orders shipped on time, perfect order, order fill rate, stock out rate and customer satisfaction under indicators of quality. (Francielly e. a., 2015)

There was a research based on warehouse efficiency at SME of maintenance and repair item distributor. They have been more focused on order picking, inventory control and inventory accuracy. (Limere, Pradhan, Celik, & Solder, 2011) According to the Saleheen, et al., Product availability, productivity and cost effect to warehouse efficiency (Ferdoush e. a., 2014)

Productivity indicators (Mentzer & Konrad, 1991), (Francielly e. a., 2015), customer relation activities, quality level, costs, space utilization (Liviu, Emil, & Maria, 2009), warehouse automation (Jun, Li, & Jing, 2015), operational efficiency, FIFO, (Ewiene & Tayie, 2012), labor turnover (Tariq, Ramzan, & Riaz, 2013) , receiving time, replenishment time and put away time (Francielly, Mario, Alpan, & Rodriyuez, 2015), lead time (Chalotra, 2003), maintenance cost (Marco, Ruffa, & Mangano, 2009), inventory cost (Krittathip e. a., 2012), (Kaur & Batra) and safety (Jun, Li, & Jing, 2015) have been identified in previous researches as efficiency factors.

III. METHODOLOGY

The research scope has limited to the apparel industry in Sri Lanka and quantitative research method has been used in this research. Number of factors identified in analysis can be identified as the independent variable and the dependent variable is the warehouse efficiency. The population is consists of managerial, executive employees and workers in 3014 warehouses in apparel industry in western province while sample size represent the 200 respondents from 20 units. Structured questionnaire was distributed to collect primary data and exploratory factor analysis was used to conduct a data analysis.

Multi stage sampling technique has been used as sample technique. Therefore, stratified random sampling technique has been used in first stage. Hence, sample has been divided in to stratum as small scale, medium scale and large scale. Convenience sampling technique has been used to distribute the questionnaire and data collected from 200 respondents using structured questionnaire.

Primary data were collected through questionnaire survey & web based questionnaire to identify the relationship between independent variable and the dependent variable and SPSS version 17 has been used to analyze data while Microsoft Excel was used for the management purposes of data.

IV. RESEARCH METHODS

Factor analysis has been used in this study to reduce the data to recognize a small amount of factors which explain most of the variance which is observed in considerably larger amount of manifest variables. Reliability analysis has been used to determine the internal consistency of data. Cronbach's alpha is the most common and popular measure of internal consistency or reliability. (Reynaldo & Santos, 1999) Following formula can be applied, (α = Cronbach's alpha, r = inter item correlation, pair wise, no. of items in the scale)

$$\alpha = \frac{rk}{1+(k-1)} \dots\dots\dots \text{Equation 01}$$

Keiser- Meyer-Oklin Test (KMO test) has been used to identify the suitability of data for factor analysis and Acceptability for a set of variables is greater than 0.7.

Total variance has been used to determine the total percentage of variance of components which is described by variables and then factor rotation has been conducted according to the verimax rotation method to gain the meaningful factors. Then component score co- efficient vmatrix used to formulate the equation for model.

Crosstabs has been used to determine to whether there is a relationship between two variables and shows a significant value less than 0.05 in the chi square table if there is effect of one variable on the other.

One way ANOVA used to test whether there is a significance difference between at least two samples or

not. There for it can be used following (02) equation. (SST=Sum of square of total variance, SB= Sum of square between groups, SSW= Sum of square of within groups)

$$SST=SB+SSW \dots\dots\dots \text{Equation 02}$$

Hypothesis are written as follows,

$$H_0=\mu_1= \mu_2= \mu_3= \mu_4= \dots\dots\dots = \mu_n \text{ (All means are equal)}$$

$$H_A= H_0 \text{ is not true (At least two samples are difference)}$$

V. RESEARCH FINDINGS AND DATA ANALYSIS

Reliability Statistics

Table 1. Reliability Statistics

Cronbach's Alpha	N of Items
.939	25

Keiser- Meyer-Oklin (KMO) Measure of Sampling Adequacy is denotes the sample size of the data. According to the above table KMO is 0.889. This value is surpassing the recommended value of 0.6.

According to the Bartlett's test of Sphericity,

- H_0 : Correlation matrix is an identity matrix
- H_1 : Correlation matrix is not an identity matrix

The value of the Bartlett's test significance of above table is 0.0000. That value is less than 0.05. It indicates the correlation matrix confirming correlation is significantly different from zero. This means that the correlation matrix is not an identity matrix.

According to the Rotated Component Matrix, factor loading for component one, replenishment accuracy in our warehouse has an positive impact on warehouse efficiency (Q2), Orders are picking correctly per order picked (Q4), usually our warehouse personnel maintain an effective put away time (Q6), errors free orders are shipping efficiently on time (Q7), most of the time we

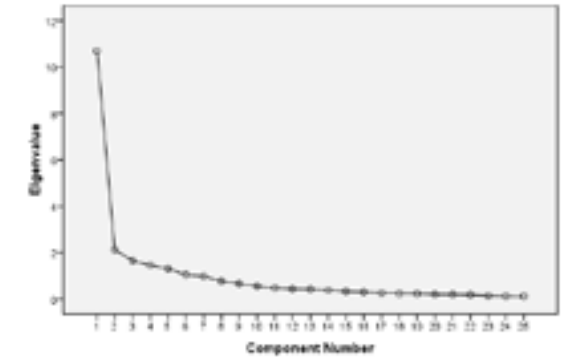


Figure 1. Scree Plot

have orders distributed without accidents (Q8), usually we deliver our goods on time to increase efficiency (Q9) and there are guidelines or standard operating procedures in your warehouse (Q13) are having higher loadings within component one. Therefore those variables can be identified as greatly influential and significant than other variables. By considering those seven variables, factor one can be formed.

$$\text{Factor 1} = f(Q2, Q4, Q6, Q7, Q8, Q9, Q13)$$

This factor one can be named as quality.

When consider the factor loading of component two, we are storing our products in proper locations in warehouse (Q1), we applied FIFO for our inventory management (Q5), we are successful in our transport utilization (Q16), most of the time our warehouse personnel utilizes a reasonable warehouse spaces for product handling (Q18) and we are successful in reducing transport cost (Q19) can be used for form factor two.

$$\text{Factor 2} = f(Q1, Q5, Q16, Q18, Q19)$$

This factor can be named as warehouse planning

Furthermore factor loading of component three shown that factor loading of, Successfully maintain physical Inventory count accuracy in our warehouse (Q3), Rarely our products are not available in stock when the customer makes an order (Q10), Effective receiving, replenishment storage and delivery productivity results a higher efficiency in your warehouse (Q11), Do you think labor productivity and efficiency can be impact on your

warehouse performance efficiency (Q24) and Do you think that warehouse automation can be changed your warehouse efficiency? (Q25) can be formed as using these variables.

Factor 3= f (Q3, Q10, Q11, Q24, Q25)

Factor three can be named as productivity

According to the factor loading of component four, Most of the time our warehouse personnel serve our supplier and makes product ready for shipment on the reasonable time (Q14), we are successful in minimizing total carrying/holding cost (Q15) and we are successful in minimizing total product damage in the warehouse (Q17) have higher factor loadings greater than 0.5 while others are less than 0.4 except Q8 and Q13 that are already considered under component one and Q25 already considered under component three. There for factor four can be formed using Q14, Q15 and Q17.

Factor 4= f (Q14, Q15, Q17)

Factor four can be named as, inventory control

As results of factor loadings of component five, holding higher inventory cost has a negative effect on warehouse efficiency (Q12), Lead time for replenishments, dock to stock, order picking, shipping and delivery have negative impact on warehouse performance efficiency (Q20) and Maintenance cost can be retraining factors for increase warehouse efficiency (Q21) have loading value more than 0.65 while others are less than 0.3. Thus, factor five can be formed using those variables.

Factor 5= f (Q12, Q20, Q21)

Factor five can be named as cost

Furthermore factor loading of component six, do you have faced to problem of labour turnover in your warehouse which causes to reduce warehouse efficiency? (Q22) and Are you satisfied with your income level? (Q23) have been consisting of factor loading values greater than 0.7 while others have been consists of factor loading values less than 0.5.

Factor 6= f (Q22, Q23)

Factor six can be named as labor satisfaction

Reliability Statistics

Table 2. Reliability Statistics for Six Factors

Cronbach's Alpha	N of Items
.802	6

Table 3. Cronbach's Alpha

Factor	Name	Cronbach's Alpha	N of items
F1	Quality	.922	7
F2	Warehouse planning	.821	5
F3	Productivity	.854	5
F4	Inventory Control	.828	3
F5	Cost	.768	3
F6	Labor Satisfaction	.602	2

As a result of the reliability analysis all Cronbach's Alpha values are more than 0.6. As those values are greater than 0.5 those items can be combined to create variables. That is because items are having unidirectional.

According to the Component Score Co-efficient matrix result,

Factor 1 (Quality) = 0.306Q2 + 0.342Q4 + 0.211Q6 + .292Q7 + 0.175Q8 + 0.041Q9 + 0.138Q13

Factor 2 (Warehouse planning) = 0.125Q1 + 0.291Q5 + 0.325 Q16+ 0.337 Q18 + 0.352 Q19

Factor 3 (Productivity) =0.197Q3 + 0.311Q10 + 0.287 Q11+ 0.263Q24 + 0.283 Q25

Factor 4 (Inventory control) = 0.444Q14 + 0.418Q15 + 0.219Q17

Factor 5 (Cost) = 0.296Q12 +0.465Q20 + 0.384Q21

Factor 6 (Labor satisfaction) = 0.556Q22 + 0.445 Q23

To Identify Whether Factors Depend on Scale of the Company

Hypothesis to identify whether factors depend on company scale can be shown as below,

H₀= Efficiency factor is not different between company scale

H₁ = Efficiency factors at least one is not equal

According to the descriptive statistics, small scale industry have doubt whether the quality factor is affect to the warehouse efficiency. So small scale industries have not clear idea about the quality factor. However, medium and large scales companies are strongly considered factor one as influence to the efficiency of the warehouse.

Also factor five varies between small and large scale companies as it show significant values. Mean value for the smaller scale is less while larger scale represents high There for smaller scale industries have not clear answer whether the cost factor is affect to the warehouse efficiency. But then again larger scale companies were agreed on the factor cost as warehouse efficiency factor.

To Identify Whether Factors Depend on No. of Employees in the Warehouse

Hypothesis to identify whether factors depend on number of employees can be shown as below,

H₀= Efficiency factor is not different between groups

H₁ = Efficiency factors at least one is not equal

According to the descriptive statistics, companies that have more than 50 employees they are more concern about quality factors for the warehouse efficiency relative to companies which have less than ten employees. The

companies which have 11- 20 employees are more concern on the warehouse planning factors to the efficiency.

According to the descriptive statistics, companies which have 11-20 employees are more concern on the warehouse productivity factors relative to the companies which have less than ten employees and more than 50 employees. The companies that consist with more than 50 employees are more concern on the Labor satisfaction factors for the warehouse efficiency.

To Identify Whether Factors Depend on Security level

Hypothesis to identify whether factors depend on number of employees can be shown as below,

H₀ = Efficiency factor is not different between security levels

H₁ = Efficiency factors at least one is not equal.

According to the descriptive statistics, companies which have low security level do not have clear idea about the quality factors to the efficiency while companies which have high and moderate security levels are more concern on efficiency factors. Furthermore companies which have moderate level of security have more concern on labor satisfaction compared with the companies which have low security level.

Identify the Relationship between No of Customer Complaints and Efficiency Factors

According to the research done by Loughborough university customer complaints should handle efficiently. (Gruber & Szmigin, 2009)

Hypothesis can be shown as below.

H₀ = Customer complaints are not depend on efficiency factors

H₁ = Customer complaints are depend on efficiency factors

According to the Chi-square test, Numbers of customer complaints are depend on the quality factor. Because, the chi-square value is 0.001 and it is significant. Because of P value is less than 0.005. Also number of customer complaints is depending on the, productivity, inventory control, and the Labor satisfaction. Because they are having P values which are less than 0.005

Table 4. Chi-Square Test

Factor	Factor name	Pearson chi-square
F1	Quality	0.001
F2	Warehouse planning	0.007
F3	Productivity	0.000
F4	Inventory Control	0.000
F5	Cost	0.005
F6	Labor Satisfaction	0.000

Table 5. Crosstab

		F1 Agree %	F2 Agree %	F3 Agree %	F4 Agree %	F5 Agree %	F6 Agree %
Number of customer complaints per week	0-1	86.7%	83%	87.8%	77.4%	66.1%	49%
	1-3	76.7%	58.3%	78.4%	70%	68.4%	81.6%
	4-10	73.3%	73.3%	33.3%	40%	63.2%	53.3%
	More than 10	100%	84.2%	5.3%	78.9%	64.5%	47.3%

According to the table 5, Companies which gain more than ten customer complaints per week are 100 percent agree on the quality factor and companies which gain customer complaints more than four but less than ten are agree on factor one and two while less agree on factor three.

V. CONCLUSION AND RECOMMENDATIONS

To identify the major factors affecting to the warehouse efficiency, factor analysis had been conducted. There

are six factors have been identified that are affect to the warehouse efficiency named, quality, warehouse planning, productivity, inventory control, cost and labour satisfaction. Furthermore reliability test carried out to create variables and conducting further analyses researcher identify how the efficiency factors depend on the scale of company, number of employees, security level of the company and identified the relationship between number of customer complaints and the efficiency factors.

Smaller scale companies should have to more concern on the quality and cost factors. Companies that have less than ten employees have to be more concern on the quality and the warehouse productivity factors. Also, companies which consist of 21-50 employees should more concern on the warehouse planning factors while companies which have more than 50 employees should more concern on the inventory control factors. If a company has less than 50 employees should more concern on Labor satisfaction factors.

Table 6. Number of Customer Complaints per week* Company Scale Cross Tabulation

		Company scale			Total
		small	medi-um	large	
Number of customer complaints per week	0-1 Count	2	33	71	106
	% within Number of customer complaints per week	1.9%	31.1%	67.0%	100.0%
	1-3 Count	17	15	28	60
	% within Number of customer complaints per week	28.3%	25.0%	46.7%	100.0%
	4-10 Count	0	6	9	15
	% within Number of customer complaints per week	.0%	40.0%	60.0%	100.0%
More than 10 Count	0	0	19	19	
% within Number of customer complaints per week	.0%	.0%	100.0%	100.0%	
Total Count	19	54	127	200	
% within Number of customer complaints per week	9.5%	27.0%	63.5%	100.0%	

According to the above table, larger scale companies are agreed on quality factors while they have more percentage of customer complaints. Therefor larger scale companies should have to be more concern on the quality factors.

Furthermore, this research can be used for future research studies and can be used to develop model for this.

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A STUDY ON THE EFFECT OF ONLINE SYSTEM OF SRI LANKA CUSTOMS ON SHIPPING LINES' SATISFACTION

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Abstract- Sri Lanka Customs performs a vital role in the country. The functions performed by them include collection of government revenue as customs duty and other levy on behalf of a number of other government authorities and further the securing of national airports/seaports in relation to the export and import of both commercial as well as personal goods. With the introduction of the new online system, due taxes for the import and exports are collected by way of processing Customs declarations submitted to the ASYCUDA system. The purpose of this study was to identify the effect of the new online system on customer satisfaction. Primary data was collected via a questionnaire survey. The sample size used was 30 shipping lines and agents. The purposive sampling method was used to select the sample to include the larger shipping lines. The questionnaire consisted of fifteen questions covering five main factors. The SERVQUAL model was used to measure service quality. The questionnaire included a likert scale consisting of five options to obtain the responses. Respondents for the questionnaire were employees who were using the online system. During the analysis the KMO and Bartlett Test were used for the evaluation of reliability and SPSS statistical software was used to conduct the analysis. The correlation was analyzed using Kendall's tau_b and Spearman's rho tests. As per the findings the online system's reliability, responsiveness and tangibility have a positive and strong effect on satisfaction of shipping lines, while assurance and empathy have a negative effect on shipping line's satisfaction. Therefore as recommendations, the features relevant to assurance and empathy should be enhanced in order to boost the customer satisfaction of the online Customs system.

Keywords- Online Customs system, Shipping lines, Customer satisfaction

I. INTRODUCTION

Sri Lanka Customs which celebrated its 200 years in 2009, is one of the oldest Customs administrations in the world. Sri Lanka Customs is coming under the wing of the Ministry of Finance. Its functions include prevention of revenue leakages and other frauds, collection of revenue for different purposes, facilitation of lawful trade, collection of import/export data to provide necessary statistics, proper coordination and cooperation with additional government departments and stakeholders with respect to imports and exports.

A. Background of the study

The term 'trade facilitation' is frequently used in the perspective of trying to progress on smoothing the interface between government bodies and importers/exporters at state borders. It is the process of simplification of the related procedures, standardization of work and harmonization of procedures and the related information flows which are required for the smooth and efficient movement of goods from sellers to buyers and to fulfill the necessary payments. In view of the fact that trade facilitation and security of the international trade supply chain are key elements in the rapidly growing global trade, there are several international organizations involved in regulating and implementing trade facilitation

and security-related provisions. The United Nations Conference on Trade and Development has designed an Automated System for Customs Data (ASYCUDA) which is a computerized system designed to administer a country's customs.

Sri Lanka Customs comes under the Customs Ordinance No. 17 of 1869, to which 51 amendments have been made to date. It works mainly through the powers vested in it, under the Customs Ordinance, at the same time it utilizes powers given through several other related enactments. The functions performed by them include collection of government revenue as customs duty and other levy on behalf of a number of other government bodies and further the securing of national airports/seaports in relation to the export and import of both commercial as well as personal goods.

With the introduction of the new online system, due taxes for the import and exports are collected by way of processing Customs declarations submitted to the ASYCUDA system. When processing some of these Customs declarations Sri Lanka Customs needs approvals, permits and licences of over 43 government institutions and departments. At present most of these licenses, permits and approvals are paper based. That is the importer/exporter attaches a hard copy of the approvals to the Customs declarations. At present there is no way to authenticate the accuracy of these documents real time and cost effectively. Therefore, it is of great national importance to have a mechanism to obtain these approvals online, securely and effectively.

Sri Lanka Customs has identified a way to address this issue by way of connecting these government institutions to the ASYCUDA system to obtain the relevant approvals, licences permit etcetera on line and real time.

The intention of the system is to perform as a regulatory single window where all the regulatory agencies are connected through the ASYCUDA system. When a Customs declaration is submitted the system checks as to whether an approval, permit or a licence is required to process the same. If required it then checks from which government agency the approval should be obtained and refers the relevant Customs declaration online to the relevant government agency. The officers of the relevant government agency either approves/rejects or calls for further clarifications from the importer/exporter.

Customs intends to connect all these regulatory agencies to obtain their approvals online. Currently out of the related 43-odd government organizations, Sri Lanka Tea Board and the Food controller are connected.

The research has studied the effect of this online system on customer satisfaction.

B. Problem statement

Sri Lanka Customs account for nearly 55% of the national tax revenue. Prior to 1993 the revenue collection was totally manual (Sri Lanka Customs, 2014). This included the submission of the manifest. The manifest contains details of all the goods in a ship arriving at a country. During this period the shipping lines and the freight forwarders had to undergo severe difficulties because submission of the manifests was paper based. Over 16 copies of the manifest had to be submitted to various branches of the Customs previously. These included the preventive division, long room, bonding division, "D" branch etcetera. The agents had to personally visit the relevant divisions and branches and deliver the hard copy of the manifest. This involved a huge cost to the shipping lines and to the freight forwarders. Next the declarants had to key in the Customs declaration at their office and submit the same to the Customs. This was again a time-consuming process.

When the duty payment came in the importers/exporters had to go to the banks and obtain pay orders or checks, come back to Customs and make the payments. All these manual processes were time consuming and was costing the trade a lot of money. Subsequently certain parts of revenue collection was automated. However, this was not an online web-based system and did not provide for online submission of the customs declarations through which the state revenue is collected. With the introduction of the new online system, due taxes for the import and exports are collected by way of processing customs declarations submitted to the ASYCUDA system.

Therefore the objective of the study was to identify the effect of the online system of Sri Lanka Customs on shipping line's satisfaction. As it is a service that is provided by the Custom's online system, the service quality parameters were used to measure the effect of the system on customer satisfaction.

II. LITERATURE REVIEW

Customs service's play an important role in the development of a country's exports/imports of goods and services.

Customer satisfaction can be defined as "It is a judgment that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under- or over fulfillment" (Oliver, 1997). In current context, customer satisfaction is a very important aspect in the organization and it plays a major role in the future sustainability and prosperity of the organization.

"Customer satisfaction measurement is now considered as the most reliable feedback, considering that it provides an effective, direct, meaningful and objective way about the customers' preferences and expectations" (Grigoroudis and Siskos, 2010). Dissatisfaction means the failure of meeting customer expectations and needs (Zeithaml, Parasuraman and Berry, 1990). The main goal of every organization is satisfying customers with their products.

Customer satisfaction is based on service quality. There by as an instrument to measure service quality SERVQUAL method can be used (Zeithaml, Parasuraman and Berry, 1990)

It is based on five major dimensions: tangibility, responsiveness, reliability, empathy and assurance. Tangibility means the appearance where the attractiveness of facilities, equipment and materials of the company. Reliability means the delivery of the service in a careful manner understanding everything without any mistakes. Responsiveness means the service personal provides a customer response quite actively to his/her request. Assurance is evidence of importance of trust and confidence that employees give to client by convincing him/her of their professional skill and behaving politely. It gives security to the customer. Empathy is the ability of understanding the need of each person and providing an answer at the best level towards his/her request.

Three main steps can be used to ensure customer satisfaction in the process which are understanding of the customer needs, obtaining the customers' feedback for a particular product/service and implementing an ongoing

program to ensure customer contentment. It is the key to success of a service firm.

Satisfaction is the state of mind attained by an individual who has experienced a performance/outcome which was supposed to fulfill his or her expectation or need. Expectations are formed based on experience, with the same or similar situations, statements by friend or other associates and statements by the organization (Kotler, 1997). Satisfaction is an overall psychological state that appraises a company, its environment and the product or service provided to a person. Satisfaction is an opinion that a product or service feature or the product/service itself, provided a delightful level of consumption related fulfillment, a satisfying level or an under fulfillment (Oliver, 1997). Satisfaction also can be an individual's feeling of bliss or discontent which results with a company's product's perceived performance or outcome with their expectation (Kotler and Keller, 2011).

Equipping organizations with the modern technologies and information systems is the main method to facilitate trade. The application of information and communication technology plays a significant role for EDI (electronic data interchange) in the form of electronic customs systems. Observing this situation, many nations have taken the initiative to implement an electronic customs administration, experiencing the benefits and positive effects of the operation (Shirsavar and Shirinpour, 2016). In Iran, numerous steps have been taken to integrate modern information and communications technologies to their customs system. By strengthening trade facilitation of a country the competitiveness of cross-border trading can be improved. This becomes beneficial to the country by reducing the cost of exports and reduction of lead times. One of the strategies to improve the export competitiveness of the nation is to develop the trade facilitation through the utilization of modern systems such as information and communication technology which supports the electronic customs system.

Shirsavar & Shirinpour (2016), discusses the benefits of using technology, including the remote identification of merchandises using radio waves in the electronic customs administration (RFID). The technology has to be adopted in customs operations as well as in activities of individuals and related establishments involved in import-export process and transit of goods. As a result

of this, an increased efficiency of customs procedures and the faster and safer security of exchanges and transactions can be achieved.

Service is “any intangible act or performance that one party offers to another that does not result in the ownership of anything (Kotler and Keller, 2011).” Consumers seek quality through product or service (Soloman, Russell-Bennet and Previte, 2009). Therefore, product or service should have the ability to deliver satisfaction with characteristics and features of the product or services. Service quality can be further defined as “the differences between customer expectations and perceptions of service” (Parasuraman, Zeithaml and Malhotra, 1988). Service improvements and quality of the service drives customer satisfaction.

Service quality has 10 important aspects that play an important role in its estimation made by consumer. These dimensions are reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer but only five dimensions under the famous SERVQUAL technique. (Zeithaml, Parasuraman and Berry, 1990)

Most commonly acknowledged measurement tool ever developed include 10 dimensions and later reduced to 5 dimensions. SERVQUAL method is using to conduct customer satisfaction surveys service quality is measured (Zeithaml, Parasuraman and Berry, 1990).

Tangibility: physical facilities and equipment available, appearance of staff, personal framework for employees and normative materials.

Reliability: ability to perform promised service dependently and accurately

Responsiveness: helping customers and providing a prompt service safe and efficient manner

Assurance: ability of employees to convey trust and confidence, knowledge and courtesy of employees

Empathy: providing a caring, individualized attention provided to customers, understanding accessibility, sensitivity, and effort in understanding the needs of users.

III. METHODOLOGY

A .Conceptual Framework

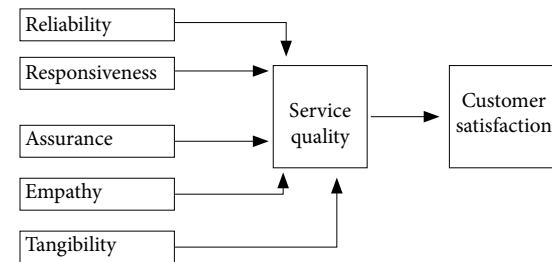


Figure 1. Conceptual framework

As it is a service that is provided by the Custom’s online system, the service quality parameters were used to measure the effect of the system on customer satisfaction as depicted by Figure 1.

Table 1. Operationalization table

Variable	Indicators	Measurement
Reliability	Capability to perform promised service in dependently Capability to perform promised service accurately	Five-point Likert Scale
Responsiveness	Helping customers in an efficient manner Providing a prompt service in a safe and efficient manner	Five-point Likert Scale
Assurance	Ability of system to convey trust and confidence	Five-point Likert Scale
Empathy	Providing a caring, individualized attention provided to customers Understanding accessibility Effort put in understanding the needs of users	Five-point Likert Scale
Tangibility	Physical facilities and equipment available (user freindly) Framework for employees and normative materials	Five point Likert Scale

For the data collection purpose, a questionnaire was developed out of the operationalizing of the variables identified as depicted in Table 1. No mediating variables were used as the previous study in Iran had not utilized any mediating variables. The primary data collection was done from 30 shipping lines. The method of purposive sampling which is a non-probability sampling method was used to select the sample to include the larger shipping lines. Employees who are involved with the online Customs system were selected to administer the questionnaire. The employees were selected by the organizations, as employees who are using the customs system were needed to administer the questionnaire. Therefore the main method of data collection of the study was the questionnaire method. The analysis methods used for the data collected were mainly the Kendall’s tau b test and Spearman’s rho.

IV. RESULTS

A. Internal Consistency of data

The alpha coefficient was 0.631, suggesting that the items have an acceptable level of internal consistency.

B. Model Summary

Table 2. The Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822a	.675	.607	.25494

a. Predictors: (Constant), empathy, responsiveness, reliability, empathy, assurance

As depicted in Table 2 the R squared value is 0.675, which depicts that the variables are able to explain sixty seven percent of the variance of the model.

Table 3. ANOVAa

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	3.240	5	.648	9.971	.000b
Residual	1.560	24	.065		
Total	4.800	29			

a. Dependent Variable: shipping lines Satisfaction

b. Independent Variables: (constants), reliability, responsiveness, assurance, empathy, tangibility

According to Table 3, the model is significant as the test statistic is less than 0.05.

Table 4. Results of KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.719
Bartlett’s Test of Sphericity	Approx.	
	Chi-Square	63.330
	Df	15
	Sig.	.000

According to Table 4, the KMO test statistic was 0.719 which depicts the sampling adequacy of the sample used.

Table 5. Correlations (Shipping lines satisfaction and the reliability of system)

			Shipping line satisfaction	Reliability
Kendall's tau_b	Shipping line satisfaction	Correlation Coefficient	1.000	.494**
		Significance (2-tailed)	.	.003
		N	30	30
	Reliability	Correlation Coefficient	.494**	1.000
		Significance (2-tailed)	.003	.
		N	30	30
Spearman's rho	Shipping line satisfaction	Correlation Coefficient	1.000	.548**
		Significance (2-tailed)	.	.002
		N	30	30
	Reliability	Correlation Coefficient	.548**	1.000
		Significance (2-tailed)	.002	.
		N	30	30

** Correlation is significant at the 0.01 level (2-tailed).

As per Table 5 Kendall's tau b value (0.494) and Spearman's rho (0.548) value both indicate that reliability of the ASYCUDA online system and the satisfaction of shipping lines are significantly (at 0.01 level) and positively related. Therefore the shipping lines are satisfied with the reliability of this system.

Table 6. Correlations (Shipping lines satisfaction and the responsiveness of system)

			Shipping line satisfaction	Responsiveness
Kendall's tau_b	Shipping line satisfaction	Correlation Coefficient	1.000	.491**
		Significance (2-tailed)	.	.005
		N	30	30
	Responsiveness	Correlation Coefficient	.491**	1.000
		Significance (2-tailed)	.005	.
		N	30	30
Spearman's rho	Shipping line satisfaction	Correlation Coefficient	1.000	.526**
		Significance (2-tailed)	.	.003
		N	30	30
	Responsiveness	Correlation Coefficient	.526**	1.000
		Significance (2-tailed)	.003	.
		N	30	30

** Correlation is significant at the 0.01 level (2-tailed).

As per Table 6 Kendall's tau b value (0.491) and Spearman's rho (0.526) value both indicate that responsiveness of the ASYCUDA online system and the satisfaction of shipping lines are significantly (at 0.01 level) and positively related. Therefore the shipping lines are satisfied with the responsiveness of this system.

Table 7. Correlations (Shipping lines satisfaction and the assurance of system)

			Shipping line satisfaction	Assurance
Kendall's tau_b	Shipping line satisfaction	Correlation Coefficient	1.000	-.067
		Significance (2-tailed)	.	.699
		N	30	30
	Assurance	Correlation Coefficient	-.067	1.000
		Significance (2-tailed)	.699	.
		N	30	30
Spearman's rho	Shipping line satisfaction	Correlation Coefficient	1.000	-.072
		Significance (2-tailed)	.	.706
		N	30	30
	Assurance	Correlation Coefficient	-.072	1.000
		Significance (2-tailed)	.706	.
		N	30	30

As per Table 7 Kendall's tau b value (-0.067) and Spearman's rho (-0.072) value both indicate that assurance of the ASYCUDA online system and the satisfaction of shipping lines are not significantly (at 0.01 level) related. Also there is a negative relationship between these two variables. Therefore the shipping lines are not satisfied with the assurance of this system.

Table 8. Correlations (Shipping lines satisfaction and the empathy of system)

			Shipping line satisfaction	Empathy
Kendall's tau_b	Shipping line satisfaction	Correlation Coefficient	1.000	-.226
		Significance (2-tailed)	.	.207
		N	30	30
	Empathy	Correlation Coefficient	-.226	1.000
		Significance (2-tailed)	.207	.
		N	30	30
Spearman's rho	Shipping line satisfaction	Correlation Coefficient	1.000	-.234
		Significance (2-tailed)	.	.213
		N	30	30
	Empathy	Correlation Coefficient	-.234	1.000
		Significance (2-tailed)	.213	.
		N	30	30

** Correlation is significant at the 0.01 level (2-tailed).

As per Table 8 Kendall's tau b value (-0.226) and Spearman's rho (-0.234) value both indicate that empathy of the ASYCUDA online system and the satisfaction of shipping lines are not

significantly (at 0.01 level) related. Also there is a negative relationship between these two variables. Therefore the shipping lines are not satisfied with the empathy of this system.

Table 9. Correlations (Shipping lines satisfaction and the tangibility of system)

			Shipping line satisfaction	Tangibility
Kendall's tau_b	Shipping line satisfaction	Correlation Coefficient	1.000	.738**
		Significance (2-tailed)	.	.000
		N	30	30
	Tangibility	Correlation Coefficient	.738**	1.000
		Significance (2-tailed)	.000	.
		N	30	30
Spearman's rho	Shipping line satisfaction	Correlation Coefficient	1.000	.772**
		Significance (2-tailed)	.	.000
		N	30	30
	Tangibility	Correlation Coefficient	.772**	1.000
		Significance (2-tailed)	.000	.
		N	30	30

As per Table 9 Kendall's tau b value (0.738) and Spearman's rho (0.772) value both indicate that tangibility of the ASYCUDA online system and the satisfaction of shipping lines are highly significant (at 0.01 level) and positively related. Therefore the shipping lines are highly satisfied with the tangibility of this system.

assurance and the empathy aspects need to be improved. This will help to improve the customer satisfaction of the new online Customs system. As further research it can be recommended to study the cost impact (potential cost reduction) of using the online Customs system on shipping lines, shippers and consignees.

V. DISCUSSION AND CONCLUSION

This study was conducted to analyze and identify the effect of the online system of Sri Lanka Customs on shipping line's satisfaction. As the ASYCUDA online system is providing a service, the service quality parameters: responsiveness, reliability, assurance, tangibility and empathy were used as the independent variables and the shipping lines' satisfaction was the dependent variable. The data analysis was done using both Kendall's tau b test and Spearman's rho test. According to the findings reliability, responsiveness and tangibility have a positive and strong effect on satisfaction of shipping lines, while assurance and empathy have a negative effect on shipping line's satisfaction. Therefore it can be recommended that the features of the online system which will enhance the

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FACTORS AFFECTING ON THE DEMAND FOR THREE WHEELERS: SPECIAL REFERENCE TO THE PERCEPTION OF PASSENGERS

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Abstract - Three wheelers play a significant role in the transportation sector in Sri Lanka. The selection of this topic is highly influenced to the current situation of Sri Lanka where we can see a large number of three wheelers on the road. It is clearly highlighted a rapid growth in three-wheel population from one year to another. Statistical reports of Department of Motor Traffic Sri Lanka show More than 65% of growth from year 2014 to 2015. which compel government to restrict the importation of three wheelers. Therefore, Research is conducted to identify the factors contributing to a high demand for three wheelers. Researcher selected Colombo metropolitan area as the sample, because it is consisted with a large population, large working crowd, congested travel area and less parking facilities. Under random sampling technique, Researcher distributed a questionnaire for more than 500 passengers. After testing the reliability of the data set, a factor analysis was run to identify the most influential factors contributing the demand for three – wheelers. Finally, it was concluded that passenger behaviour, quality of service, transport sector variables, infrastructure and policy making are highly influenced on the demand for three - wheelers.

Keywords- Three Wheelers, Demand for Three Wheelers, Factors Contribution for Three Wheelers

I. INTRODUCTION

Non-arguably transport is one of the most discussed topics in current Sri Lankan context. People use transport

modes to fulfil their transport needs and also the mode of transport is depending on various factors affecting to it. (Rose and Hensher, 2013). As a developing country, Sri Lanka is not in a position to provide more effective and efficient public transport service which yield ample space for informal public transport (IPT) service providers to enter in to the market at minimum barriers as well as it increases the use of private vehicles as well.

In very early years, Sri Lanka didn't have variety of modes to fulfil their transport requirements. The man motorized

transport service is the public transport service. with the effect of privatization, different transport modes came to transport market which made a huge difference in the total context of the transport market. Although the public and private transportation services provide a rapid and reliable means of transportation, there are some gaps that still they cannot touch with their capacity such as late-night travel, early morning travel, travel up to the destination, travelling in rural areas, small cities and more. Due to these factors informal public transport or Para transit became much needed services in lifestyle of people.

Para-transit relates to public or group transportation. In relation to Sri Lankan context Three Wheelers are the most common and most popular method that can be seen as a way of providing Para-transit to the general public where it gives the user/commuter the advantage

of selecting a flexible travel option specially focused on rapidly urbanizing areas.

Three wheelers have become a much-needed transport mode in transport system and eventually it has become the most preferable mode of Para transit with compared to other modes of Para transit, in different phases such as Budget Taxi, Pick me and Fair Taxi.

Table 1.1, registrations of new three wheels in 2014 and 2015.

Month	New Registration 2014	New Registration 2015	Growth
Jan.	5944	8350	40%
Feb.	5148	7790	51%
Mar.	6292	12530	99%
Apr.	6809	10836	59%
May.	5750	10947	90%
Jun.	6126	11509	88%
Jul.	7145	12338	73%
Aug.	6450	10372	61%
Sep.	7538	12396	64%
Oct.	7250	8299	14%
Nov.	6895	13208	92%
Dec.	7691	11503	50%
Total	79038	130078	

(Source: Department of motor traffic 2014-2015)

Above is a comparison which shows how large the growth of three-wheel population in two recent years.

High demand for Travelling, increasing population, increasing the number of work places, Increasing the number of trip rate and less parking space and many other factors have undoubtedly been increased the demand for three-wheelers. (Kumarage, Bandara and Munasinghe, 2010)

Research Question

A research should be incorporated with a present-day context. Majority of policy makers as well as the general

public view that, Three - wheelers are affecting to high traffic congestion in the country. Based on that practical issue, the research question has been derived as,

What are the factors affecting high Demand for three-wheelers in Sri Lanka? (Special reference to the perception of passengers)

Hence, the research objectives have been determined as,

- 1) Identifying the most influential factors affecting to high demand for three – wheelers.
- 2) Recommending possible suggestions those can be undertaken by the policy makers to reduce the negative impacts which will be related with three – wheeler demand.

Significance of the research

No one will ever think a Motorized engine covered with an aluminum body, runs on 3 small wheels will have so much of impact on economy as well as the transport system. In Sri Lanka, transport is the most discussed topic at the current context. Less development of infrastructure facilities and Enhancing the number of private vehicles on the road has become a paradox situation in the country. and traffic congestion has become one of the most significant transportation problem. According to the view of policy makers, three wheelers are very tightly engaged with this issue. because it has a remarkable growth. three – wheelers lead to have many road accidents due to sudden turns and also traffic congestion. Many traffic offences are commonly committed by three – wheeler drivers. This transport mode is highly famous for illegal activities such as illegal drugs transportation. Social issues are created due to that. Therefore, general public view three – wheeler as a risk. But still people are demanding the service of three – wheelers. Therefore, research is conducted with the expectation of finding the most influential factors affecting on high demand for three – wheelers as it will be very supportive for policy makers to undertake solutions to mitigate the impact of this issue.

Literature review

Once the name “Para transit” has introduced to the world, varies types of Para transit methods have also been introduced. From few years back, number of terminology

has been introduced for what is called 'Informal Transport modes' such as intermediate, unincorporated, para-transit, unregulated, low cost and informal high occupancy modes. All these mentioned terminologies have been interchangeably used to identify vehicles and operational systems which fill the gaps between the mass-public transports systems, whether road, rail, non-motorized transport. (Robert, 2007)

If people do not need to move from one place to another or if they do not need to move something from one place to another place the need of transportation will be zero. Therefore it is normally argued that, transportation has a derived demand which arises due to another incident or factor.

System of a country, which as per the Manuel Jose D. Camagay "mobility is a paramount element to the rapid growing areas and areas which are already congested. And he further states that non-regularization of private short distance transportation modes creates a certain amount of pollution as well."

As per the Amal S. Kumarage (2009) "Para-transit is urban passenger transportation services usually available to certain groups of users or to the general public, but adoptable in its routing and scheduling to individual user's desires in varying degrees"

Also, he stated that informal transport modes as "transport services or modes which are unregulated and often illegal, acting in free market competition with other informal services as well as with the formal ones, usually emerging in areas of low income populations, in cities in developing countries, or areas left not served by traditional services".

Also mentioned that Informal transport modes describe "community based informal transport systems as travel services arranged among individuals who agree to prices prior to the trip, routes, and schedules case by case basis by word of mouth and without government oversight"

The ideas given by articles provide a clear-cut picture about informal transport modes. It is mostly unregulated, and the rules and regulation can change according to the facts as well. Most of the time the economy of the users can be categorized as middle or upper middle-income earners.

It states that three-wheelers are the most common type of vehicles in Sri Lanka except motorcycles. Motorcycles use

for private transportation while three wheelers are mostly used for providing Para-transit. By end-2016, there were 1,062,447 registered three-wheelers. Of course, we have more than thrice that number of motorcycles on roads (3,391,726 at end-2016), but the figure is significant compared to the numbers of cars (675,982), dual-purpose vehicles (366,831), motor Lorries (319,001) and buses (101,655). Growth in the number of three-wheelers is greater than in any other category. It has increased 261% since 2008. The number of cars has grown 177%, motorcycles 192%, dual-purpose vehicles 187%, lorries 121% and buses 126%, all far lower. Without doubt, Sri Lankan society has chosen the three-wheeler as its proffered mode of transport. This is a fact." (Wattegama, 2017)

Auto rickshaws are three-wheeled vehicles used extensively in many Asian countries as taxis of people and goods. Although the vehicle design is well-suited to the environment in which it operates, it is a crude, inefficient design. Due to poor vehicle maintenance and the use of inefficient 2 or 4 stroke engines with very little pollution control, auto rickshaws present a huge pollution problem in major Indian cities. (Mulhall, 2009)

To achieve research objectives GIS technical maps, movement pattern maps, sections, field observations, questionnaires can be used. (Weerasiri & Mendis, 2016)

As per the article written by Amal S. Kumarage (2009) the researcher has identified four reasons behind the emerging of Para transit modes which can be derived as follows.

- "First, Intermediate Public Transport modes have emerged spontaneously to fill perceived gaps in the conventional transport provisions in the urban areas. Growth in urban population and inadequate transport supply has become one of the major contributing factors for the rise in IPT markets."
- "Increased per capita income has greatly influenced the rapid increase of transport demand within the urban areas."
- Third, overcrowding, insufficient maintenance, poor management, and inadequate investment in existing transport infrastructures have stimulated the growing transport demand"

- "last, the lack of appropriate planning for metropolitan transport systems for the most cities in developing countries due to the requirement huge capital investment"

The first reason describes about the fact that inability of public transport modes which created gaps in the transport sector that had been gleefully accepted by the Para transit service providers. As an example, if public transporters are not able to provide a timely service to people they are looking for other ways of transport in order to fulfil their needs. So Para transit gets an unchallengeable opportunity to increase their service.

The second factor describes that, increase of income which increases the demand for transport as well. In that case also Para transit service providers get much better opportunity in the transport industry.

The third describes as poor quality in public transport service sector. So that people will move from public transport services to any other modes of transport services to get a better value for their money as well as the time and the best option for them is the Para transit services providers. Most visible example for that is the CTB bus services in rural areas, generally operate inadequately, providing Para transit service providers a better chance at any time.

Final factor describes management issues which create problems in the transport sector. Most suitable example for that is the congestion due to the inappropriate planning. Actually, public see that, due to Three wheelers, traffic congestion is increased, but from the point of view of Three-wheel passengers, they are using three-wheelers as a solution for traffic congestion, because the three-wheel drivers are very efficient on reaching the destination on time.

All these factors have considered in general manner. When it is connected to Sri Lankan context, we can get a proper image about the Para transit services which are mostly in line with the above-mentioned characteristics and so on. Three-wheeler can be identified as the most common and related way of Para transit method with reference to above mentioned characteristics.

Rose and Hensher, (2013) states in the research, that the demand for taxi services within a city depends on

the elasticity or preferences of individuals who use taxi services. People always make comparison between public, private transport and the Para transit with reference to the opportunity cost that they have to spend giving up one mode over other. He further elaborates on waiting time, crowding effect, and purpose of travelling, socioeconomic and other factors, illustrates on playing a vital role in selecting a taxi service.

Indians perspective towards three wheels

India is a country with large population and automatically makes high demand for transportation. In urban areas it is really high. Singh (2005) has introduced a series of policies which can be used as a path to resolve the demand issues of the transport sector in urban areas. Such as, paying attention more on bus and other related public transportation services, enhancing transport coordination, Restraining the use of polluting vehicles and fuel, demand and supply side management measures, encouraging of using more "green" modes and strengthening the urban authorities. These policies have suggested with the aim of reducing the congestion

Padam and Singh, (2004) stated about the transport issues of India as well as some solutions. In the absence of an efficient and adequate public transport, a large number of private and Para-transit modes have entered to the transport market in order to cater to the emerging demands of transportation, especially in Indian city centres and city limits. This prevailing regeneration of vehicles results in acute congestion, inordinate delays, critical accidents, high energy consumption particularly the non-renewable energies of fossil fuels, and intense growth of the population of the cities.

II. METHODOLOGY

Primary Survey

The research is conducted to find out the factors contributing high usage of three wheelers with special reference to the perception of passengers. First, the scope of the research was minimized by mentioning "with reference to the perception of passengers" for enhancing the simplicity of data collection. Colombo Metropolitan area was selected as the sample by the researcher due to time limitation and the cost. Through a literature review,

many factors identified by other researches as the demand for three-wheelers have been included in questionnaire and also, he has included some new factors as well with reference to the current situation of the country as well.

Sampling and Sampling Method

Researcher selected Colombo metropolitan area as the sample, because it is consisted with Large number of three-wheeler population (around 500,000 three – wheelers form 800,000) and large number of trips. under random sampling technique Researcher distributed his questionnaire for more than 500 passengers in the selected area with the intention of getting more than 300 replies back.

Data Collection

Researches has decided to collect Primary data though a survey questionnaire. Survey questionnaire was prepared according to the identified variables. A well-structured Questionnaire based on 5-point Likert scale was distributed randomly among users of Three-Wheeler transportation in Colombo metropolitan area to gather data.

III. MODEL DEVELOPMENT

Validity and Reliability

Before processing any kind of analytical method, the first thing that has to be done by any researcher is the reliability test. By a reliability test the researcher gets a clear idea about whether the data set is reliable or not. If data set is not reliable it is not much worthwhile to carry out the research. Also, reliable test provides much deeper idea about each variable and its influence towards the topic as well. From that, the researcher is able to get an idea about what are the variables which are highly influenced on the topic and the average variables influence on the topic. Cronbach's Alpha is the symbol that is used to measure the statistical reliability of collected primary data by using questionnaire. The higher the value of Cronbach's Alpha coefficient is considered as questionnaire is more reliable to collect primary data associated to the survey. Furthermore, Cronbach's Alpha coefficient require 0.7 or higher value to be reliable. Cronbach's Alpha coefficient

has been carried out in this study to check the reliability of the pilot survey and main survey. Following is equation used to calculate the Cronbach's Alpha coefficient.

$$\alpha = \frac{m_w(\sum_{s\lambda s}^{1/2} - 1)}{\sum_{s\lambda s}^{1/2}(m_w - 1)}$$

Data Analytical Method

Data gathered from the Questionnaire (both hard copies and Google forms) will be analysed in several steps with reference to the purpose of this research to be fulfilled successfully. Data analysing will be elaborated deeply in chapter 4 with the result that the researcher has obtained.

Software has been used to analyse the gathered data which is called as SPSS 16.0 (Statistical Packages for Social Sciences). For the data collected by distributing questionnaire among the passengers who use Three-Wheeler transportation, a descriptive analysis will be conducted which will be used to identify the relationship of the explanatory variables and the response variable.

After the collection of data as the next step, the researcher conducted a cross tabulation test as well which is also known as the Cross tab and Pearson's Chi-Square test which will be used to identify the relationship between categorical variables. After that the researcher is going to carry out a hypothesis testing for the considered factors which can be identified as independent variables as well and which are mentioned above to find out the connection between each explanatory variable and the response variable.

Factor Analysis

This is a statistical tool which is used to find factors among observed variables. Normally factor analysis is carried out to reduce the number of variables into grouping factors when the number of variables is high. Variables with similar characteristics are grouped under one factor. Through a factor analysis the researcher can make his factors in to small groups through the analysis. Then it is easy for any observer to get a clear idea about the variables as well. Multi-dimensional variables have been analysed in this factor analysis.

There are two types of factor analysis available, which are exploratory factor analysis and confirmatory factor analysis. This study uses the exploratory factor analysis method to the analyse data.

SPSS16.0 is the tool which is used to do the following test that comes under factor analysis and each of these analyses have different advantages on the research as well. Descriptive statistics, Bartlett's & Kaiser-Meyer-Olkin (KMO) test, Communalities, Total Variance, and Rotated Component Matrix are computed and analysed using software. The Bartlett's test compares the observed correlation matrix to the identity matrix. It checks whether there is a particular redundancy between the variables that can be summarized with a small number of factors. If the variables are perfectly correlated, only one factor is sufficient.

To make the data set accepted KMO value should be greater than 0.5 but the value of Bartlett's test should be greater than 0.7 in order be the test significant. KMO value is higher meaning higher correlation between pairs of variable. KMO measure the sampling adequacy of the research. KMO index can be computed as follow.

$$KMO = \frac{\sum_i \sum_{j \neq i} r_{ij}^2}{\sum_i \sum_{j \neq i} r_{ij}^2 + \sum_i \sum_{j \neq i} a_{ij}^2}$$

Communalities are the proportion of variance accounted for the common factors of a variable. Communalities scores range from 0 to 1. Value of 1 means that common factors will explain all variables and a value of 0 means that common factors will not explain all variables.

Initial solution table explained the total variance. Eigenvalue is the total variance described by each factor. Eigenvalues that is less than one does not have enough total variance explained to represent a unique factor. KMO and Bartlett's test analytical tools used to the factor analysis and fulfil the ultimate objective of the research. Tables, charts and figures generated through the SPSS output will be used to interpret the results with more validity as well as it can be used to demonstrate the results as well.

IV. OVERALL SUMMARY OF THE FACTORS

Dependent variable

Increasing the demand for Three Wheel Transportation

Independent Variable

1. Convenience
2. cost of transportation
3. vehicle prices
4. Online payment methods
5. Safety & Security
6. Availability of meters
7. Population
8. Income of the users
9. Time taken to reach destination
10. way of booking a three wheel
11. Low quality of service in public transport service
12. Limited private vehicle parking space in city area
13. availability of public and private transport services
14. Ticket price discounts & promotions
15. Availability in non-peak hours
16. Environmental impact
17. Weather condition
18. Tourism development
19. reputation of service provider/company
20. Congestion
21. Government policies
22. driver appearance
23. Do you identify three wheels as an alternative method of transportation

V. DATA ANALYSIS

Reliability

Reliability analysis allows the researcher to study the properties of measurements and scales and the items that compose scales. Reliability analysis calculates number of commonly used measures of scale reliability and also provides information about the relationships between individual items in the scale. Cronbach Alpha value is used to test under reliability analysis. If the value of Cronbach's alpha is higher than 0.6 or 0.7, it is in an acceptable level.

Table 1.2. Reliability for Full Data Set

Cronbach's Alpha	Cronbach's Based on Standardized Items	N of Items
.904	.906	23

Source: Research data

According to the table the value of Cronbach's Alpha is 0.904. That illustrates higher Cronbach's Alpha value which is greater than 0.6. Therefore, the reliability of variables is at acceptable level since data set can be accept

Table 1.3. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.818
Bartlett's Test of Sphericity	Approx. Chi-Square 3817.851
	df 253
	Sig. .000

Source: Research data

The relationship of each variable as well as the strengthen among the variables is measured using Kaiser-Meyer-Olkin (KMO) and Bartlett's test. This is normally

Table 1.4. Communalities

	Initial	Extraction
Convenience	1.000	.798
cost of transportation	1.000	.714
vehicle prices	1.000	.761
Online payment methods	1.000	.670
Safety & Security	1.000	.678
Availability of meters	1.000	.615
Population	1.000	.763
Income of the users	1.000	.730
Time taken to reach destination	1.000	.695
way of booking a three wheel	1.000	.556
Low quality of service in public transport service	1.000	.672
Limited private vehicle parking space in city area	1.000	.595
availability of public and private transport services	1.000	.784
Ticket price discounts & promotions	1.000	.768
Availability in non-peak hours	1.000	.774
Environmental impact	1.000	.617
Weather condition	1.000	.557
Tourism development	1.000	.498
reputation of service provider /company	1.000	.629
Congestion	1.000	.873
Government policies	1.000	.627
driver appearance	1.000	.846
Do you identify three wheels as an alternative method of transportation	1.000	.494

Extraction Method: Principal Component Analysis.

identified as KMO test. KMO test statistics measure sample adequacy. In this test KMO test statistic value is 0.818, which is greater than 0.6 Since KMO test statistic is greater than 0.6, it can be concluded that sample is adequate. With reference to the given test statistic value and as it is more than 0.6

The hypothesis is given below,

H₀: Correlation matrix is an identity matrix.

H₁: Correlation matrix is not an identity matrix.

According to the table P-value of the Bartlett's test is 0.000, null hypothesis is rejected. It can be concluded that, correlation matrix is not an identity among variables used in factor analysis matrix which further supports the strength of the relationship.

VI. COMMUNALITIES

The table of communalities is the table which demonstrates how much of the variance in the variables has been accounted for by the take out from factors

Communalities table represents the amount of variance in each variable that can be explained by the retain factors after exaction. 79.8% of the variability in the model is explained by the convenience factor. The rest of the factors are interpreted the same way as factor one which is convenience.

The above table shows the eigenvalues associated with each linear component (factor) before extraction, after extraction and after rotation. As this factor analysis is doing for the Likert scale question in the questionnaire the software has identified 23 components (factors) before the extraction within the data set. The particular linear component is used to explain the eigenvalues associated with each factor which represents the variance.

Table 1.5. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.957	34.597	34.597	7.957	34.597	34.597	3.531	15.350	15.350
2	2.187	9.509	44.106	2.187	9.509	44.106	3.408	14.819	30.169
3	1.963	8.534	52.640	1.963	8.534	52.640	3.011	13.092	43.261
4	1.384	6.016	58.656	1.384	6.016	58.656	2.272	9.878	53.139
5	1.203	5.232	63.889	1.203	5.232	63.889	1.924	8.366	61.504
6	1.018	4.424	68.313	1.018	4.424	68.313	1.566	6.809	68.313
7	.930	4.045	72.358						
8	.764	3.320	75.678						
9	.703	3.058	78.736						
10	.689	2.998	81.733						
11	.593	2.577	84.310						
12	.552	2.399	86.709						
13	.462	2.010	88.719						
14	.450	1.957	90.676						
15	.401	1.744	92.420						
16	.348	1.512	93.932						
17	.317	1.377	95.309						
18	.251	1.091	96.399						
19	.230	1.000	97.399						
20	.214	.931	98.330						
21	.180	.782	99.112						
22	.143	.621	99.733						
23	.062	.267	100.000						

SPSS output also shows the eigenvalue in terms of the percentage variance explained. The extraction sums of squared loading show the factors which met the criterions. SPSS extracts all the factors with eigenvalue greater than one. According to the table 1.5, there are six factors with eigenvalue greater than one. The “% of variance” column of the extraction sums of squared loadings part shows the amount of total variability that can be accounted by each of these factors. Factor 1 explains a variance of (15.350%). This table reveals that the first six factors explained relatively large amount of variance while other subsequent factors explain only small amount of variance. Factor 2, 3, 4, 5 and Factor 6 explain 14.819%, 13.092%, 9.878%, 8.366% and 6.809% of total variance respectively. Altogether these three factors explain the 68.313% of total variance.

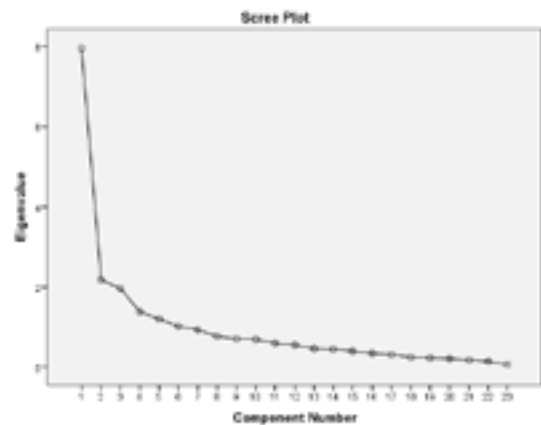


Figure 1.1. scree plot

According to figure 1.1, there is a sharp turn (elbow) after the 6th Eigen value. Therefore, it can be concluded that 6 factors are sufficient to account the total variation. It is further confirmed by the Extraction Sums of Squared Loadings. For further analysis, only six factors have retained.

Table 1.6 shows that how, all questions can be divided in to small groups as per the characteristics they belong. And the results of the factor grouping in factor one is similar in magnitude. This is always in line with other 5 factors as well. Identifying the factor loadings for each component is difficult. Thus, factors are rotated to obtain meaningful factors. Factor rotation has been done according to the varimax method. For further analysis, varimax rotation is taken into consideration.

With reference to the rotated component matrix the researcher uses it to mitigate the number of factors which are used to analyze the dependent variables. Factor rotation can be used to make interpretation simpler, but it doesn't make significance changes to the data set. In the case of interpretation factor rotation provide a path to identify each variable that comes under one factor. Without factor rotation matrix we cannot use component score coefficient matrix that use to illustrate each factor with all the available data.

Varimax Rotation method is used in this study. According to the rotated factor loadings, 23 variables can be categorized for extracted six factors as shown in the table 1.7.

As above mentioned with reference to the highest value of each variable the researcher is able to identify factor of the variable which it belongs to.

Now researcher has to group these variables as per the factors already been identified and he has to name each factor separately as per the characteristics of the variables

Factor 01 : Defined as Passenger Behavior

Factor 01 = f {Availability of meters, Population, Income of the users, Time taken to reach destination, way of booking a three-wheel, Low quality of service in public transport service.}

Factor 02 : Defined as quality of service and payments

Factor 02 = f {Convenience, cost of transportation, vehicle prices, Online payment methods, Safety & Security.}

Factor 03 : Defined as transport sector variables

Factor 03 = f {availability of public and private transport services, Ticket price discounts & promotions, Availability in non-peak hours, Environmental impact}

Factor 04 : Defined as infrastructure and policy making

Factor 04 = f {Congestion, Government policies, driver appearance}

Factor 05 : Defined as indirect factors

Table 1.6. Component Matrixa

	Component					
	1	2	3	4	5	6
Convenience	.664	.302	-.466	-.074	-.042	.207
cost of transportation	.830	.061	-.476	.006	-.037	.292
vehicle prices	.553	.328	-.539	.065	-.104	.205
Online payment methods	.419	.136	-.492	.104	.150	-.449
Safety & Security	.891	.035	-.427	.067	-.096	-.064
Availability of meters	.653	-.265	.067	-.308	.139	-.012
Population	.688	-.200	.141	-.372	.304	-.019
Income of the users	.637	-.123	.124	-.290	.388	.243
Time taken to reach destination	.660	-.350	.124	-.100	.332	.038
way of booking a three wheel	.724	.001	.078	.075	.132	.045
Low quality of service in public transport service	.734	-.111	.140	.259	.180	.027
Limited private vehicle parking space in city area	.571	-.213	.074	.448	-.015	.129
availability of public and private transport services	.638	-.382	.260	.180	-.219	-.287
Ticket price discounts & promotions	.700	-.461	-.012	-.015	-.144	-.213
Availability in non-peak hours	.663	-.254	-.013	.013	-.502	-.130
Environmental impact	.685	-.040	-.047	-.247	-.288	.031
Weather condition	.516	.179	.434	.160	-.207	.041
Tourism development	.453	.224	.318	-.039	-.363	.092
reputation of service provider/company	.274	.366	.489	-.129	-.188	.358
Congestion	.557	.662	.240	-.071	.104	-.226
Government policies	.312	.281	.144	.567	.285	-.166
driver appearance	.509	.689	.196	-.087	.116	-.228
Do you identify three wheel as an alternative method of transportation	.111	-.164	.057	.535	.130	.384

Extraction Method: Principal Component Analysis

Factor 05 = f {Weather condition, Tourism development, reputation of service provider / company.}

Factor 06 : Defined as Methods and space

Factor 06 = f {Limited private vehicle parking space in city area, do you identify three wheels as an alternative method of transportation.}

Table 1.7. Rotated Component Matrix

	Component					
	1	2	3	4	5	6
Convenience	.221	.836	.082	.175	-.124	.019
cost of transportation	.259	.778	.123	-.023	.044	.156
vehicle prices	.039	.849	.047	.155	.069	.086
Online payment methods	.079	.464	.230	-.442	-.443	-.065
Safety & Security	.207	.671	.374	.180	-.082	.072
Availability of meters	.684	.182	.323	.030	.071	-.056
Population	.816	.136	.219	.138	.084	-.068
Income of the users	.803	.204	.005	.067	.170	.100
Time taken to reach destination	.751	.096	.272	.062	-.020	.208
way of booking a three wheel	.470	.297	.282	.275	.164	.254
Low quality of service in public transport service	.469	.206	.354	.280	.100	.442
Limited private vehicle parking space in city area	.218	.199	.406	.075	.087	.574
availability of public and private transport services	.299	-.033	.794	.131	.076	.199
Ticket price discounts & promotions	.448	.190	.722	-.012	-.065	.075
Availability in non-peak hours	.153	.314	.782	-.037	.196	.001
Environmental impact	.343	.429	.458	.025	.293	-.139
Weather condition	.130	.031	.345	.310	.525	.218
Tourism development	.064	.143	.315	.180	.585	-.001
reputation of service provider/company	.119	.016	-.052	.137	.769	.037
Congestion	.197	.218	.040	.794	.380	-.108
Government policies	-.005	.027	.052	.606	-.033	.505
driver appearance	.165	.232	-.010	.789	.350	-.138
Do you identify three wheel as an alternative method of transportation	.014	.041	-.027	-.120	.039	.689

Extraction Method: Principal Component Analysis

Table 1.8. Component Score Coefficient Matrix

	Component					
	1	2	3	4	5	6
Convenience	-.014	.323	-.126	-.063	.055	-.011
cost of transportation	.007	.314	-.111	-.169	.038	.089
vehicle prices	-.107	.353	-.096	-.060	.040	.050
Online payment methods	-.058	.085	.114	.306	-.393	-.115
Safety & Security	-.071	.204	.094	.017	-.107	-.019
Availability of meters	.256	-.037	.002	-.052	-.027	-.123
Population	.352	-.077	-.087	.012	-.047	-.131
Income of the users	.381	-.004	-.253	-.077	.046	.029
Time taken to reach destination	.305	-.085	-.066	-.018	-.094	.072
way of booking a three wheel	.102	.010	-.024	.057	.010	.111
Low quality of service in public transport service	.087	-.042	.009	.080	-.039	.238
Limited private vehicle parking space in city area	-.054	.010	.085	-.038	.015	.354
availability of public and private transport services	-.067	-.162	.383	.064	-.051	.014
Ticket price discounts & promotions	.031	-.052	.296	-.034	-.113	-.069
Availability in non-peak hours	-.170	.044	.387	-.105	.086	-.109
Environmental impact	-.001	.107	.140	-.116	.146	-.180
Weather condition	-.093	-.071	.117	.066	.251	.097
Tourism development	-.118	.013	.125	-.032	.327	-.048
reputation of service provider/company	.007	.008	-.117	-.094	.474	.033
Congestion	.003	-.042	-.043	.380	.067	-.135
Government policies	-.077	-.090	-.022	.358	-.148	.330
driver appearance	.002	-.027	-.061	.384	.054	-.149
Do you identify three wheel as an alternative method of transportation	-.024	.044	-.126	-.132	.065	.520

Extraction Method: Principal Component Analysis

Factor1 (passenger behavior) = 0.256Availability of meters+ 0.352Population+0.381Income of the users+0.305Timetaken to reach destination+0.102way of booking a three wheel+0.087 Low quality of service in public transport service.

Factor2 (quality of service and payments) = 0.323 Convenience + 0.314 cost of transportation + 0.353 vehicle prices + 0.085 online payment methods + 0.204 Safety & Security.

Factor3 (transport sector variables) = 0.383availability of public and private transport services+0.296Ticket price discounts & promotions+ 0.387Availability in non-peak hours+ 0.140Environmental impact

Factor4 (infrastructure and policy making) = 0.380Congestion+0.358Government policies+ 0.384driver appearance

Factor5 (indirect factors) = 0.251Weather condition+ 0.327Tourism development+ 0.474reputation of service provider / company

Factor 6 (methods and space) = 0.354Limited private vehicle parking space in city area+ 0.520do you identify three wheels as an alternative method of transportation

VII. HYPOTHESIS TESTING

In this instance researcher has used the Chi-Square test to carry out the hypothesis testing. If there exists a statistically significant correlation between two variables, it is indicated by the P-Value or the (2-Tailed). Statistical software SPSS was used to test P-values for the research variables and the results obtained are presented below. By using hypothesis testing the researcher can develop two hypotheses as null hypothesis and alternative hypothesis which the researcher uses to interpret independent and dependent variables that he has taken in to consideration.

Hypothesis test for factor 01 (passenger behavior)

H₀: identifying three-wheeler as an alternative method of transportation is independent from factor1 (passenger behavior)

H₁: identifying three-wheeler as an alternative method of transportation is dependent from factor1 (passenger behavior)

Table 1.9. Chi-Square Test for passenger behavior

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1156.000a	592	.000
Likelihood Ratio	560.974	592	.816
Linear-by-Linear Association	.056	1	.813
N of Valid Cases	289		

Source: Research data

According to the above result, it is understood that 2-tailed or significant value is 0.000, and H₀ (0.05>0.000) is rejected, H₁ is accepted. Therefore, it can be stated that identifying three wheels as an alternative method of transportation is depend on the passenger behavior.

Hypothesis test for factor 02 (quality of service and money)

H₀: identifying three wheels as an alternative method of transportation is independent from factor 02 (quality of service and money)

H₁: identifying three wheels as an alternative method of transportation is dependent from factor 02 (quality of service and money)

Table 1.10. Chi-Square Test for transport sector variables Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1156.000a	592	.000
Likelihood Ratio	560.974	592	.816
Linear-by-Linear Association	.483	1	.487
N of Valid Cases	289		

Source: Research data

As per the above result, it is understood that 2-tailed or significant value is 0.000, and since H₀ (0.05>0.000) is rejected, H₁ is accepted. Therefore, it can be stated that identifying three wheels as an alternative method of transportation is depend on the quality of service and money.

Hypothesis test for factor 03 (transport sector variables)

H₀: identifying three-wheeler as an alternative method of transportation is independent from factor 03 (transport sector variables)

H₁: identifying three-wheeler as an alternative method of transportation is dependent from factor 03 (transport sector variables)

Table 1.11. Chi-Square Test for indirect factors

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1156.000a	592	.000
Likelihood Ratio	560.974	592	.816
Linear-by-Linear Association	.217	1	.641
N of Valid Cases	289		

Source: Research data

As per the above result, it is understood that 2-tailed or significant value is 0.000, and since H₀ (0.05>0.000) is rejected, H₁ is accepted. Therefore, it can be stated that identifying three-wheeler as an alternative method of transportation is depend on the transport sector variables.

Hypothesis test for factor 04 (infrastructure and policy making)

H₀: identifying three-wheeler as an alternative method of transportation is independent from factor 04 (infrastructure and policy making)

H₁: identifying three-wheeler as an alternative method of transportation is dependent from factor 04 (infrastructure and policy making)

Table 1.12. Chi-Square Test for infrastructure and policy making.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1156.000a	592	.000
Likelihood Ratio	560.974	592	.816
Linear-by-Linear Association	4.137	1	.042
N of Valid Cases	289		

Source: Research data

As per the above result, it is understood that 2-tailed or significant value is 0.000, and since H₀ (0.05>0.000) is rejected, H₁ is accepted. Therefore, it can be stated that identifying three-wheeler as an alternative method of transportation is depend on the infrastructure and policy making.

Hypothesis test for factor 05 (indirect factors)

H₀: identifying three-wheeler as an alternative method of transportation is independent from factor 05 (indirect factors)

H₁: identifying three-wheeler as an alternative method of transportation is dependent from factor 05 (indirect factors)

Table 1.13. Chi-Square Test for indirect factors

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1156.000a	592	.000
Likelihood Ratio	560.974	592	.816
Linear-by-Linear Association	.428	1	.513
N of Valid Cases	289		

Source: Research data

As per the above result, it is understood that 2-tailed or significant value is 0.000, and since H₀ (0.05>0.000) is rejected, H₁ is accepted. Therefore, it can be stated that

identifying three-wheeler as an alternative method of transportation is depend on the indirect factors.

Hypothesis test for factor 06 (methods and space)

H₀: identifying three-wheeler as an alternative method of transportation is independent from factor 06 (methods and space)

H₁: identifying three-wheeler as an alternative method of transportation is dependent from factor 06 (methods and space)

Table 1.14. Chi-Square Test for methods and space Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1156.000a	592	.000
Likelihood Ratio	560.974	592	.816
Linear-by-Linear Association	136.820	1	.000
N of Valid Cases	289		

Source: Research data

As per the above result, it is understood that 2-tailed or significant value is 0.000, and since H₀ (0.05>0.000) is rejected, H₁ is accepted. Therefore, it can be stated that identifying three wheelers as an alternative method of transportation is depend on the methods and space.

VIII. RELIABILITY ANALYSIS FOR IDENTIFIED FACTORS

Table 1.15. Reliability analysis for factor 1

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.862	.864	6

Source: Research data

Table 1.15 shows the Cronbach's Alpha value as 0.862. That illustrates higher Cronbach's Alpha value. Therefore, the reliability of the variables is at a high level. since data set can be accepted. This means the variables included in the factor 1(passenger behavior) is reliable with the data set. So factor 1 can be considered as a reliable factor.

Table 1.16. Reliability analysis for factor 2

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.848	.849	5

Source: Research data

The Cronbach's Alpha in table 1.16 is 0.848. That illustrates higher Cronbach's Alpha value. Therefore, the reliability of the variables is at a high level since data set can be accepted. This means the variables which included in the factor 2(quality of service and money) is reliable with the data set. So, factor 2 can be considered as a reliable factor.

Table 1.17. Reliability analysis for factor 3

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.833	.836	4

Source: Research data

Table 1.17 shows Cronbach's Alpha value as 0.833. That illustrates higher Cronbach's Alpha value. Therefore, the reliability of the variables is at a high level. hence, data set can be accepted. This means the variables which included in factor 3(transport sector variables) is reliable with the data set. So, factor 3 can be considered as a reliable factor.

Table 1.18. Reliability analysis for factor 4

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.731	.753	3

Source: Research data

Table 1.18 shows Cronbach's Alpha value as 0.731. That illustrates higher Cronbach's Alpha value. Therefore, the reliability of the variables is at a high level since data set can be accepted. This means the variables which included in the factor 4 (infrastructure and policy making) is reliable with the data set. So, factor 4 can be considered as a reliable factor.

Table 1.19. Reliability analysis for factor 5

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.590	.592	3

Source: Research data

Table 1.19 shows the Cronbach's Alpha value as 0.590. That illustrates lower Cronbach's Alpha value. Therefore, the reliability of the variables is very less. Hence, the data set cannot be accepted.

Table 1.20. Reliability analysis for factor 6

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.357	.383	2

Source: Research data

According to the table 1.20, the value of Cronbach's Alpha is 0.357. That illustrates very less Cronbach's Alpha value. Therefore, the reliability of the variable is very less

Finally, according to the analysis, following 4 factors can be identified as the most influential factors of the demand for three - wheelers

1. Passenger behavior (The desire to reach destination early)
2. Quality of the service and ease of payment
3. Transport sector variables, such as frequency and ease of booking
4. Infrastructure of policy making (Traffic congestion and weaknesses in bus transportation)

IX. LIMITATIONS OF RESEARCH

There are certain limitations to this study. This study was carried out for a sample population who uses Three Wheelers in Sri Lanka and in Colombo district and only consider the ideas of passengers as well to collect the data. This study is limited to the Sri Lankan geographical context and the questionnaires were distributed to the sample of such randomly selected commuters.

X. CONCLUSION

According to the analysis of demographic factors, it is identified that, majority of the population below the age of 60 are using three-wheelers. Many of them are at the age between 20-35. Majority of the middle-income earners are using three-wheelers as a mode of transport. They are indicating that it saves their time as the drivers are easily reaching to the destination. Further they state that, though it little bit costly with compared to buses, mainly for short distances (Less than 5 Km) the best way is to go by a three-wheeler if they do not have a private vehicle to go. They do not say that three-wheeler fare is not affordable for short distances. Actually, these people are highly dissatisfied to go by bus for short distances.

Apart from these demographic factors, based on the factor analysis researcher identified, four main factors which are highly influencing on the demand for three - wheelers

Factor 1 – Passenger behaviour

With compared to bus transportation, consumers see the time taken to reach the destination is very low and efficient by three-wheelers and fare is considered by them as affordable.

Factor 2 – Quality of service and payment

With compared to public sector transport services it is evidenced that it will be more convenient for passengers to travel short distance by a three-wheeler. Communality table also proved that 79.8% of the variability in the model was explained by the convenience factor.

Factor 3 – Transport sector variables

This factor indicates the frequency for a passenger for booking a three-wheeler. Especially with the online booking systems and due to the availability in non-peak hours, people are selecting this as a mode.

Factor 4 – Infrastructure and policy making

weaknesses in current public transport infrastructure facilities and not having a sustainable policy of improving them, lead for the passengers to use an affordable and a convenient a mode of transport.

XI. RECOMMENDATIONS

Three – wheelers from one side is a burden and also a solution, as it is acting as an affordable solution for middle income earners. But the great issue is three - wheelers lead to have road accidents and traffic congestion. Therefore, the researcher takes the output generated from the research to recommend some suggestions to mitigate these issues.

The public transportation in Sri Lanka is at a very ground level. Very crowded and time consuming, so it is obvious for increasing the demand for three – wheelers as majority of people are middle income earners. So, the policy makers must put their eye on the weaknesses of the public transportation of our country. While upgrading the quality of public transport, government should gradually reduce the importation of three – wheelers.

People are demanding three – wheelers due to the convenience factor and these are seemed to be like ambulances in emergency cases. the best example is in a situation like a snake bite. As an unregulated transport mode, this might be a main cause for road accidents. Therefore, it is important to bring regulations such as supervision of three – wheelers by a state body, introduction of code of ethics and training the drivers to enhance the quality of them. These actions will lead to reduce some social issues arising due to three wheelers such as illegal drugs transportation.

More suggestions can be recommended as, developing reasonable guidelines for locating three – wheeler parks as many of them are located near road intersections, negatively affect for the traffic flow.

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INNOVATIVE BEHAVIOR OF EMPLOYEES IN SRI LANKAN SOFTWARE COMPANIES

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Abstract- Along with the advancement of the technology, software companies have to face a huge competition in the global and local market. To face this competition innovations can be used as a strategic weapon. As employees are the main driving forces of innovation, their behavior can be a crucial factor in boosting innovation. Innovative behavior is referred as the introduction and application of new ideas, products, processes, and procedures to a person's work role or an organization. This behavior directly affects innovation performance of an organization. The main aim of this study is to identify the factors that affect employee innovative behavior and their effect in Sri Lankan software companies using a quantitative methodology. Apart from that this study provides a conclusive summary of the current status of the innovative behavior of employees. Factors that have been proved by previously done research were used. So nine factors were considered to cover a broad area of innovative behavior. A model was constructed by considering the above factors to get a clear idea about the study. Findings of the study emphasizes that both individual and organizational factors effect on innovative behavior. Results have proven that psychological capital, organizational support, rewards, resource availability, leadership and social capital have a significant impact on employee innovative behavior while organizational structure, organizational commitment and work characteristics haven't any impact. Proposed model was reconstructed according to the results and areas that should be improved were identified.

Keywords- Innovation, Innovation performance, Quantitative methodology

I. INTRODUCTION

Employees are the main driving force of the innovation in the industry (Li & Zheng, 2014). So the employee innovative behavior is very crucial, which can be defined as an act of generating, promoting and application of innovative thinking in the organization for the purpose of personal and organizational performance (Li & Zheng, 2014; Chatchawan1 et al. 2017). Innovative behavior enables to use innovative ways of thinking, quickly and accurately respond to customer demand changes. Influence on employee innovative behavior can be divided mainly into two categories as internal and external factors (Lukes & Stepahan, 2017; Li & Zheng, 2014; Smith et al. 2012). Internal factors refer to innovative personal traits and ability to participate in innovation, and external factors including the team environment (technology, culture, resources and etc.) and the support of leaders (Smith et al. 2012; Chatchawan1 et al. 2017; Monteiro et al. 2016).

As software companies in Sri Lanka are constantly evolving, it is important to know how a companies' ability to innovate can be improved. All innovative activities can be traced back to the behavior of employees. This absolutely makes the employee the center point of attention. It is difficult for innovation to be forged by an individual alone. As a result, a great deal of attention should be paid to the factors affecting innovative work behavior. (Chatchawan et al. 2017). In order to understand the state of innovative behavior of employees, it is important to go through difficulties and obstacles

which employees meet when they engage in innovative activities. For that we should consider the barriers in both internal and external factors regarding employees. The relationship between factors and barriers is that if a factor affect the subject negatively, it becomes a barrier. Therefore, the organizations have to take measures to stimulate the innovation willingness of employees and promote their innovative behavior. (Kabasheva et al. 2015).

Most of the research have been done on investigating the effect on individual or organizational factors that affect innovative behavior of employees in organizations. Only few research were there addressing both individual and organizational factors in the same research. And another problem was that, 75% of the research were qualitative and conclusive studies and they have not been focused on finding the current state of the employee innovative behavior. In the Sri Lankan context, no any research was published addressing the employee innovative behavior in software companies. Some of research were found regarding innovations in organizations. Therefore there is need of comprehensive study regarding this research topic. This study is aimed to investigate the effect of the factors that affect employee innovative behavior by identifying the current status of employee innovative behavior and to provide a conclusive summary regarding those factors, in Sri Lankan software companies. Furthermore this study helps to identify measures to stimulate the innovation willingness of employees and promote their innovative behavior.

The study consist of research problem, review of the relevant literature, methodology, data analysis, results and discussion sections. Final section provides the conclusion of the whole study including the future research possibilities.

II. METHODOLOGY

A. Research Methodology

In order to identify and examine the effect of organizational and individual factors on employee's innovative behavior of Sri Lankan software companies, a conclusive research design based on the quantitative approach was used. The aim of this study is to identify the current status of innovative behavior of employees in Sri Lankan software

companies. To do this, information should be gathered from different groups of employees who are engaging in activities related to software development in companies. Information should be collected from the management level, both senior and junior software developers to understand their motivation, obstacles, dissatisfactions, expectations, opinions and experiences regarding their work role and behavior inside the company.

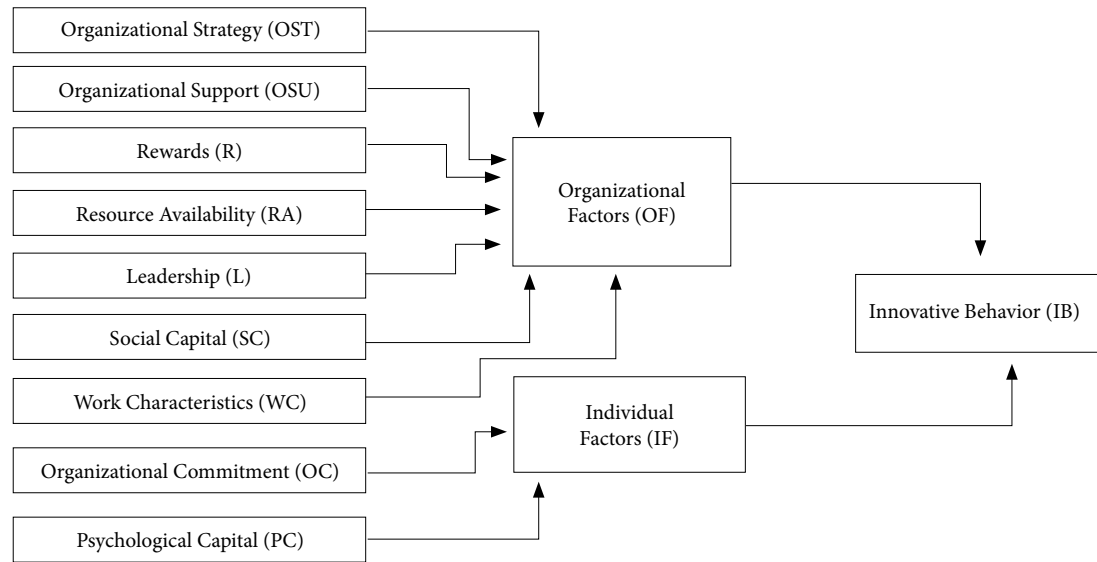
The quantitative survey method was chosen since it allows the collection of a large amount of data from a large population with a cost-effective manner (Rizkallah, et al. 2015). In order to do that, a questionnaire was used with proper scale and scope. Then the responses were statistically analyzed using SPSS version 20.

Before making the questionnaire, nine hypothesis have been formulated to cover the scope of the study and to measure the innovative behavior of employees in software companies. They were formulated by considering previously done researches as: **H1** - Organizational commitment influences on employee innovative behavior, **H2** - Psychological capital influences on employee innovative behavior, **H3** - Organizational strategy influences on employee innovative behavior, **H4** - Organizational support influences on employee innovative behavior, **H5** - Personal rewards influence on employee innovative behavior, **H6** - Resource availability influences on employee innovative behavior, **H7** - Leadership influences on employee innovative behavior, **H8** - Social capital influences on employee innovative behavior, **H9** - Work characteristics influence on employee innovative behavior.

B. Questionnaire Design

Questionnaire was designed under two main factors and nine sub factors based on the hypothesis. Figure 1 shows the research model developed in order to get clear idea about the relationship between those factors (Dorner, 2012; Chatchawan et al. 2017; Monteiro et al. 2016). Here innovative behavior (IB) acts as the dependent variable and all others are independent variables (Shahzad et al. 2007; Hamdy, 2015). In the questionnaire, first respondent has to fill their name, age, designation and experience in their position. Then the rest of questions were provided with several options. Five-point Likert-type scale was used to capture responses from the employees which allowed them to make their level of agreement such as strongly agree, agree, no idea, disagree,

Figure 1. Research Model



and strongly disagree. Respectively scores of 5, 4, 3, 2, and 1 were assigned for the above mentioned categories. Therefore considering Likert-type scale, all items can be divided in to three main categories as values over 3, and values below 3 and values equal to exactly 3. (Shahzad et al. 2017) They can represent positive negative and neither positive or negative respectively. Value 3 is the mean value and it would be the decision criteria for this survey.

The preliminary designed questionnaire was given to some of experts in software engineering filed to ensure the content validity. All the questions were examined and checked that the survey items achieve research objectives. And after the confirmation of the questionnaire pilot test was done by giving the questionnaire to 25 individuals in the field. They were invited to complete the survey, to comment on whether the questionnaire is legible, understandable and any other comments to improve the design and content of the questionnaire. After that some modifications were done according to the comments, more designations were added when selecting position and also option to select gender was added. Then the reliability of the questionnaire was checked using Cronbach's alpha technique (Shahzad et al. 2017). Then four questions were changed again and rechecked the reliability. After the final confirmation, the questionnaire was developed in google forms and link was provided to employees in software companies through internet. (Vasanthapriyan et al. 2017).

III. RESULTS

A. Demographic Analysis

The dataset was analyzed by SPSS version 20 using various statistical tools. Demographic analysis was done while considering the frequencies of demographic variables. A dataset consisted of 100 valid responses was used to carry out the analysis part. Out of 100 responses, 62% and 38% represented male and female respondents respectively. Most of the respondents were young individuals between 25-35 years of age which was 70% of total responses. Rest of 30% was below 35 years of age. When considering the current position of employees, majority were software engineers which was 61% of the total responses, 16% were quality assurance engineers, 7% were business analyst and 6 % were software designers. All other positions were covered by the rest of responses including the high level management positions. Almost 50% of the respondents have got 6 months or less experience, 20 % have got 1-2 years of experience and rest 30% have got above 2 years of experience in their positions.

B. Measurement model assessment

Before doing descriptive, correlation and regression analysis, it is important to assess the measurement model.

For that reliability and validity of the questionnaire was checked. Validity of the questionnaire was tested using Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity (BTS). BTS is a statistical test used to test overall significance of correlation. Criteria: 0.90s-marvellous, 0.80s-meritorious, 0.70s-middling, 0.60-medicore, 0.5s-miserable and below 0.5 is unacceptable. Table 2 shows that KMO value is above 0.79 which is an acceptable value and BTS is also a strong value. Reliability was checked using Cronbach's alpha technique (Shahzad et al. 2007; Vasanthapriyan et al. 2017; Hamdy, 2015). The value 0.50 was used as the threshold value to indicate adequate reliability for this study (Vasanthapriyan et al. 2017). The values of Cronbach's alpha were; OC= 0.71, PC= 0.27, OST= 0.87, OSU= 0.74, R= 0.52, RA= 0.60, L= 0.50, SC= 0.59, WC= 0.74 and IB= 0.54 as in the Table 2. As all the values were above 0.5, it was confirmed that reliability of the questionnaire was in a good state.

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.798
of Sphericity Bartlett's Test	Approx. Chi-Square	3310.348
	df	780
	Sig.	.000

C. Descriptive Analysis

According to the Table 2, work characteristics and psychological capital has the highest mean values and rewards and innovative behavior has lowest mean values. Table 2 shows mean, standard deviation and Cronbach's alpha for each variable.

D. Correlation Analysis

To analyze the relationship between organizational factors, individual factors and Innovative Behavior (IB) Pearson Correlation matrix was used as shown in Table 3. Many indicators were used to determine influence of factors over innovative behavior of employees. From the data it was found that all the variables have got positive correlation between each other with $\rho < 0.05$ significant

Table 2. Descriptive Statistics and Reliability

Factors	No of Items	Mean	Std. Deviation	Cronbach's Alpha
OC	4	3.73	0.61	0.71
PC	6	3.96	0.48	0.62
OST	6	3.88	0.63	0.87
OSU	4	3.71	0.74	0.74
R	2	3.66	0.85	0.52
RA	4	3.76	0.63	0.60
L	4	3.80	0.62	0.50
SC	6	3.75	0.55	0.59
WC	4	4.06	0.64	0.74
IB	2	3.68	0.72	0.54

value. The correlation of organizational support (OST) and innovative behavior (IB) was found as the highest correlation ($r = 0.88, \rho < 0.01$). Significant positive correlation was found between leadership (L) and innovative behavior (IB) ($r = 0.79, \rho < 0.01$). Next highest was between innovative behavior (IB) and psychological capital (PC) ($r = 0.66, \rho < 0.01$). Least correlation coefficient was found between organizational support (OST) and rewards (R) ($r = 0.27, \rho < 0.01$).

C. Regression Analysis

The Linear regression model has been developed in order to test hypothesis. (Shahzad et al. 2007; Edison et al., 2013). Multiple correlation coefficient $R = 0.94$ indicates

that there is a strong correlation between the innovative behavior (IB) with other variables. The most significant independent variables were in order: organizational support (OSU) ($\rho = 0.000$), leadership (L) ($\rho = 0.003$), psychological capital (PC) ($\rho = 0.007$), resource availability (RA) ($\rho = 0.033$), social capital (SC) ($\rho = 0.039$) and rewards (R) ($\rho = 0.040$). Other three variables, organizational commitment (OC), organizational strategy (OS), work characteristics (WC) were not significant in the regression model as their ρ values were over '0.05'. Therefore according to the data H1, H3 and H9 were

Table 3. Correlations

	OC	PC	OST	OSU	R	RA	L	SC	WC	IB
OC	1									
PC	0.57**	1								
OST	0.41**	0.48**	1							
OSU	0.33**	0.53**	0.27**	1						
R	0.44**	0.53**	0.66**	0.32**	1					
RA	0.35**	0.47**	0.39**	0.34**	0.58**	1				
L	0.38**	0.61**	0.41**	0.69**	0.53**	0.45**	1			
SC	0.39**	0.41**	0.40**	0.43**	0.55**	0.46**	0.56**	1		
WC	0.40**	0.49**	0.46**	0.48**	0.38**	0.28**	0.44**	0.33**	1	
IB	0.41**	0.66**	0.36**	0.88**	0.52**	0.52**	0.79**	0.58**	0.47**	1

** Correlation is significant at the 0.01 level (2-tailed).

removed because they haven't got any relationship with innovative behavior (IB). And H2, H4, H5, H6, H7 and H8 were identified as supported hypothesis. They showed a positive influence as their regression coefficient and t values were positive ($\beta > 0, t > 0$). In terms of variability of the, the R2 of 0.89 indicates that 89 percent of variability of the innovative behavior can be discussed by the six most significant variables (SC, L, OSU, RA, PC, and R). Model was reconstructed according to proven results as shown in Figure 2. Results of regression analysis are shown in Table 4

IV. DISCUSSION

In this study, innovative behavior was measured via nine possible dimensions which were briefly discussed in the literature. Past researches have considered only limited factors, and most of the studies have followed a qualitative methodology. But in this study quantitative research methodology was used. Analysis of the results showed that almost 75% of respondents have engaged in innovative activities in software companies. From them

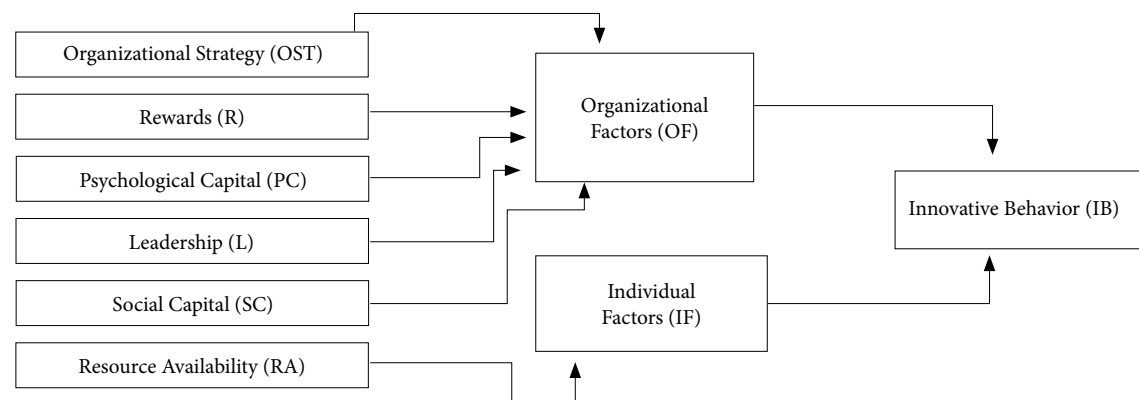


Figure 2. Reconstructed Research Model

Table 4. Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-.842	.255		-3.299	.001
	OC	.006	.049	.005	.118	.906
	PC	.207	.076	.140	2.742	.007
	OST	-.092	.055	-.081	-1.656	.101
	OSU	.591	.050	.611	11.827	.000
	R	.100	.048	.118	2.082	.040
	RA	.111	.051	.098	2.163	.033
	L	.198	.066	.171	3.002	.003
	SC	.124	.059	.096	2.091	.039
	WC	-.040	.050	-.036	-.808	.421

a. Dependent Variable: Avg_Innovative behavior

about 20% of respondents have frequently engaged in innovative activities. In this study both individual and organizational factors that affect innovative behavior have been considered and also hypothesis related them have been proven. Monterio in his research has mentioned that both these factors affect employee innovative behavior (Monteiro et al. 2016).

Psychological capital comprises of confidence, attitude, hope, recovery (tolerance) which are crucial factors that affect innovative behavior of an employee. Results have proven that it has a significant relationship with innovative behavior. Correlation between psychological capital and innovative behavior is relatively high comparing with other values. Therefore importance of this factor can be proven using above results. These results are also consistent with Dorner's results (2012). Hamdy's study (2015) has stated that tolerance for risk has no relationship with innovative behavior, but in this study we have considered tolerance for risk combining the other factors. Results have highlighted that social capital which can be described as interaction and trust between employees and customers has a significant positive influence on innovative behavior. Shahzad

(2017) in his research has proven that team work has a positive relationship between innovation performance. This study's results also shows that social capital has a significant relationship with innovative behavior. Results of this research indicated that leadership is positively influencing the innovative behavior of employees in the regression analysis. Hamdy (2015) in his research has proven this relationship. Usually employees get motivated if manager is evaluating their ideas (Li & Zeng, 2014). Monteiro (2016) in his research has discussed this. Resources are important to improve innovative behavior of employees. Results prove that resources are limited in Sri Lankan software companies as it has the least mean value. But it has significant positive effect on innovative behavior. Organizational support also has a positive relationship with innovative behavior according to the results. It has the highest correlation with innovative behavior. Chatchawan (2017) has mentioned this factor as an important one in his proposed model. So according to the results, innovative behavior of employees are highly depending on factors such as social capital, leadership and organizational support under the Sri Lankan context because they have the most significant relationship with innovative behavior. The results of this research indicated

that reward also has positive relationship with innovative behavior. The correlation between reward systems and innovative behavior is significant. These results are consistent with Hamdy's (2015) and Shahzad's (2017) studies. In the Sri Lankan context it is very important to motivate employees. Hamdy (2015) also have highlighted that higher rewards will lead to more innovative behaviors demonstrated by employees. Organizational commitment, work characteristics and organizational strategy have been pointed out as factors that affect innovative behavior from previously done research (Li & Zeng, 2014; Smith, 2008), but according to the results of this study, they have no relationship with innovative behavior. Therefore in Sri Lankan software companies there is no need to concern above three factors. This study provides six factors that affect employee innovative behavior in Sri Lankan software companies and their degree of effect and interrelationship. Most of the researches have been done by checking less number of factors. But this study covers a broad area using many factors. As this research also examined both individual and organizational factors, research gap is covered considerably.

V. CONCLUSION

Innovative behavior of employees is a crucial factor which leads to drive towards innovation. The aim of this study is to check the effect of organizational and individual factors on employee innovative behavior in Sri Lankan software companies. In conclusion, psychological capital, organizational support, rewards, resource availability, leadership and social capital are proved as the most important factors influencing employee innovative behavior in Sri Lankan software companies. This research has provide strong evidence to prove their relationship. The research model has been reconstructed according to the findings. Also the results emphasize that both individual and organizational factors effect on employee innovative behavior. According to the results individual's psychological characteristics have a significant effect on employee innovative behavior. And from the organizational view point it is important to have good support from the company and adequate resources must be there for employees. Strong management support should be provided in order to evaluate employee ideas and to motivate them. Another important thing is encouragement and appreciation of employees who engage in innovative activities in the company by giving rewards for them. So employee innovative behavior can

be improved by positively influencing the factors that have been identified by this research study. This study also have found that organizational structure, organizational commitment and work characteristics have no relationship with innovative behavior of employees. Therefore future research should be done on investigating above factors to find more evidence to say that. And this study only focused on employees in Sri Lankan software companies. Therefore more studies should be done by covering other organizations also. As a conclusion finding of this study emphasize that psychological capital, organizational support, rewards, resource availability, leadership and social capital positively influence on employee innovative behavior in Sri Lankan software companies.

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A PALIMPSESTUOUS READING OF SHEHAN KARUNATILAKA'S "CHINAMAN" – POWER DYNAMICS OF THE PALIMPSEST OF SRI LANKAN ENGLISH

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Abstract- The present study is an attempt to devise a combined approach towards reading Sri Lankan English literature that takes into account both socio-linguistic and thematic concerns of the canon. In this context, the study holds the literary medium of Shehan Karunatilaka's *Chinaman: The legend of Pradeep Mathew* as a palimpsest, whose linguistic stratification signals a discord between the novel's linguistic content and its political worldview. Here, the study situates Sri Lankan English within the linguistic ecology of Sri Lanka and observes how different socio-political and socio-linguistic voices inhabit and inhibit each other in constructing the palimpsestuous texture of Sri Lankan English. These observations are in turn compared with the novel's commentary on national (dis)harmony. This content analysis is conducted by applying Chantal Zabus's theorization of "relexification" which conceives postcolonial Anglophone writing as a palimpsest, and Sarah Dillon's theoretical insights in to "palimpsestuous reading" that observes the way different layers of a palimpsestuous text interact with each other in constructing that text. The study observes how the power dynamics that inform the literary medium of "Chinaman" may contradict the novel's political worldview that promotes an inclusive national consciousness.

Keywords- Sri Lankan English Literature, *Chinaman*, relexification, palimpsestuous reading

I. INTRODUCTION

Shehan Karunatilaka's debut novel *Chinaman – The Legend of Pradeep Mathew* (2015) (from now on

Chinaman) which is presented as the last attempt of a dying alcoholic sports writer to compile "a halfway decent documentary on Sri Lankan cricket" (Karunatilaka, 2015, p. 5), is primarily motivated by a search for an erased voice. A large part of the story features WG, the narrator and his friend Ari chasing behind the elusive figure of Pradeep Mathew – a genius Chinaman bowler of Tamil origin, the unsung hero of Sri Lankan cricket. However, as the narrator's son Garfield points out, "the story, like the man himself, seems to forget its point" (Karunatilaka, 2015, p.467) and plunges into a discussion of the political turmoil and ethnic conflict of late 20th Century Sri Lanka. As a result, *Chinaman* is often read as a novel that takes cricket as a surrogate for the nation (Rambukwella, 2010; Kesavan, 2012; Yothers, 2012). In this context, the character of the genius cricketer Pradeep Mathew, whose presence is felt throughout the novel in his enforced absence, can be taken as a symbol of voices effaced in hegemonic narratives of the nation.

The present study observes how a similar process of erasure that Pradeep Mathew was subjected to is observed in the linguistic content of *Chinaman* as well. In order to explain this connection, a content analysis of *Chinaman* is conducted by employing the concept of "relexification" (Zabus, 2007) that observes how a constant process of erasure and re-inscription of linguistic identities produces a "new literary medium"

(Zabus, 2007, p.16) in postcolonial creative writing, and the concept of "palimpsestuous reading" (Dillon, 2005) that observes how multiple layers of writing inhabit and inhibit each other in constructing a palimpsestuous text.

In this context, the study conceives Sri Lankan English as a relexified palimpsest and conducts a palimpsestuous reading of it in order to discern the process of linguistic negotiation taking place in *Chinaman's* literary medium. Based on this analysis, the present study juxtaposes the novel's thematic engagement with the ethnic conflict of the country against the structure and power dynamics of its literary medium, which is Sri Lankan English.

A. Research Objective

A majority of academic studies conducted on Sri Lankan English literature seem to focus on the socio-political concerns addressed by these texts at the thematic level. In comparison, much less attention has been paid to linguistic characteristics of Sri Lankan Anglophone writing. Despite the fact that the socio-linguistic dimensions of Sri Lankan English have been studied extensively, linguistically oriented studies of Sri Lankan literature are a rarity. Furthermore, as the critics Dushyanthi Mendis and Harshana Rambukwella point out, even the available studies of such nature focus almost exclusively on the linguistic strategies employed in literary texts (2010, p.192).

The broader goal of the present study therefore, is to contribute to the attempts made at merging linguistic and thematic analyses of Sri Lankan literature, particularly in the context of linguistic studies conducted on Sri Lankan English literature. At a more precise level, the present study is an attempt to bring together the linguistic and thematic concerns of the novel *Chinaman*.

In striving towards this objective, the study poses the following research question: How do the linguistic negotiations in the literary medium of *Chinaman* relate to the novel's thematic preoccupation with socio-political realities of Sri Lanka?

II. METHODOLOGY

The present study conducts a qualitative content analysis of the literary medium of *Chinaman* based on a theoretical framework that draws from the concepts of "relexification" (Zabus, 2007) and "palimpsestuous reading" (Dillon, 2005).

A. Relexification

The postcolonial theorist Chantal Zabus defines relexification as "the making of a new register of communication out of an alien lexicon" (1991, p.314) in the context of postcolonial literature. According to the critic Ahmed Gamal, "this new form of communication functions as a third space between an indigenous source language and the dominant European language" (2012, p.115). Zabus regards this "third code" (2007) or the relexified text as a palimpsest where, "behind the scriptural authority of the European language, the earlier, imperfectly erased remnants of the African language can still be perceived" (Zabus, 2007, p.3). Therefore the deciphering of the palimpsest allows one to recover the trace of the native languages as well as to "catch a glimpse of linguistic stratification" (Zabus, 2007, p.3) or the power dynamics and struggles between different languages – not only between the European and native language but also between native languages.

Zabus's conceptualisation of relexification offers a steady platform to view the postcolonial writer's language as a palimpsest, and thus discern the traces of competing linguistic identities (and by extension, socio-political identities) that form the contentious category of 'Sri Lankan English'. This understanding in turn is crucial to achieving the objectives of the present study which are oriented primarily towards examining how the Sri Lankan postcolonial nationalistic identity that *Chinaman* discusses in depth is reflected in its very literary medium – Sri Lankan English.

B. Palimpsestuous Reading

Chantal Zabus draws largely from the model of the palimpsest in her book *The African Palimpsest* where she conceives the literary medium of the Anglophone and francophone novels in West Africa as a palimpsest. The present study takes the literary medium of *Chinaman* that is constituted of Sri Lankan English as a "relexified palimpsest" (Zabus, 2007), and conducts a "palimpsestuous reading" (Dillon, 2005) of this multi-layered text.

Palimpsest, which carries the literal meaning of "an ancient document from which some or all of the original text has

been removed and replaced by a new text” (Oxford, 2017), is a concept that has captured the imagination of critics since the 19th century as a model to explain the human psyche, history and societal incorporation (Dillon, 2005), and as in the case of Zabus’ *The African Palimpsest*, the glottopolitics of postcolonial writing. According to Dillon, “the palimpsest is an involuted phenomenon where otherwise unrelated texts are involved and entangled, intricately interwoven, interrupting and inhabiting each other” (2005, p. 245).

In the context of actively reading the palimpsest, Dillon identifies two different approaches adopted by critics through the ages, namely, “palimpsest reading” and “palimpsestuous reading” (2005). The concept of ‘palimpsest reading’ derives from the historical role of the palimpsest editor whose task is to unearth the partially obliterated text. As Dillon points out, the sole objective of the “traditional palimpsest reading” is the “resurrection of the underlying script; the overlying one is irrelevant” (2005, p.253). According to her, this method of unravelling and deciphering the palimpsest, particularly in the figurative sense, destroys it, because the palimpsest exists “only and precisely as the involution of texts” (Dillon, 2005, p.254). ‘Palimpsestuous reading’ in comparison does not attempt to “uncover ‘hidden’ or ‘repressed’ narratives. Rather, it traces in the fabric of literary and cultural palimpsests the interlocking narratives” (Dillon, 2005, p.254). Thus a palimpsestuous reading seeks to appreciate the complex relationship between the interlocking inscriptions that inhabit and constitute the palimpsest.

The present study takes the linguistic content of *Chinaman* as a “new literary medium” (Zabus, 2007, p.16) and observes how it is constituted of interlocking linguistic identities that are products and productions of Sri Lankan national consciousness. In other words, the present study seeks to conduct a palimpsestuous reading, rather than a *palimpsest* reading, of Sri Lankan English as a Sri Lankan phenomenon recorded and legitimised in *Chinaman*. With the outlook of a palimpsestuous reading, the study explores how *Chinaman* engages with the political concerns of both Sri Lankan English and Sri Lankan national consciousness.

III. DISCUSSION

A. *The Pitch: Negotiating Linguistic Identities*

Even though Zabus defines relexification as a deliberate technique, her insights into the synchronic and diachronic aspects of relexified language permit an analysis of Sri Lankan English as a “relexified palimpsest” (Zabus, 2007, p.175). Zabus identifies distinct synchronic and diachronic practices of relexification. The “synchronic” practice performs a methodological function by representing the “interplay of linguistic codes or registers in the social arena” (Zabus, 2007, p.16), while the diachronic practice performs a strategic function by fulfilling the “artistic need to forge or create a new literary medium” (Zabus, 2007, p.16). Thus, relexification carries the potential of both representing the existing linguistic reality in the “social arena” and devising a decolonising strategy out of and against it.

The present study focuses on the synchronic aspect of relexification where it functions to represent the existing “interplay of linguistic codes” (Zabus, 2007, p.16), in order to conceive Sri Lankan English thus “represented” and recorded in *Chinaman* as a relexified palimpsest. The following are two examples from *Chinaman* that indicate how Sri Lankan English is composed of multiple linguistic strata that inhabit and inhibit each other in forming its palimpsestuous character.

Example 1 : Put a drink/chat/shot (p.98; p.128; p.178)

The unique use of “put” in these examples indicates how Sinhala syntax resurfaces in the texture of Sri Lankan English. In a study on minority languages in contact language situations, the linguist T. L. Markey observes that “relexification involves translational equivalents for a morphosyntactic process” (2010, p.12). This implies that in the process of relexification, not merely the lexical item is calqued but its syntactic usage is also appropriated into the relexified language

medium. In this context, the use of “put” in different situations to roughly mean “have”, “engage in” or “take” as represented in the literary medium of *Chinaman*, can be considered a relexification of the versatile use of the Sinhala verb “daanava” (to put) in colloquial situations.

Example 2 : We are also missing our boy (p.112)

A closer analysis of the above statement uttered by WG makes visible the layer of Sinhala language that is over-written by English in producing the palimpsest of ‘Sri Lankan’ English. The main element of Sinhala syntax visible here is the preference of first person plural pronoun *api* (we) and first person plural possessive determiner *ape* (our) in colloquial speech.

Laws of the Game: Power and Resistance

As a model that capitalises on its contradictory functions of erasure and retention of the past (McDonagh, 1987, p.8), the palimpsest is often taken as a useful tool in understanding the dynamics of power and resistance. For instance, as Sarah Dillon observes, the palimpsest “represents ‘history’ not as natural evolution or progress but as the history of colonial expansion, the violent erasure and superimposition of cultures, and defiant and subversive persistence” (2005, p.254). Therefore, a palimpsestuous reading of Sri Lankan English may bring out the power dynamics that govern its layered composition. Power appears in cricket in the form of the “Laws of the game”, while it may make its appearance in world Englishes in the form of ‘standard English’ and in postcolonial national consciousness as hegemonic narratives. This can be taken as the juncture where the linguistic content of *Chinaman* converges with its thematic preoccupations.

When considering the negotiation of linguistic and national identities taking place through the ‘pitch’ of colonial experience, the communal aspect of language communities and nations, as much as of the game of cricket becomes important. Not only is cricket a team sport, but also its unique spectator culture calls for a collective engagement with the game. This team spirit is often transfused into the national consciousness of the players and the spectators, for as Perera observes, “cricket

is perceived as a site of conflict, not just between opposing national ‘styles’, but even between national ideologies and cultures” (Perera, 2000, p.18).

Against this background, *Chinaman* is a novel that celebrates the “eastward march of cricket’s power base” (Karunatilaka, 2015, p.35); how the ICC has come to become “petrified of the subcontinent” (Karunatilaka, 2015, p.p.182). Similarly it is a novel that celebrates the “eastward march” of the English language and how the ownership of the language was wrenched from the ‘IC’ or the ‘Inner Circle’. In one of the iconic scenes in *Chinaman*, Pradeep Mathew gets involved in an angry dispute with a British commentator. This clash between the “Yorkshire accent” and the “Lankan lilt” (Karunatilaka, 2015, p.240) can be taken as a metaphorical example of how the power balance in the arena of world Englishes has shifted over the years. In WG’s words, “us brown folk play the game better, and we should no longer apologise for our quirks; in fact we should celebrate them, and if necessary, defend them” (Karunatilaka, 2015, p. 390). Therefore, when Arjuna Ranathunga defies the belief that “the umpire’s word is law” (Karunatilaka, 2015, p. 390) and defends Muralidharan’s ‘chucking’ action, it oddly reflects the way the ‘Outer Circle’ nations are “chang(ing) the rule book” (Karunatilaka, 2015, p.400) of ‘Standard English’ and emerging with their own national styles.

At the other end of the metaphor, *Chinaman* appropriates cricket as a surrogate for the nation and yearns for a unified national identity and “an idea of Sri Lankan-ness that welcomes all shades of brown” (Karunatilaka, 2015, p. 346). This is indicated by WG’s repeated attempts and failures at defining a Sri Lankan identity and an “all-time Sri Lankan team” (Karunatilaka, 2015, p. 173). These attempts only lead to drunken brawls and self-aware generalisations such as “we are smaller in every way, including being small minded” (Karunatilaka, 2015, p. 346). The inability to conceive a unified and inclusive national side and a national identity may testify to the internal contradictions within these concepts.

Critics such as Bandyopandhyay and Majumdar celebrate the ability of cricket to transcend racial, religious, class and other socio-political categories in “imagining a secular homogenous nationalist identity” (Bandyopandhyay, 2013, p.29) – going as far as to name cricket as “the only secular religion” in Bangladesh (Bandyopandhyay, 2013, p.19) and the “national religion” in India (Majumdar, 2007 p.89). WG shares the same perspective when he states that

“sports can unite worlds, tear down walls, and transcend race, the past, and all probability” (Karunatilaka, 2015, p.449).

However, what critics such as Bandyopandhyay and Majumdar and WG in Chinaman might have failed to recognize is that the idea of a “homogenous national identity” (Bandyopandhyay, 2013, p.29) itself is a fallacy and that the ‘nationality’ thus constructed will invariably subscribe to and propagate hegemonic narratives of the nation. As Perera points out, “in Sri Lanka, the most prestigious cricket clubs in Colombo still have names like ‘Sinhalese Sports Club’ and ‘Tamil Union’” (2000, p.22) which brings out the segregationist ethos of Sri Lankan sports as well as Sri Lankan national consciousness. The discrimination that was aimed towards Pradeep Mathews could be a manifestation of this discriminatory political situation. In this context, WG’s 500 page record would ironically testify that there is divide, “walls” and “race” (Karunatilaka, 2015, p.449) within sports itself.

Therefore, it is evident that while a unique “Lankan style” (Karunatilaka, 2015, p.391) may provide a site of resistance against external effacing forces of Imperialism (and “Inner Circle standards”), it is also composed of tensions and contradictions from within. The reluctance to accept Pradeep Mathew into the ‘national side’ and his consequent erasure from the official records of Sri Lankan cricket, for instance, are the results of such internal tensions. These issues of ethnic conflict and segregationist national consciousness are some of the main themes addressed by Chinaman in the guise of cricket. At the same time, similar internal tensions are echoed in the linguistic content of the novel as well. Therefore, it is apparent that while Sri Lankan English, similar to cricket, has certainly been able to develop a unique “local action” (Karunatilaka, 2015, p.142) in the arena of world Englishes, it is still composed and born out of warring linguistic identities conditioned by the country’s postcolonial national consciousness.

The internal conflicts of the composition of Sri Lankan English are visible in the competition between the ‘native languages’ Sinhala, Tamil and Malay to resurface in the textuality of Sri Lankan English.

Take for example, WG’s utterance, “instead I get two sarong johnnies in cream shirts” (p.397) Michael Meyler’s A Dictionary of Sri Lankan English defines sarong Johnny as a dated “derogatory or humorous term for a

person wearing a sarong, implying that they are socially inferior” (Meyler, 2007, p.230). ‘Sarong johnny’ cannot be considered a borrowing or calquing because it has no ‘original’ Sinhala or Tamil word from which it is translated. For instance, Dileepa Abeyssekara’s translation of Chinaman translates the expression as “සරමකාරකා” (Abeyssekara, 2015, p.247), a likely approximation.

Interestingly, the sarong – a garment worn by Sri Lankan men and a word generally taken as a Sinhala word – has its etymological roots in Malay. According to M. Gunesequera, “the ‘sarong’ is from Malay ‘sarong kabaya’” (2010, p.274). In fact, sarong is only one of the many Malay words strongly naturalised as Sinhala. The word *konda* or *konde* is one such example. Even though the word means hair or a particular hairstyle in contemporary Sinhala, according to karava.org, it is “a usage adopted in recent centuries from the Malay language.” (2017). The critic M. A. Sourjah in The Sri Lankan Malay Heritage in Brief, supports this point maintaining that the hairstyle “konde” was first followed by Malay men before it was adopted by the Sinhalese (2005, p.23). This in turn curiously flips the linguistic stratification of the central idiom of *Chinaman*: “konde bandapu cheena” (Karunatilaka, 2015, 261), (which identifies a gullible person) granting Malay a “quasi-invisible” (Zabus, 2007, p.175) status. Thus, the relexified Sri Lankan English idiom ‘ponytailed chinaman’ can be identified as a product of glottopolitical tensions between Malay, Sinhala and English.

A vast majority of relexification found in Chinaman in the forms of calques and transpositioned idioms, proverbs, linguistic habits derive from the Sinhala language. However, more importantly, it can be observed that these idioms are intended for an audience of Sinhala speakers of Sri Lankan English. The versatility of the non-variant question tag “no?” that is extensively represented in Chinaman, for instance, may not be absorbed easily by a non-Sinhala speaker.

Example 1: To reason
I swivel around and light myself a cigarette.
‘I thought you gave up?’
‘Writing, no?’

Example 2: To invite assent
‘Reggie malli. This is not going live, no?’
Example 3: To express disbelief
‘He could imitate any action, no?’

While the non-variant question tag “no?” is not exclusive to Sri Lankan English (Kortman, 2010), in the Sri Lankan context it can be taken as an example of relexification since it is a linguistic habit deriving from the Sinhala negative question particle *neda/ne* that has the function of an English question tag.

Expressions such as “our man”, “our boys”, “our boy” and “our cricketers” (Karunatilaka, 2015, p.3; p.71; p.112; p.119) can be traced back to the tendency in colloquial Sinhala to use the first person plural possessive determiner instead of the singular. Furthermore expressions such as “put and see” or “go and check” (Karunatilaka, 2015, p.104; p.54) can be seen as drawing from the Sinhala syntactic formation of *purva kriya* which is used to identify actions done by the subject before the main action. These examples may indicate that Sinhala voices have overwritten other native linguistic voices in the composition of Sri Lankan English as represented in *Chinaman*.

It must be noted that the above mentioned Sinhala syntactic features relexified into Sri Lankan English are observed in Tamil as well. For instance, Tamil syntax also use negative question particles such as *illaiya/allava* as non-variant question tags, has a tendency of preferring the first person plural possessive determiner in colloquial speech and has a grammar structure (*vinai echcham*) similar to Sinhala *purva kriya*. This could suggest that many linguistic habits and calquings mentioned above could have been influenced by Tamil syntax as much as Sinhala syntax.

However, the fact that these expressions in Chinaman are used mostly by Sinhala-English bilingual speakers eliminates this possibility. Despite the plot being woven around a character who has a partly Tamil lineage and who was discriminated mainly because of his Tamil lineage, there are only a few Tamil speakers who have a significant linguistic presence in the narrative. Even Pradeep Mathew the “unsung hero” himself “couldn’t... speak proper Tamil” (Karunatilaka, 2015, p.63). Perhaps the most material reason behind the absence of Tamil voices could be the fact that the writer Shehan Karunatilaka is a bilingual speaker of English and Sinhala (Karunatilaka, 2017) and therefore has limited knowledge about language habits of Tamil speakers.

While the absence of Tamil and Malay linguistic identities are felt throughout the narratives except in certain instances of linguistic borrowing such as *appa*, *thambi*,

anna and *watalappan* these suppressed linguistic identities seem to resurface in the palimpsest of Sri Lankan English in indirect ways.

Example 1 : You should’ve seen Ravi de Mel’s face. Like a pittu (p.246)

This expression appears to be a (mis) approximation of the Sinhala idiom *pittu gilala* wage which is used to refer to someone who looks annoyed and at a loss for words. ‘Like a pittu’ or “පිට්ටු ගෙඩිය එළුව” (Abeyssekara, 2015, p.156) as Abeyssekara translates it, is instead an expression typically used to refer to an obese person or a swollen body part (eg: legs), deriving from the cylindrical shape of the food item. While these idioms are Sinhala, the food item *pittu* or *puttu* is identified as originating from traditional Tamil cuisine . This may lend itself to an argument of how the Tamil voice has to cross an extra layer to make its appearance in the palimpsest of Sri Lankan English.

Example 2 : Danila sounds like a vatti amma selling veggies on the street (p.45)

The Sinhala expression *vatti amma* is used to refer to a loud-mouthed woman with a piercing voice. Danila’s character portrayal as a *vatti amma* both derives from and appeals to the semantic codes of the Sinhala-English bilingual speech community. However, similar to *pittu*, *vattiya*, which is naturalised as a Sinhala word, has an etymology reaching back to Tamil (Coperahewa and Arunachalam, 2011, p.79), once again bringing out the superimposition of Sinhala voices over Tamil ones in the composition of Sri Lankan English. This situation is true not only for Tamil but Malay as well, whose voice finds its roundabout way into Sri Lankan English through Sinhala idioms such as ‘*konde bandapu cheena*’ .

The same situation is reflected in the grim determination of Pradeep Mathew as well. He asserts, “as a Tamil I have to be ten times better than the Sinhalese spinners. Now I’m only eight times better” (Karunatilaka, 2015, p.234). The sheer effort he has to put in order to be accepted and

respected as a visible member of the national team is a reflection of the discriminatory and segregationist ethos of postcolonial national consciousness in Sri Lanka.

At its thematic level, Chinaman can be read as a criticism of the segregationist national consciousness that has permeated and shaped the character of Sri Lankan cricket. For instance WG condemns segregationist ideas that “the nation belongs to the Sinhala” or “that the Tamil deserves a separate state” (Karunatilaka, 2015, pp.345-346). He at one point even attempts to subvert this exclusivist logic through language itself.

“But then I look closely at the shades of brown and I see interlocking patterns. The Tamil Zion is called Elam which derives from the same Sanskrit word as Hela. The Sinhala word for sovereignty”. (Karunatilaka, 2015, p. 346).

Thus, a yearning for a “Sri Lankan-ness that welcomes all shades of brown” (Karunatilaka, 2015, p. 346), is felt throughout the narrative of Chinaman. In this context, WG’s attempt to unearth the traces of Pradeep Mathew can be interpreted as an attempt at producing a counter narrative to the hegemonic narratives of the nation.

Ironically however, the power dynamics of the literary medium of this documentation, as discussed above, seem to contradict this inclusive political message. While Chinaman as a text criticises the segregationist national consciousness of Sri Lanka, the marked absence of Tamil voices (and other native languages apart from Sinhala) in its literary medium, as was evident in the above discussion, could work against the yearning for an inclusive national identity that was felt throughout the narrative. What is evident here is that while Chinaman attempts to promote an inclusive national identity through its narrative, the oppressive power dynamics of its literary medium as discussed above may undermine this inclusive ethos.

IV. CONCLUSION

The present study set out to examine the way the political and glottopolitical concerns of Chinaman merge with and redefine each other at the level of its literary medium, which is Sri Lankan English, with the broader goal of merging linguistic and thematic analyses of Sri Lankan English literature. As the critic MacLean points out, “as part of [the] cultural politics of nationalism all nations

construct golden ages and claim heroes, some ancient, some modern” (2009, p.543). In this context, WG’s palimpsest reading of Sri Lankan cricket records to unearth the partially erased remnants of the ‘unsung hero’ Pradeep Mathew is an attempt at constructing a counter narrative to the Sinhala hegemonic narratives of the nation. However, the erasure of Tamil voices in its literary medium, as exposed by the palimpsestuous reading conducted in the present study, contradicts this political proposition at the level of glottopolitics. This in turn substantiates the present study’s endeavour to suggest that critical appraisals of creative works that take into account both their linguistic and thematic aspects may provide fresh perspectives as to their political engagements.

Since creative writing in world Englishes can be considered a major catalyst in the process of validating and legitimizing a language as an independent variety, the observations made through the analysis of Chinaman may relate to the larger context of the discourse on and codification of Sri Lankan English in a socio-linguistic perspective. This indicates that the theoretical framework employed in the present analysis can be used in ‘socio-linguistic studies’ on Sri Lankan English as well. The concepts of palimpsestuous reading and relexification in particular can be used to deconstruct and conduct diachronic analyses of situated linguistic locations such as ‘elite English’, Singlish, Jaffna English, Burgher English and other synchronic categories that form the contemporary understanding of Sri Lankan English.

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THE INTERDEPENDENCE OF GENDER, SEXUALITY, ETHNIC AND CLASS BINARIES IN SHYAM SELVADURAI'S FUNNY BOY AND CINNAMON GARDENS

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Abstract - Shyam Selvadurai's novels have contributed significantly to Sri Lankan English literature. The author highlights sensitive areas such as gender, economic classes and racial issues as well as subjects considered as taboo in Sri Lanka, such as sexuality. The author's portrayal of characters and issues in *Funny Boy* (1994) and *Cinnamon Gardens* (1998) are therefore essential in the analysis of his subject matter. Set against the ethnic riots of 1983 and the pre-independent Ceylon respectively, the texts highlight gender, sexual, racial and class issues of the times. Existing research presents gender and sexuality of *Funny Boy* and *Cinnamon Gardens* in the light of power structures and networks of power. Moreover, critics argue that these power structures are constructed as binary oppositions. However, these binaries highlight the power structures in antagonistic perspectives. Nevertheless, reading closely, the two texts exemplify the interdependencies of these binaries in their exercise of power. Therefore, this study focuses on the interdependence of the binary power structures according to the portrayal of gender, sexuality, ethnicity and class of the two texts and the two eras in concern. A variety of literary theories have been used to expose the binaries and to show how certain aspects of these theories will be challenged as the binaries are viewed in the light of diversity and interdependence.

Keywords- Sri Lankan Literature, Shyam Selvadurai, Binary Oppositions

I. INTRODUCTION

Shyam Selvadurai's novels have contributed significantly to Sri Lankan English Literature. He highlights sensitive areas such as gender, economic classes and racial issues as well as subjects considered as taboo in Sri Lanka, such as sexuality. The author's portrayal of characters and issues in *Funny Boy* (1994) and *Cinnamon Gardens* (1998) are therefore essential in the analysis of his subject matter. Set against the ethnic riots of 1983 and the pre-independent Ceylon respectively, the texts highlight gender, sexual, racial and class issues of the times. Existing research presents gender and sexuality of *Funny Boy* and *Cinnamon Gardens* in the light of power structures and networks of power. Moreover, Ransirini (2001) argues that these power structures are constructed as binary oppositions:

"His final comprehension of the figures of power predicates a rather severe binary: the powerful vs. the powerless. This understanding undeniably forecloses the subtle nuances and complementary and interpenetrative nature residual to power relations... It is evident that the novel in its exploration of the networks and construction of power unconsciously contests Arjie's realization of power as binary" (Ransirini, S., 2001, p.109).

Per the analysis of Ransirini (2001), these binaries highlight the power structures in antagonistic perspectives. Nevertheless, reading closely, the two texts exemplify the interdependencies of these binaries in their exercise of power.

Born to parents of an inter-cultural, inter-ethnic marriage, Selvadurai experienced the national and ethnic conflict and the pressures of Sri Lankan society on the basis of sexual orientation and race. Moreover, his works highlight themes such as gender and sexuality, nationality, ethnicity, class demarcations and self-identity. Thus, it is understood that he allows the interdependence of binaries that he has experienced in his own life to manifest in his works as well.

Therefore, this study focuses on the interdependence of the binary power structures according to the portrayal of gender, sexuality, ethnicity and class of the two texts and the two eras in concern. A variety of literary theories have been used to expose the binaries and to show how certain aspects of these theories will be challenged as the binaries are viewed in the light of diversity and interdependence.

II. LITERATURE REVIEW

The two texts in concern herein, are perhaps the writer's most famous works, however, *Funny Boy* has come under the spotlight as a revolutionary novel, given Sri Lanka's generalized view on the topic of homosexuality and as a first effort by the author. As a result, there seems to be more literature and criticism available on *Funny Boy*, than on *Cinnamon Gardens*.

Ransirini's "Power, Gender and Sexuality: A Perspective on 'Funny Boy'" (2001) is one such work that explores the power structures of the text which is one of the focal points of this paper. Ransirini highlights the power dynamics at play as a result of gender and sexual differences among characters, highlighting at all times the superiority of one character over another. Moreover, Scarborough's paper on "Romantic Hardships of Ethnic and Sexual Identity in Shyam Selvadurai's *Funny Boy*" (2016) explores the relationships between three sets of lovers – Radha and Anil, Nalini and Daryl, and Arjie and Shehan to highlight how Selvadurai as an author "develops these narratives that display how the relationships all face similar adversities due to the identities of the partners involved and the societal divisions between people of

those identities" (Scarborough, 2016). Consequently, it is evident that critics explore the power dynamics according to the normative powerful / powerless binary, in reference to their relationships with each other.

Prateek (2014) further evaluates Selvadurai's approach to the text and its content in the light of queerness. He elucidates that "One can extend the Freudian idea of heterosexuality to homosexuality and claim that homosexuality is also a love drive that is invented to serve as a binary opposite of heterosexuality, and perhaps its emergence is directly connected to the middle class morality. Challenging this middle class morality for the sake of same sex love has been one of the agendas of Selvadurai's novel." (Prateek, 2014). This, perhaps, is a rare instance in which the critic engages the idea of binary opposites to highlight the contrastive elements such as heteronormative behaviour and homosexuality. However, given the social conditioning of sexualities in Sri Lanka, this binary may also be viewed as a binary opposition based on power dynamics; heterosexuality being the more powerful sexual orientation. In terms of binary oppositions with regard to queer ideology, Jaiswal (2015) also expounds the masculine – feminine play of gender as a subversion of patriarchy that is evident within the text. For instance, he comments that Selvadurai "very subtly critique[s] the value charged hierarchical masculine-feminine gender equation.... This object is all the more ground breaking in that the text subverts the existing patriarchy by highlighting the oppression experienced by males (Arjie and Shehan) at the hand of patriarchy through the constructed norms of masculinity" (Jaiswal, 2015). Thus, while Jaiswal associates the text as a subversion of patriarchy, highlighting the archetypal masculinity and femininity known to the characters, he has not necessarily identified the co-relation and the collaborative existence of these binary oppositions. With reference to ethnic and sexual otherness, Saraswathi (2017) elaborates the apparent binary oppositions between ethnic, language and sexual representations in the text; "If Sinhalese is represented as the language of masculinity and power, Tamil becomes the unspoken language associated with an unarticulated sexuality" (Saraswathi, 2017). Saraswathi has identified similarities between certain language groups, sexualities and performances of gender based on their power dynamics. She attempts to display the authority and power with which certain languages are understood, similar to the understanding of sexuality and gender performances. However, Selvadurai's narrative displays instances in which these two polarities depend on each other, irrespective of the power dynamics.

Nevertheless, these critics have attempted to display the apparent binary oppositions in the texts and how they exist antagonistically with each other.

Thus, it is evident that the existing gendered and sexuality approaches to the text deal mainly with binary oppositions as they are, and not as a subverted form of its normative beliefs. Inspired by this apparent criticism of *Funny Boy* and the lack of substantial literature on *Cinnamon Gardens*, this paper aims at appropriating the idea of binary oppositions to edify the collaborative and interdependent existence of these power structures in the light of gender, sexuality, ethnicity and class in the two novels.

III. METHODOLOGY

The research is based on two novels and a number of critical theories. The primary texts, *Funny Boy* and *Cinnamon Gardens* will be critically analysed and findings from the primary texts which are relevant to the research title will be supported and justified via critical theories. The critical theories are drawn from feminist, Marxist, postcolonial and queer theories to support the understanding of how gendered, sexuality, ethnic and class binaries are interdependent. Therefore, the primary and secondary texts will be analysed critically to highlight the play of binary oppositions as interdependent markers through methods such as;

- content analysis, which will perceive the significance of words, phrases and ideologies critically;
- critical discourse analysis, to understand how the texts are positioned, resultantly what interests are served and how discourse is implicated in relation to power, and;
- narrative inquiry which will present both narrative structure and mechanisms by which the narratives are consumed.

IV. DISCUSSION

This study's primary focus is to investigate the relationships between a number of different binaries which function throughout the two texts. Evidently, it is understood that most binaries discussed herein are interdependent, thus

posing a challenge towards the normative understanding of binaries, which is that one party is almost always superior to the other.

A. Binaries of Gender

The male / female gender binary is perhaps one of the most explicit binaries in the two texts. "For the man / woman relationship to be maintained with the male hierarchy there should be a traditional internalization of the male as the dominant sex by the female" (Ransirini, S., 2001. p.110). In *Funny Boy*, the binary oppositions are brought out through the marriage of Nalini and Chelva. As Ransirini (2001) has identified, in the traditional sense, Chelva seems to be more dominant in the relationship. Resultantly, he accuses Nalini for the ways in which she brings up Arjie and undeniably expects her to obey his instructions. The latter is evident when he instructs her to organize parties to host his business associates. However, the interdependence of Nalini and Chelva is also evident throughout the novel; Chelva relies on Nalini to bring up the children and to host elaborate parties in order to secure a good name, whilst Nalini also depends on Chelva for financial stability, highlighting the interdependence of binaries. Moreover, the boys who play cricket and the girls who play bride-ride also juxtapose and contribute to the binary social genders whilst depending on each other both to enjoy their games and to maintain their winning streak. Diggy depends on the girls to keep Arjie away from cricket which helps his team to maintain their scores whilst the girls depend on Arjie's creativity to play bride-ride. Cricket is viewed as the more dominant and masculine activity by the household as they occupy the front garden and the girls and Arjie occupy the back verandah. Moreover, the parents insist that Arjie plays cricket because he is a boy and boys engage in cricket which is inevitably considered more masculine and dominant, hence complimentary to his gender and expected social norms of gender.

Likewise, in *Cinnamon Gardens*, Balendran, Murugasu and the Mudaliyar are more dominant and powerful over their wives. However, they too depend on their wives to maintain their family name and to produce a generation to carry forth their name which is ultimately a sign of patriarchy. The Mudaliyar depends on Nalamma and Sonia to organise parties and to host guests, whilst Balendran and Murugasu depend on Sonia and Louisa to bring up children, respectively. The women are also dependent on the men for financial stability. It is apparent

that in the patriarchal context in which the novels are placed, "humanity is male and man defines woman not in herself but as relative to him; she is not regarded as an autonomous being... she is the incidental, the inessential as opposed to the essential. He is the Subject, he is the Absolute - she is the Other" (Habib, M.A.R., 2011). In both texts, other than for Radha of *Funny Boy* and Annalukshmi or *Cinnamon Gardens*, all the female characters are viewed as the Other, in relation to their male counterparts. This highlights the fact that men are the Subjects and the women in the narratives are viewed in relation to men. However, by the dependency of men on women as illustrated above, Selvadurai challenges the idea of the Other, highlighting that women are as equally essential as men.

According to Helene Cixous, "her words fall almost always upon the deaf male ear" (Cixous, H., 2001, p.2044), thus unheard and perhaps even ignored. It is apparent that the male is the dominant party of the gendered binary in the normative understanding of binary oppositions. However, even though Cixous' argument is mainly on women writers, she points out that this "sexual opposition" is "a historico-cultural limit" (Cixous, H., 2001. p.2046) which Selvadurai's narrative challenges through his portrayal of women and their contribution in a perversely male-dominant gender binary. For instance, Annalukshmi is forced to marry and settle down by her father Murugasu. Yet, similar to Virginia Woolf's Judith Shakespeare (Woolfe, V., 2001, p.1022), Annalukshmi is a learned woman who is independent and has aspirations of her own, which she succeeds in achieving unlike Judith Shakespeare. Hence, it is evident that as critics argue, power structures are portrayed through gendered binaries, which are nevertheless interdependent.

B. Binaries of Sexualities

The heterosexual / queer binary is also a dominant opposition in Selvadurai's texts. The texts in concern portray "a celebration of homosexuality" (Ransirini, S., 2001. p.108) thus challenging the "culturally intelligible grids of an idealized and compulsory heterosexuality" (Butler, 2001. p.2496). The portrayal of heterosexuals is culturally dominant and powerful whilst the portrayal of homosexuals in the texts is otherwise. Judith Butler explains the state of being cast out from the dominant gender performance as "abjection" (Butler, 2001. P.2494). She elaborates on how whatever that is expelled becomes the Other, resulting in it becoming the repulsive subject's

object. For Butler, it constitutes "a binary distinction that stabilizes and consolidates the coherent subject." (Butler, 2001, p.2547). However, as Selvadurai presents the "abject(s)" (Butler, 2001), he portrays the dependence of the powerful on the powerless in this binary as well.

The heterosexuals in the novels, such as Chelva and Diggy in *Funny Boy* and the Mudaliyar in *Cinnamon Gardens* demand a "performative construction" (Butler, J., 2001) of gender from Arjie and Balendran, respectively, thus emphasizing on the need for "gender hierarchy and compulsory heterosexuality [coined by Adrienne Rich]" (Butler, J., 2001, p.2495). However, in *Funny Boy*, the interdependency of these binaries are brought out by Selvadurai as Nalini depends on Arjie for advice on fashion, and the girls and Black Tie depend on Arjie's skills to enjoy their playtime and to display a positive outlook on the intolerably heterosexual school. In the case of *Cinnamon Gardens*, the Mudaliyar's dependence on Balendran to maintain the family name and property and Balendran's dependency on the Mudaliyar for financial security highlight this phenomenon. Furthermore, Chelva of *Funny Boy* also depends on the queer community as much as the Mudaliyar of *Cinnamon Gardens* for economic and political gain. The former, ignores the homosexual activities in the hotel for the sake of maintaining his clientele, whilst the latter approaches Richard, his son's former same-sex partner to maintain his power in pre-independent Ceylon by requesting Richard (an influential individual) to speak to the authorities on his behalf. Therefore, it is understood that the power structures also exist among binaries of sexualities, but, similar to the interdependence of gendered binaries, are interdependent on each other.

C. Binaries of Ethnicities

The ethnic and racial binaries are key concepts in the texts as they justify power relations and the networks of power. In both texts, the Tamils are against the Sinhalese and vice versa, whilst in *Cinnamon Gardens*, there is also an apparent antagonism between the Western and the Eastern worlds in a pre-independent colonial setting. However, it is understood that each group relies on the other.

In *Funny Boy*, the author highlights antagonistic relationships between people of different races. A Sinhalese - Tamil binary is at play at school, at the hotel and in the relationship between Radha and Anil, whilst

a Tamil – Burgher binary is evident in the relationships of Aunty Doris and her husband, and Nalini and Daryl. Nevertheless, these binary oppositions also work in collaboration with each other, thus creating an inevitable interdependence; Sena and Chelva as business partners, and Chelva (a Tamil businessman) and his Sinhalese employees depending on each other to both develop the business and to be provided a livelihood. Moreover, Arjie's family is dependent on their Sinhala friends and neighbours for protection from extremist groups. More interestingly, Diggy and Arjie are enrolled in the Sinhala medium class in school, thus projecting Homi Bhabha's view that "... an inter-national culture, based not on the exoticism or multi-culturalism of the diversity of cultures, but on the inscription and articulation of culture's hybridity... by exploring this hybridity, this "Third Space", we may elude the politics of polarity." (Bhabha, H.K., 1995). By educating the children in the Sinhala medium (perhaps for security reasons), Chelva and Nalini create a "Third Space" (Bhabha, H.K., 1995) for them which assists the children to escape extremism and as Bhabha states, the politics associated with this binary opposition.

In terms of the British / Ceylonese binary, "colonialism sees that it is not within its powers to put into practice a project of economic and social reforms which will satisfy the aspirations of the colonized people" (Fanon, F., 1995. p.153). This is manifested in the aspirations and achievements of Annalukshmi as an educator under a British administrator who relies on her largely yet is reluctant to promote her due to ethnicity and nationality. Resultantly, as the novel ends, Annalukshmi is said to fulfill her aspirations by shifting schools and doing so with the experience she gained under her British principal in the missionary school. Hence, as both texts highlight ethnic and racial binaries as a means of manifesting power relations, they also justify the interdependence of these binaries to co-exist in a hybrid setting which cancels out the politics of ethnic polarity.

D. Binaries of Classes

In both *Funny Boy* and *Cinnamon Gardens*, there is a disparity between the rich and the poor, paving way to a Marxist interpretation of the texts even though the class binaries may not be the most evident polarity. In *Funny Boy*, it is the hoteliers Chelva and Sena versus the employees under them, as well as Ammachchi versus Janaki. In *Cinnamon Gardens*, it is Arul and Pakkiam the servant, and Balendran and Ranjan who was a militant.

As Marx and Gramsci ascertain, the supremacy of a social group manifests in its dominance (Gramsci, A., 1998, p.210). In the aforementioned binaries, the former are the more dominant and powerful, whereas the latter are the powerless and the dominated. Moreover, these oppositional social classes are also in antagonistic relationships. However, in the context of the two texts, the author depicts a sense of interdependence of classes, in terms of business, domestic help, romance and sexual pleasure, respectively.

In *Funny Boy*, Sena and Chelva are dependent on their employees to run a successful business whilst the employees are dependent on the business duo for their own livelihood. Similarly, Janaki's and the three-wheel driver's loyalty to Ammachchi and Ammachchi's dependence on their loyalty and help in household work and in maintaining her family also edify the interdependence of different social classes.

In *Cinnamon Gardens*, the sexual interdependence between different social classes is brought out through the marriage of Arul, the Mudaliyar's son and the servant Pakkiam and the sexual relationship between the Mudaliyar's son, Balendran and the militant, Ranjan who in return for satisfying Balednran's sexual needs is given money. Moreover, when Balendran provides his nephew, Seelan an inheritance, it highlights the emotional and abstract interdependence between two classes. Whilst Seelan is unwilling to receive monetary support from Arul's family, Seelan depends on the financial support provided by Balendran, and this act provides Balendran solace, knowing that he is able to provide for his disinherited brother's family. Therefore, these binaries further justify the interdependence of social classes and the breakdown of oppositional relationships between different social classes.

V. CONCLUSION

In discussing the play of binaries as interdependent variables it becomes apparent that in the process of justifying their interdependency under particular binaries such as gender, sexuality, ethnicity and class, some binaries may border on other forms of binaries as well. For instance, the interdependency of the Mudaliyar on Richard makes it both interdependent binaries of sexuality and ethnicities, given the fact that Richard is a British homosexual whilst the Mudaliyar is a Sri Lankan

heterosexual. Conversely, Arul's and Pakkiam's marriage as an interdependent binary of class may be challenged since Arul is disinherited by the father. However, the fact that he was still heir to the Mudaliyar's wealth and property by the time he eloped with Pakkiam reserves the marriage as an interdependent binary of class.

In conclusion, it is evident that whilst binaries appear to be a combination of weak / strong markers, such as man / woman, heterosexual / homosexual, Sinhalese / Tamil, and rich / poor, in the context of *Funny Boy* and *Cinnamon Gardens*, binaries are not necessarily juxtaposed and are subtly interdependent.

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THE SYMPTOM OF SITUATIONAL CONSCIOUSNESS IN THIRD-WORLD LITERATURE: EXPLORING SALMAN RUSHDIE'S MIDNIGHT'S CHILDREN

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Abstract-This study claims that Fredric Jameson's (1986) situational consciousness is prevalent in Salman Rushdie's *Midnight's Children* (2006) to the extent that it is identified as a 'symptomatic deadlock' (Žižek, 1994) from which the postcolonial subject cannot escape in its journey towards liberation from the 'colonial project' (Homi K. Bhabha in Upstone, 2007, p.261). This perpetuates the Hegelian 'Master-Slave dialectic' (Hegel, 1977) even today in the third-world, years after Independence. Using content-based analysis of Rushdie's novel and Jameson's article, authors also argue that though Jameson's theory is valid to a certain extent, he fails to consider Gandhian ideology in theorization, for it is Gandhi who understands the symptom, what perpetuates the Master-Slave dialectic and proposes a universality that in its reaction is non-violent in the decolonization process. Jameson's failure to capture the non-violent, reactionary politics of the national allegory in the situational consciousness contests his stance that the only possible reaction in third-world literatures is reactionary violence. As evidence against Jameson, Rushdie's novel ends with a contemplating Saleem, who is composite of what has happened to India as a result of colonialism and embodies this Gandhian universality; the very idea that Jameson's discourse seems to ignore.

Keywords- situational consciousness, symptom, third-world literature, symptomatic deadlock

I. INTRODUCTION

A. Brief Background

Even decades after political independence from colonial rule, postcolonial subjects¹ are far from liberation from subjectivity and colonial identity. Past traumas exist insofar as they are present, among various forms, in third-world² literatures, calling for an examination of the presence of exteriority in the subject's intimacy/deepest interiority, and of the resultant non-distinction and identity of the exterior and intimate/most interior. This suggests, non-critically and psychoanalytically, the human desire to show/exteriorize intimacy. In third-world literary production, such projections denote issues, confrontations and a subject's intimate sentiments;

1. Refer to individuals who are subject to the conditions of the "colonial project" (Homi K. Bhabha in Upstone, 2007, p.261).
2. Refers to Fredric Jameson's (1986) somewhat polemical category of nations (Ahmad, 1995) that "have suffered the experience of colonialism and imperialism" (Jameson, 1986, p.67). Ahmad (1995) further states that since the very base of Jameson's articulation of the category of 'third-world' is polemical, the theoretical perspectives of Jameson's 'third-world literatures' cannot be a justifiable argument. Nevertheless, this paper seeks to identify Jameson's undeniable articulation of 'situational consciousness' with Rushdie's *Midnight's Children* as a 'third-world' text (a text that is of and about the situations of the third-world).

a projection based on *situational consciousness* (Jameson, 1986) that fluctuates between interior/exterior consciousnesses and could be defined cathartic in the form of third-world literatures. The term is synonymous with third-world literatures, which cannot escape from social allegory and in third-world cultural logic there is a dialectic relationship between Hegel's Master and Slave:

"the slave is called upon to labor for the master and to furnish him with all material benefits befitting his supremacy. But this means that, in the end, only the slave knows what reality and the resistance of matter really are; only the slave can attain some true materialistic consciousness of his situation, since it is precisely to that that he is condemned. The Master, however, is condemned to idealism-to the luxury of a placeless freedom in which any consciousness of his own concrete situation flees like a dream, like a word unremembered on the tip of the tongue, a nagging doubt which the puzzled mind is unable to formulate" (Jameson, 1986, p.85).

The above creates two realities: for Masters, the view from top is "epistemologically crippling" (Jameson, 1986, p.85) and reduces subject experience to "poverty of individual experience" (Jameson, 1986, p.85) and projections of "private subjectivity" (Jameson, 1986, p.85), all denied to third-world culture, which "must be situational and materialist despite itself" (Jameson, 1986, p.85). What finally counts for the allegorical nature of third-world culture is that the telling of individual story/experience cannot but ultimately involve the entire laborious telling of the collective experience itself.

This paper investigates this inescapable third-world *situational consciousness* (Jameson, 1986) in Indian expatriate writer Salman Rushdie's *Midnight's Children* (2006), which represents the symptomatic behaviour of the postcolonial subject's inability to move beyond the 'symptomatic deadlock' (Žižek, 1994) of nationalistic allegory from which postcolonial nations and their consciousness cannot escape, ultimately foregrounding the perpetuation of the Master-Slave debate. This suggests that the postcolonial world is far from liberation from the Master and his "colonial project" (Homi K. Bhabha in Upstone, 2007, p.261), a symptomatic condition that continues to the unfruitful present, years after political independence from the British.

B. Research Statement

Rushdie's *Midnight's Children* reveals the symptom of situational consciousness (Jameson, 1986) in Asian Literature, whose cultural allegory is symbolic of its subject's 'symptomatic deadlock' from which it cannot escape, justifying eventually, that the Hegelian 'Master-Slave dialectic' (Hegel, 1977) is very much still at work, symbolizing the continuation of the "colonial project" (Homi K. Bhabha in Upstone, 2007, p.261).

C. Research Objectives

To discuss the symptom of *situational consciousness* (Jameson, 1986) in Rushdie's *Midnight's Children*, in the hope of highlighting broader situational consciousness that projects characteristics, frailties and challenges of Asian Literature and the postcolonial subject.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

The study involves *Midnight's Children*, written by Salman Rushdie, and uses content-based analysis to discuss the novel and arrive at findings and conclusions. Theoretical perspectives include *situational consciousness* (Jameson, 1986) in third-world literature, Hegelian 'Master-Slave dialectic' (Hegel, 1977), all placed within Bhabha's "colonial project" (Homi K. Bhabha in Upstone, 2007, p.261).

III. RESULTS

Jameson's (1986) *situational consciousness* is most evident with its national allegory in *Midnight's Children*, which the authors argue displays a 'symptomatic deadlock' (Žižek, 1994) of third-world literatures that needs to be overcome for its own emancipation. Further, Jameson's theorization does not discuss the possible alternative to reactionary violence as exemplified by Gandhian non-violent ideology, which negated the 'symptom'. Thus, Jameson fails to understand Gandhian universality. In short, after all the triumphs and trials that he faces in the span of the novel's presentation, Saleem the chief

protagonist in *Midnight's Children* 'reacts' non-violently and is shown by the end of the novel to be in universal hope for the future- a very Gandhian reaction to the postcolonial traumas of the *situational consciousness* of national allegory. This is despite the fact that the said traumas have had an impact on Saleem's psycho-social and political existence.

IV. DISCUSSION

The Inescapable Symptom of National Allegory as the Dominant Situational Consciousness in third-world literatures: The 'symptom' in Lacanian psychoanalysis is a universal phenomenon. He claimed:

"Marx 'invented the symptom' by means of detecting a certain fissure, an asymmetry, a certain 'pathological' imbalance which belies the universalism of bourgeois 'rights and duties'. This imbalance, far from announcing the 'imperfect realization' of these universal principles - that is, an insufficiency to be abolished by further development - functions as their constitutive moment: the 'symptom' is, strictly speaking, a particular element which subverts its own universal foundation, a species subverting its own genus" (Žižek, 2009, p.16).

The symptom, then, is a particular subversion within an existing symbolic order, a point at which a system 'fails'. Yet its very presence 'completes' it. This dialectic is central to Žižekian thought and while Lacan continued to modify the term throughout his career, Žižek argues that just about anything can be symptomatic. In *sublime Object of Ideology* (2009), he states:

"[I]n the final years of Lacan's teaching we find a kind of universalization of the symptom: almost everything that is becomes in a way symptom, so that finally even woman is determined as the symptom of man. We can even say that "symptom" is Lacan's final answer to the eternal philosophical question "Why is there something instead of nothing?"—this "something" which "is" instead of nothing is indeed the symptom" (Žižek, 2009, pp. 77).

If the above is true, this leads to understand that the symptom is an inherent matter that exists in the unconscious of a subject and may have an impact on one's

performance and existence in the world. Moreover, it would be possible to explain that the symptom becomes more of a subjective existence than a plausible contingency and that there is no manner of possible cure for it, which makes it more like an inherent disease. It is possible for the subject him/herself to overcome this limitation by identifying this symptomatic existence and then with conscious effort redeeming oneself from it. Lacan says: "... if the symptom is a metaphor, it is not a metaphor to say so, any more than to say that man's desire is a metonymy. For the symptom is a metaphor, whether one likes to admit it or not, just as desire is a metonymy³, even if man scoffs at the idea" (Lacan, 2006, p.439).

In order to understand the 'symptom' of the 'postcolonial world' (Said 1978; 1986) in Rushdie's novel, it is necessary to make a fundamental placement: the Hegelian 'Master-Slave dialectic' (Hegel, 1977; Fanon, 1963) is far from being resolved. More clearly, the 'discomfort' generated in the aftermath of colonialism, for both parties of the colonial divide, leaves existential and unresolved questions of human consciousness that cannot be ignored (Fanon, 1963; also Satre's view in his preface to Fanon's *The Wretched of the Earth*). Such issues reflect in postcolonial works of literature across Asia, Africa and the Caribbean and evidence from these texts suggests that the colonial mindset is still very much a debate today as then. Rushdie's *Midnight's Children* is of no exception. The subject in this sense is far from liberation from past traumas, and political independence has only managed to unleash further unexpected tyrannies on the postcolonial subject (Fanon, 1963) who faces an existential situation.

Midnight's Children, like most postcolonial novels (we shall use the word 'third-world' instead of postcolonial from now to comply with the argument of this paper) deals with the immediate pre/post colonial conditions and symptoms. In this sense, it is probably the best example that portrays the above situation, displaying a particular *situational consciousness* (Jameson, 1986) that is symptomatic of a rise in 'what-is-there-instead-of-

3. There is a distinction between metaphor and metonymy in Lacanian discourse and in later readings of his work in political terms; the main difference being that metaphor suppresses, while metonymy combines. "Metonymy is based on the word-to-word...connection" (Lacan, 2006, p.421) and then "one word for another: this is the formula of metaphor" (Lacan, 2006, p.422). Thus, when we think of 'boat', 'sail' is metonymy, and 'crown' stands for the 'king' and is metaphor.

colonialism': ethnic nationalism, the subversive element that arises like the Marxian symptom (mentioned earlier) in postcolonial societies. This symptom, evident in the novel's context, is an inherent part of the characters (postcolonial subjects) at play. For instance, the protagonist, Saleem Sinai is in a quasi-fictional plot that explores the historical and political transformation of power from the imperial to Indian nationals. Saleem, along with the other 'gifted' midnight's children, are organic (Gramscian) representations of the subversive element that India proposes to have after its Independence. Rushdie states, the midnight's children can be seen as

"the last throw of everything antiquated and retrogressive in our myth-ridden nation, whose defeat was entirely desirable in the context of a modernizing, twentieth-century economy; or as the true hope of freedom, which is now forever extinguished; but what they must not become is the bizarre creation of a rambling, diseased mind. No: illness is neither here nor there" (Rushdie, 2006, p.278).

This 'hope' which was the "last throw" (Rushdie, 2006, p.278) is the collective rule or universal solidarity Rushdie proposes for India's true emancipation from colonization, inclusive of Saleem, Shiva and other children both Hindu and Muslim alike. Yet, the children do not survive in the immediate aftermath of political Independence, followed by the Indira Ghandian emergency which persecutes and kills almost all the 'gifted' children, through means of Shiva, whose jealousy against Saleem (symbolically resonant of the larger Indian national problem between Hindus and Muslims) becomes the biggest betrayal and murder of India's future. This *situational consciousness* of national allegory, symptomatic of the rise of violence shows how postcolonial nations,

"once 'abandoned' by their Colonial Masters and... taken over by unsuccessful indigenous rulers, have encountered symptomatic political development within themselves 'as finite limitations of their existence' as they have emerged and are ideologically embedded in a historically affected consciousness" (Hapugoda, 2015, p.59).

The end result of this ideological attempt demands "total submission and tolerance of individuals during the process to regain the lost superiority of the past" (Hapugoda, 2015, p.64). However, one must also note that colonialism's *situational consciousness* is not always

externalized in violence as Jameson presumes, but may also be internalized to the extent that "there is nothing but self-destruction" (Anandawansa & Hapugoda, 2017, p.88) as evidenced in Roy's *The God of Small Things* (1997).

In *Midnight's Children*, Saleem's story is this ethnic nationalism, riots and disturbances that weaves through his life and is symbolic of the 'symptomatic deadlock' (Žižek, 1994) of national allegory that cannot be traversed as a *situational consciousness* (Jameson, 1986) in third-world literatures. The transition from British colonialism to independence, partitioning of British India and subsequent unrest, Hindu-Islamist violence and incidents of religious rivalry, and the birth of Pakistan constitute the inescapable *situational consciousness* in *Midnight's Children*, and are also the centrifugal themes in Rushdie's other works, i.e. *Shame* (1995), where one blushes "for what has happened in...the assertion of a new nation. Sufiya could well be blushing for the incorrigible past of...Pakistan...with its implied trappings of power and therefore violence" (Anandawansa, 2014, p.145).

Apart from Indian postcolonial writers, the inescapable symptom of national allegory is also resonant in Sri Lankan/African writers of fiction, whose works seem to dwell in similar contextual national allegory particular to those contexts, proving that the umbilical cord attached to colonial past and its atrocities is its very symptom.

In *Midnight's Children*, the political/military coups, corruption and religious conflicts, combined with magical-realistic sub-plots, explore tensions, traumas and triumphs protagonists face amidst this situational consciousness (Jameson, 1986) of India's pre and post-independent, nationalistic debates and struggles, where several historical, political incidents i.e. Sanjay Ghandi's 'cleansing' of the Jama Masjid slum, the Indira-Ghandi emergency are brought in. Protagonists grapple with these incidents, directly/indirectly, justifying the inescapable presence of national allegory in Rushdie's fiction, representative of third-world literatures, which becomes the 'fantasmatic other' (a matter that qualifies to be investigated separately) for readership in the West, the latter being the reason why, most likely, Rushdie as an expatriate writer is much acclaimed in the West.

Fact juxtaposes with fantasy when Rushdie makes Saleem and other children born at midnight of Indian Independence, capable of special powers: the magical feat itself in fantasy being means of taking the negated

history (subversive element of a colony) in its nationalistic consciousness. Saleem, with his telepathic powers, gathers a conference of *Midnight's Children*, parodying India's consciousness in its early statehood on cultural, linguistic, religious and political differences, history and politics of the independent nation state with debates between Ghandhi, Nehru and Jinna. The use of fantasy is political (Rothenberg & Foster, 2003) and is the promising *situational consciousness* that is the only hope for India in the aftermath of colonial rule. Yet, this *situational consciousness* in the form of national allegory leads not to a unified whole of a diverse linguistic and religious India, which would be its triumph, but to a partitioned India; the very opposite which led to Independence. The question to be asked then is, is there a way out for third-world from colonial rule, other than falling back to the nationalist discourse, which embraces a far more primitive nature within its journey towards modernity? It is important at this point of the 'symptomatic deadlock' (Žižek, 1994) to return to the out right but erudite Marxian statement on the situation of India, where Marx states that the "Indian society has no history at all, at least no known history. What we call its history, is but the history of the successive intruders who founded their empires on the passive basis of that unresisting and unchanging society" (Marx, 2007, p.219).

This Marxian view of what happened in India completely overturning its native, non-industrial, religion and caste-based labour-divisional structure in the villages with which Indians have lived for many years prior to British colonization, is the 'history' marked. India's history, as it stands at present in actuality is the after effects of the implementation of the material foundations of Western society in India that has been so detrimental to it, even in the aftermath of (political) Independence. This inescapable 'planted history' and its consequences on the postcolonial subject are in discussion in *Midnight's Children*, which shows the signs, deadlocks and symptoms particular to the postcolonial subject.

Facing the yet unanswered question of what is there to fall back to except *situational consciousness* of nationalism (Jameson, 1986), critics (Jameson, 1986; Ahmad, 1995) state the political category that necessarily follows colonial/imperial experience is emphasis on 'the nation', where nationalism becomes the "peculiarly valorized ideology" (Ahmad, 1995, p.78). Due to this privileging of national ideology, theoretically, "all third-world texts are necessarily...to be read as...national allegories" (Jameson,

1986, p.69), and it is seen as an essential task of the third-world novel "to give appropriate form to the *national experience*" (Ahmad, 1991, p.1461). Rushdie's fiction contains no less of this ideology than any other British-Indian author. In fact, from "dreams of nationhood" (Carey-Abrioux, 1998, p.69) to the ultimate "myth of a nation state" (Almond, 2003, p.1143), Rushdie brings out "religious nationalism" (Almond, 2003, p.1142), the "life of a nation in formation...the history of a nation, its coming into being and development" (Innes, 2007, p.132) in *Midnight's Children*. All this shows the "colorful heterogeneity" (Luburić-Cvijanović & Muždeka, 2016, p.438) that India possessed in Nehru's vision of a unified India, devoid of any caste and religious sectarianism, only to be 'failed' states (India and Pakistan) in political 'liberation' from the 'colonial Master' (Žižek, 2014). What is particular to the postcolonial ideology of 'nation' in Rushdie's fiction is far more a psychologically grappling entity for its subjects, for the problem of postcolonialism is crucial. Žižek (2002) states that postcolonial studies

"...tend to translate it into the multiculturalist problematic of the colonized minorities' right to narrate their victimizing experience, of the power mechanisms that repress otherness, so that, at the end of the day, we learn that the root of postcolonial exploitation is our intolerance toward the Other and, furthermore, that this intolerance itself is rooted in our intolerance toward the "Stranger in Ourselves," in our inability to confront what we repressed in and of ourselves. The politico-economic struggle is thus imperceptibly transformed into a pseudopschoanalytic drama of the subject unable to confront its inner traumas" (Žižek, 2002, pp.545-46; Almond, 2012, p.6).

Although critics (Carey-Abrioux, 1998; Almond, 2003; Innes, 2007) have shown 'nation' or 'nationhood' to be one of the many ideologically loaded elements in Rushdie's novels, the characters therein, with their dramatic, pseudo-psychoanalytic experiences, ever changing realities and inner traumas, are caught in "that fluctuating movement" (Fanon, 1963, p.226) which the people "are just giving shape to" (Fanon, 1963, p.226). This movement defines the "truths of a nation [which] are in the first place its realities" (Fanon, 1963, p.224), and the situation is synonymous with Ahmad's (1995) assertion of placing the very 'national allegory' (Jameson, 1986) as the basic premise or starting point for 'liberation':

"if this 'Third-World' is *constituted* by the singular 'experience of colonialism and imperialism', and if the only possible response is a nationalist one, then what else is there that is more urgent to narrate than this 'experience'? In fact there is *nothing* else to narrate. For if societies here are defined not by relations of production but by relations of intranational domination; if they are forever suspended outside the sphere of conflict between capitalism (First World) and socialism (Second World); if the motivating force for history here is neither class formation and class struggle nor the multiplicities of intersecting conflicts based upon class, gender, nation, race, region, and so on, but the unitary 'experience' of national oppression (if one is merely the object of history, the Hegelian slave), then what else can one narrate but that national oppression?" (Ahmad, 1995, p.102).

Ahmad (1995) further challenges Jameson (1986) when he states that the latter, due to his binary categorical imperative of Otherness between the First and Third-Worlds "freezes and dehistoricizes the global space within which struggles between these great motivating forces actually take place" (Ahmad, 1995, p.81). In other words, the Ghandian ideology⁴ that insists on the erasure of caste and its social stratification/discrimination in a socialist perspective, where all work towards social development (the failed midnight's children's body politic) is assimilated into one enormous heterogeneity and singled out as a "Hegelian metaphor of the master-slave relation" (Ahmad, 1995, p.81) by Jameson's theory.

Further Dimensions of Situational Consciousness:

While Jameson's note on the national allegorical effect of third-world texts is already discussed, he also marks a radical spilt that distinctively sets apart third-world cultural productions from those of the First World (West). Jameson (1986) explains that the cultural productions of the third-world mingle the private and public, the poetic and political; a difference he metaphorically explains as a "pistol shot in the middle of a concert" (Jameson, 1986, p.69). The emphasis being that third-world literary texts

4. Watch Richard Attenborough's film *Ghandi* (1982) which reinvigorates the life of a Mahatma Ghandhi, who in the words of General George C. Marshall, the then American Secretary of State is "the spokesman for the conscience of all mankind. He was a man who made humility and simple truth more powerful than empires" (Ghandi [movie], 1982).

lose 'aesthetic value' due to 'contamination' with national, cultural politics. What Jameson's first-world outlook does not understand is that such 'contamination' is inevitable in third-world literatures. This is so, since the 'horror' inflicted on the symbolic order of these nations during subjugation to colonial administration/rule 'disturbed' and 'interfered' with the subjects' private and public, poetic and political/secular lives, leaving them in the aftermath, in a state where the personal, poetic or any literary expression is the political.

Saleem Sinai, born at the dawn of Independence and destined to break into a million pieces (representing the many citizens of India) upon his death, is the ultimate embodiment of the entirety of India within himself. Although an individual, within him, due to his special ability of connecting with the other midnight's children, there is literally no distinction between the private and public. In fact, his struggle in the novel seems to be his personal fight to maintain this balance between the one and the many, the private and the public. He explains this complexity of life in the following words:

"...[N]ow, seated hunched over paper in a pool of Anglepoised light, I no longer want to be anything except what who I am. Who what am I? My answer: I am the sum total of everything that went before me, of all I have been seen done, of everything done-to-me. I am everyone everything whose being-in-the-world affected was affected by mine. I am anything that happens after I've gone which would not have happened if I had not come [...] each 'I', every one of the now six-hundred-million-plus of us, contains a similar multitude. I repeat for the last time: to understand me, you'll have to swallow a world" (Rushdie, 2006, p.535).

The 'confusion' of a people who once lived under the tentacles of imperialism is also expressed in the following words, where correspondences between supposed first-world elements in rigid polarity seem to be an inescapable third-world symptom:

"As a people, we are obsessed with correspondences. Similarities between this and that, between apparently unconnected things, make us clap our hands delightedly when we find them out. It is a sort of national longing for form—or perhaps simply an expression of our deep belief that forms lie hidden within reality; that meaning reveals itself only in flashes" (Rushdie, 2006, p.417).

Thus, how ‘unintelligible’ it may be to the first-world mind, children born on the stroke of midnight of Indian Independence have “the privilege and the curse...to be both masters and victims of their times, to forsake privacy...be sucked into the annihilating whirlpool of the multitudes, and to be unable to live or die in peace” (Rushdie, 2006, p.647).

From the perspective of a postcolonial subject, it is quite tragic that this “pistol shot in the middle of the concert” (Jameson, 1986, p.69), which is the symptom of colonial subjects especially in the aftermath of political liberation, and the externalization of the internalized *situational consciousness* in the literatures of the third-world, is also the Other. It is the Asian *fantasmatic*, the objet petit a or the never-in-their-past-experienced reality of the first-world readership, which highlights the symptom of the Master as well, for the attraction symbolizes the latter’s symptom too; of not being able to de-imperialize their mindset from the atrocities of the imperialism, they themselves created. In this sense, the Hegelian ‘Master-Slave dialectic’ (Hegel, 1977; Fanon, 1963), with its inescapable dependent syndrome is mutually obvious, and is possibly a grey area that has lost attention in Jameson’s (1986) theorization.

V. CONCLUSION

Rushdie’s work, placed within the larger framework of India’s position as a third-world nation, cannot escape the postcolonial consciousness of national allegory; a *situational consciousness* visible in Asian third-world literature in general, which is in stark contrast against the literatures of the First-World. Yet, in the nationalist allegory lies the stepping stone from which the oppressed subject can rise from the colonial atrocities inflicted upon the colonized subjects. It is this very *situational consciousness* (Jameson 1986) through which the third-world symptom must emancipate, possibly by means of a much powerful force than that of the colonial oppressors, if it requires to escape from the deadlock conditions. Saleem, the chief protagonist, remains envisioned at the end of the novel, despite the series of turbulent events that span across his life (illegitimate birth being the son of a ruling White and poverty-stricken Indian woman, identity switch at birth, marriage to Parvati-the-witch, being legal father to Shiva’s child, etc.). This signifies the unflinching absorption of all that happens (possibly a hint at the path for our own ‘liberation’). The massive ‘hurdles’, personal, social and cultural that have incurred on Indian

society and its individuals as a result of colonialism and its impact, is the grappling *situational consciousness* (Jameson, 1986) with which they have to live with and hopefully rise from.

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POWER AND DISPLACEMENT: EN ROUTE TO FEMALE EMPOWERMENT

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Abstract- Empowerment and liberation are frequently associated with women portrayed in literature. In a significant body of literature in English, the acquisition of female liberation is depicted as a result of displacement. 'Displacement' is defined in this paper as 'leaving one's own socio-cultural context in search of liberation.' This article explores the meaning of empowerment, in the context of its "root-concept": gaining power and the varied definitions - depending on the context of the individual trajectories of protagonists. This article attempts to contest the dominant notion of attaining liberation through displacement as portrayed in the selected literature. The novel 'Jasmine' by Bharati Mukherjee, an Indian diasporic writer, will be scrutinized as a background study. The short story, 'A Bird of Paradise' written by a Sri Lankan diasporic writer, Chitra Fernando, will be juxtaposed against 'Jasmine' to prove that displacement does not always bring about empowerment as shown through Rupa's quest for liberation through displacement. This article also highlights the interdependencies, tensions, societal norms and expectations, as well as obligations as depicted within the world of the story. The short story, 'The Breast Giver' written by a Bengali Indian writer, Mahesweta Devi, is analyzed alongside this text to show that although 'Jashoda' does not leave her own socio-cultural context, she gains mobility from the periphery of the socio-cultural circle to the centre. However, her liberation is rather superficial as her attempt to gain agency further ensnares her; this provides the medium for my secondary argument regarding varied definitions of 'female liberation.' I argue that 'female liberation' is not always brought about as a result of displacement and that 'empowerment' can have different meanings to different individuals dependent on their personality, educational background, cultural influences, family structures and the

larger socio-cultural contexts. In conclusion, this paper will critically challenge the belief that female liberation is achieved through severing one's bonds and leaving behind one's obligations while contributing towards reframing the perception of empowerment in order to move beyond 'catchphrases.'

Keywords- empowerment, liberation, literature, displacement

I. INTRODUCTION

The image of females depicted in 'literature' has undergone monumental changes during the last few decades. Female writers have gradually diverged from the portrayal of "enduring, self sacrificing female characters" towards women in conflict and in search of identity. Writers often explore "female subjectivity," highlighting the theme of growing up from childhood to womanhood -the Bildungsroman- in order to establish the female identity in patriarchal society. In her poems to Kamla Das, Toru Dutt, the first female Indian poet, depicted "archetypes of Indian womanhood, such as 'Sita' and 'Savitri', exhibiting the suffering of women, their self-sacrificing roles and reinforcing conventional myths in a patriotic manner" (UK essays, 2013). Similar to Dutt, Das' poems too were based on women's subjugation by men in society. In contrast to this very common trope, current literature has emerged with a modern approach to giving a new identity to the women of modern times through the creations of writers such as Arundhati Roy (God of Small Things), Sunethra Gupta (Glass Blower's Breath), Bharathi Mukherjee (Desirable Daughters, Jasmine), Shobha De

(Sultry Days), Anita Desai, Manju Kapur, and Kusum Sawhney.

However, the concept of women acquiring emancipation and agency through 'displacement' in their search for identity (as depicted in Mukherjee's novels such as 'Jasmine') is problematized through this essay which focuses on the short story, 'The Bird of Paradise' by Chitra Fernando which contests this dominant depiction of gaining empowerment through displacement. Within the context of this essay, the term 'displacement' refers to 'leaving one's own socio-cultural context in search of liberation.'

In 'Jasmine', the diasporic writer, Bharathi Mukherjee, portrays a young widow, bound by the shackles of her country's grip, who sheds her previously assumed roles by moving across borders in an attempt to empower herself, often disassociating herself with any position that might hold her back, while assuming new names and identities in a bid for social survival. A reader is left with the idea of Jasmine's success at achieving agency as a result of her 'displacement'. Thus, the short story, 'A Bird of Paradise' by another diasporic writer Chitra Fernando, is juxtaposed with 'Jasmine' aptly to contest the notion of emancipation through displacement as the protagonist Rupa's movement across borders in search of empowerment, in this narrative, ends in disillusionment in contrast to Mukherjee's novel, illuminating that following the American dream does not always result in liberation.

The second short story by the Bengali Indian writer, Mahesweta Devi, 'The Breast Giver' from her collection of short stories called 'Breast Stories' translated into English by Gayatri Spivak, narrates "a tale of a Bengali wet-nurse, Jashoda, living in a 1960's India who is compelled to take up 'professional motherhood' when her Brahman husband is disabled" (WNN Editors Team, 2010). The gender role reversal that takes place in the protagonist's household as Jashoda becomes the sole 'bread winner' of her family in her attempt to seek relief from her family's desperate economic destitution, and her husband takes on the responsibilities of their household which are usually designated to females, contributes towards the argument that the term 'female liberation' carries varied definitions dependent on the personality, educational background, cultural influences, family structures, and the larger socio-cultural contexts of different individuals.

This three dimensional analysis will illuminate that female empowerment is extremely subjective and reframe

the perception of female empowerment in order to move beyond buzzwords to make this phenomenon a reality.

This essay will scrutinize the term 'empowerment' in order to reach an agreeable definition to suit "women of all stratas, as at present, female liberation is an issue embraced by women of the higher strata, particularly upper class / middle class and power elites" (Caplan, 1985) and as a result can be "criticized for its marked Western ethnocentrism" (Sharma, 2000). Thus, it displays inabilities to relate to the cultural ethos and gender relations of the East. This paper highlights the deficiencies of some of the existing definitions of 'empowerment' which fail to capture the reality of women of all walks of life, and will use the protagonists of the two selected short stories 'Rupa' and 'Jashoda' to emphasize the concept of varied dimensions of empowerment as well as to contest the idea of displacement as a key en route to female liberation.

II. BACKGROUND

Female empowerment has gained great momentum at present, contributing to the need to identify the true meaning of this term which is used to address universal female issues although predominantly sporting a western ideology alienating non- western women's experiences.

Paulo Freire (1996), in his book 'Pedagogy of the Oppressed' discussed 'empowerment' in a very formal manner for the first time in the 1970s. Thereon, many scholars have discussed it in terms of "human potential especially for female empowerment". Caroline Moser (1993) has discussed it as "redistribution of power". Confusion occurs when discussing the concept of empowerment because the root concept 'power' itself is challenged, primarily used in political and economical contexts, while delegating a minor role for the personal context. However, "to try to come closer to an understanding of empowerment, we need to look at the actual meaning of the term that has been variously used by writers and researchers in a variety of contexts" (Rowland, 1997).

According to Rowland (ibid), it is paramount to understand that power can take on different forms in the process of empowerment. Rowland (ibid) explains:

- a. Power over:** Controlling power, this may be responded to with compliance, resistance (which weakens processes of victimization) or manipulation.
- b. Power to:** Generative or productive power (sometimes incorporating or manifesting as forms of resistance or manipulation) which creates new possibilities and actions without domination.
- c. Power with:** 'a sense of the whole being greater than the sum of the individuals, especially when a group tackles problems together.'
- d. Power from within:** 'the spiritual strength and uniqueness that resides in each one of us and makes a true human. Its basis is self-acceptance and self-respect, which extend, in turn, to respect for and acceptance of others as equals.'

as having the capacity and the right to act and influence decisions" (Rowland, *ibid*).

According to Rowland (*ibid*), "empowerment is seen to operate within three dimensions as captured by Figure 1 (Rowland, *ibid*):

- a. Personal** : development of a sense of self and individual confidence and capacity, and undoing the defects of internalized oppression.
- b. Rational** : developing the ability to negotiate and influence the nature of a relationship and decisions made within it.
- c. Collective** : This includes involvement in political structures, but might also cover collective action based on co-operation rather than competition."

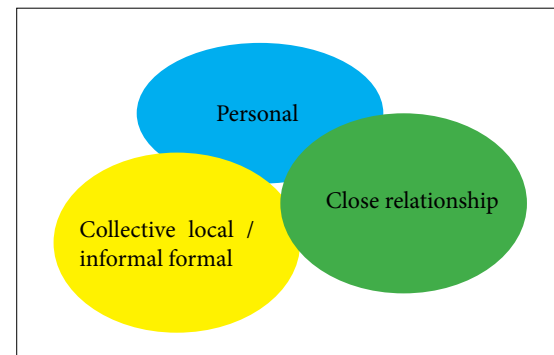


Figure 1. The Three Dimensions of empowerment
Source: Rowland, J. (1997)

According to Naila Kabeer's (1989) interpretation, empowerment is "a transformation of power relations between women and men, 'so that women have greater power over their own lives and men have less power over women's lives.'" Kabeer (1994) has provided another dynamic account of this notion "as a concept with theoretical and practical potential that merits being more than an empty slogan." She has deemed it necessary to deconstruct the notion of power in order to understand the process of empowerment. She has explained that "the multi-dimensional nature of power suggests that empowerment strategies for women must build on 'the power within' as a necessary adjunct to improving their ability to control resources, to determine agendas and

make decisions. 'Power from within' needs 'experiential recognition and analysis' of issues to do with women's own subordination and how it is maintained. Such power cannot be given; it has to be self-generated" (Kabeer, *ibid*). She emphasizes that elements such as self-respect and the sense of agency are of great importance. Furthermore, she has highlighted "that careful analysis and insightful reflections are necessary preconditions for the creation of a new form of consciousness." "This idea is based on the concept of 'critical consciousness' propagated by Paulo Freire where the process of empowerment is tied to an educational process" (Naz, 2006). In addition, Kabeer (1994) believes that "self esteem and feeling of being an active agent are the fundamental principles of empowerment and she expends her thought by saying that empowerment should be considered an aspect of perceiving oneself as an active agent capable of making decisions" (Naz, *ibid*).

Thus, it is not simply an act of decision-making but encompasses much more. Kabeer does not ignore the value of collective action but considers it useful in achieving social as well as political empowerment. In her opinion, the empowerment process should have its effect in policy changes at the state and market institution level that ultimately mould and limit women's lives (Naz, *ibid*).

John Friedman's (1992: 32-34) theory of 'alternative development' "is derived from the concept of empowerment that arises from indigenous, political and social cultures of society." According to Friedman, "there are three kinds of power; social, political and psychological. Social power consists of processing knowledge, information and skills. Political power is a mechanism that influences policy changes both at the micro and macro levels. It is the result of the power of voice and collective action. Finally, psychological power is expressed as an individual sense of potency demonstrated in self confidence, behaviour, self-reliance and increased self esteem." Friedman explains empowerment "as social power, which can be translated into political power. Social networking enhances individuals' position and power, which consequently expedites and strengthens the process of psychological, social and political empowerment."

According to Kate Young (1993), "empowerment enables women to take control of their own lives, set their own agenda, organize to help each other and make demands on the state for support and on the society itself for change." For Young, "empowerment is a complete change of the

processes and structures responsible for women's inferior status in the society. It is based on a 'transformatory potential' related to the 'need to transform women's position in such a way that the advancement will be sustained.'" Finally, she summarizes "the concept of empowerment from individual to wider political perspectives and she subscribes sufficient importance to collective action, as it is a sure means to individual empowerment."

In its true sense, this term is discussed from a feminist perspective, and Marilee Karl (1995) says, "The word 'Empowerment' captures this sense of gaining control, of participation in decision-making."

More recently, this notion has entered the vocabulary of development agencies, including international organizations and the United Nations, and Vanessa Griffen (1987) explains, "also through a gendered lens, that empowerment means;

- having control, or gaining further control;
- having a say and being listened to;
- being able to define and create from a woman's perspective;
- being able to influence social choices and decisions affecting the whole society (not just areas of society accepted as women's place) and
- being recognized and respected as equal citizens and human beings with a contribution to make."

Moreover, Beteille (1999) discusses it "as power distribution without having clear power." According to Beteille, "the main point behind empowerment is that it seeks to change society through a rearrangement of power." This clearly reflects Kabeer's opinion. But, Dandikar (1986) has described empowerment "as a multifaceted process, which involves four parallel aspects. These are:

- The woman's economic/resource base;
- The public/political arena allowed to her by society;
- Her family structure, and the strength and limitations it imposes on her; and
- Perhaps most important, the psychological / ideological "sense" about woman in her society,

which in turn shapes her own perception of herself and the options she allows herself to consider.”

Looking at Batliwala's (1993) observation, “she says the word ‘power’ is contained within the term empowerment, implying that empowerment is about changing the balance of power in a given society, power being defined as control over resources and ideology. The resources may be categorized into physical, human, intellectual, financial, and self, including self-esteem, confidence, and creativity. Ideology refers to beliefs, values, attitudes, and ways of thinking and perceiving situations.” She points out that “empowerment is a process that involves a redistribution of power, particularly within the household.”

Therefore, it is evident that “power, power redistribution and power relationship” are the key factors emphasized by modern scholars in their scrutiny of the concept of empowerment. However, it is important to identify the shortcomings of this debate.

“Viewed from a liberal perspective, women's empowerment approach suffers from three fallacies: exclusionary bias, adversarial orientation and subversive logic” (Sharma, *ibid*: 21). He explains that “it suffers from an exclusionary bias as it excludes man from the feminist discourse, organization and movement. It is noticed that it isolates women from men.” This is quite evident from the fact that this particular area of specialization is monopolized by women themselves leading to their isolation. “As a result, the academic discourse on the gender question seems to have gained an activist impulse. Within the academic discourse, again the question of ‘women’ is being viewed in isolation from the gender relations context resulting in a disconnecting consequence, alienating men from the gender discourse,” (Sharma, *ibid*: 25). Above all, it also evinces an adversarial orientation. Simply, it tends to project man as an adversary of woman” (Sharma, *ibid*: 25).

In its present discourse, women's empowerment perspective could also be viewed as a threat to domestic peace as it may create marital tension. As a result, some women prefer to keep away from this field of specialization. From a structural view point, “women's empowerment approach is intrinsically psychologistic, structural and elitist” (Sharma, *ibid*: 26). It is psychologistic “as it places over optimism on the efficacy of conscientization as a key to women's

empowerment. Even as the importance of ‘awareness generation’ among women for their empowerment cannot be overemphasized, conscientization of women alone, to the exclusion of man is as important, perhaps even more than change in the attitude of woman, for setting gender relations on an even keel. Above all, while attitudinal change among both women and men is a necessary condition for gender equality, it is, however, not a sufficient condition, (Sharma, *ibid*.” From a Marxist angle, “women's empowerment framework suffers from a sort of nonstructuralist condition. That is so because it ignores the importance of existential conditions, including the fact of economic dependency of woman on man. The economic dependency of woman is built into the structure of property relations which are dominated by man. Certainly, developmental approach has failed to make a dent in the structure of gender-based property relations” (Sharma, *ibid*). From a structural viewpoint, another problem with women's empowerment is that “it treats women as a homogeneous category, an undifferentiated mass. This, however, is not realistic. The fact of the matter is that there is internal differentiation among women and it is as telling as between man and woman” (Sharma: *ibid*). These women differ significantly not only in their backgrounds but also in their needs and interests. The question then is; “whose empowerment are we talking about? Empowerment of which class or section of women? In view of the above delineated limitations of women's empowerment approach, it is evident that it needs gender empowerment. It also fails to identify male empowerment because most males of Third World Countries have no ‘power’ and they are also exploited by the existing power-structure in the society” (Sharma, *ibid*). So, it is evident that ‘empowerment’ also needs to be re-defined as a gender-neutral concept.

When scrutinizing, ‘gender empowerment,’ “it should not be mistaken for empowerment of man vis-a-vis woman or vice versa. It signifies transformation of gender relations from hierarchical to egalitarian plan rather than just tinkering with women's power position. It aims at reworking gender relations in a complimentary framework rather than a conflictual framework,” (Sharma, *ibid*). Gender empowerment “is a broad category which includes empowerment of women without creating a misgiving of emasculation of men. It stands for fostering a balance in gender relations as against the one-sided women empowerment approach,” (Sharma, *ibid*). Furthermore, empowerment is not just a question of rearrangement of power both economic and political; it is also a matter of change of values,” (Sharma, *ibid*). Thus

it is quite clear that as much as women do, men too need gender sensitization. “In fact men need it even more, for they still are in a position of domination on account of the perpetuation of patriarchy,” (Sharma, *ibid*).

Therefore, it is quite evident that there is a need for a better framework in order to encompass all female individuals with their diverse trajectories hailing from different cultures and social strata. It is this need that propelled this research of analyzing popular depictions of female empowerment in literature as this acts as a representative of society.

III. DISCUSSION

To set the background for this study, it is important to look at Bharathi Mukherjee's title character Jasmine who leaves behind her cultural heritage and homeland in search of liberation and multiculturalism in the United States of America. Mukherjee, “an Indian born Canadian/ American novelist, has made a deep impression on the literary canvass,” (Shukla et al, 2014). It is evident that her novel ‘Jasmine’ resonates “with some of the issues of her own cultural location in West Bengal in India, her displacement (alienation) from her land of origin to Canada where she was “simultaneously invisible” as a writer and “overexposed” as a racial minority and her final re-location (assimilation) to USA, which she vehemently states to be a land of fluid identities, as a naturalized citizen” (Shukla et al. *Ibid*).

Jasmine, the protagonist, was born in 1965 in a rural Indian village called Hasnapur. She narrates her story as a twenty-four-year-old widow who is pregnant, living in Iowa with her crippled lover, Bud Ripplemeyer. While the reader journeys a time span of two months with Jasmine in Iowa, recent happenings in her life as well as the biographical events that span the time between her Punjabi birth and her American adult life are revealed. “Her odyssey encompasses five distinct settings, two murders, at least one rape, a maiming, a suicide, and three love affairs. Throughout the course of the novel, the title character's identity, along with her name, changes again and again: from Jyoti to Jasmine, Jasmine to Jazzy, Jazzy to Jase and Jase to Jane. In chronological order, Jasmine moves from Hasnapur, Punjab, to Fowlers Key, Florida (near Tampa), to Flushing, New York, to Manhattan, to Baden, Iowa, and finally is off to California as the novel ends” (Ganesan et al, 2017).

The reader is told at the outset itself that Jasmine was born an unlucky child according to Hindu wisdom, foreshadowing many of the pitfalls she is to face. The youngest daughter of a large, impoverished family, her multi-linguistic talent in Punjabi, Urdu and English and her intelligence were wasted because of her destiny to be married off at an early age according to Indian custom. Even this traditional destiny was maimed according to astrological readings, ending in widowhood and exile. However, Jasmine, in her fight for survival, interprets the scar she receives following the astrologer's prediction as her “third eye” which can be read as a kind of “third space” (Kaula, 2009: 23- 32) in Bhabha's terms where Jasmine negotiates a space for herself which refuses to be incorporated into the various hegemonic socio-cultural fields she moves in.

As the story unfolds, a series of seemingly tragic events propel her to abandon her homeland and move towards the promise of the American dream and it is ironic to note that it is her ill-fate that facilitates her female – migrant trajectory. Her forward movement to the USA is also facilitated by Jasmine's creative re-interpretation and re-deployment of fate. Thus, rather than submitting to fate in India, she re-scripts her ‘fate’ in her favour through ‘displacement.’ A reader of this novel is left with the strong feeling and realization that Jasmine's liberation comes about as a result of severing bonds with her homeland and culture along with her re-invention of self to suit the dominant hegemony of Western ideals.

It is this portrayal of empowerment that subscribes to Western liberal feminism and fails to recognize the diversity of feminist positions and female subjectivities in the world, much like liberal humanism which imagined a single human subject inspired by European ideology that is problematized through this essay using Chitra Fernando's short story ‘The Bird of Paradise.’

Chitra Fernando was born in Kalutara, Sri Lanka and migrated to Australia and spent half her life there pursuing her craft as a ‘free individual,’ “liberated to a great extent from emotional involvement with Sri Lankan events, and from ‘labels’ relating to caste and class that she believed to be inescapable in her homeland” (Gooneratne, 2002). As cited by Gooneratne (*ibid*), “Fernando looking back on her life a few years before her death observed: Sri Lanka gave me my soul, but Australia gave me my freedom” and added: Without that freedom my soul would have shriveled.” Quite similar to Mukherjee, Fernando's

creativity too was focused on her homeland and dealt with issues, experiences and influences of her life in Sri Lanka. However, interestingly, in contrast to Mukherjee who promotes the idea of female emancipation through displacement in her novel 'Jasmine', Fernando in 'The Bird of Paradise' brings in a different dimension through Rupa's journey to Australia in search of freedom and relief from familial pressure, expectations, Sri Lankan traditions and customs, which ends in regret and disillusionment.

'Rupa Gomez' is introduced to the reader as a teacher of English in Australia who returns to Sri Lanka after two years as a result of familial pressure which "took on the collective force behind a battering ram." Initially, although she seems to be happy about her return to her motherland, as days pass by, old memories of suffocating practices, restricting traditions of family and her traditional household in general, as well as old resentments pertaining to formalities, gossip, lack of personal space and differential treatment of class and caste, which were the reasons behind her flight to another country in the first place, creep back into her mind.

The reader is able to feel the mounting agitation in Rupa as she increasingly feels stifled in her familiar surroundings due to the presence of her family members and their unchanging lifestyle full of traditional expectations and the intrusion of her privacy.

After her return home, when she realizes that her parents intend to find a suitable partner for her, at the outset she is open minded about it as she thinks, "...did she really mind? The independence, the isolation of the city life, she'd had enough of that." Her initial sense of happiness after her arrival is beautifully captured by Fernando when she takes the reader into Rupa's mind, "Wedding photographs... would hers hang there too? She felt a pleasant sense of anticipation as she thought of her future here at home." However, as Rupa's parents gradually approach her albeit in a gentle manner "... We'd like to see you settled before too long... You have - may be you have - have you met anyone there - in Sydney?", she becomes desperate at the prospect of life in her motherland, living a life mapped out by her family, based on the background painted by the writer as revealed through Aunt Mary, "Enough of this kind of talk. You have a duty to god and the Family. In my time, we either married or entered a convent." Thus, she flees back to Sydney on the pretext of finishing her teaching contract with the promise of returning home to marry the chosen groom, but remains

in Australia and gets married to a man of her choosing. This clearly highlights Rupa's pursuit of Western ideals, of scripting her own fate in contrast to traditional practices in Sri Lanka which resonates to an extent with Jasmine who leaves India initially to fulfill her husband Prakash's dream, but embraces Western ideals in her bid for a better life, free of inhibitions.

It is interesting to note the subtlety through which Fernando positions Sri Lanka as a place of inhibitions and Australia as the opposite through the prejudicial viewpoint of Aunt Mary who views Rupa's simple gesture of hospitality of offering biscuits to Dominic who was identified as a suitable partner for her without her knowledge, as an uninhibited display of her interest, "Don't pretend you don't know. I saw you offering him biscuits and cheese - getting a closer look. I was surprised, I must say. But then, that's what Australia has done to you." Within such a context, the reader is shown that the protagonist views Australia as a land of progress, independence and modern civilization in contrast to Sri Lankan life and practices which made her want to go overseas "some years away from the family, ...to find a separate being."

Following her displacement, subscribing to the popular trope, although any reader would expect to see Rupa as an independent and happy individual, Fernando surprises the reader with her novel perspective on how Rupa's life has run along similar tracks as it would have in Sri Lanka although scripted by her choice in contrast to her need which propelled her displacement, which clearly highlights Dandekar's (1986) claim "that the psychological and ideological sense about woman in a female's society, in turn shapes her own perceptions of herself and the options she allows herself to consider."

This is very evident through Rupa's trajectory as although she flees her birthplace to escape a life mapped out by her family "shaped by custom and tradition", after returning to Sydney she falls in line with a life of domesticity replicating practices of her homeland. In her moment of epiphany at the end of the story, she ponders, "...why had she married at all? That's not what she'd returned to Sydney for. She'd been looking for something: a new being unconstrained by custom and tradition, a splendid freedom. Yet, she'd settled so easily for comfortable ordinariness, not really different from her mother or Aunt Mary, from Srini." Thus, Fernando brings her narration to a close through Rupa's visualization of "the shining

bird...It's you - you I've always wanted", symbolizing her yearning for empowerment. This yearning is much like that of Jasmine's, although Rupa is clearly more privileged than Jasmine due to her social situation, educational background, economical resource base as well as her family structure. However, Rupa's quest for liberation which is brought out when Fernando uses the definite article 'the' in her description of the shining bird, is clearly depicted as ending in regret and disillusionment despite her displacement which promised her independence and an unconstrained life subscribing to Western ideals.

Therefore, this novel perspective brought forth through Fernando's short story highlights that in contrast to Mukherjee's depiction, displacement does not necessarily bring about empowerment and that it is dependent on each individual's larger socio-cultural context as well as the inherent ideology which propels an individual in his / her course of life. This also shows that although Rupa is capable of making her own choices about her life, is economically more secure than Jasmine was, flees from her family and birthplace to free herself from the continuity of life shaped by traditions and customs, she does not become emancipated like Jasmine, as the interdependencies in her life and her definition of empowerment in terms of her life are quite different from that of Jasmine's. Thus, in this scenario the existing framework for female empowerment that treats women as a homogenous category, an undifferentiated mass is very problematic and iniquitous.

On the other hand is 'Jashoda,' the protagonist of Mahesweta Devi's short story 'The Breast Giver.' In this tale of a Bengali wet-nurse, Devi shows the female protagonist, Jashoda, living in a 1960's India as she is compelled to take up 'professional motherhood' when her Brahman husband loses both his legs. With her only ability held in her 'always full' breasts and her desperate economic destitution - she is swiftly utilized and praised for her expert weaning of wealthy offspring, which she does for 25 years, before losing her usefulness and consequently dying from breast cancer.

Although the patriarchal practices, the exploitation of women are of paramount importance to the plot of the story, the following analysis highlights that even within such a male dominated context Jashoda does achieve agency from the periphery to the centre and becomes emancipated in some areas of her life. This supports the argument that empowerment carries varied definitions and is highly subjective.

From a feminist view point, Jashoda is a typical woman - a victim as she takes on the responsibility of providing for her family through literally commercializing her ability to nurture and tragically dying at the end of the story due to breast cancer. However, Devi does not depict her as a passive victim in the story as she gains importance within the plot in diverse ways, portraying that for a woman in her situation, especially given the setting, she does become liberated at least temporarily.

Against the backdrop of women who are depicted as 'child-producing machines' regardless of their economical status, Jashoda, even though uneducated, uses her only skill as a commodity to her own advantage which propels her towards changing the hierarchy within her household through a gender role reversal. As she goes out to earn a living to provide for her family, her husband takes on the responsibility of the household chores and caring for their children, generally a socially constructed identity reserved for a woman. This is the primary change Jashoda brings about which gains prominence due to the prevalent social order in 1960s India. This can be viewed as an instance where Jashoda becomes liberated even within her own household through the reversal of stereotypical, traditional societal norms. According to Tyson (2006), every area where patriarchy is in control, "woman is *other*: she is objectified and marginalized, defined only by her difference from male norms and values, defined by what she (allegedly) lacks and that men (allegedly) have." Although Jashoda is continuously objectified by men as well as women in the story and cast in the role of a subaltern due to her status as a woman, as well as her poverty, it is ironical to note that she uses something that men (allegedly) lack and women possess - her breasts and her maternal plentitude - to her own advantage in her journey towards economical emancipation.

As Jashoda "becomes more and more revered for her body's other worldly tolerance due to her ability to nurse over fifty babies" (Nair, 2015) for over twenty five years and heralded as wet nurse and "the mother of the world", the binary 'man - woman' seems to become subverted to a hierarchy closer to 'woman - man' which evidently portrays a woman who is viewed as "a *strong personality*", even by her own husband.

Therefore, Jashoda becomes an 'active agent' in alignment with Batliwala's notion (ibid), that in terms of empowerment, there is an apparent redistribution of power within the household of Jashoda. However, similar

to 'Rupa' in 'The Bird of Paradise', due to the psychological and ideological sense about a woman's role in her society Jashoda's perception of herself and her role in her family unit are shaped (Dandikar, *ibid*). Furthermore, these social constructs, as well as her economic resource base, make her accept the oppression meted out to her by the male society as well as the women who employ her to breastfeed their offspring in order to safeguard their health, viewing her as a mere commodity as reality that goes unchallenged.

Thus, looking at Jasmine, Rupa and then Jashoda, it is evident that Jashoda, unlike the other two protagonists, although she does not seek displacement for selfhood as depicted through Mukherjee's and Fernando's works, within her own socio-cultural context she is able to bring about changes in the social and symbolic order through gender role reversal as well as subverting the man-woman binary in a male dominated society. It is this perception that enlightens the concept of empowerment as a notion that is problematic when looked at through female homogenous lens and signals the need to look at empowerment from a novel angle in order to move beyond catch phrases and make this concept a 'possible reality' in every society.

IV. CONCLUSION

In conclusion, it is apparent that the two protagonists Rupa and Jashoda, when analyzed against the backdrop of Jasmine, clearly challenge the popular trope found in most literature that is of gaining emancipation through displacement. Rupa Gomez, an educated, Christian woman of a privileged background seeks selfhood through displacement to escape her traditional home set up which imposes stifling traditional practices as well as expectations on her life. However, Fernando through the depiction of her trajectory ending in regret and disillusionment highlights that sometimes regardless of an individual's education and financially secure life, which is in clear contrast to Jashoda as well as Jasmine, that a female's journey towards liberation can become stunted as a result of the psychological and ideological constructs of the society she lives in. Jashoda on the other hand, although she is portrayed as a typical Indian wife who harbours an irrational sense of duty, love and servitude towards her husband, and hailing from an impoverished and uneducated background, gains agency to some extent within her own socio-cultural context

without having to resort to displacement unlike Rupa or Jasmine. Despite the interdependencies and the tensions prevalent in the 1960s patriarchal Indian society, Jashoda succeeds in reversing traditional social constructs of a woman's role and contributes towards subverting the man-woman binary. This clearly highlights that the term 'empowerment' carries varied definitions for individuals dependent on their diverse socio-cultural contexts which map their course in life and challenges the common trope that in order to become liberated one has to sever one's bonds and leave behind one's obligations. Finally, it should be emphasized that Rupa and Jashoda contribute towards reframing the perception of empowerment in order to move beyond buzzwords and contesting the common depiction of gaining agency through displacement as portrayed in the selected literature.

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ASSESSING THE COMPOSING COMPETENCY OF ADULT SECOND LANGUAGE LEARNERS ENHANCED THROUGH INCREASED SELF-CONFIDENCE DURING PORTFOLIO BASED LEARNING

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Abstract- Writing being a language skill hard to acquire, but essential for academic success, identifying the learner attitudes towards it is important. This study is devoted to investigate the possibility of developing the writing process through portfolio based learning to raise learners' self-esteem during a fifty-hour writing course. Ninety-six first year undergraduates of the Faculty of Technology, Wayamba University participated in this. The learners produced ten paragraphs of different structures and revised the first drafts on a computer based on the teacher feedback which comprised of both direct corrections and indirect clues. The brainstorming exercises, paragraph outlines and first and second drafts were placed in a portfolio, and the learners were asked to reflect on the process and feedback every time they attempted the next paragraph. The same questionnaire designed to identify the learner attitudes towards writing was administered both prior to and after the treatment to measure whether there was an improvement. The Wilcoxon Signed Rank Test was applied on six questions that focused on writing skills such as the ability to generate ideas, organize ideas, support them with appropriate and interesting examples, write fast and accomplish a task within a given time. The p value of 0.00 ($P < 0.05$) revealed that there was a statistically significant improvement in composing competency in their perception. Moreover, the learners' thoughts on portfolio writing were extremely positive, and could be coded as 'interesting, skill enhancing, confidence building, beneficial, and supportive for future purposes, proving the self-directed approach to portfolio writing to be quite productive.

Keywords- Direct Feedback, Indirect Feedback, Composing Competency

I. INTRODUCTION

Since writing is a language skill essential for academic success, any barriers to it such as lack of knowledge or guidance and poor attitudes towards the process need to be dealt with urgently and appropriately. Zamel, 1982 states the "Lack of writing competence results more from lack of composing competence than from lack of linguistic competence". Most language learners perceive writing as a difficult skill (Kert & Atay, 1997, Latif, 2007), and teachers have encountered learners who do not even attempt writing questions at the examinations. Their attitude to skill of writing seems to affect on their performance, and Grahaw Berninger, & Fan, 2007 state that "Writing attitude influences writing achievement." Writing is a process in which the learners should be guided through and provided feedback with, during the whole period of the exercise. The traditional approach of evaluating the end product is out of place, and a method that measures a diversity of skills, knowledge, processes and strategies should replace it. Portfolio based learning fills this need since the process of writing is supported and monitored throughout the time. It requires the learners to reflect on their work based on both direct and indirect feedback provided by the teacher. The direct feedback involves correcting errors, providing rules, examples and

overall comments whereas the indirect method involves underlining errors, providing clues and overall comments.

Direct feedback is beneficial for beginners and in dealing with complex organizational and structural patterns (Hairston, 1986). On the other hand, Indirect feedback cognitively engages the learners to focus on errors, identify rules and to retain them in the long term memory (Ferris, 2003). As the research conducted so far have proven both methods to possess their own merits, it was a combined approach that included both direct and indirect feedback that was used in the research.

Moreover, the approaches to writing in a learner centred classroom should reflect practices that help learners gradually emerge as good writers, and in such a context the teacher's role should be that of a facilitator. In addition to teaching, evaluating writing should also display the same learner centred approach in which the process is placed emphasis over the final product. In this climate, the portfolio writing helps incorporate teaching and testing in an effective blend while creating an autonomous classroom.

The existing literature reveals that the effective use of error feedback in developing the composing competency of second language learners is still a relatively unexplored area in Sri Lankan university context. Since almost all the students have pursued either Sinhala or Tamil medium education, writing in English and specifically writing fast and organizing the material in an appropriate format are difficult tasks for them. The interviews conducted with the students show that their experience with regard to teacher feedback on writing in English almost always limited only to direct feedback and receiving grades over the first drafts which were blindly considered as final drafts. Writing, revising and rewriting are alien concepts for them, and presumably this is a major reason why most learners have not been able to emerge as good writers. Moreover, the large language population in English classes also challenges the teachers to seek appropriate methodologies to address the issue of poor writing skills of the undergraduates as teacher correction alone places practical problems. Portfolio writing on the other hand has not been a very welcome idea in all second language learning contexts, so identifying learner views on this is also important.

This study first aims at identifying the attitudes the learners have over writing skill by focusing on a few essential sub-skills that the learners should have at their disposal for a successful production. Secondly, it aims at building learner confidence or the composing competency through a well taught writing course based on portfolio writing. Next, this course gradually leads to develop their writing competency by means of effective error feedback techniques that are employed to assist learners to revise their writings. Further, the portfolio assessment targets at providing the learner with more time to focus on their work outside the classroom and to refer to the sources like grammar books, dictionaries and more competent peers in an effort to improve their language. Finally, the outcomes of the intervention are measured to see whether any attitudinal change had taken place towards composing competency or whether any improvement had occurred in the same in the learners' own perception.

Research problem:

Poor writing skills of undergraduates badly affect their academic success and the language teacher is confronted with the challenge to motivate them to write and develop competency by using appropriate methodologies.

Objectives:

- I. To identify the learner attitudes towards the composing competency of writing before the intervention.
- II. To identify the learner attitudes towards composing competency of writing after the intervention.
- III. To identify the perceptions of learners over the effectiveness of portfolio based learning to develop the composing competency of the undergraduates.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

This research is of quasi-experimental design. Ninety-six first year undergraduates studying at the second semester of Faculty of Technology, Wayamba University of Sri Lanka participated in this. They received a fifty-hour writing course, the content of which covered introduction to paragraph structure, nine patterns of

paragraph and some grammar and punctuation rules. The learners were required to produce ten paragraphs of different structures and to revise the first draft of each on a computer in an effort to produce an improved second version. The revising was done individually based on the teacher feedback which comprised of both direct explanations and indirect clues, outside the class hours. The revised second drafts too received teacher comments as to whether the corrections had correctly been made. The brainstorming strategies, paragraph outlines and the two drafts for each paragraph structure accounting to twenty pieces of writing were placed in a portfolio. At the end of the course, the learners were asked to include a page giving their thoughts over the experience. The same questionnaire, which was designed based on Liker's seven-point scale that focused on identifying the learner perceptions on their ability to write, was administered prior to and after the course to observe whether any attitudinal change over writing had occurred.

The rationale for choosing this methodology was that unlike the pre-test and post-test design that evaluates the end product alone, an attitudinal questionnaire and the participants' spontaneous thoughts over the process and the experience were perceived as more effective tools to measure the developments in composing competency of the learners.

III. RESULTS

Six questions from the questionnaire that were based on identifying learner views over basic writing skills such as the ability to generate ideas easily, organize ideas easily, write interesting & appropriate responses, support the main points with the examples, write fast or fluently, and finish a writing task within an allocated time frame (Table 1) were analysed by using Wilcoxon Signed Rank test.

As observed from the statistical analysis above (Table 2), since the P value is less than 0.05, the null hypothesis is rejected, and in the perception of the students, the writing skill or the composing competency has proven to have improved after intervention, at 5% significance level; thereby, achieving the first and second objectives of the research.

Taking the third objective into account, the thoughts of the participants were extremely positive and they could be coded as 'interesting, skill enhancing, confidence

Table 1: The questions that were used to identify the attitudes of learners over their writing competencies

Question No:	Question
1	I can easily generate ideas for my writing.
2	I can easily organize ideas for my writing.
3	I can write interesting and appropriate responses.
4	I can write fast on a given topic.
5	I can easily find examples to support my ideas.
6	I can fulfil a writing task without difficulty within a given time.

H_0 : Writing competency of the students has not been improved

H_1 : Writing competency of the students has been improved

Table 2: Results of the Wilcoxon Signed Rank Test: Difference

Test for statistics	N for test	Wilcoxon	P value
Difference	96	4656.0	0.000

building, beneficial, and supportive for future purposes as in table 03.

This free writing exercise of sharing the thoughts over the experience of portfolio writing comprises of some valuable data that matches with the research objectives and stretches even beyond them. A major complaint made about writing classes is the boring factor, and irrespective of the fact that they had engaged in a full writing course of 50 contact hours continuously, the learners found it to be quite interesting (A2, A2, A5, A6, A7). The data also do not include any instances that the learners perceived writing to be a difficult task, and instead stated that they 'feel better' after expressing themselves on paper (A4). The thoughts coded under the theme 'skill-enhancing' provide

evidence over the contribution the course made to remove their unnecessary fear over writing in a second language. The methodology employed has also proven to be an effective way to address grammar (B1, B2, B3), mechanics of writing (B4) and the technical skills like typing (b6). Moreover, there are positive thoughts expressed over the independent and autonomous approach that the

course offered into self-correction and revising (D4), its cognitive engagement of the learner to focus on their writings closely (D6) and its potential to develop oneself into a good writer (D5). Finally, the confidence gained in writing has made the participants feel secure at perceived future circumstances such as examinations (E1, E3), work(E2) and life(E4).

Table 3: Sample thoughts of the participants over portfolio writing

Code	Thoughts
A: Interesting	A1: "I have not only good writing skills also lovely experience in paragraph writing." A2: "Interesting programme." A3: "Interesting because every paragraph had a new thing. It was enjoyable to write different paragraphs." A4: "When I write a paragraph I feel better" A5: "Actually this is my favourite assignment in the university" A6: "I liked it very much because it was not stress for me." A7: "The way the lecturer taught the lesson was very attractive." A8: "Portfolio is the best method for writing paragraph structures."
B: Skill-enhancing	B1: "Through making mistakes and correcting we have improved our language." B2: "Improved our English knowledge, grammar and creative ideas. Therefore improved our thinking ability." B3: "It gave us a good knowledge on grammar, spelling & vocabulary." B4: "I got lot of things by writing portfolio as I know how to make a paragraph plan and how to use punctuation marks properly." B5: "I improved my knowledge about sentence patterns." B6: "We improved typing by using typing software."
C: Confidence building	C1: "I feel this portfolio developed my confidence as a writer." C2: "At the beginning I was not good in English paragraph writing. Now I have the confidence of writing paragraphs accurately" C3: "Now I have the ability of writing paragraphs by organizing the details in the right manner" C4: "Writing paragraphs have taught me the easy ways to write a paragraph." C5: "I read and understood the lecturer's comments and I wrote the next paragraph better than the earlier one" C6: "When we write, advice given by the teacher was a strength to us. When teacher marking our paragraphs, sometimes she wrote the errors directly, sometimes underline the errors gave chance to understand what wrong we have done. It was a very good way to develop our confidence."

Code	Thoughts
D: Beneficial	<p>D1: "This portfolio shows off what I have learnt from the course, and how much I have improved. It shows I have made incredible progress this semester"</p> <p>D2: "The lecturer's comments were very helpful in developing English writing skills."</p> <p>D3: "If his course was a normal one, we will not participate it actively. Under portfolio concept, we got the best use"</p> <p>D4: "We have the responsibility to give the written paragraph to the lecturer, correct it, type those and get a print out for the portfolio within set time. I think it is a good concept."</p> <p>D5: "Without this course module, I couldn't have been able to write good paragraphs"</p>
E: Supportive for other future purposes	<p>D6: "It aided my understanding of certain aspects of writing that I had never understood before"</p> <p>E1: "Writing paragraphs have taught us easy way to write paragraphs. So, now we can easily write answers for the examinations"</p> <p>E2: "In day today life, we have to write some notes, letters, and articles. For that we need clear knowledge about different paragraph types"</p> <p>E3: "This was a big contribution for academic activities"</p> <p>E4: "I could measure my day today progress in writing. I may write anything more accurately in future"</p> <p>E5: "In future we can use this knowledge of paragraph structures to write research reports"</p>

IV. DISCUSSION

Since all six questions of the questionnaire given in table 1 aimed at the single objective of identifying whether the learners' attitude towards composing competency underwent a positive change, the Wilcoxon signed test was applied on the average rank of the whole six items instead of analysing each question separately. Obviously, there was an upward movement with regard to each writing competency or skill, and this growth was remarkable for the first four questions compared to the last two as observed from the average figures of the raw data. The practise that the learners gained over skills such as generating ideas, producing a clear topic sentence with a dominant impression, supporting it with points, organizing those in an outline and filling the outline with relevant and interesting examples seem to have given

them a great confidence into writing. Yet, they seem to need longer a time to gain competency over writing fast and finishing a task within a given time frame. Overall, the results of Wilcoxon signed test prove that portfolio based writing that require the learner to plan, write, revise and rewrite is an effective strategy to develop the composing competency of second language learners at the Sri Lankan university context.

The thoughts on portfolio writing were the last page of each portfolio which reflected the participants' feelings and observations over the experience. All the students had found the experience to be a treasure, and they had made a genuine effort to explain how and why. Since similar ideas were found in many portfolios, one statement that represented each idea was included in the table 3 under the six codes. First, many participants stated that writing

for the portfolio was interesting as it was a novel and an enjoyable experience (A1, A3, A4) to them. They further stated that it involved an attractive methodology (A7, A8) and some valuable content (A3). They had also liked it since the exercise was not stressful (A6) probably because they could write, rewrite, revise and type the paragraphs leisurely outside the class hours. Further, they said that it was their favourite assignment at the university (A5).

Second, the participants noted that the course helped improve their composing competency since it focused on the process of writing than the final product. The students' thoughts show that they had learnt the important steps of writing such as planning (B4), drafting and revising (B1), punctuating (B4), proofreading for spelling (B3), grammar (B1, B2), and sentence variety (B5), and editing the draft with more refined vocabulary (B3) while they were guided through this process. As stated further, portfolio writing had also improved their thinking capacity (B2) and creativity (B2) during the brainstorming exercises.

Third, the portfolio based writing as a learner centred approach to teaching, has built up the learner confidence (C1). The participants observed a great transformation in them as writers from the beginning to the end of the course (C2) because by the end they knew how to do it 'in the right manner' (C3). Writing was once difficult a skill for them, yet through the right techniques, it had been transformed into easy a task (C4). Moreover, being able to understand the teacher feedback, particularly the more challenging type of indirect feedback, and being able to revise the first drafts accordingly had given them great confidence (C5, C6).

Portfolio writing has also brought benefits quite obvious to the learners. As per their perception, the portfolios provide evidence as to how much progress in writing they have made (D1). The concept of placing their writings in a portfolio seem to have motivated them to do it well (D3) and by a deadline (D4). Most importantly, they had felt intensely that they were able to understand certain new aspect of writing that they had never thought of before (D6) and were able to become good writers due to this course module (D5, D6).

Finally, the participants also commented that the portfolio based writing was supportive in other future

purposes such as better performance at examinations and other academic activities (E1, E3), writing more accurate documents required in day today life, and producing effective research papers (E5). This reveals the fact that they were ready to apply what they gained beyond the classroom.

V. CONCLUSIONS

The research findings supported by both quantitative and qualitative data prove that the self-directed approach to portfolio writing has transformed the attitude to writing in a considerable way while uplifting the students' self-esteem simultaneously. The success of this methodology can be accounted to the constant practice the students gained in basic writing skills while planning, writing and revising and the effectiveness of the teacher feedback provided promptly. It has motivated the students to work outside the classroom hours to focus on language, to reflect on the teacher comments and the process of writing and to perceive language as a pleasurable experience for them. So, portfolio writing is a very productive method to develop the writing skills of the undergraduates of Sri Lankan university context.

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IMPROVING ORAL PRESENTATION SKILLS IN UNDERGRADUATES THROUGH CONSTRUCTIVE CRITICISM (AS A BI-PRODUCT OF SCAFFOLDING)

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Abstract- English is a global language at present and it is considered the key to knowledge, information, communication, technology, travel, trade and business (Turmapang, 2012). As there is a continuous rise in the unity of people in the globe, knowing one common language has become a necessity as a communication tool. As a result, in Sri Lanka, English is recognized as a key to employment opportunity and recognition in the society. Therefore, graduates from local state universities are expected to be equipped with the right knowledge, technical skills and most importantly communication skill competence and interactive skills in English. Further, to be employed in a well-paid, study-related job in the private sector, graduates are expected to be proficient in their communication and presentation skills in English language. However, it is significant that even though Sri Lankan students begin learning English as a subject from Grade 3 onwards (Gorden, Kuruppu&Kuruppu, 2015) and English is used as a medium of instruction in most of the courses at Sri Lankan universities, it has been identified that their English speaking confidence, performance and willingness to communicate remains inadequate as undergraduates. Thus, this research aims to find out a way to overcome speaking apprehension in undergraduates and enhance their oral confidence through constructive criticism as a means of scaffolding. This is used as a technique evolving from Bruner's Scaffolding Theory. A stratified sample of 39 Engineering undergraduates were subjected in this experimental research. A mixed approach was used. The positive impact brought out from constructive criticism provided to undergraduates as feedback is identified as an effective method to enhance oral confidence and presentation skills in English.

Keywords- Scaffolding, Constructive Criticism, Oral Presentations and Skills, EMI

I. INTRODUCTION

English is considered as the language of trade, travel, business, technology and information in the present context. Having insufficient knowledge in English and communication, lessens one's chances of being recognized in society. In response to the great demand in the language, people have begun learning English as a second or a foreign language in Asia. Across Asia, the numbers of people having at least a functional command of the language has grown exceptionally over the last four decades (Bolton, 2008, p.3). Accordingly, the "current changes in the socio-linguistic realities of the region are often so rapid" and to keep up with the pace, one must be able to communicate in a global language which is understood by many in order to get along in society.

Perera (2010) and Gnanaseelan (2001) explicitly mention that the essentiality of English was realized by the local government not recently but many years back. Since the early 1950's, the successive governments in Sri Lanka, made it a point to teach English to all public schools in the country (Perera, 2010. P.7). English was made a compulsory second language to be taught in Sri Lankan schools, through the recommendation of the Special Committee on Education, 1943, with the aim of providing "English for all". According to Ministry of Education in 'Education First', even at the younger age of 7, when the students are in Grade three at school,

"Activity-Based Oral English (ABOE) is introduced through environment related activities. English words are used in day-to-day transactions. The idea is to ensure that children become familiar with English words early so that they will learn English better once it is introduced as a second language at Grade Three" (education first.lk,2013). The students in Sri Lankan schools continue learning English language as a compulsory subject until tertiary levels. Further, students in government schools are obliged to follow G.C.E. Ordinary Level (O/L) and G.C.E. Advanced Level (A/L) General English' as a common and compulsory subject. However, According to Gorden, Kuruppu and Kuruppu (2015) in the Sri Lankan context English language knowledge of the majority is 'low' even by the time they complete their A/L and enter university. Research further elaborates that Sri Lankan students show a low competency level in communicating in the language even though they pass both O/L and A/L English papers successfully (Wattegama, 2018).

It has been further highlighted by other scholars (Turnapang, 2012; Herscovitch, 2012; Bolton, 2008) who admit that a university degree in any subject is the main prerequisite for acquiring a job today, and together with that, by having sufficient fluency in English opens the doors to employment opportunities and financial rewards. The employment market in the present context is highly competitive, and therefore, to obtain a job in the discipline of preference, not only one must possess sound educational qualifications but one must also show exceptional skills and knowledge in English language to ensure a recognizable position.

II. RESEARCH PROBLEM

In Sri Lanka, English is used as the medium of instruction for most of the courses in universities. As graduates, it is necessary that they possess the competence to communicate in their 2nd language as the interviews for the jobs are usually conducted in English. Feedback from local and international employers shows that verbal and written communication skills in English remain the most sought after attribute for prospective employees. (Sunday Star, 2011). Yamatet. al (2002) indicate in their work how English may directly affect one's ability to communicate or express views, ideas and knowledge effectively. The study suggests that if the graduates are not competent in their productive skills, mainly speaking, they will be less competent communicators.

Undoubtedly, graduates must be fluent in their presentation skills, English speaking and public speaking skills as they enable graduates to function successfully in the future professional endeavours, and further in preparing them for their optimal academic career and to be employed in a high-paid, study related job (Živković, 2014). Whether they are expected to give presentations at conferences, symposia or other meetings, graduates must be equipped with the relevant skills. Having sufficient inter-active skills in English language is also a must in the present day. Most jobs are done with the international community and therefore, dealing with foreign or even local clients, require a sufficient fluency in the language. With the rise of globalization, graduates need to be proficient in oral skills to function in the professional and global setting. Oral presentation skills are essential for employability and true academic study as they lead students to enter into debate and sustained reasoning (Morley, 2006). Improving oral presentation skills is a chance for students to gain insight into knowledge and skills. "The mastery of the subject topic and the good will to interact with others will allow them to actually enjoy sharing their knowledge in a constructive way both for their audience and themselves with structured planning and organization" (p.469).

Even public speaking is realized as a necessary skill graduates should possess. It encourages students to voice their ideas, stand out for their points and express their opinions without being influenced by others. With the right public speaking skills, the graduates will be able to stand out in front of an audience and, make eye contact and engage them in conviction. To share knowledge with an audience, to persuade or educate the audience, having necessary public speaking skills is essential. It has also been found out how oral public speaking skills are the number one skill that college graduates found useful ((opn.lib.umn, 2018).

However, Public speaking is recognized as one of the most terrifying activities for majority of the students. According to a study conducted in University of Pittsburg, (2007) it reveals that "public speaking is many people's greatest fear" (para 1). It further states that "some of the most common symptoms of speech anxiety are: shaking, sweating, butterflies in the stomach, dry mouth, rapid heartbeat, and squeaky voice" (para 1).

As undergraduates will soon be entering the employment market, it is necessary to find solutions for this problem

of speaking anxiety. In fact, English is used as the medium of instruction at university level, solutions must be taken at undergraduate level. Even though it is not possible to overcome all of this, there are ways which are suggested by this present study to make it work to the speaker's advantage. Students consider public speaking as the most difficult factor among the four language skills; because it is believed that speaking needs strong volition and self-confidence, that speaking and communicating with people is a tough task. If the motivation to speak in students is triggered, they will be confident. This research suggests how to offer constructive criticism to enhance the speaking confidence in students.

III. OBSERVATIONS IN THE SRI LANKAN CONTEXT

In the Sri Lankan English classrooms, undergraduates show various traits of speaking anxiety when dealing with presentations. Be it group presentations such as poster and power point or individual presentations such as impromptu and prepared speeches, there are various physical characteristics and psychological issues which represent the oral anxiety in students. Most of these are caused due to undergraduates' inadequacy or ignorance of specific knowledge about the causal factors as well as speaking anxiety-avoiding techniques. On the other hand, they have not been pointed out their weak points individually. When dealing in the classroom, during oral presentations and group activities mainly, most incompetent students tend to rely on the more fluent students who would take up the challenging task of conducting oral presentations on behalf of the groups. As a result, the weaker students get neglected. Consequently, they tend to lag behind as they do not benefit from the speaking or presentation opportunities.

Nevertheless, there are some common presentation faux-pas that even the fluent students commit when conducting oral presentations in some instances. *Time management* is a major drawback in the students as they do not stick to the given time frame. Lack of practice is another main weakness in students as they do not concern much on practicing the presentation but spend plenty of time in preparations. This drawback can be witnessed in many ways by the teacher when the students are conducting the activity. Students commit this fault as they do not make it a point to practice the oral presentations before presenting it and as they are not aware of the variety of ways they can do this such as

by recording their voice, videoing and observing their weaknesses by themselves, practicing in front of the mirrors and getting the assistance of another to give support through feedback after observing their practices. However, only a handful students show adequate preparation when engaging in the final oral task presentations mainly as they have not been properly guided.

Not knowing how to impress the audience with the right dress code and imitating fake accents and pronunciation also lead to lack of interest in the audience.

In line with Pittsburg (2007), majority of the students display presentation anxiety in a variety of physical methods. These can be categorized into,

1) **Presentation contents**- Anxiety can be visible in the unorganized structure of one's presentation. Having no chronology in the presentation without a proper introduction to the subject matter, insufficient content where the student relies mainly on the displayed items on the slide show or the poster and rushed-in conclusion where the student is eager to finish the task, represents the communication nervousness in students.

Majority of the students display nervousness from the 'greeting' till the end of the presentation; through their forgetfulness in some contents, by reading the contents on the poster or on the screen of the power point and solely relying on the contents displayed for the audience, by not knowing how to answer the questions aimed at them at the end of the presentation as they have just read the contents prepared by a more fluent student in the groups (in group presentations), and by not using any facial expressions, hand gesture, body movement and eye contact.

2) **Voice**- When a student has no audibility, there is no vocal variety with no fluctuations in the voice with multiple gap fillers such as 'hmm' and 'ah' sound or long pauses and stuttering and when a student relates the whole presentation in a monotonous tone, it not only disengages the listener but reduces interest in the speech.

Not knowing that by using repeated phrases, lowering, increasing the tone of voice and pausing at times help to maintain interest in the audience is the main problem faced by undergraduates.

3) **Gestures**- This has 4 main elements; **eye contact, hand gestures, facial expressions, and body movement**. Not knowing how to appropriately use these, students often find it hard to keep the attention of the audience at them during oral presentations. The students use them from time to time. However, these are rarely adapted by the students when engaging in presentations due to their anxiety in oral presentations. Therefore, during constructive criticism the teacher will provide necessary and appropriate techniques to follow during a speech when using gestures.

a) Using correct **eye contact** during the speech and having focal points is necessary to engage the audience and to get the attention. If one fails to follow this technique, the speech often turns dull and uninteresting to the others.

b) **Facial expressions** play an important role during oral presentations as it is the first sight that the audience is exposed to in a speaker. Starting as well as ending a presentation with a smile is of utmost importance at any level. It is also necessary to adjust facial expressions according to the contents of the speech.

c) **Appropriate hand gestures** during a speech is highly essential. However, majority of students are not aware of this and use hands in inappropriate ways in most cases. They swing and fold arms, clutch or put the hands in the pockets or even at times scratch their face, head or adjust their hair, cloths or belt. These observations can be frequently be made as they are unaware of using 'personal space' freely when expressing their opinions in the speeches with their hands.

d) **Correct body movement** is a way to grab the attention of the audience. Moving on the stage in an appropriate manner helps to keep the audiences' eyes move towards the speaker's direction. This helps them draw away from falling asleep and being uninterested. However, most of the students are reluctant to use the stage as they conduct oral presentations as they tend to rely on the podium by leaning towards it, or takes comfort in leaning on to a wall, chair or table nearby (in the class). At often times, they stand on one spot instead.

Moving from one leg to the other can also be observed in some students. Minority of the

students have the courage to move on the stage or even approach the audience when necessary during the presentations.

4) **Insufficient hooks**- Hooks are methods which can be incorporated into a speech or a presentation to make it more meaningful, interesting and entertaining. There are various hooks which are introduced to the speakers during the teaching sessions here such as audio, visual aids (video/ audio clips, ppt), props, quotations, asking questions, dialogues, narratives, share experiences, using humour and engaging the audience in presentations is a major drawback which leads to lack of interest and make the audience withdraw from the presentations.

Not knowing how to use these 'hooks' appropriately, the presenters fail to keep the audience alert and win their attention. During presentations 'the audience' is the main goal and to educate, entertain or inform them is the main aim.

Therefore, during the research, the teacher will provide constructive criticism on the above to individuals. Their strong and weak points in the presentation will be pointed out while tips will be offered to improve their existing speaking skills or to get rid of aspects which are not suitable for the presentation. From the main elements of a presentation which follow a greeting, introduction, body and conclusion, the chronology of the presentation, voice, gestures and hooks will be carefully analysed by the teacher and will be commented upon.

Apart from these physical traits observed by the researcher, studies have been conducted around the world to find out the reasons for anxiety in English speaking. Following are a few of them.

IV. REASONS FOR PRESENTATION ANXIETY

When considering the reasons for presentations anxiety, English speaking apprehension and public speaking fear, the following were revealed.

a) **Socio-cultural factors** have a huge impact on the learning motivation of the students. Family background, the income, the employment status and the education of the parents, all have an influence on

the English learning motivation of the learners no matter what their age group is (Vellymallay-suresh, (2012); Adekeye, A. (2002; Ahmad, & Naeema, (2013). The environment where one studies and is brought up in, has a huge impact on one's second language oral proficiency in this regard.

- b) **Teacher, learning environment and the material** are inter-connected factors which contribute to a learner's language development. The teacher's responsible in creating a suitable environment for the learner and must be tactful in choosing the teaching material as to not make students be demotivated to talk. Task-based activities can be used to make the learner communicate more (Wijetunge, 2016).
- c) **Fear of being laughed at** has been identified has been identified as a main reason that makes students be reticent in front of the classroom if they commit a language error. This is a common factor in Asia no matter to which age group the student belongs to. In a research conducted by Nazara (2011) it was discovered that students hesitate to communicate in ESL due to their shyness and because they have the notion that their teachers would scold them if they make a mistake in language.
- d) **Lack of chances for communication** within the classroom and insufficient hours for the subject (ESL) were noted as 2 of the most important reasons for the students to have inadequate language fluency and motivation (Meshkar&Hassam, 2012).
- e) **Fear of committing mistakes** has been recognized as a main reason for the students to be incompetent in communication. Aquino et al (2016) mentions making grammar or sentence structure errors while talking, wrong pronunciation and intonation, having insufficient vocabulary to converse, have been identified as the main reasons to have lack of motivation in the students.

V. CONSTRUCTIVE CRITICISM AS A SCAFFOLDING TECHNIQUE

"Scaffolding refers to the steps taken to reduce the degrees of freedom in carrying out some tasks so that the child can concentrate on the difficult skills; he/she is in the process of acquiring" (Bruner, 1978). When conducting

oral presentations, the students are able to manage with their existing knowledge and skills. However, for them to do a successful job, the teacher can assist by offering them with comments and feedback in the means of scaffolding after observing their presentations. The students are expected to take advantage and benefit from these comments provided as constructive criticism and correct their mistakes and improve their existing skills to a much higher sphere. When the students reach the expected standard and master the art of presentations, the scaffolding will be removed.

Constructive criticism can be described as a "set of instructions that aims to collaboratively improve the overall quality of a product or service". (businessdictionary.com, 2017). This often includes helpful and specific suggestions for positive change and is particularly concerned on a particular issue or set of issues as opposed to providing general feedback". When a student with lack of presentation competence is provided the assistance of scaffolding, it is expected that the student will boost the competence level and improve his/her speaking abilities. "Teachers' scaffolding allows reticent students to perform tasks slightly beyond their capabilities without repetitive guidance" (Talley, 2014).

Constructive criticism can be considered as 'feedback' as Hyland and Hyland (2001) describe "we consider this feedback in terms of its functions as praise, criticism, and suggestions". Speaking confidence can be enhanced while providing self-satisfaction to the students through "Praise" which is the most frequently employed function in the constructive feedback, but this is "often used to soften criticisms and suggestions rather than simply responding to good work". Constructive criticism can be offered by the teacher or the peers within the classroom. However, as the students are focused on specific traits they should improve individually to enhance their oral presentation performance; it will be mainly done by the teacher within the ESL classroom.

VI. AIM

To find out a way to overcome speaking apprehension in undergraduates and enhance their oral presentation confidence through constructive criticism as a means of scaffolding.

VII. RESEARCH QUESTION

Does constructive criticism work as a means of scaffolding to reduce English speaking and presentation apprehension?

VIII. METHODOLOGY

This was an experimental study conducted using a mixed approach. A pre-test and a post-test were incorporated in the study and the data was analysed using the SPSS. The qualitative data which is mainly through observations were gathered twice. First prior to the study and then following the study. A small-scale interview on 20 random students was carried out later in the research to find out the opinion on the effectiveness of constructive criticism on their presentation abilities.

Sample - A sample of 39 Mechanical Engineering students in their 3rd semester were selected from purposive sampling.

Method - The students were grouped and were asked to present a power point presentation of 10-15 minutes based on a topic of preference, related to Engineering. Each individual was asked to take part when presenting. This was done as a part of an assignment following the 'presentation skills' lessons which was conducted in the 2nd semester. However, many presentation anxiety traits were identified by the observations and the marks that the students obtained (according to a rubric used by the researcher based in IELTS speaking) showed significantly low results.

Therefore, with the hope of improving their English speaking, presentation and public speaking skills the students were subjected to the research during 18 weeks (1 semester). One hour from their academics was taken for the research purpose. 'Presentation Skills' which is a part of their syllabus in the 3rd semester and how to conduct effective oral presentations was taught as a lesson during the semester.

An experimental research design was incorporated by the researcher following the above observations. The students were exposed to pre and post individual speaking activities

(6 weeks each). During the pre activities, the students were made to do an impromptu speech of 2-3 minutes. They were provided 2 minutes each for preparations. They were observed to find out their weaknesses and were given marks according to the rubric. The students were provided specific positive and negative criticism. Each week, 6 students were offered chances to speak and after each speech, they were provided comments. Both positive and negative and were suggested tips to improve their speaking and presentation skills. Following the above pre-test, the lecturer conducted a lesson on 'effective presentation techniques' and a few demonstrations were made within the class room using videos by 'effective speakers' and Toast Masters (TM). Toast Masters are fluent public speakers functioning under Toast Masters International which is a public speaking, training club. The TMs were asked to encourage the students and offer tips to the students to succeed in their presentations.

The students were later exposed to a post test which was based on impromptu speeches. However, 2 minutes were given for preparations. The students were again subjected to marking using the criteria. Later, the students were made to present another Power point presentation based on any Engineering matter and they were evaluated once more. This was considered an assignment. It was hypothesised that the students will have improved their presentation skills and marks based on the constructive criticism offered during the semester.

IX. ANALYSIS

The analysis is mainly a mixed approach consisting of qualitative and quantitative analysis.

- a) **Quantitative** - The paired t-test was performed to analyse if there is a significant difference between the two test marks obtained by students. When considering the mean values of the pre and post-tests, there is an increase in the marks as shown below. The value of 2-tail sig is significant (.000) as it is lesser than 0.05 ($p < .05$). Meaning, the output indicates that there's a considerable difference between the pre and post test marks. Hypothesis that Scaffolding assistance provided during the semester had contributed to enhance the presentation skills and language skills in students was proven right. There is strong evidence ($t - 0.000$) that the teaching intervention improves marks. 95% Confidence

Table 1- SPSS analysis

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	52.90	39	9.310	1.491
	Posttest	68.60	39	10.081	1.614

	N	Correlation	Sig.
Pair Pretest & Posttest	39	.624	.000

	t	df	Sig. (2-tailed)
18.441	11.623	38	.000

Interval of the Difference is (12.970-18.441). This confirms that the marks are practically important and also statistically significant.

b) **Qualitative** – 20 students were randomly interviewed following the study to find out their opinion on constructive criticism on presentations. Majority (95 %) explained that it was highly effective and that it helped them to identify their strengths and weaknesses. As they were able to identify their positive presentation skills, they declared that it was just a matter of improving their moderate areas and getting rid of their weak presentation skills. They mentioned that it was very effective as it was individual feedback and the comments received by the friendly approach of teacher and the comfortable classroom environment was beneficial for them to realize their faults. They also revealed that due to large number of students in the school classrooms, the teachers do not take the liberty in offering individual feed back to the students and therefore, this was their first chance to be exposed to comments such as these and the comments received by the fluent speakers such as the Toast Masters were highly productive in this regard.

A few mentioned that they were not aware that by observing other speakers (videos, TMs) they could improve their speaking and presentation abilities. However, 5% declared that they felt uncomfortable when their weak points were being pointed by the

teacher. Even though they had previously been advised that it was ‘constructive criticism’ from which they are supposed to benefit, it still embarrassed them.

I 10% mentioned that they even preferred to be given feed back by their colleagues during the preparations. This would help them to overcome their embarrassment and anxiety. Majority declared the opinion that, more opportunities to engage in public speaking, presentations and inter-action in English language will highly influence them to improve their communication competence.

X. FINDINGS

It was found out from the research that majority of the students were able to gain higher marks for the post test and the power point presentation following the lecture on how to conduct presentations and the guidance provided by the demonstrations (videos and TMs). These techniques were immensely beneficial in getting to know the best practices to be used during the oral presentations for students. The feedback offered by the lecturers and TMs at the end of the presentations, improved student’s public speaking fear and improved motivation immensely.

Therefore, it can be concluded that when students are provided the correct guidance with sufficient assistance and when their existing talents are praised while their weaknesses are pointed out individually by a well-known other, they recognize how to improve themselves well. Constructive criticism in this regard becomes a highly effective scaffolding technique in enhancing students’ oral presentation skills in English. As these are undergraduate students, they have the ability to correct their mistakes with the right advice and move further while mastering the presentation skills which will immensely be beneficial when engaging in the job market.

XI. SUGGESTIONS FOR FUTURE RESEARCH

When students are exposed to a friendly environment, they are willing to accept their weaknesses in speaking and are motivated to improve. Therefore, constructive criticism becomes a guide to enhance speaking in students. Teacher friendly approach is highly recommended specially for weak students. Undergraduates should first be made to experience firsthand demonstrations from experienced speakers and exposure to clubs such as ‘Toast Masters’ assist them to improve their knowledge and not feel frustrated about their inhibitions. As it is a part of these clubs to encourage the demotivated speakers into becoming great speakers, the students will never be discouraged. All students must be exposed to this environment or should be provided assistance from experienced speakers at their initial stages in the university. The lecturers can attend to this seriously. This can be made a part of English lectures. Allowing students have time to prepare for a presentation or a speech will result in better marks. Even pre tasks such as video, audio clips, demonstrations, work as scaffolding assistance.

Knowing the right tips can also make the students be motivated to speak. Therefore, a lesson or a seminar on ‘Presentation Skills’ should be conducted for all students and more chances should be provided for them to speak. They should also be provided responsibilities in organizing English discussions, forums and clubs where more opportunities will be made for the anxious students. In addition, it is suggested that future researchers find out to what extent the students are able to overcome their anxiety in speaking English through constructive criticism. Whether peer scaffolding can also be incorporated in enhancing oral performance in students can also be researched upon.

XII. LIMITATIONS

The research had to be limited to one classroom and one stream of Engineering students due to the unavailability of time. Due to the time constraint, the interviews had to be limited to 20 students and the presentation times had to be limited to 10-15 minutes where some students did not get sufficient speaking time. The experimental study had to be based on impromptu speeches as the students had to present for 2-3 minutes only. Therefore, the preparation times were limited. Peer scaffolding was not sufficiently utilized in the study.

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CRITICAL REVIEW OF LITERATURE ON GIVING CORRECTIVE FEEDBACK IN TESOL SESSIONS

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Abstract- Giving corrective feedback in classes has widely been discussed in Second Language Acquisition focusing on the requirement of the feedback and the types of feedback based on the time and the purpose of providing them. The relevant literature has identified six types of feedback: explicit correction, recast, clarification request, metalinguistic feedback, elicitation and repetition. These are categorized mainly into two groups: explicit feedback and implicit feedback. It is believed that both types have their own advantages and disadvantages. This paper first highlights the difference between explicit and implicit feedback prior to critically evaluating the advantages and disadvantages of both taking the research finding into account. The discussion of explicit and implicit feedback as corrective feedback methods still leaves questions with the classification of feedback types as 'explicit' and 'implicit'. The discussion of research findings indicates that explicit feedback has an edge over the implicit feedback based on the benefits that they bring to second language learners. SLA theories also support the effectiveness of explicit feedback over implicit feedback. The empirical studies highlight that metalinguistic feedback is more useful than implicit methods such as recasts.

Keywords- feedback, implicit, explicit, metalinguistics

I. INTRODUCTION

Giving corrective feedback in class is one aspect that has received wider attention in the language teaching process. There are several facets into this aspect such as whether giving feedback is required, what type of feedback is suitable and how feedback should be given; however, the main question that language teachers often

need to answer is what type of feedback should be given to students. Lyster and Ranta (1997) identify six different corrective feedback types that can be used in classroom. They are explicit correction, recast, clarification request, metalinguistic feedback, elicitation and repetition. These are categorized mainly into two groups: explicit feedback and implicit feedback. It is believed that both types have their own advantages and disadvantages.

I teach English language at a university in Sri Lanka to students who are usually in either B1 or B2 level of English language proficiency (i.e. pre-intermediate to upper-intermediate level) according to Common European Framework of Reference (CEFR) (Language Policy Unit, Strasbourg, n.d., p. 24) and I have faced instances that I needed to decide what type of feedback should be given to these students. I have attempted all the types mentioned earlier and realized that most of my students prefer explicit corrective feedback. However, I have observed instances that even implicit feedback has a positive effect on learners' acquisition of target language features. Explicit and implicit feedback has received both praise and criticisms in Second Language Acquisition (SLA) literature and this paper critically reviews them in light of my own experience. The paper first highlights the difference between explicit and implicit feedback and then moves on to discuss the advantages and disadvantages of both taking the research finding into account.

II. EXPLICIT AND IMPLICIT ISSUE

According to Lyster and Ranta (1997) in Explicit Correction the teacher provides the correct form to students after directly indicating to the student that the

language produced is erroneous. *Recast* means that the teacher reformulates the erroneous language produced by the student without mentioning that the learner has committed an error or explicitly giving the correct answer. *Clarification requests* involve the teacher indicating to the student that he/she misunderstood/did not understand the language produced by the student or the student has committed an error by asking questions such as ‘Pardon me?’ (p. 47). This also does not involve explicit indication of the error. *Metalinguistic feedback* involves giving information of the kind of error committed by the student using comments, questions or information such as ‘Can you find your error?’, ‘It’s masculine’ (P. 47). Lyster and Ranta identify this also as a feedback type that does not explicitly provide the correct form. *Elicitation* involves the teacher eliciting the correct form of language by means of pausing his/her own utterance to let learners fill in the blank. *Repetition* means that the teacher repeats the error made by the learner with a varying intonation to indicate that the learner needs to pay attention to that.

Ellis, Loewen and Erlam (2006, p. 340) note that explicit feedback ‘overtly’ indicates to the learner that an error has been made; however, implicit feedback does not include an explicit indication of the error. According to this definition and based on Lyster and Ranta’s (1997) explanation of the features of these six types of feedback, only explicit correction can be identified as an explicit corrective feedback type since only that type explicitly indicates to the learner that an error has been committed. However, Ellis, Loewen and Erlam (2006) classify metalinguistic feedback as an explicit feedback type. They seem to ignore the fact that metalinguistic feedback does not necessarily indicate to the learner that an error has been committed nor the correct form is given to the learner explicitly. Thus, their classification seems to contradict with their own definition of explicit and implicit feedback. They also note that recasts sometimes can act as an explicit feedback method if the correction made by the teacher is stressed or if there is a varying intonation that indicates the correct form which draws learners’ attention to the correct form. However, this also contradicts with their definition of explicit feedback since the clarity of indication of the error in varying intonation or stress is debatable and it is less explicit.

Most empirical studies on explicit and implicit corrective feedback use explicit correction as a method of explicit feedback and recasts as an implicit feedback type. As Ellis, Loewen and Erlam (2006) suggest some studies

consider metalinguistic feedback as an explicit type. If metalinguistic cues are combined with an explicit indication that an error has been committed, it is possible to classify metalinguistic feedback as an explicit type. Havranek (2002) also note that situational and linguistic factors are very important for the success of the corrective feedback in foreign language classroom, and the success rate easily increases when the corrective feedback is incorporated with metalinguistic features such as form and structure. Therefore, for the purpose of this paper, explicit correction and metalinguistic feedback combined with an explicit indication of the error are considered explicit feedback types and all others are treated as implicit types.

III. WHAT TYPE OF FEEDBACK IS MORE SUITABLE: IMPLICIT OR EXPLICIT?

3.1 What do SLA theories say?

There is a debate whether second language learners need explicit corrective feedback. This can be linked to the theoretical debate between explicit and implicit learning. Implicit learning is thought to be unconscious and explicit learning is conscious (Ellis R., 2009). The knowledge gained by implicit learning is considered implicit i.e. acquisition is natural and thus the learners are unable to describe this (Ellis N., 2008). This is mainly evident in L1 acquisition where children do not learn explicit L1 rules. When children learn their L1, corrective feedback is also least important since L1 is normally acquired based on various social activities and exposure (de Vries et al, 2010). The knowledge gained through explicit learning is considered explicit i.e. learners can explain what they have learnt such as grammar rules in a language. Ellis N. (2008) believes that particularly adults need explicit learning when learning an L2 since what they can acquire implicitly through the exposure is limited. Krashen (1985) in contrast points out that the process involved in acquiring an L1 is in action when acquiring a second language due to the influence of Input Hypothesis. Therefore, it is not necessary for the language teacher to deliberately teach the structures if sufficient input is provided because learners can acquire the structures naturally by processing the input provided. This claim has been refuted however in many empirical studies done on L2 learning by adults.

Swain and Lapkin (1995) identify four functions of output in SLA: noticing, hypothesis testing, metalinguistic and

enhance fluency. In this context metalinguistic is relevant since it focuses on internalize linguistic knowledge as an important aspect; therefore, explicitly getting to know the forms of language is considered important for nonnative speakers to understand a foreign language. It is also believed that certain salient features of second language can be acquired effectively through explicit metalinguistic knowledge of the target language (DeKeyser, 1995; de Vries et al, 2010). Schmidt’s (1990) Noticing Hypothesis also indicates a similar view that learners need to pay conscious attention to the language features in the input provided to them in order for the learning to take place. Since conscious learning is explicit, the process of noticing also seems to be explicit learning. Moreover, Schmidt (2010) argues that noticing only is not enough for language learning, learners should proceed to the next step which is understanding the noticed language and that involves metalinguistic knowledge.

Since explicit learning of L2 gains considerable theoretical support, it is possible to predict that explicit feedback may also play an important role in L2 learning. Bitchener and Knoch (2009) highlight that explicit feedback has four main benefits: it reduces confusion among learners, it provides useful information to learners making it easier for them to resolve more complex errors, it provides more information on hypotheses and it is immediate. However, Lee (2003) warns that teachers might misinterpret the meaning that learners want to express and thus may provide unnecessary words/phrases to learners as explicit feedback.

Several SLA researchers highlight that adult learners prefer receiving corrective feedback (Ayoun, 2001; Carroll & Swain, 1993; Carroll, Swain & Roberge, 1992; Mackey & Philp, 1998). For example, Carroll et al. (1990, 1992 as cited in Carroll & Swain, 1993) explain that explicit feedback could help adult second language learners to learn individual words. Hulstijn (2002, p. 206) points out that explicit learning inculcates “explicit verbalizable metalinguistic knowledge” and it thus involves in concept formation and concept linking. However, Hulstijn also points out that explicit learning is more suitable for adult learners.

The students that I teach are of eighteen to twenty-two years old university students who read for their bachelor’s degrees in English medium. They learn English as a second language apart from learning other subjects in English. When teaching these adult students, I have noticed that

they expect the teacher to ‘teach grammar’. By ‘grammar’ they mean that they need explicit explanations of the target structures. Moreover, when receiving feedback, they expect the teacher to explain why an error is an error and the correct answer. Radecki and Swales’ (1988) and Lee’s (2005) studies also indicate that usually L2 learners prefer explicit feedback. Since literature also suggests that explicit feedback is suitable for adult L2 learners, my students’ preference of feedback type goes hand in hand with the type of feedback suitable for them.

3.2 Empirical evidence

It is also important to analyze the results of empirical studies to understand what type of feedback is more beneficial to second language learners. As mentioned earlier, use of the term ‘explicit feedback’ in empirical studies is debatable to a certain extent. There are several studies which use metalinguistic feedback along i.e. metalinguistic cues in the form of instructions, comments or questions without explicitly indicating to the learner that an error has been committed or giving the correct form, as ‘explicit feedback’ and there are some other studies that use explicit correction and/or metalinguistic feedback with an overt indication of the error and the correct form as ‘explicit feedback’. This section of the paper discusses the findings of both types of empirical studies.

Ellis, Loewen, and Erlam (2006) compared metalinguistic feedback (without overt indication of the error) with recasts (implicit feedback) and they found that the group who received metalinguistic feedback increased explicit and implicit knowledge of target language rather than the recast group. An example of the metalinguistic feedback provided, “Learner: He kiss her, Researcher: Kiss – you need past tense, Learner: He kissed” (p. 353) highlights that there is no explicit indication that the language produced is erroneous nor the correct form is given. Fawbush (2010) who also used a similar design in his study reports that metalinguistic feedback has more impact on the post task performance than the implicit feedback. Zorhabi and Eshani (2014) used one implicit feedback and one explicit feedback group in their study and the implicit group received corrective feedback by means of the researcher underlining the error and the explicit group received the correct forms apart from the researcher underlining the incorrect form. Zorhabi and Eshani report that both groups demonstrated an improvement in the post task; however, explicit group

outperformed the implicit group. Campillo (2003) in a study that had two L2 groups: one receiving metalinguistic feedback similar to the metalinguistic feedback that Ellis, Loewen, and Erlam (2006) used and the other receiving repetition of error and recasts (implicit), identified that the latter group performed better than the former in the post-test.

Three studies out of four discussed above report that 'explicit feedback' is more beneficial for language development than the implicit feedback and only Campillo reports otherwise. However, it is possible to question the methodology that they have applied in providing explicit feedback since the learners were not overtly informed of the errors that they committed on any of these occasions. One may argue that the intonation or stress of the word 'Kiss' in the example given by Ellis, Loewen, and Erlam (2006) may indicate that it is erroneous; however, how explicit the indication is questionable. There is a possibility that learners may understand that the stress indicates an error, but some may not. For example, Sinhala is a phonetic language and thus it is difficult for most of my students who are L1 Sinhala speakers to understand stress and intonation in English. Thus, they may not understand the stress variation in the previous example of metalinguistic feedback. Due to such reasons, it is questionable whether the findings of these studies clearly indicate the effectiveness of explicit feedback.

However, there are number of studies which have used explicit correction or metalinguistic feedback with an explicit indication of the errors committed as explicit feedback methods. In an early study Carroll and Swain (1993) compared explicit correction with implicit feedback (modeling the answer) and found out that the explicit group performed better than the implicit group in the post-test. In a study by Falhasiri et al (2011), the students who received explicit feedback on their written language production were informed of their errors and they received metalinguistic explanations with the correct form. The implicit group received only the correct form without an indication of the errors or metalinguistic explanation. This study highlights that the former group was able to reduce the number of errors than the latter group in the post production task. Dabaghi (2008) and Varnosfadrani and Basturkmen (2009) used recasts and explicit feedback (providing the correct form with an indication of the error along with metalinguistic explanation) in their studies and the results indicate that explicit group gained higher scores in the post task than the implicit group.

Khoshshima and Farid (2011) used two groups: one received explicit feedback that clearly indicated the error, location and metalinguistic explanation of the violation of rules and the other received implicit feedback by means of just informing the location where the error has occurred. The results indicate that the explicit group could improve the written accuracy than the implicit group. Yilmaz (2012) conducted an investigatory study on the effects of negative feedback types and she identifies explicit correction and recast as the two prominent negative feedback types. The results of this study indicate that there are clear benefits of explicit correction over recasts. In another study Yilmaz (2013) compared explicit only (explicit correction), implicit only (recasts) and a mixture of explicit and implicit (explicit correction on the first two occasions when the errors occurred and recasts when the same errors occurred later) feedback types and has identified that explicit only and the mixed group outperformed the implicit group. Sheen (2004) who compares four communicative classroom settings in Canada, New Zealand and South Korea also points out that the average uptake rate of explicit feedback (explicit correction and metalinguistic feedback) is higher than the average uptake rate of implicit (recasts) feedback.

The analysis of this group of empirical studies highlights that there is a clear indication of the usefulness of explicit feedback over implicit feedback in L2 learning. Moreover, if the previous group of studies that have not used metalinguistic feedback without an overt indication of the errors is also taken into consideration, it is evident that metalinguistic feedback plays an important role as a corrective feedback type in SLA. Participants in all the studies discussed above are second language learners of English; therefore, based on these empirical evidence, it is possible to predict that learners in my classes may benefit more from explicit feedback than implicit feedback.

All studies except one have used adults aged between 17 and 28 as the participants (Campillo, 2003; Carroll & Swain, 1993; Dabaghi, 2008; Ellis, Loewen & Erlam, 2006; Falhasiri et al, 2011; Khoshshima & Farid, 2011; Sheen, 2004; Varnosfadrani and Basturkmen, 2009; Yilmaz 2012, 2013 and Zorhabi & Eshani, 2014). Fawbush's (2010) participants are between the ages of 12 to 13. Dabaghi (2008), Falhasiri et al (2011), Campillo (2003), Khoshshima and Farid (2011) and Yilmaz (2012, 2013) have used university undergraduates as the participants of their studies. Both the age and the context of the participants of these empirical studies are similar to my context;

therefore, there is a high possibility that the results of these studies are applicable to my context.

The participants of these studies belong to different levels of English language proficiency: beginner (Fawbush, 2010), lower intermediate (Campillo, 2003; Carroll & Swain, 1993; Ellis, Loewen & Erlam, 2006; Falhasiri et al, 2011; Khoshshima & Farid, 2011 and Zorhabi & Eshani, 2014), intermediate (Dabaghi, 2008 and Varnosfadrani and Basturkmen, 2009) and a combination of beginner to intermediate (Yilmaz, 2012, 2013). The students that I teach belong to lower intermediate to upper intermediate levels of proficiency. Moreover, the target features that these empirical studies have used are relevant to the language forms that I have to teach. For example, structures such as past tense -ed (Ellis, Loewen & Erlam, 2006 and Fawbush, 2010), articles (Campillo, 2003; Khoshshima & Farid, 2011; Yilmaz 2012, 2013), subject-verb agreement (Khoshshima & Farid, 2011), present and past simple tense (Zorhabi & Eshani, 2014) and English dative alternative (Carroll & Swain, 1993) are taught very often in my classes and thus the empirical research findings that have been discussed in this paper are applicable to my context.

Apart from the main findings of these studies, there are several other aspects highlighted in them which are useful for me as a language teacher. Khoshshima and Farid (2011) have identified that explicit feedback assists more with the development of early language features and the implicit feedback is more suitable to develop late features. Early language features are identified as the language structures that learners acquire at an early stage of language learning and the late structures are the features that they develop later in the language learning process. Varnosfadrani and Basturkmen's (2009) study showed that the explicit group could improve the written accuracy than the implicit group which is a short-term improvement. The delayed post-test indicates that the benefits of both types of feedback in the long run may be minimal. Ferris and Roberts (2001) and Ferris and Helt (2000) are also of the same opinion that indirect feedback is more effective in the long run. Havranek (2002) points out that giving students another opportunity to produce the language components which had been composed with errors before the explicit corrective feedback and rechecking whether the students produces the correct form can accurately improve the selected students' knowledge of the discussed language component. These additional findings indicate that explicit feedback may be more useful for learners who are in the lower proficiency levels. Explicit feedback also

has its own drawbacks and language teachers should be aware of them when applying explicit feedback methods in L2 teaching.

IV. CONCLUSION

The discussion of explicit and implicit feedback as corrective feedback methods still leaves questions with the classification of feedback types as 'explicit' and 'implicit'. Some researchers use explicit correction as explicit feedback and some others consider metalinguistic feedback also as an explicit feedback method. The discussion of research findings indicates that explicit feedback has an edge over implicit feedback based on the benefits that they bring to second language learners. SLA theories also strengthen the argument that explicit feedback is more effective. The empirical studies highlight that metalinguistic feedback even without an explicit element is more useful than implicit methods such as recasts.

Since most of my students are undergraduates with a background of learning English language for almost twelve to thirteen years at primary and secondary school, they are mostly aware of the metalinguistic terms and thus this context opens the possibility of giving more explicit metalinguistic feedback. Moreover, the opportunities for me to interact with the students are higher since two to three hours are allocated for each lesson giving sufficient time to focus on metalinguistic explanations when necessary. By considering the research findings, the preference of my students and theoretical explanations on explicit and implicit feedback, it is possible to conclude that explicit feedback as a corrective feedback method may be more suitable for my teaching context.

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THE NEED FOR INSIDER PERSPECTIVE IN LANGUAGE CODIFICATION; A STUDY IN RELATION TO SRI LANKAN ENGLISH CODIFICATION

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Abstract- Defined as the “language used by Sri Lankans who choose to use English for whatever purpose in Sri Lanka (Gunesekera, 2005, p. 11), Sri Lankan English (SLE) is gradually accepted as a newly institutionalized variety of English, with its unique phonological, morphological lexical, and syntactic features. SLE vocabulary has been identified as one of the most prominent features of Sri Lankan English's unique linguistic identity (Gunesekera, 2005; Meyler, 2007). Among the limited number of efforts in codification of SLE vocabulary, Michael Meyler's ‘A Dictionary of Sri Lankan English’ could be considered the most elaborate. Although the publication of the book is one of the most important milestones in the field of SLE vocabulary studies, certain drawbacks were identified, including the lack of nuanced understanding of the socio-linguistic circumstances of the language on the part of the codifier and the seemingly biased data collection method which seem to exclude the lexical usages of other less prestigious varieties of SLE. Therefore, the research gap is identified to be the lack of an insider perspective on the codified vocabulary of SLE, where an insider who speaks English as their second language and/or bilingual in English and Tamil or Sinhala could utilize his/her nuanced socio-linguistic understanding of first and second language varieties (Sinhala and Tamil) to provide affirmation of the authenticity and accuracy of codified vocabulary of Sri Lankan English. Thus, the present study applies the theories of positionality and reflexivity in providing a detailed reflexive analysis of the lexical items included in Meyler's dictionary, in order to provide a subjective analysis of codified lexical items in the dictionary. The researcher will investigate to what extent the codifier has done justice to the meaning of a lexical item, accuracy of the meaning and recorded

usages, possible alterations to the meaning, socio-cultural nuances associated with the lexical items, alternative usages and also the ability of the lexical item to show the language of other speech communities with less power and prestige.

Keywords- Sri Lankan English, Insider Perspective, ‘A Dictionary of SLE’, Language Codification

I. INTRODUCTION

Apart from the broad division of SLE into standard and non-standard Sri Lankan English, there are many other SLE varieties defined by race and ethnic group, religion, age and the social status of the speaker. According to Meyler (2007),

“within the relatively tiny speech community, there are several sub-varieties of Sri Lankan English. Sinhalese, Muslims, burghers speak different varieties; Christians, Buddhists, Hindus, and Muslims have their own vocabulary; the older generation speak a different language from the younger generation; and the wealthy Colombo elite (who tend to speak English as their first language) speak a different variety from the wider community (who are more likely to learn it as a second language) (Meyler, 2007, p. ix).

His viewpoint highlights how the linguistic circumstances of SLE cannot be viewed or analysed in binary terms since there are numerous factors contributing to the existence of language varieties

other than the mere standard and the non-standard. Identifying subvarieties of SLE, which are termed “standard Sri Lankan English, Lankan English, Singlish, Tamil, and Sineglish” (Meyler, 2007), Meyler argues that the “Sri Lankan variety of English should be validated alongside other more established varieties” (Meyler, 2007).

However, the existence of different varieties/regional dialects/social dialects complicates any attempt at establishing a unique national linguistic identity since it could raise questions of acceptance, power, discrimination as well as the danger of overgeneralizing which could result in misrepresentation. Thus, necessary attempts should be made to expand the boundaries of the accepted standard to include greater variety which contributes to the construction of a unique national linguistic identity. However, the expansion and shifting of the prescribed boundaries of the norm would be futile without the political and social acceptance which grants them the linguistic power and authority to represent the linguistic identity of a speech community. Thus, language codification in terms of producing dictionaries and grammar books plays a vital role in establishing political and social acceptance.

Even though the role of dictionaries in the process of language codification was discussed previously, the codification processes of non-native English varieties should be elaborated given the current research context. Unlike codification attempts at native English varieties, many obstacles are faced in codifying Asian Englishes or, essentially any English variety in the Expanding and the Outer circles (Kachru, 1982) especially Asian Englishes.

According to Jenkins (2009) these obstacles include the non-recognition of nativized or indigenized varieties of Englishes of the Outer Circle as “legitimate L2 varieties of English” (2009) by the Inner Circle and debunking them as interlanguages rather than languages which “contain unique linguistic features and forms which defy the norm of Standard Native English” (p. 234). Another major challenge faced by Asian English codifiers is the conflict between “centripetal forces pulling them inwards towards local needs and centrifugal forces pushing them outwards towards international intelligibility and acceptability” (Jenkins, 2009, p. 32). A codified Asian English will need to perform the function required by its intranational community, who expect the national language to reflect their unique national identity, with

necessary considerations given to make it intelligible and acceptable to English speakers, who might or might not be native English speakers. This matter essentially marks one of the key expectations from a successful codifier where they are expected to strike a balance between authentic representation and acceptability.

In spite of the evident hardships faced in codifying institutionalized varieties of New Englishes in the Expanding and Outer circles, many attempts have been made to achieve this goal. Many outer and Expanding circle countries have documented and attempted codifying through lexical lists, small glossaries and dictionaries including Singapore English (Deterding, 2007), Hong Kong English (Setter, Wong, & Chan, 2010), Ghanaianisms (Dako, 2011), Gambian English (Augustin, Peter, & Wolf, 2003), and Fiji English (Tent, 2011). These New Englishes have been subjected to at least one successful attempt at codification resulting in the increasing acceptability of them in the global context as accepted varieties of Institutionalized New English varieties.

An identical scenario can be observed in relation to codification of SLE within the Sri Lankan speech community. SLE has been defined as the “language used by Sri Lankans who choose to use English for whatever purpose in Sri Lanka” (Gunesekera, 2005, P. 11), highlighting the ability of Sri Lankans to declare a national identity through the existence of a unique language variety. Meyler believes in the same ideological standpoint from which he promotes the “acceptance of SLE as one of the many established varieties of English” (Meyler, 2007, p. ix). The identity of SLE as an independent language is confirmed by the fact that there are “native speakers” of Sri Lankan English (Gunesekera, 2005 p. 23).

Given that “within the relatively tiny speech community, there are several sub-varieties of SLE (Meyler, 2007, p. ix), the codifiers of SLE face similar challenges as other language codifiers of Expanding and Outer circle countries. This could perhaps explain why only two attempts have been made so far in codifying SLE, namely; by Gunesekera (2005) and Meyler (2007). In addition to the many phonological and syntactical features of SLE, Gunesekera (2005), has recorded 576 entries of SLE words. Meyler in his study has recorded approximately 2500 examples of SLE words, which “are characteristic of the English spoken in Sri Lanka” (Meyler, 2007). The present study takes “*A Dictionary of SLE*” (2007) by

Meyler as the primary source and assesses the validity of its representation of SLE.

Meyler’s dictionary, which attempts to “introduce uniformity and accuracy to the multi-cultural vocabulary of Sri Lankan English” (Meyler, 2007, p. viii), is one of the most important documentations in codifying SLE as a unique independent variety of English. Underlining the existence of several subvarieties of SLE that differ according to extra-linguistic characteristics of the speaker, and highlighting his belief in expanding the boundaries of the standard to include maximum variety, Meyler (2007) points out how “all users shape the language, bringing into it Sri Lankan habits, customs, expressions, interests and experience” (p. ix). Although he refuses to identify the lexical items he included in the dictionary as belonging to standard Sri Lankan English, the dominant language hegemony appears to have forced him to accept the existence of such a distinction. He highlights how “merely by deciding to include a particular word, the compiler is inevitably bestowing it with a seal of acceptability” (Meyler, 2007, p. v) which inevitably leads the readers to perceive the codified lexical items to be the standard.

This dilemma of what to and what not to include has been one of the inevitable questions of language codification. In discussing the process, he followed in the creation of the dictionary, Meyler states that lexical entries are included “on the grounds that it is a feature of the English spoken by Sri Lankan speakers of English, and that it differs in some way from current ‘Standard’ British English. It does not include those features which are better defined as common errors made by learners of the language” (Meyler, 2007). Tony Thorne in “*Dictionary of Contemporary Slang*” (2007) expresses a similar viewpoint which underlines the role of codifier who has to make subjective decisions regarding the entries to be included in the dictionary.

Although this role of the codifier is essential in the codification process for inevitable practical reasons, in the case of *A Dictionary of SLE* (2007), it could become one of the drawbacks of the compilation given that the author or the codifier position as an outsider to the Sri Lankan community. The dictionary provides what Meyler himself recognizes as an “outsider’s perspective” (Meyler, 2007, p. ix) of SLE. He acknowledges the engagement of Dinali Fernando and Vivimarie Vanderpoorten as “editors” in the codification process (Meyler, 2007, p. xxxii), who could have provided an insider perspective to the codification process. However, their engagement in the

codification process is assumed to be minimalistic, where he underlines how “to a larger extent, the compilation of this dictionary has been a “one-man show” (Meyler, 2007, p. xxxii). Therefore, the prominent decisions regarding the codifications processes are assumed to be made by Meyler. In this context, Meyler’s lack of nuanced understanding of SLE lexical usages and their literal and metaphorical meanings integrated with cultural and social nuances could result in controversies where Sri Lankan native speakers who are bilingual or multilingual might not accept or acknowledge the accuracy of the entries.

Majority of the data collected for the dictionary were taken from thirty published Sri Lankan books which represented a range of contemporary Sri Lankan writing. However, given that the “authors are either Sri Lankan or of Sri Lankan origin living abroad” (Meyler, 2007, p. xiii), one could easily question the lack of representation of the non-elite Sri Lankan language varieties. Further, certain vocabulary and syntactic usages recorded by Meyler are, at present considered outdated and are no longer in use, emphasizing the need for updated research on linguistic characteristics of SLE. Even Meyler himself has pointed out the need for a documentation of the rapid changes in the field of Sri Lankan English vocabulary. However, at present, given that the discussion on New Englishes are shifting towards the expansion of the standard to include greater diversity and variety, research has to be conducted to underline and question the accurate and authentic representation of the “English spoken in Sri Lanka” (Meyler, 2007), in terms of vocabulary. The research gap has been identified as the lack of “insider perspective” on SLE vocabulary in determining the authenticity and accuracy in linguistic representation of codified SLE vocabulary with specific attention to social, cultural and linguistic implications of SLE lexicon.

Thus, the present study applies the theories of positionality and reflexivity in providing a detailed reflexive analysis of the lexical items included in Meyler’s dictionary, in order to provide a subjective analysis of codified lexical items in the dictionary. The researcher, whose mother tongue is Sinhala, situates herself outside the conventional westernized Colombo urban English speaking elite and recognizes herself as a member of the new generation of educated bilingual SLE speakers. The researcher’s main concern would be to provide a nuanced understanding of the lexical items by utilizing socio-political, linguistic and cultural experiences encountered as a speaker familiar with L1 varieties in Sri Lanka, thus providing an

insiders perspective on codified vocabulary of SLE. The researcher will respond to lexical items as a culturally, socially, economically and linguistically rooted speaker of Sri Lankan English, and will investigate to what extent the codifier has done justice to the meaning of a lexical item, accuracy of the meaning and recorded usages, possible alterations to the meaning, socio-cultural nuances associated with the lexical items, alternative usages and also the ability of the lexical item to represent not only the language of the educated elite but also the language of other speech communities with less power and prestige.

Thus, the research questions are as follows.

- According to the subjective analysis of the insider, has the codifier done justice in providing meaning to lexical entries? Are the codified meanings and recorded usage accurate? Are there possible alterations to the meaning and alternative usages? Is the insider able to provide a more nuanced understanding of the lexical entry as a socially, politically, economically and linguistically situated researcher?
- Are the codified lexical items in A Dictionary of SLE capable of representing not only the linguistic circumstances of the educated elite but also other linguistic communities with similar unique linguistic features?

II. METHODOLOGY

I have chosen the study area of codified vocabulary of SLE recorded in *A Dictionary of SLE* (2007) and attempt to offer a comparative analysis of insider and outsider perspectives. Therefore, the primary data source of the research will be *A Dictionary of SLE* (2007) by Meyler, where the codifier offers an “outsider perspective” (Meyler, 2007) to the “English spoken in Sri Lanka” (Meyler, 2007). The outsider perspective of Meyler limits his codification attempt where he is comparatively unfamiliar with the social, cultural, and linguistic aspects of the Sri Lankan speech community. My belief is that, as a politically, socially, economically and linguistically situated researcher, I will be able to provide a more subjective yet nuanced understanding of the codified lexical items, providing a more elaborate analysis of the codified lexical items.

Given that I aim to provide a subjective analysis of the codified vocabulary of SLE as a socially, politically, economically and ethnically situated individual, it is evident that, a qualitative research methodology is appropriate in the given research context. As Rossman and Rallis (1998) have noted, “there are few truths that constitute universal knowledge; rather, there are multiple perspectives about the world” (p. 29), which underscore the necessity of exploring multiple perspectives, which in the current research context is the comparative analysis of insider and outsider perspectives on the codified vocabulary of Sri Lankan English. Therefore, textual analysis, a qualitative methodology, is utilized in conducting the research where *A Dictionary of SLE* (Meyler, 2007) is recognized as the primary text of analysis.

Theoretical methodologies of reflexivity and positionality are used in the research to conduct the textual analysis. Reflexivity and positionality are primarily considered to be feminist methodologies where critical reflections of a socially, politically, economically and linguistically situated researcher can be “transformed into a self-conscious, effective, and ethically sound practice” (Kearns, 2005, p. 192) in research. More than methods or methodologies, critical reflexivity and positionality are considered as “epistemological approaches” (Correia, 2012) for conducting research, producing situated knowledge about the world. However, the validity of these approaches as a theoretical basis has also been discussed by numerous critics including Merrifield (1995).

Although the available literature makes evident the significance of reflexivity and positionality as an integral part of the research process, Positivist paradigm “resisted the relinquishment of the idea of the researcher’s objectivity on the grounds that it resulted in bias” (Wickramasinghe, 2008). “It was feared that researchers’ would misuse reflexivity to provide false accounts of researching which would then become legitimized through the writing process” (Wickramasinghe, 2008, p.88). Wickramasinghe questions the concepts of impartiality and honesty which are commonly embraced as “the privileges of Positivist research” (Wickramasinghe, 2008) by revealing the “objectivity of the researcher as incorporating some degree of bias as well as being a form of bias.” (p.89). These arguments validate the legitimacy of subjective research and reflexive research methodologies.

III. DISCUSSION

Purposive and random sampling methods were used in selecting the lexical items to be analysed, from which fifty lexical items were selected for extensive analysis. For reasons of brevity, only twenty lexical items are included in the discussion, which, according to my subjective analysis are the most prominent lexical items that offer significant insights into the discussion. The discussion consists of three separate segments in accordance with the questions I attempt to answer (aforementioned) regarding each lexical entry. The three segments are namely;

- Instances of erroneous definitions
- Instances of ‘elitism’ or of biased representation of linguistic features of the elite as being the standard.
- Instances of overlooked socio-cultural nuances and alternate meanings and usages.

1. Instances of Erroneous Definitions

This section identifies the instances where I have noted inaccurate, misconstrued or incomplete information provided by the codifier in the codification process. The inaccuracy of a definition is determined from my subjective standpoint where I utilize the cultural social and linguistic knowledge I possess as an insider of the Sri Lankan speech community in providing a subjective critical analysis of the lexical entries.

1.1 *gudu*

“A game played with Sticks; also *chakgudu* (Sinhala)” (Meyler, 2007, p.105).

As documented by the codifier, *gudu* is a term associated with the gaming traditions in Sri Lanka, where *gudu* is one of the ancient games played by Sri Lankans. However, the term can be identified as one of the instances where the codifier has inaccurately defined a Sri Lankan lexical item. Though it is correct to say that *gudu* is a game played with sticks, it is inaccurate to assume *gudu* and *chakgudu* to be the same game.

chakgudu is a game similar to Kabaddi famous in India, where the participants are separated into two groups and each team tries to hit or touch a player of the opposite team without

getting caught. The game is associated with the rural Sri Lankan village life though the game is popularized as Kabaddi in the urban areas.

Further, the codifier has failed to identify the socio-cultural implications of both *gudu* and *chakgudu* games where the games are considered two of the oldest traditional Sri Lankan Sinhalese games, mostly played in rural areas especially during the Sinhala and Hindu New Year season. However, these traditions have been dying and the game is scarcely played by Sri Lankans even in rural village areas. Nevertheless, the game represents the gaming traditions associated with Sri Lankan traditional rural lifestyle and thus the term remains a metaphoric representation of the traditional Sinhala culture.

It appears that the word *chakgudu* or *gudu* has been romanticized by the Colombo urban elite where it is exploited by the anglicized urban English speakers in an endeavor to project a persona of a traditional Sri Lankan through their choice of vocabulary. Given that *gudu* and *chakgudu* are associated with rural Sri Lankan lifestyle, they are transferred into SLE as borrowings to represent a cultural identity which cannot be projected through Standard British English in its “pure” (Fernando, 2010) form. These lexical entries are utilized by the westernized elite in exoticizing their anglicized identity, which simultaneously highlights their assumed traditional Sri Lankan identity and their higher social status.

These social, cultural and linguistic undertones of such lexical items are better captured through the perspective of an insider to the Sri Lankan speech community, who is familiarized with the Sri Lankan culture and the indigenous language varieties which has a significant impact on SLE..

1.2 *border villages*.

“Front line Sinhala villages bordering traditional Tamil areas in the Northern, Eastern and North-central provinces” (Meyler, 2007, p.33)

In the documentation of the term *border villages*, the codifier has completely overlooked the defining social and cultural implications of

the term, making his definition incomplete and more or less incorrect. Though the term border villages is used to identify “Sinhala villages bordering traditional Tamil areas” (Meyler, 2007), the reasons for the existence of such a term needs clarification in order to make the definition more accurate.

Border villages is a term associated with the three decade-long civil war between the Sri Lankan government and the Liberation Tigers of Tamil Eelam (the LTTE, also known as the Tamil Tigers) who fought to create an independent Tamil state called Tamil Eelam in the North and the East of the island. During the period of the war, Tamil Tigers held the power in the Northern, Eastern and North-central provinces. *Border villages* were Sinhala and Tamil villages that lay along the borders between areas under government and LTTE rule. These border villages were frequently targeted by LTTE troupes and were often bombed or invaded resulting in the deaths of numerous civilians. With the defeat of the LTTE by the Sri Lankan government, the term has since lost relevance in the Sri Lankan context. Yet it is still used in war specific contexts in reminiscing the aftermath of the war.

Though the literal meaning of the word, which is *bordering villages* of a specific region, is easily understandable, without specific knowledge about social nuances, the significance of the term in relation to its meaning in a specific speech community is incomprehensible. Incomplete understanding of such social nuances, especially within a community which was traumatized by the cruelty of a civil war, could result in unintentional miscommunication with serious repercussions. Thus, an insider to a specific community is best suited to provide clarification on terms with such elaborate and complex cultural nuances contributing to its meaning.

1.3 *elle*

“A popular game similar to rounders or baseball; the national sport of Sri Lanka. (Sinhala)” (Meyler, 2007, p.85)

Elle is a popular outdoor game played mostly by the youth of Sri Lanka. As illustrated in the diagram in *A Dictionary of SLE*, the game is played with a bat or a stick and a ball, and the game is played by two groups of competitors, similar to baseball.

Although *elle* is highly popular among Sri Lankans, it is inaccurate to assume it is the national sport of Sri Lanka. The National sport of Sri Lanka is volleyball and this is another instance where the codifier has inaccurately provided information in his dictionary regarding an aspect of Sri Lankan culture. Furthermore, given that information on the national sport of Sri Lanka is easy to discover, this technical mistake is profoundly noticed.

2. Instances of ‘Elitism’ or Biased Representation of Linguistic Features of the Elite as being the Standard

This section identifies instances where the codifier has documented the vocabulary which is characteristic of the conventional anglicized Colombo urban English-speaking elite, showing a bias towards the ‘elitist’ language hegemony. Given that the codification process is ideally expected to expand the standard through the inclusion of linguistic, socio-cultural aspects of the less prestige language varieties of a language variety, I have noted the certain lexical items which are only representative of the socio-cultural aspects of the westernized urban elite minority. Through the lack of representation of the majority SLE speakers and the standardization of the language used by a minority elite as the norm through the codification process, Meyler perhaps unwittingly, is assisting the continuance of the elite hegemony which grant them political power and authority within the Sri Lankan speech community. However, this attempt should not be regarded as an effort to negate the author’s attempt as insignificant given that all entries represent unique facets of SLE features used by variety of speakers. I have identified these lexical items and have suggested the alternate lexical entries used by the majority of SLE speakers, in an effort to codify SLE used by the average non-elite majority of SLE speakers.

2.1 *churuchurufy*

“(coll) drizzle (Sinhala): also whimper (of babies)” (Meyler, 2007, p.55)

The term *churuchurufy* can be considered as a blended stem; a type of borrowing where “inflectional suffixes and stems from two different languages are blended in a new variety” (Haugen, 1972 as cited in Fernando, 2002, p.173). The suffix -fy is blended or suffixed (Gunsekera, 2005) with the word *churuchuru*, which is a “borrowing from an indigenous language” (Gunsekera, 2005), to create the term *churuchurufy*. As documented by Meyler, the term is used in colloquial contexts for drizzling and the whimper of an individual, specially of a baby.

Although the term is in use as a part of SLE vocabulary, as a member of the newly educated non-elite bilingual SLE speaker of the new generation, it was observed that the term is rarely used among the new generation of SLE speakers. Instead of using it as a direct borrowing or a loan word, the term is overly adapted to Sri Lankan English, where the term appears incongruous and incompatible for regular language use. Further, the term remains unknown to most SLE speakers located outside Colombo and other urban areas or more generally by the majority of SLE speakers who do not study or explore features of SLE extensively and therefore have limited opportunity of familiarizing with such terms. The use of the term in colloquial contexts even among close associates seems abnormal or peculiar, given the term remains mostly unknown by many SLE speakers.

The use of the term can be considered a social marker where the speaker is immediately associated with higher social status and high language proficiency. The term is known and used mostly by the most proficient English speakers of the Colombo elite community, given that less proficient SLE speakers are less likely to use the term in colloquial situations. The need will rarely arise for a regular SLE speaker who does not use English for colloquial purposes, to use this term in a colloquial situation.

According to Stubbs (2002) “when words are borrowed into a language, they may become assimilated or integrated into the new language. [However,] the lack of assimilation

(in pronunciation, spelling or word structure) can... be used ...to connote “foreignness” (p.35). The incongruity observed in the use of the word *churuchurufy* can be identified as a manifestation of the said “foreignness”, which hinders intelligibility and create miscommunication. However, Stubbs (2002) further highlights how “loans [...] are often used to signal exoticness” (p.19). This is evidently the case with speakers who use terms such as *churuchurufy* to display their Sri Lankanness through their overly Sri Lankanized English language. Therefore, the term *churuchurufy* (among many) has become a linguistic fashion statement through which they assert their Sri Lankan identity.

Furthermore, from a perspective of an insider to the Sri Lankan speech community, the term has other alternate usages apart from the documented usages by the Meyler. In Sinhala language, the word *churuchuru* is used to mean whining, constant complaining, and unenthusiastic or boring speech. It is evident that the word *churuchurufy* is adapted to SLE with the intention of providing a synonymous meaning.

Eg: He is *churuchurufying* all the time! I can sleep while listening to him!

The term in this particular situation is used with a negative connotation, where the word essentially conveys the unenthusiastic and boring nature of the speaker.

Given that the term *churuchurufying* is strictly restricted to informal contexts, many SLE speakers have resolved to using the complete Sinhala expression “*churuchuru ganawa*” instead of the blended stem with the intention of increasing effective communication across different demographics of SLE speakers with drastically different English proficiency levels.

Eg: He is *churuchuru ganawa* all the time! I’m so fed up.

This unique linguistic development highlights the objective of the new generation of SLE speakers which is the “communicative competence” in language usage where “its main focus is the intuitive grasp of social and cultural rules and meanings that are carried

by any utterance” (Spencer-Oatey, 2008). An insider with extensive knowledge in such cultural social nuances are best equipped to reflect on such linguistic developments for improving effective communication.

2.2 *pattafy*

“(=hack) (coll.) ruin, wear out (clothes etc.) (From Sinhala)” (Meyler, 2007, p. 195)

The term *pattafy* is a blended stem adapted from the term “*patta gahanawa*” literary meaning wears out or ruin in Sinhala. The blended stem is produced by combining the Sinhala stem “*patta*” with the English suffix -fy which is commonly used in adopting Sinhala nouns into SLE as verbs. The term *patta* is a commonly used colloquial adjective among Sri Lankan youth where it means awesome or wonderful. The adjective is used on anything or anyone the speaker considers to be remarkable and wonderful.

Eg: He is a *patta* fellow men! If I were a girl I would marry him!

That was a *patta* lecture.

The term is used in extremely colloquial situations and the use of the term in any other situation would attract the criticism of the audience, especially of adults. The term is further adopted as *pattai* and it can be used without a noun.

Eg: wow! *pattai* ah! You’re boss man!

The song was *pattai* men!

Both these adaptations of the term remain confined to extreme colloquial situations among the youth of Sri Lanka. Nevertheless, the term remains part of SLE vocabulary given the great number of users of the term in Sri Lanka.

Terms such as *kendirify*, *kunukunufy*, *pattafy* ect are examples of the manner in which the westernized urban Colombo SLE speakers adapt Sinhala terms into SLE as a way of displaying their traditional Sri Lankan roots. Highly westernized SLE speakers consider bilingualism as a way of highlighting their Sri Lankanness. Thus, terms such as *pattafi*, become linguistic fashion statements that

ensure their acceptability as genuine traditional bilingual SLE speakers.

The adaptation of terms from L1 language varieties into SLE is done with the practical intention of ensuring effective communication by improving intelligibility between SLE speakers. The rationale behind this is that the speakers will be more familiar with indigenous terms rather than loan translations or an alternate Standard British or American term. Therefore, words such as *pattafy* seems an over adaptation that is excessive and fruitless.

The term is mostly used by the westernized Colombo urban crowd in colloquial contexts. Other SLE speakers who communicate in SLE with individuals from drastically different social background have maintained that the use of loan words from L1 varieties should be done primarily to improve communication between the speakers. It is ironic that rather than the SLE term *pattafy*, the standard British terms wear out or ruin make more sense to an average SLE speaker, who are not likely to be familiar with such exaggeratedly adapted words. Therefore, the new generation of educated bilingual Sri Lankan speakers recognizes the importance of language clarity in communication and does not advocate the use of terms which are overly adapted into SLE for the sake of displaying an exotic Sri Lankan identity which hinders effective communication across different social strata.

2.3 *ajoutha*

“A type of card game (Sinhala from Portuguese)” (Meyler, 2007, p.4)

This particular loan word is a direct borrowing from Sinhala language for which the codifier has provided an accurate and conventionally accepted definition. The word is used less commonly for the above-mentioned purpose, and therefore could be identified as a dated entry in Sri Lankan English. However, given that the card game is popular among individuals belonging to the older generation, it has become a part of the SLE vocabulary.

Though the codifier has identified the traditional meaning associated with the term, he has overlooked current usages of the word

across different demographics of the society, specially relating to generation difference. The term has become popular among Sri Lankan youth as an expression of disgust and disappointment towards the quality of a particular item. The word is modified by adding the suffix “ai” where *ajoutha*+ ai becomes “*ajouthai*” in adopting the term to suit the contexts.

Eg: Aiyo! It’s *ajouthai*! Don’t eat that. It tastes like dirt! *ajouthai*!

This usage of the word is not restricted to inanimate objects; it has also been used to express disgust and/or disappointment towards individuals as well. Calling an individual *ajouthai* essentially would connote that a particular person is uninteresting, boring, badly mannered or generally possessing personality traits which are ridiculed or despised by the speaker.

Eg: He is such a vanilla kind of guy. *ajouthai*!

I went out with him once. No manners at all. *ajouthai*!

The use of the term as an expression of disgust or disappointment of the speaker towards an individual or an object is restricted to extremely colloquial contexts. However, given that *ajoutha* is an exceptionally Sinhalese term borrowed into SLE and that “loans ... are often used to signal exoticness” (Stubbs, 2002, p.19), the lexical entry is frequently used as a way of displaying a speaker’s traditional Sri Lankan roots. This can be seen as overcompensation on the part of the extremely westernized, or anglicized traditional Colombo elite, who endeavours to display their lacking Sri Lankanness through linguistic means. Regardless, the term has been accepted as part of the SLE lexicon, and the socio-cultural nuances associated with the use of the term provide an overall understanding of the lexical entry for improved communication.

3. Instances of Overlooked Socio-Cultural Nuances and Alternate Meanings and Usages.

According to my perspective, given the codifier’s position as an outsider to the social, cultural and

linguistic dimensions of Sri Lanka, his ability to capture and reflect on the social cultural and linguistic undertones of a lexical item is problematic. SLE consists of many direct and indirect borrowings adapted from the indigenous L1 language varieties of Sri Lanka. Without comprehensive knowledge and familiarity with the L1 varieties, a codifier will not be able to capture the connotative meaning and the intrinsic values associated with a lexical item, resulting in incomplete or inaccurate representation of the features of Sri Lankan English.

Further, a lexical item’s alternate usages are mostly adapted from its usages in the indigenous language variety. In this context, the codifier’s lack of familiarity with such alternate meanings and usages can again limit the credibility of the codification attempt. In this segment I have noted instances where the socio-cultural undertones of a lexical item or/and the alternate meanings and usages are overlooked by the codifier, based on my subjective evaluation of the lexical item as a socially, culturally, and linguistically situated researcher.

3.1 *baila*

“/*baila* / a popular style of dance music (orig. Portuguese)” (Meyler, 2007, p. 18)

Baila, accurately defined by Meyler as popular dance music, has been a part of Sri Lankan community since the arrival of the Portuguese Colonial powers in 1505. It has been popularized in the Sri Lankan culture due to its frivolous, playful content and the upbeat tempo which is ideal for dancing.

However, apart from the above identified usage, the term has been used synonymously with “nonsense”, alluding to the lack of serious content in *baila* music.

Eg: what *baila* are you talking about? Are you crazy?

Don’t talk *baila* men! This is a serious conversation!

The term is used with a negative connotation; where an angry speaker is dismissing or mocking what someone else said. This alternate usage exists due to the influence from Sinhala L1 variety where the expression “*baila kiyawanawa*” is frequently used. Thus, the word has been adopted from Sinhala into the

vocabulary of Sri Lankan English, essentially as a loanword, where it remains synonymous with its L1 counterpart.

According to Haugen, borrowings or “morphemic importation can occur with no, partial or complete phonemic substitution” (1950 as cited in Fernando, 2012). This definition of loanwords clarifies how the term *baila* is adapted into SLE from Sinhala through complete morphemic importation, without phonemic substitution. According to Fernando, “SLE evolved because the Standard British English variety in its ‘pure’ form was inadequate to reflect the reality of the speakers” (2010), and loanwords are one of the most significant ways in which the unique social, cultural and linguistic aspects of the Sri Lankan community were reflected through language. Thereby an insider who is familiar with the indigenous language varieties as well as English would be capable of understanding the socio-cultural nuances associated with a lexical item more effectively.

3.2 *devil dance*

“A traditional dance, part of a *thovil* performed by masked devil dancers” (Meyler, 2007, p. 74)

The term devil dance is a loan translation from the Sinhala term “yak *natuma*”, which is, as codified by Meyler, “a traditional dance associated with *thovil* or an exorcism ceremony performed by masked devil dancers” (Meyler, 2007, p. 74). Though the codifier has not provided an extensive description of the term including the socio-cultural nuances and traditions associated with the concept of devil dancing, from the examples he has provided, an outsider to Sri Lankan culture could obtain incomplete yet valuable information on the cultural and social significance of devil dancing.

Originated in the Southern province of Sri Lanka, devil dancing is a manner in which devil exorcism rituals are conducted. Devil dancing rituals performed by *devil* dancers are believed to cure sickness and free the souls of individuals whose bodies are possessed by poltergeists or demons. Often the devil dancers offer sacrifices, including animal lives, colourful flowers to demons in curing the *aathuraya* or the sick individual.

Devil dancing ritualistic exorcism ceremonies are associated with rural lifestyle and therefore such ceremonies are gradually becoming obsolete in the present new global age. Even in rural areas these ceremonies have become rare, making devil dancing a mere exemplification of a fragment of once existed traditional Sri Lankan culture. The term is significant given the socio-cultural nuances surrounding the ancient tradition of devil dancing which has become a trademark of Sri Lankan culture to non-Sri Lankans.

Apart from the original meaning, the term has been adopted into informal colloquial use where devil dancing alludes to an individual’s disorderly, inappropriate and unsophisticated behaviour leading to chaotic outcomes. The term is derived from the Sinhala idiom “*yaka natala/ natanawa*” which literary means devil dancing.

Eg: Mrs. Silva’s daughter is *devil dancing* all around the city at night! No wonder she can’t marry her off!

Her little rascals have *devil danced* on the porch! Mud everywhere. You should’ve seen her face! It was hilarious!

The term metaphorically alludes to the chaotic nature seen at a devil dancing exorcism ceremony. The term is mostly confined to colloquial informal conversations and it is used by most SLE speakers irrespective of their social and cultural background. Though the expression would make sense to Sri Lankan bilingual speakers who are familiar with the Sinhala idiom and the socio-cultural nuances associated with it, an outsider to the Sri Lankan community would not be able to do so. Thus, an insider’s perspective on such nuances surrounding a lexical item is invaluable.

3.3 *moosala*

“(coll.) miserable, wretched, desolate, unfortunate, inauspicious; noun *moosalaya* (Sinhala)” (Meyler, 2007, p. 170)

The term is a direct borrowing from Sinhala and the original meaning of the term is similar to what is codified by Meyler, which is miserable wretched, unfortunate and inauspicious. The

term is confined to colloquial informal contexts where the term essentially is derogatory.

Though the codifier has provided the literary meaning of the term, he has ignored the social and cultural nuances surrounding the term, which are associated with Sri Lankan superstitions. Superstitions are not considered as religious beliefs but are rather personal fears turned into collective community fears. Therefore, many circumstances and situations are associated by Sri Lankans as being *moosala*, and to comprehend the meaning of the term better, these cultural nuances should be understood.

The most common kind of superstitions prevailing among the Sinhalese are those which are associated with omens, which they regard as prognostications, of both good and evil. The evil omens are regarded as *moosala* by the Sri Lankan culture. Situations such as, a gecko making chirping or clicking sounds when someone is about to leave the house, seeing a *polkichcha* or a magpie, meeting a married woman who is childless when embarking on a journey, the devil bird’s or Ulama’s cry, and the howling of foxes are some such evil omens.

The term is further adopted as a noun, *moosalaya*, which is used in a derogatory sense to identify a person, where an individual is essentially considered as an evil omen due to their miserable, morose and unpleasant personality. The term is popular among SLE bilingual speakers as a mild curse word strictly confined to colloquial contexts. Here, the word is used as an expression of mild anger and disgust towards an individual.

Eg: Ane here! I don’t want to meet that *moosalaya* early in the morning! I’m leaving!

The noun *moosalaya* is moreover adopted as a feminine noun as *moosalie*, which is used on a woman, whom the speaker considers as an evil omen.

Eg: That *moosalie* ratted me out to the professor!

These terms are extremely derogatory and many Sri Lankans are extremely offended by the use

of such terms, given the community’s belief in superstitions. Therefore, a user of SLE should be fully aware of the social cultural nuances, in order to improve effective communication by possessing a broad understanding of the terms.

3.4 *pirith*

“Buddhist verses chanted during a religious ceremony (Sinhala)” (Meyler, 2007, p. 200)

As identified by the codifier, the term *pirith* represents the influence of Buddhism on Sri Lankan Sinhalese culture. A *pirith* ceremony is a ceremony where “Buddhist verses are chanted” (Meyler, 2007) or recited for good luck and protection from evil.

Many terms are associated with the stem *pirith*, all referring to various aspects of the *pirith* ceremony. *Pirith* deshana is the chanting of *pirith*, *pirith noola*, the white thread blessed at a *pirith* ceremony (Meyler, 2007, p. 200), *pirith wathura*, the water blessed at a *pirith* ceremony, *gihi pirith* (gihi=laymen), the *pirith* chanted by laymen instead of monks, seth *pirith*, the *pirith* chanted for good luck and blessing and *pirith mandapaya*, the decorated stage where the monks are seated when chanting *pirith*. These terms are loan words from Sinhala L1 variety that are related to Buddhism and its ritualistic aspects. Similar to many other religious terms, they are used in their original Sinhala form and sense in SLE to ensure effective communication. This is because terms such as *pirith* has a significant intrinsic value for Sinhalese Buddhists and an alternate loan translation such as Buddhist chanting ceremony would not convey the same meaning in the Sri Lankan culture. The concept of *pirith* is venerated by Buddhists in Sri Lanka and a substitutive English term would not be able to incorporate the social, cultural nuances implied by the original term.

Eg: The beautiful *pirith mandapaya* was decorated with areca nut flowers (*Puwakmal*), Na leaves, and Betel leaves.

Putha, drink some *pirith wathura* for protection before you leave.

Loku Hamuduruwo tied a *pirith noola* on his wrist and blessed him to cure him of his illness.

Given that *pirith* is chanted for protection and good luck, it should be noted that *pirith* is chanted at auspicious occasions such as opening ceremonies, New Year celebrations etc. with the intention of repelling evil forces and asking for blessings from Buddha. Though this cultural aspect was overlooked by the codifier, it is one of the most significant aspects of the meaning the term carries. Knowing only the fundamental meaning of the term *pirith* would not assist a speaker in effective communication with SLE speakers and thus detailed information should be provided on alternate meanings, associated terms and also the socio-cultural nuances related to the term for improved communication. A bilingual insider, who is not only familiar with the Sinhala L1 language variety but also with Buddhism and its ritualistic aspects, can provide a more comprehensive analysis of such terms using the firsthand cultural and religious experiences.

IV. CONCLUSION

Firstly, the study establishes the ability of the insider to comprehend and critically reflect on the socio-cultural, political and linguistic undertones of the SLE lexical items which signify “English spoken in Sri Lanka” (Meyler, 2007). The insider’s familiarity with the Sri Lankan traditional Sinhala culture, religious customs and rituals, indigenous language varieties and the political and social undertones associated with language usage is invaluable in offering insights into the codified lexicon of SLE which is highly influenced by the indigenous cultures. This is evident through the analysis of words including, *baila*, *devil dance*, betel tray, and *pirith*, where the codifier has been privy only to the denotative meaning of the lexical items. This manifests as his lack of familiarity with the Sri Lankan culture and indigenous L1 language varieties which has limited his ability to capture the socio-cultural undertones of the lexical items.

Secondly, the study recognizes the necessity for the codification of the language used by the majority non-elite average SLE speakers. It was evident from the study that codified lexical items in *A Dictionary of SLE* were not fully capable of representing the linguistic circumstances of other linguistic communities apart from the westernized elite, with similar unique linguistic features. Many lexical

entries were recognized for which only the variation associated with the westernized elite was recorded by the codifier. Lexical variation of entries including *pattafy*, *churuchurufy* and *ajoutha*, associated with the average Sri Lankan non-elite speaker was elided by the codifier, firmly establishing the language ideology where standard is associated with the elite. However, given that the codification process should ideally support the “active broadening of the standard to include the greatest variety possible” (Parakrama, 1995), the necessity of codification of non-elite language usages in future codification efforts is highly emphasized.

Thirdly, the study made evident the increased adaptation/borrowing of Sinhala lexical items and their alternate meanings and usages into SLE used by the non-elite average speakers of SLE. Given that average SLE speakers are bilingual or trilingual with English as their second language, their proficiency in L1 language varieties is higher than the second language. Therefore, in communication, they tend to use direct and indirect borrowings in SLE, as a strategy to increase effective communication between speakers with diverse proficiency levels in English. The adaptation of lexical entries such as *moosala* and *devil dance* for their implicit and explicit meanings is demonstrative of this scenario. Many speakers not only adapt Sinhala lexical items for the denotative meaning but also for the connotative meaning, making the codification process complex and difficult where an insider to the speech community with extensive knowledge on L1 language varieties and indigenous culture would be able to provide more nuanced definitions of SLE vocabulary usage.

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INFLUENCE OF PUSH AND PULL TRAVEL MOTIVATIONAL FACTORS ON INTERNATIONAL TOURISTS RE-VISIT INTENTION TO GALLE IN SRI LANKA

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Abstract- Tourism plays a dominant role in Sri Lanka and tourism industry consider as a major foreign currency earner in the economy. Hence, International tourists perform most prominence role in the country. However, as compared with the other South East Asian region, Sri Lanka not yet tapped into its full potential in the global market. Hence, tourism industry should pay more attention to explore the reasons why people travel and what are the motivational factors to travel in order to increase the tourists' arrivals, earnings and global market share. Motivation is one of the main concepts that used to interpret the behavior of an individual's travel and it is related to the reason why people travel. In tourism research, this motivation concept classified into two forces as push and pull factors, and the main objective of this study was to identify the influence of this push and pull motivational factors on international tourists revisit intention. The sample of 100 international tourists were randomly selected from the Galle tourism zone, which is the most favored tourists' destination in Sri Lanka. Both primary and secondary data were used for this study. According to the results of the descriptive statistics, rest and relaxation were the most important push motivation factor and beautiful natural scenery and landscape were the most important pull motivational factors. Results also revealed that, the international tourists were motivated to visit Galle by its pull factors such as good physical amenities, warm and sunny weather and beautiful natural scenery and landscape.

Keywords- Push and Pull Travel Motivation, International Tourists, Revisit Intention

I. INTRODUCTION

Tourism is one of the fastest developing and the most important industry in the world, because it brings in a large amount of income, success of tourism promotion, technological change and also creates employment opportunities in the service sector associated with the tourism (Ramadlani & Hadiwidjaja, 2013; Zhang, 2012; Gunarathna et al., 2013a). In order to increase the participation in the global economy, many developing countries, managed through the development of international tourism (Gunarathna et al., 2015). As a result of this United Nations World Tourism Organization (UNWTO), World Tourism Barometer and Statistical Annex (WTBSA) (2017), claimed that destinations worldwide received a total of 1127 million in 2017, 70 million more than the year 2016. Furthermore, tourism development is increasingly viewed as an important tool in promoting economic growth, alleviating poverty, and advancing food security (Gunarathna et al., 2013b). And also, it is a principal export for 83% of developing countries, and it is the most significant source of foreign exchange after petroleum and thus a crucial contributor to the balance of payments and to macroeconomic stability, especially in developing countries (WTBSA, 2016). Because of this, tourism can be introduced as a viable & salient tool of economic development in many countries (Gunarathna et al., 2013a). Central Bank of Sri Lanka (CBSL), described, Sri Lankan tourism industry as a major foreign currency earner in the economy. National Economy reveals that tourism is in the 3rd position as one of the largest earners of the foreign exchange (CBSL,

2015). In 2016, for the first time Sri Lanka reached 14% annual growth in tourists' arrivals and earnings from the tourism grew by 18% (CBSL, 2017). However, CBSL claimed that Sri Lankan tourism has not yet tapped into its full potential in the global market (CBSL, 2017). According to the UNWTO, Sri Lanka shares 0.13% of total tourists' arrivals and 0.2% of total tourists' earnings of the world (CBSL, 2015). Therefore, Sri Lanka represent only a fraction of the world tourism at present. Because of this, it is important to create successful and stable tourism industry in Sri Lanka through attraction of tourists to visit and revisit in order to maintain high level of tourists arrivals and earnings (CBSL, 2015). In order to achieve this success in tourism industry, need to concentrate to all the tourism zones development. There are 45 tourism zones have been introduced by Sri Lanka Tourism Development Authority (SLTDA) and destination developers need to advertence to each zones separately in order to minimize the negative impact on the environment (SLTDA, 2016).

Among these zones, Galle is one of the best tourists' destinations in Sothern Province which can gain diverse experiences for tourists. Within the Galle, tourism is one of the main sectors that provide revenue generating opportunities (Urban Governance Support Project Galle, 2006). The United Nations Educational, Scientific and Cultural Organization (UNESCO) listed old port town of Galle is fast gaining international fame as one of the best preserved example of colonial life in Asia and its fortifications declared as the World Heritage Site (living city) since 1988 (United Nations Educational Scientific and Cultural Organization - World Heritage Site UNESCO - WHC, 2016).

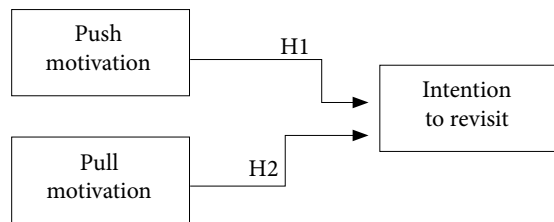
In order to create successful tourism industry in Galle tourism destination, it is important to attract tourists with high level of services which are related to the tourism industry. Not only attracting tourists but also maintaining high tourists' return intension is crucial task (Ngoc & Trinh, 2015; Darnell & Johnson, 2001). Tourists revisit become naturally to a complete destination; which ensuring higher revisit rate becomes a key tactic to the tourism business, because attracting the previous visitor is more cost effective than gaining new ones (Shoemaker & Lewis, 1999; Luo & Hsies, 2013). According to the study conducted by Mat Som et al., (2011), showed that 2% increase in visitor retention has the same effects on profit in term of costs cutting by 10%. Also revisit is highly contributed for generating revenue in tourists' destinations as well as reducing the market expenses

(Jang & Feng, 2007). The repeated visitors also bring the substantial savings to the marketing costs (Luo & Hsies, 2013). Hence, the repeat visitors are highly vital for increasing revenue for tourism industry in Sri Lanka. Therefore identify the influence motivational factors for revisit intention is important for destination managers.

Since the beginning of tourism research, researchers have focused on exploring the reasons why people travel (Uysal & Hagan, 1993). Motivation is one of the main concepts that used to interpret the behavior of an individual's travel (Uysal & Hagan, 1993). For the reason that tourists' motivation is related to the reason why people travel, it remains a hard issue in tourism research (Dann, 1977).

Crompton (1979), suggested that the tourist industry should pay more attention to socio psychological motives when planning products and developing promotion strategies. Furthermore, Pearce and Lee (2005) examined the relationship between patterns of travel motivation and travel experience by using interview to guide the further conceptual development of the travel career approach. In the study, they pointed out that host site involvement motivation and nature related motivation were more important factors to the more experienced travelers (Pearce & Lee, 2005).

In tourism research, this motivation concept classified into two forces as push and pull factors (Hanqin & Lam 1999). Push motivation is considered as the personal driver which attract an individual to travel under one's reasons such as escape from the daily routine, a need to spend quality time with the family, or the lust for adventure (Dann, 1977). Pull motivation is the factor that attracts tourists to select the destination site. Furthermore, a tourist's view of a particular destination can be perceived as pull motivation (Niemelä, 2010). The objective of this study was identifying the behavior of push and pull motivational factors in predicting to revisit intention of tourists. Martín and Del Bosque (2008), explained these pull and push factors. According to their study revealed that push factors include seeing something different, increasing knowledge about the foreign destination, being with family, desire for escape, rest and relaxation, prestige, health and fitness, adventure and social interaction and pull factors include international multi attractive destination, convenience of transport, and inspired by a destination's attractiveness, such as beaches, recreation facilities, cultural attractions, entertainment, natural scenery, shopping, and parks (Martín & Del Bosque, 2008).



II. METHODOLOGY

Research Framework

The research framework for this study is shown in Figure 1 as follows

Research Hypotheses

H₁: Push motivation is positively and directly affect tourist's revisit intention

H₂: Pull motivation is positively and directly affect tourist's revisit intention

Tourists, who visited the Galle tourism zone were the target population of this study. The sample of this study was collected from international tourists who were visited Galle tourism zone. In addition, in order to survey a maximum number of diverse visitors over a relatively small period of time, questionnaire was distributed to participants who were randomly selected at the main gate of the Galle. All subjects were selected based on their willingness to volunteer their personal information on site and they were 18 years and older. Finally, a total of 100 questionnaires were collected.

The questions were divided into four parts, including social characteristics profile of respondents, push motivation (9 items), pull motivation (10 items), and intention to revisit (two items). All of the items were measured on a 5-point Likert scale. Respondents were asked to indicate their level of agreement toward each statement, from 1 = strongly disagree to 5 = strongly agree. All of questions were tested to ensure the reliability and validity of the constructs.

According to the literature review tourism researchers have identified the push and pull factors (Khuong & Thu Ha, 2014). Therefore this study used those push motivational

factors as learn something new and interesting, rest and relaxation, health and fitness, to meet new people and socialize with new community, to fulfill my dream of visiting foreign land and escape from daily routine. And the pull factors were good physical amenities, warm and sunny weather, beautiful natural scenery and landscape, variety of foods, special events and activities.

In this study, the data analysis procedures included Pearson correlation and binary logistics regression analysis. Correlation analysis is a method used to examine the relationship among the variables in order to know how strong the relationship is. It is also a method used to analyze the interval or ratio scale. In order to determine revisit intention in Galle tourism zone, this study used logistic regression analysis. Reason for this is, both dependent variable and independent variables were categorical. In this study, independent variables are push motivation and pull motivation, and the dependent variable is intention to revisit. There are two hypotheses including H1: Push motivation is positively and directly affect tourist's revisit intention and H2: Pull motivation is positively and directly affect tourist's revisit intention.

III. RESULTS AND DISCUSSION

This social characteristics profile of the respondents indicated that the gender of the respondents was not evenly distributed, with 64% being male and 36% female. Approximately half of the visitor's marital status was single (49%) and other 51% deputed married ones. The results showed that the international tourists who visited Galle were and the out of six region groups, majority of respondents visited Galle from Europe (60%). Furthermore, results indicated that the education level of tourists visited Galle was high. Galle is named as UNESCO world heritage site and well known tourists attraction, where majority of visitor's travel purpose was pleasure (66%). 23% of respondent's reason of visit Galle was religious and culture. Results also indicated that Galle is a popular destination for health care, 11% of respondents traveled for Health care purposes.

According to the results of the descriptive statistics as mentioned in table 1, Galle tourists mentioned that to rest and relaxation was the most important push motivation factor which was reflected by the highest mean score of 4.106. The lowest mean score was Social status (3.863). For pull motivation, Galle tourists indicated that beautiful

natural scenery and landscape was the crucial pull motivational factor with the highest mean score of 4.121 and the least important is that variety of foods with the lowest mean score of 3.874. For the intention to travel again, "I am willing to travel again Galle in the future" has the highest mean score of 4.186 and "I will encourage my family and friends to visit Galle has the lowest mean of 4.129. Which indicated that the revisit intention in Galle is highly depend on repeat visitors, not the other visitors, who were come because of recommendation from others.

Table 1. Descriptive Analysis of Attributions of push motivation

Attributions of push motivation	Mean	Std. dev.
Rest and relaxation	4.106	0.775
Experience in foreign land	4.092	0.827
Entertainment	4.085	0.839
Culture	4.083	0.793
Sightsee touristic spots	4.005	0.791
Meet new friends	3.984	0.800
Escape from same daily life	3.979	0.800
Participate in new activities	3.915	0.839
Social status	3.863	0.917

Source: Field Survey Data, 2017

Table 2: Descriptive Analysis of Attributions of pull motivation

Attributions of push motivation.	Mean	Std. dev.
Beautiful natural scenery and landscape	4.121	0.793
Image of Galle	4.121	0.782
Climate	4.103	0.777
Safety	4.095	0.753
Hospitality of people	4.095	0.796
Unique experience	4.067	0.804
Affordable	4.059	0.689
Outdoor activities	4.039	0.791
Special Events	4.034	0.792
Accommodation	4.021	0.803
Variety of foods	3.874	0.792

Source: Field Survey Data, 2017

Table 3. Descriptive Analysis of Intention of travel again

Intention of travel again	Mean	Std. dev.
I am willing to participate in Galle in the future	4.186	0.782
I will encourage family and friends to visit in Galle	3.936	0.831

Source: Field Survey Data, 2017

Study used binary logistic model to identify the influence to revisit intention. According to the results, international tourists' who were visited Galle were 5 times likely to revisit because of push motivation and 2 times likely to revisit Galle because of pull motivation than who haven't revisit intention.

The logit model emerged as a good predictor of international tourists' intention to revisit Galle as shown by the Nagelkerke R square of 0.725.

Table 4. Logistic Model of Tourists Revisit intention

	B	Exp(B)	S.E	Sig
Constant	0.187	1.205	0.585	.011
Push Motivation	1.592	4.915	0.413	.000
Pull Motivation	0.925	2.521	0.185	0.000

Cox and Snell R R-square = 0.16, Nagelkerke R Square = 0.725, Hosmer and Lemeshow Test: P = 1.000, Omnibus Tests of Model Coefficients: P = 0.000

Note: Results were computed using alpha = 0.05 (95% Level of Confidence)

*p < 0.05, **p < 0.001

Source: Field Survey Data, 2017

As shown in the table 4, both push and pull motivation has significantly influence the revisit intention. Therefore the both hypothesis were rejected at 95% confidence level, which indicate that the push and pull motivation are positively and directly influence the revisit intention.

IV. CONCLUSION

This study examined the influence of push and pull factors on international tourist' revisit intention of Galle, Sri Lanka. The study contributed to overall understanding of why international tourists would plan to revisit Galle. Results of this study revealed that, both push and pull factor was found to be significant in predicting of international tourists revisit intention. However, tourists' who were visited Galle were 5 times likely to revisit because of push motivation but 2 times likely to revisit Galle because of pull motivation. Thus, conclusively, that the international tourists were motivated to visit Galle by its pull factors such as good physical amenities, warm and sunny weather and beautiful natural scenery and landscape. And the other push motivational factors as special events and activities and variety of foods did not predict the revisit intention.

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STUDY ON AWARENESS OF CYBER SECURITY AMONG PRIMARY TEACHER TRAINEES IN ADDALAIChENAI GOVT. TEACHERS' COLLEGE

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Abstract- Cyber Crime is on the increase everywhere in the world. A large number of people have become victims to this crime. It has affected not only the dealer, but also teachers and students to a great extent. Small children are now using the Internet very often. They can also be victims. In this context, the primary teachers who are teaching small children in schools have more responsibility in educating about cybercrime and cyber security

The present study was conducted to investigate cyber security awareness among primary teacher trainees studying at Government Primary Teachers College, Addalaichenai. A normative survey method was adopted on a sample of 200 Primary teacher trainees selected by stratified random sampling technique. The data were collected by using Cyber Security Awareness Scale and Personal Information Schedule. The major findings of the study have revealed that there is low level of awareness among primary teachers on cyber security and there exists significant differences in cyber Security awareness among Primary Teacher trainees with respect to gender, locality, knowledge of computer, and having own computer.

Keywords- Awareness, Cyber Security, Teacher Trainees

I. INTRODUCTION

Cyber security has emerged one of the major concerns in the world. Many countries are facing a series of cyber security perpetrated by different segment of people. The

information in digital form is not secure and that the need of cyber security is the need of the hour.

Cyber security or information technology security are the techniques of protecting computers, networks, programs and data from unauthorized access or attacks that are aimed for exploitation.

Application security involves measures or counter-measures that are taken during the development to protect the applications from the threats that can come through flaws in the application design, development, deployment, upgrade or maintenance.

Cyber security is important because government, military, corporate, financial, and medical organizations collect, process, and store unprecedented amounts of data on computers and other devices. A significant portion of that data can be sensitive information, whether that is intellectual property, financial data, personal information, or other types of data for which unauthorized access or exposure could have negative consequences.

Organizations transmit sensitive data across networks and to other devices during the course their doing businesses. Cyber security describes the discipline dedicated to protecting that information and the systems used to process or store it. As the volume and sophistication of cyber-attacks grow, companies and organizations, especially those that are tasked with safeguarding information relating to national security, health, or financial records, needs to take steps to protect

their sensitive business and personnel information. As early as March 2013, the nation's top intelligence officials cautioned that cyber-attacks and digital spying are the top threat to national security, eclipsing even terrorism.

For an effective cyber security, an organization needs to coordinate its efforts throughout its entire information system such as network security, application security, endpoint security, data security, identity management, database and infrastructure, security, cloud security, mobile security, disaster recovery/business continuity planning and end-user education.

The most difficult challenge in cyber security is the ever-evolving nature of security risks themselves. Traditionally, organizations and the government have focused most of their cyber security resources on perimeter security to protect only their most crucial system components and defend against known threats. Today, this approach is insufficient, as the threats advance and change more quickly than organizations can cope up with. "As a result, advisory organizations promote more proactive and adaptive approaches to cyber security. Similarly, National Institute of Standards and Technology issued guidelines in its risk assessment framework that recommend a shift toward continuous monitoring and real-time assessments, a data-focused approach to security as opposed to the traditional perimeter-based model" (StaysafeonlineOrganisation).

The National Cyber Security Alliance, through SafeOnline.org, recommends a top-down approach to cyber security in which corporate management leads the charge in prioritizing cyber security man across all business practices. NCSA advises that companies must be prepared to "respond to the inevitable cyber incident, restore normal operations, and ensure that company assets and the company's reputation are protected." NCSA's guidelines for conducting cyber risk assessments focus on three key areas: identifying your organization's "crown jewels," or your most valuable information requiring protection; identifying the threats and risks facing that information; (Ibid) and outlining the damage the organization would incur should that data be lost or wrongfully exposed. Cyber risk assessments should also consider any regulations that impact the way your company collects, stores, and secures data, such as PCI-DSS, HIPAA, SOX, FISMA, and others (Ibid). Following a cyber-risk assessment, develop and implement a plan to mitigate cyber risk, protect the "crown jewels" outlined

in your assessment, and effectively detect and respond to security incidents. This plan should encompass both the processes and technologies required to build a mature cyber security program. An ever-evolving field, cyber security best practices must evolve to accommodate the increasingly sophisticated attacks carried out by attackers. Combining sound cyber security measures with an educated and security-minded employee base provides the best defence against cyber criminals attempting to gain access to the company's sensitive data. While it may seem like a daunting task, start small and focus on your most sensitive data, scaling your efforts as your cyber program matures (Vipul,2013)

In cyber assessment, Sri Lanka is ranked 72nd in a global ranking of 164 countries that measures the strength of countries in cyber security strategy in terms of Global Cyber Security Index - 2017 released by the UN Telecommunication Agency, the International Telecommunication Union (ITU). The ranking was based on countries' legal, technical and organizational and research capabilities and their cooperation in information sharing networks (Ibid). On this ranking, Sri Lanka has been listed in the maturing stage category which refers to 77 countries that have developed complex commitment to cyber security.

In this context, the awareness of cyber security is paramount important not only for the people who are dealing in business, but also for all the segment of people in the country, particularly the students who are using computers for saving and sharing their information. In the absence of previous credible researches about the cyber security among university students, this study is planned to find out the awareness of cyber security among the university students (Jazeel. 2017).

Justification for the Study

The cybercrime rate has increased in the world unprecedentedly. A large number of people have become victims. The main reason for falling victim is, among the other things, lack of awareness about cybercrime and cyber security.

Nowadays, Primary Teachers are mostly using technologies for the purpose of teaching learning process. They need to be contacted with the facilities of Information Communication Technology, particularly the use of the

Internet. The Primary Teachers who interact through the Internet can be one the victims of the cybercrime due to lack of awareness of cyber security (Vipul, 2013).

The review of related literature revealed there is no research found to assess the awareness of cyber security among primary teacher trainees studying at teachers colleges. Hence this study is planned to bridge this gap taking into all these needs.

Objectives of the Study

1. To find out the level of awareness of cyber security among primary teacher trainees
2. To find out whether there is any significant difference in the awareness of cyber security among primary teacher trainees based on gender, locality, qualification, knowledge of computer, and having own computer.

II. METHODOLOGY

In this study, a normative survey method was adopted.

Population of the Study

The population of the study constitutes all the primary teacher trainees studying at Government Teachers College, Addalaichenai

Sample of the Study

A sample of 200 primary teacher trainees following two years in-service teacher training at Government Teachers College, Addalaichenai was selected by using stratified random sampling technique. The strata for the selection were gender, locality, qualification, knowledge of computer and possession of computer

Tools for the Study

The following tools were used for collecting the necessary data for the study

1. Cyber Security Awareness Scale: To measure the awareness of cyber security among the sample, a

Cyber Security Awareness Scale developed by Prof. Prema(2010) was used. This Scale consists of 15 items in a five point Likert Scale. Author of the Scale claimed that the instrument has good reliability and it was estimated and reported to be as $\alpha = 0.83$ and test retest reliability 0.73. The author also claimed the Scale has validity.

2. Personal Information Schedule: The demographic data such as sex, locality, qualification, knowledge of computer and possession of computer of the participants were collected using Personal Information Schedule.

Procedure

The investigator requested their consent after explaining the objective, nature and method of study. After obtaining the participants informed consent, the research instruments were distributed among them. After completion, the instruments were collected back and checked for incomplete or omission. Then the instruments were scored as per the scoring scheme and entered in to a spread sheet for statistical analysis.

III. RESULTS AND DISCUSSION

The data collected by using the tools were calculated and tabulated in the following tables. Mean, Standard Deviation, and t value were calculated and the results are presented in table 1.

Table1. Level of Awareness of Cyber Security among Primary Teacher Trainees

Level of Awareness of Cyber Security	Range of Scores	Number of Primary Teacher Trainees	Percentage
Low	10 -29	112	56
Average	30 -49	56	28
High	50 -69	32	16

From the Table 1, it can be seen that 56 per cent of primary teacher trainees have low level of awareness, 28 per cent of primary teacher trainees have average level of awareness and 16per cent of primary teacher trainees have high level of awareness.

Table2. Differences in Awareness of Cyber Security among Primary Teacher trainees in terms of gender, locality, qualification, knowledge of computer, having own computer

Variable		N	Mean	SD	t-value	Level of Significance
Gender	Male	80	27.23	9.44	5.7	Significant at 0.01
	Female	120	26.39	8.73		
Locality	Rural	142	24.80	11.89	3.6	Significant at 0.01
	Urban	58	28.82	8.33		
Computer knowledge	Yes	122	23.79	7.92	2.9	Significant at 0.01
	No	78	28.98	6.07		
Possession of Own Computer	Yes	90	24.96	8.40	3.7	Significant at 0.01
	No	110	29.09	8.10		

Differences in Awareness of Cyber Security among Primary Teacher Trainees in terms of Gender

It is found from the above table that the 't' value calculated for the sample with respect to their gender is 5.7. It is found to be more than the table value obtained. This shows there exists significant difference in respect to gender in awareness of cyber Security among Primary Teacher trainees. The mean score of male Primary Teacher trainees is higher than the female Primary Teacher trainees. Hence, it is inferred that male Primary Teacher trainees have more awareness about cyber Security than the female Primary Teacher trainees.

This result endorses the findings of previous similar studies done. Dilmac, et al.(2009) investigated about cyber bullying. They found that the male students were the victims of cyber bullying at least once in their lifetime and more cyber bullying behavior than females.

Differences in Awareness of Cyber Security among Primary Teacher Trainees in terms of locality

It is also found from the above table that the 't' value calculated for the sample with respect to their locality is 3.6. This value is found to be more than the table value obtained. This shows there exists significant difference in respect to locality in awareness of cyber Security among Primary Teacher trainees. The mean score of urban

Primary Teacher trainees is higher than the rural Primary Teacher trainees. Hence, it is inferred that urban Primary Teacher trainees have more awareness about cyber Security than the rural Primary Teacher trainees

From the above table, the 't' value calculated for the sample with respect to their qualification is 0.6. This value is found to be less than the table value obtained. This shows there is no significant difference in respect to qualification in awareness of cyber Security among Primary Teacher trainees. But, the mean score of degree holding Primary Teacher trainees is slightly higher than that of the Primary Teacher trainees with GCE (A/L).

Differences in Awareness of Cyber Security among Primary Teacher Trainees in terms of Knowledge of Computer

It is found from the above table that the 't' value calculated for the sample with respect to their computer knowledge is 2.9. This value is found to be more than the table value obtained. This shows there exists significant difference in respect to computer knowledge in awareness of cyber Security among Primary Teacher trainees. The mean score of Primary Teacher trainees with computer knowledge is higher than that of the Primary Teacher trainees without computer knowledge. Hence, it is inferred that the Primary Teacher trainees with computer knowledge have more awareness about cyber Security than the Primary Teacher trainees without computer knowledge

Differences in Awareness of Cyber Security among Primary Teacher Trainees in terms of Possession of Own Computer

It is found from the above table that the 't' value calculated for the sample with respect to their owning computer is 3.7. This value is found to be more than the table value obtained. This shows there exists significant difference in respect to owning computer in awareness of cyber Security among Primary Teacher trainees. The mean score of the Primary Teacher trainees who own computer is higher than the Primary Teacher trainees without their own computer. Hence, it is inferred that the Primary Teacher trainees having computer on their own have more awareness about cyber Security than the Primary Teacher trainees without owning computer.

IV. DISCUSSION

The findings of the study establish many of the previous studies done on cybercrime and cyber security. Bala Josephine, and Sudharson (2017) in a study conducted on Awareness of Cyber Crime on B.Ed student trainees, revealed that the students who own their own computer at home have more awareness about cybercrime and cyber security than other who use computers in the laboratory. It explains that the students who own their computer at home have more time in using computer. They surf on the Internet. They become known about the crime and the possible security measures with the help of information they receive online.

Similarly the female teacher trainees have less awareness than the male teacher trainees on cyber security. This may be due to the fact that the male teachers are more connected with getting information through newspapers, television news and other advanced technology concepts. The female trainees have only limited opportunities due to the nature of duty they need to perform at home in the capacity of wife and mother (Jazeel, 2017). Urban teacher trainees were found to be significantly higher in cyber Security awareness due to the fact that they have more opportunities in utilizing the advanced technology effectively, and through various sources which create awareness among them than rural students (Rajeswari, and Saravanakumar,2013).

In another study about online security, Vipul, (2013) argues that cyber security is a complex process and the security measures are changing on. Therefore, the awareness of security will only limit out dealing online. This argument does not hold sound water in the case of cyber security. The awareness of security system can prevent possible catastrophe later and keep data safe.

By and large, the findings of the study can create awareness among teacher educators, research workers, and curriculum developers to revise the curriculum and educate teacher trainees on cybercrime and security so that a safer world can be formed in future.

V. CONCLUSION

It is concluded from the analysis of results that most of the Primary Teacher trainees have low level of awareness about cyber security. This show there needs workshops incorporated in the curriculum for educating about cybercrime and cyber security. From the analyses, it was also concluded there are significant differences in the awareness of cyber security in terms of gender, locality and possession their own computer.

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TRADITIONAL TECHNIQUES OF DYEING TEXTILES WITH NATURAL DYES: A CASE STUDY OF SOUTHERN PROVINCE IN SRI LANKA.

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Abstract- Dyeing with plant-based extracts has a long tradition in the world. The desire for more bright and stable colours can be seen as one of the strong driving forces in the historical development of natural dyes. Today synthetic dyes and heavy metal mordants have been identified as serious threat to human and environmental health. Therefore, a new era has come to lookback ancient values and customs. The objective of this study is to find reclaimed system of dyeing according ancient natural dyeing of Sri Lanka. Survey was based on the employees of the Southern Province hand loom industry. Mode of collecting the data was carried out through personal interviews and telephone survey. Data were tabled according to colour, dye substances, mordant. It helps to compare data and make link in-between. Analysis of data was developed by writing summaries of what have found that leads towards discussion and conclusion. The survey explores thirteen hues of colours including blue, green and turquoise shades. Seventeen kinds of plant-based extracts have been explored for different usage. Mordants and colour fastness which are based on extraction of plants have been successfully practiced through ages. This survey shows positive attitudinal practices as beginning a groundwork of good practices, move away of from a dependency on a few dye substances and developing a list of dye techniques with rich cultural traditions and all show the range of skills and resources that are available to us.

Keywords- Natural dyeing, traditional practice, Southern province of Sri Lanka

I. INTRODUCTION

Textiles could be dyed as fibres, yarn or in fabric form. Since ancient time, colouring of textiles was conducted mainly by using the colours extracted from natural sources such as plants and animals, until the synthetic dyes were developed and commercialized in 1856 (Verenker and Krishnan, 2017). Synthetic dyes captured the market almost entirely due to their superior fastening properties, availability of a wide range of colours and cost advantages (Indrianingsih and Darsih, 2013). However, synthetic dyes are petrochemical based, and their toxic nature as well as the resource intensive dyeing process has created adverse environmental impacts (Kant, 2012). Dyeing process uses substantial amount of water, chemicals, and energy. While energy creates carbon footprint and chemical are harmful in nature, removal of wastewater to natural water streams after the dyeing process causes water and environmental pollution (Chequer et al., 2013). The presence of dye particles and also heavy metals in the wastewater such as copper, lead, nickel makes the effluent highly toxic (Kant, 2012). Conventional wastewater treatment technologies could only partially remove those harmful substances

from the dye effluent to date, and therefore the resultant wastewater carries harmful substances to the environment. It is estimated that around 10-50% of the used dyes could be ended up in effluent without fixing to the fabric. Due to these facts, textile dyeing process is categorized as one of the most environmentally unfriendly industrial processes in the world (Chequer et al., 2013).

Due to the toxic nature and the adverse environmental impacts of synthetic dyes, potential use of natural dyes has gained a significant attention in recent years. Even though synthetic dyes captured the market due to various reasons such as wide colour range, brightness and cost advantages, the use of natural dyes has never gone completely out of the textile industry (Samantha and Konar, 2011). It has now been recognized that natural dyes could provide both social and environmental benefits over synthetic dyes, as natural dyes are environmentally friendly and the extraction and preparation process provides employment opportunities for rural communities (Fletcher, 2008). However, there are some drawbacks of natural dyes that hinder them being commercialized and widely used. Usually natural dyes provide a limited and dull range of colours (Kant, 2012). Moreover, long extraction process, moderate colour fastness to wash and light, non-availability in bulk quantities and less reparability made the limited use of natural dyes in the textile industry (Samanta and Agarwal, 2009; Indrianingsih and Darsih, 2013). Nevertheless, the use of eco friendly natural dyes has become significantly important today due to rising environmental awareness around the world, and specially in the textile industry, in order to minimize the adverse environmental impact created in the textile dyeing process.

For successful commercialization and use of natural dyes, it is vital to develop standardized dyeing techniques, improve colour fastness properties, obtain new shades of colours and investigate an economical process for extraction and application of natural dyes (Samanta and Agarwal, 2009). Therefore, a need has arisen to look back and examine the traditional natural dyeing and mordanting techniques to learn from ancient practices and redevelop them to suit for modern world, while maintaining the eco aspects of the product and process. Therefore, this study focused on investigating traditional dyeing techniques in Sri Lankan textile handloom industry with the view of minimizing the unsustainability of the textile dyeing process.

II. METHODOLOGY

The key objective of this study was to investigate the traditional eco dyeing processes and techniques that are still being practiced by the handloom industry in Sri Lanka. There are five handloom weaving centres in Southern Province that currently use natural dyeing for their products. Semi-structured interviews were conducted with five respective employees based on those centres. Semi-structured interviews were selected as the method for data collection because that helps to investigate the situation in detail and obtain rich descriptions from the participants regarding the dyeing process and techniques (Yin, 2003). Interviews were conducted to obtain information regarding the source and type of natural dyes being used, dye process (recipe), mordant (fixing agent), colour fastness and durability of the final product. Follow up telephone interviews were conducted to clarify the process and techniques. Moreover, field observations were carried out to understand the dyeing process. Samples of the coloured yarns using natural dyes were also obtained.

Interview data were summarised and categorised based on the colour range, raw material that are being used to obtain each colour, respective mordant being used and the dye process. Furthermore, colour and wash fastness properties were also investigated in detail for each of the colour.

III. RESULTS AND DISCUSSION

According to the interview results and field observations, a range of natural dyes and natural mordant (fixing agents) were discovered. According to the respondents, the final colour of the material is depending on the dye recipe as well as the mordant. Usually plants extracts are used in raw form, or dried form, or powder form. From all three forms, colour intensity was found to be high. To obtain a powder, plant extracts are chopped into small pieces, dried them in sunlight and grind them to obtain a dye power. Plant extracts are not only used as dyes, but also as a mordant (fixing agent) in the dyeing process. Either plant extracts or non-toxic mordants such as Alum are always being used in the dyeing process as shown in Table 1. Clay pots are used as the dye bath in which dyes and mordant are mixed with required amount of water and boiled with the yarns using fire wood. The colour fastness to the fabric is checked time to time by visual observation and the fabric is kept in the dye bath

until the yarns absorb the expected colour evenly. Once taken out of the dye bath, the yarns are washed few times with cold water until the colour is not washed off with the fabric. Moreover, to achieve better colour fastness, bombu leaves (*Symplocos cochinchinensis* synonym: *Symplocos stawellii*) are put into the cold water. Finally the yarns are dried in air.

The general understanding of using natural dyes is that there are difficulties in obtaining a colour range as well as bright and dark colours. However, according to the Table





1, the respondents were able to obtain a colour range and also bright colours and dark colours, only by using natural dyes and natural or environmentally safe mordants. For example, three shades of green colour were obtained using different natural dyes, but using same mordant. A range of bright colours such as Bright yellow, turquoise blue, reddish pink could be obtained as shown in the Table 1, and according to the respondents, the resultant fabrics made out of those dyed yarns were shown good colour fastness properties even after 5-6 years even after undergoing more than 20 washes.

Table 1. Summary of colours obtained using plant extracts

Colour	Dye Substance	Mordant (Fixing Agents)
Green	<i>Asparagus Racemosus</i> (Hathavariya raw leaves)	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum)
Olive Green	<i>Terminalia Chebula</i> (Aralu) and <i>Corcuma longa</i> (kaha /turmeric)	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum)
yellowish green	<i>cococ nucifera</i> (Kaha-kada) (thinner inner layer of the king coconut shell) and <i>Corcuma longa</i> (kaha /turmeric).	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum)
Light yellow	<i>Zingiberofficinale</i> (Val-inguru root in raw)/ (local ginger)	KM_nO_4 (Potassium manganate)
Bright yellow	<i>Zingiberofficinale</i> (Val-inguru root in raw)/ (local ginger) or <i>Nyctanthesarbor -tristis</i> (dried sepalika flowers)	KM_nO_4 (Potassium manganate)
Blue	<i>Corcuma longa</i> (kaha /turmeric)/ <i>Cosciniunfenestratum</i> (veniwel-geta) / <i>Artocarpusheterophyllus</i> (jack roots)/ <i>Corcuma longa</i> (raw kaha roots/ Turmeric)	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum)
Turquoise Blue	<i>Indigoferatinctoria</i> (Chopped Nil-avariya)	$CuSO_4$ (Copper(II) sulphate) or $KAl(SO_4)_2 \cdot 12H_2O$ (Alum)
Navy blue	<i>Indigoferatinctoria</i> (Chopped Nil-avariya) leaves are leave in cool water for a day- the powder is leave at the bottom. Strain and dry in sun light until it become powder.	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum) or Calcium oxide (CaO),(aluhunu)
Reddish pink	<i>Corcuma longa</i> (kaha /turmeric)/ and <i>Indigoferatinctoria</i> (Nil-avariya)	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum)
Purple	<i>Terminalia Chebula</i> (Aralu)	ferrous (Fe^{2+}) (an Iron nail is to dissolve in water) or <i>Alternanthera sessilis</i> (mukunuvenna)

Colour	Dye Substance	Mordant (Fixing Agents)
Reddish brown	<i>Allium cepa</i> var. <i>aggregatum</i> (Dried rathulunu peals) / <i>Caesalpiniasappan</i> (pathagi)/raw hibiscus flowers (<i>Hibiscus rosa-sinensis</i>) / <i>RubiaCordifolia</i> (vel Madata creepers)	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum) or <i>Memecylonedule</i> , <i>Memecylonumbellatum</i> (Blue mist) Korakaha-leaves
Brown	<i>Garcinia Mangostana</i> (Husks of purple mangosteen)or <i>Caesalpiniasappan</i> (pathagi)	<i>Caesalpiniasappan</i> (pathagi)was boiled with <i>Memecylonedule</i> , <i>Memecylonumbellatum</i> (Blue mist) Korakaha-leaves
Black	<i>Swietenia macrophylla</i> (Raw roots of mahogany tree)or <i>Terminalia Chebula</i> (Aralu) retting in black clay	$KAl(SO_4)_2 \cdot 12H_2O$ (Alum)

Table 2. Spectrum of Colours

	Green
	Olive Green
	Bright yellow
	Brown

	Reddish brown
	Purple
	Navy blue

As shown in Table 1, some plant extracts were used as mordants that showed good colour fastness properties. For example, *Alternanthera sessilis* (mukunuvenna) was used as a mordant instead of Ferrous to obtain purple colour that showed similar colour fastness properties. Moreover, Kora-kaha(*Memecylonedule*, *Memecylonumbellatum*)

(Blue mist) was used as mordant in obtaining reddish brown, and the yarn dyed with kora-kaha showed similar colour fastness properties to those dyed with alum. Additionally, the mixes of few natural plant extracts were used to obtain better colour fastness properties in some of the colours.

These results demonstrate that there is a significant potential of replacing toxic-dyes and mordant with natural dyes and natural mordants. The plants and extraction processes used by ancients seem to be environmentally friendly and sustainable, yet remain hidden at the moment. There are sufficient evidences that the fabric coloured with those natural dyes and mordants were well performed over the years. Moreover, this study shows that a range of colours as well as bright and dark shades could be obtained with natural dyes without any issue. This is only a preliminary study conducted to discover the range of possibilities of natural dyes, mordants and their ability to replace toxic dyes. While there is a deep investigation needed to understand the dye recipe and different types and combinations of mordant, it is also vital to standardize the recipes and processes to facilitate repeatability. A shift from trial and error methods to a standardized process would support to increase the usability of natural dyes and mordants. Further studies and investigations that make use of modern technologies would be required to bring this natural dyeing industry into an economically viable level.

IV. CONCLUSION

Nature is the genius in producing wide range of colours in a sustainable manner. Nature extracts would be the most environmentally friendly way to produce any colour. Textile dyeing process had followed the same rule in ancient times, where nature based dye recipes were used in textile colouration. This study attempted to uncover some of the ancient practices, with the view of bringing sustainability back into the textile colouration process. Even though the synthetic dyes captured the

market mainly due to attractive range of colours, this study showed the natural dyes also carry the potential to produce an attractive range of colours. Moreover, given the fact that the synthetic dyes are harmful to the environment, plant extracts could replace synthetic dyes and toxic mordants, in order to lessen the environmental impact of textile colouration process.

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PSYCHO-SOCIAL FACTORS ASSOCIATED WITH SRI LANKAN WOMEN SEEKING EMPLOYMENT IN MIDDLE EAST COUNTRIES AS HOUSEMAIDS.

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Abstract- Sri Lanka is known to export female migrant workers as housemaids. Increasing evidence shows this phenomenon leads to abuse of migrant females in host countries and adversities to their children at home.

This study was carried out among 200 Sri Lankan women seeking foreign employment as house maids at the Foreign Employment Bureau. Data was collected using a self-administered questionnaire and analysed using SPSS 16 version. Ethical clearance was obtained from the Ethics Review Committee of University of Sri Jayewardenepura.

Majority (44%) consists of 30-39 years and 72% were Sinhalese. Only 15.5% completed secondary education. Married proportion was 60%. Husband's income was less than LKR 10,000 in 77% and 98.9% husbands had some form of substance abuse. Majority said they seek foreign employment to fulfil financial requirement but 30% said the reason for going abroad was harassments by husband and relatives. Of 123 children of these women, 87 (71%) were below 20 years and were not economically active.

As a whole sample women seeking foreign employment as housemaids have poor education, income. Where as in married sample, majority had dependent children and suffered substance abuse of their husbands. Hence interventions should focus on strengthening these women and husbands to be employed locally.

Keywords- Females, psycho-social factors, Middle East countries

I. INTRODUCTION

Sri Lanka is one of the largest labour exporting countries in South Asia.[1] Middle East (ME) is the main destination for labour migration in Sri Lanka with over 93 percent of the country's labour flowing into the Middle Eastern region. Currently foreign labour market is mainly dominated by female house maids to Middle East countries. [7] The challengeable lives experienced by the Sri Lankan women migrants to ME countries are seen and heard through media. In some instances, female domestic maid abuse manifests through multiple pathways, including physical, financial, verbal, emotional abuse and neglect.[8]

At home, due to absence of motherly care these migrant women's families and especially children are vulnerable to issues such as neglect, violence and abuse. [4]

Most often stated goal of the female migrant workers is earning money to buy a plot of land and to build a house in Sri Lanka to improve family socio-economic status. Achieving their stated But whether their stated intent is questionable, hence we embarked on this research to analyse socio-economic profiles of female migrant workers to ME in order to estimate their true need of securing employment in ME countries.

Though there are several studies on impact on their children and family members due to female migration none of those studies explore the specifically on female

migrant worker's psycho social factors. Therefore this study is unique, because this research is an attempt to identify psycho-social factors associated with continued female migration to Middle East countries (ME) despite the increasing evidence reported on the adverse effects.

A. General objective

To describe psycho-social factors associated with Sri Lankan women seeking employment in ME countries as housemaids.

B. Specific objectives

To assess socio-economic and demographic factors of Sri Lankan women seeking employment in ME countries as housemaids.

To assess reasons for seeking employment in ME countries as housemaids.

To assess expectations of the women who seek employment in ME.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

A descriptive cross-sectional study was carried out among 200 Sri Lankan women seeking employment in the ME countries as housemaids who were attending to the Foreign Employment Bureau (FEB), Colombo for a period of six months.

The ideal study sample is whole Sri Lankan women who leave the country for foreign employments. As it is impossible here we selected sample population from women who attend to FEB during 6 months. Hence, we used convenient sample population for our study. Ethical approval was obtained from the Ethics Review committee of Faculty of Medical Sciences, University of Sri Jayewardenepura. Written informed consent was obtained from the participants prior to administering the questionnaires explaining the study by using information sheet and informed consent form. Questionnaire was administered to the subjects who consent to participate to the study without causing any disturbance to their activities.

Collected data was analysed by using SPSS windows version 16.0. Results were presented using descriptive statistics including percentages and graphical methods.

III. RESULTS AND DISCUSSION

This study was undertaken to describe the factors associated with migration of female workers to ME countries. A sample of women, in the age group of 22-63 years was studied. Study sample consisted of 200 participants with largest proportion (43.5%) being in the 30-39 years age group, followed by those aged 40-49 years. Majority of study participants were of Sinhalese ethnicity (71.5%) and were married (60%).

The education level of the study sample was poor. Half of the study sample (43.5%) studied up to General Certificate Examination Ordinary Level (G.C.E.O/L) and only 15.5% passed the examination. Only 9.5% of study sample passed General Certificate Examination Advanced Level (G.C.E.A/L) and none has received tertiary education. The poor education coupled with limited employable skills, limits their choice of employment in the host countries. The skills they have stated as they are competent were cooking (93%) and housekeeping (76.5%), which enable them to seek employment as house maids in ME countries where their services are sought.

Table 1. Age distribution of study sample.

Age group	Frequency	Percentage
20-29 years	38	19%
30-39 years	87	43.5%
40-49 years	63	31.5%
50-59 years	11	5.5%
>60 years	1	0.5%
Total	200	100%

Considering the married proportion (60% of the study sample), a 1/2 of the husbands (49.2%) had education up to grade 5 or no school attendance at all. Only 13.5% had passed G.C.E.O/L or G.C.E.A/L. This male education level of the families is remarkably lower than their female counterparts. This discrepancy is a notable observation as women of the households with higher education level than females may be a contributory factor for women to seek

Table 2. Ethnicity of the study sample.

Ethnicity	Frequency	Percentages
Sinhala	143	71.5%
Tamil	47	23.5%
Muslim	10	5%
Total	200	100%

Table 3. Marital status of the study sample.

Marital status	Frequency	Percentages
Unmarried	51	25.5%
Married	120	60.0%
Widowed	23	11.5%
Divorced	6	3.0%
Total	200	100%

employment in ME countries to fulfil their aspirations beyond their opportunities at home.

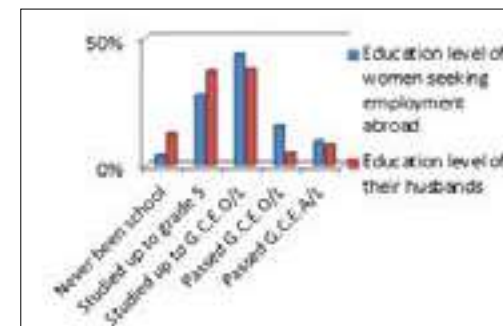


Figure 1. Comparison between women and their husband's level of education.

Socio-economic data revealed that only 41% of the participants were previously employed and of them majority (47.6%) were garment factory workers at skilled labour category. About 61% of participants had monthly income less than LKR 10,000, of which nearly half had an income between LKR 2000- 4999. About 1/4 of their husbands were unemployed and most of the husbands (77%) had reported a monthly income of less than Rs.10,000. But almost all the (99.9%) husbands had some form of substance abuse, of them 75% were

spending LKR 500-1500 per day to maintain these habits. Their expenditure for substance use was more than their monthly income and most probably they were engaged in some form of illegal activities to earn money to spend on their habits.

Out of the 60% women who were married, 12.5% claim their relationship with their husbands was very poor whereas 30.8% said that they had excellent relationship. Majority (99.5%) said they seek employment in ME to fulfil financial requirement and 33% admitted that the reason for going abroad was harassments by husband and relatives. This finding is noteworthy, as in Sri Lankan culture it is usually divulging such information is discouraged as women are supposed to keep family secrets to prevent bringing disgrace to their families. This gender specific phenomenon is overcome by 1/5 of the study sample which is an encouraging observation.

Considering stated reasons for seeking foreign employment in ME countries as house maids, majority confirmed stated reason as economic needs and 1/3 stated stigma attached to similar employment in home country lead them to take the decision to go abroad. This is noteworthy in analysing as attitude for women to engage in house maid work in home country is very different and lead to stigma compared to their similar work in ME countries. If these attitudes can be changed, more women will continue to nurture their families while working and fulfilling their aspirations.

Table 4. The reasons these women to go abroad as housemaids.

Reason for going abroad	Number	Percentage
Economical needs	191	99.5%
Unable to get a suitable job in the country	39	19.5%
Harassments by husband	15	7.5%
Harassments by relatives and friends	25	12.5%
Influence from employment agents	11	5.5%
Influence from previous migrants	13	6.5%
Local stigmata associated with housekeeping in Sri Lanka	69	34.5%
Other reasons	47	23.5%

Nearly all of the women had been previously employed in the ME countries and their preference to seek re-employment in ME countries is suggestive of perceived higher level of socio-economic status and other benefits of going abroad such as freedom, escape from abusive relationships and adverse psycho-social circumstances. This is a remarkable finding as new entrants are minimal in the study sample indicating a decreasing trend to choose foreign employment in ME countries as an option for economic, psycho-social and other needs.

It is evident from this study that women seek employment in ME countries are previously employed in ME countries, majority are married and had lower income in home country. Majority were not able to complete their school education, and married proportion had suffered due to substance misuse habit of their husbands, who had low income and poorer education level than women. Additional perceived benefits of working abroad include status attached to working abroad compared to similar work in home country. Increasing trend of previously employed women only seeking employment in ME countries is a trend, possibly due to knowledge on adversities women have to face in host countries, adversities of their children have to face in home country due to lack of motherly care can be postulated but other reasons need to be studied like employment opportunities in booming industry in home country.

IV. CONCLUSION

It is evident from this study that women seek employment in Middle East, mainly for economic and security reasons although there were lot of consequences were rising up. The women seeking employment in Middle East countries have poor education, income and in married sample had expenditure of house hold income due to substance abuse of husbands. Hence interventions should focus on strengthening these women and husbands to be employed locally.

As South Asian country, the mother is the most important person in the family who keeps the family together and nurses the growing children. However, owing to economic and few other reasons, family had to experience mothers' absence due to that most of the family violent activities and other corruptions are increasing in the society.

Therefore the government should take necessary steps to initiate programs to prevent unhealthy habits of husbands by promoting them to contribute to family economy and security. At the same time the women should be given chances to follow employable skills and it will be helpful to seek employment within the country, without disturbing the family unit.

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BUDDHIST PRACTICES IN REHABILITATING WAR-AFFECTED CHILDREN: A SOCIOLOGICAL STUDY OF HOW BUDDHIST PRACTICES CONTRIBUTE TO THE REHABILITATION OF WAR-AFFECTED CHILDREN IN SRI LANKA

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Abstract - The purpose of this paper is to examine the role that Buddhist practices for war-affected children in Sri Lanka can play in the overall scheme of rehabilitation and reconciliation. After 1970, more research paved way for the inclusion of social aspects in psychiatric rehabilitation. Some of the strongest socio- contextual features considered under this approach include religious and traditional beliefs, family relationships and education. In light of these insights, the main intention of this paper is to discuss the ways in which religion, especially Buddhist practices, can be used in order to heal 'war-affected' children in Sri Lanka. In order to examine this, I selected one rehabilitation programme which mainly used Buddhist philosophy and practices in the Vavuniya district in Sri Lanka. I have employed the qualitative research method and my array of data collection tools included observations and interviews. The key informants/ interviewees were the programme leaders and staff, 20 children who are currently in the programme and five members including the parents of children, community leaders and schoolteachers. This study reveals that despite the practical issues concerning social/ religious rehabilitation, it nevertheless generates new insights on the rehabilitation activities of war affected children. Mainly religious-based practices work as alternative mechanisms for the dearth of professionals in the psychiatric field.

Keywords- War-Affected children, rehabilitation, Buddhist practices

I. INTRODUCTION

The purpose of this paper is to examine the role that Buddhist practices for war-affected children in Sri Lanka plays in rehabilitation and reconciliation.

Since the Second World War, more attention has been given to psychological rehabilitation work undertaken by rehabilitation counsellors using both clinical and counselling methods. Therefore, rehabilitation of war victims was only limited to psychological and psychiatric rehabilitation (Loughry and Eyber, 2003), which often had a limited impact on daily lives, socialization, education and work. However, after 1970, more research opened doors to the inclusion of social aspects to psychiatric rehabilitation. Some of the strongest social contextual features considered under this approach include religious and traditional beliefs, family relationships and education. In light of these insights, the main intention of this paper is to discuss the ways in which religion, especially Buddhist practices, can be used in order to heal 'war-affected' children in Sri Lanka. In order to examine this, I selected one rehabilitation programme which mainly

used Buddhist philosophy and practices, in the Vavuniya district in Sri Lanka and tried to examine how far they could achieve their aims in rehabilitating war-affected children.

II. METHODOLOGY

Since this is a descriptive analysis of the rehabilitation programme, I have mainly resorted to a qualitative research methodology. The primary data were gathered through interviews and observations. Apart from this, related articles, research reports and brochures about the selected rehabilitation programme were used as secondary data. The categories of persons selected as interviewees from the selected programme are as follows: Category 1 included programme leaders and staff. Category 2 included children. Since children were the critical focus of my research, I carefully selected a total of 20 children who are currently in the programme. Category 3 was the parents of children, community leaders and schoolteachers. Altogether, 5 members were interviewed under this category.

III. SOCIO-CULTURAL DIMENSION (RELIGIOUS PRACTISES) IN REHABILITATING WAR-AFFECTED CHILDREN

Religious and cultural beliefs, traditions, language, social status and races are considered as elements of social context. Researchers are of the view that these elements are important phenomena influencing an individual's life in every aspect (Earle and Earle, 1999).

An example for this would be the 'Sense of Coherence Theory of Stress' put forward by Antonovsky (1979) based on a research done in Israel. This study was done using a group of women who had undergone torture in a prison during the Second World War. Antonovsky's findings reveal that although these women were tortured and had aged with time, they had commendably maintained their mental and physical stability. Antonovsky mentions that despite the fact they had undergone severe trauma while in the prison, upon returning to Israel, the social support and religious environment helped them to re-build themselves both mentally and physically.

Moskivitz's (1983) study on children's adaptation to war conditions done with the survivors of the Second World War, examines how the childhood experience of war had influenced their adult life. Moskivitz found four significant protective factors that can be associated with this ability to lead normal lives after experiencing a traumatic period in childhood. These are:

1. The immense trust in religious beliefs.
2. The feeling of love and care shown by caregivers and society.
3. Identifying their parents.
4. Making children feel valued and allowing them to take up social responsibilities.

Moskivitz concludes that despite having faced numerous hardships in their childhood, through religious practises and social support, people can reduce the negative impact of war and achieve normalcy.

Moreover, in their study on rehabilitating war-affected children in Mozambique and Angola, Green and Honwana (1999) illustrate that elders in the community had initiated the restoration and rehabilitation process through religious and indigenous practices long before a structured programme was implemented by the experts. They have used the concepts of 'purification' and 'cleansing' to rehabilitate these child victims through religious practises and traditional beliefs.

Similarly, in the Sri Lankan society there are numerous examples make evident that Buddhism and Buddhist monks took part in healing psychological illness. In the story of king *Dutugamunu*, for example, it is said that as a result of the war between the two kings, thousands of people were killed. After seeing the dead bodies King *Dutugamunu* is supposed to have been afflicted with mental illness. In ancient chronicles such as *Janawasaba* sutra¹ it is said that the king was afflicted with a psychological problem that resulted in self-isolation, insomnia and a loss of appetite. As the story goes the king could not sleep for about a month. In order to cure the king of those psychological problems the monks preached the *chiththayamaka* sermon. As a result, the king's mental conditions improved and the king was able to sleep (Ven. Deeranande, 2006).

1. An ancient chronicle

The *Mahavansa* also describes this story with clear evidence. For instance, the 25th chapter of *Mahavansaya* verses no 102-110 relates how King *Dutugamunu* bemoaned the after effects of war and was afflicted by its tragedies. The following verses (no 102) of the *Mahavansa* show how the king suffered and how he was eventually cured.

"While he rested on his soft and fair couch, covered with costly draperies, he, looking back upon his glorious victory, great though it was, knew no joy, remembering that thereby was wrought the destruction of millions(of beings) (Geiger, 1912: p 56)².

When we consider the direct link between religion and healing methods among the Buddhists as made evident by the aforementioned examples, *pirith*, *bana*, *bodhi* puja etc. can be seen as important practices. In the case of *pirith*³ the term '*pirith*' itself connotes a sense of security. It is believed to protect a person from evil effects, bad planetary effects, diseases, bad luck, the effects of evil spirits etc. *Bana preaching*⁴ is a more simple practice compared to *pirith* chanting in Buddhism. In this practice, the monk instructs the gathering by drawing on examples in hopes of giving a sense of mental satisfaction and encouragement to the listeners. Here, people with various problems, the reasons for their problems and how they face these problems etc. are discussed with the examples.

As discussed earlier, researchers highlighted that in healing war-affected children, religious practices can play a major role, especially in developing or third world countries. Firstly, it allows a larger population to be included in the rehabilitation process. Tol et al., (2013) and Somasundaram (2007) state that the social context approach facilitates the coverage of a larger group of people, alongside a wider scope to create mental health awareness among the war-affected population. Secondly, it is believed that they can be accessed easily and at a lower cost. Tol et al., (2013) state that social context methods are more cost-effective in a setting where the mental health field is not that developed, such as third world countries

2. The Mahavansa was translated into English by the German scholar named Wilhelm Geiger in 1912.

3. Pirth is used for many reasons/occasions by Buddhists in Sri Lanka, one of which is healing

4. Bana preaching is also used for many reasons among Buddhists. Mental satisfaction is only one of these reasons.

where there is a huge shortage of professionals in the field of psychiatry and counselling. Thirdly, it is believed that social contextual methodologies provide sufficient resources to rehabilitate a majority of the children. For instance, Duncan and Arnston (2004) claim that the number of individuals who are affected by war who require psychological treatment through the psychiatric approach is likely to be 10 percent from the total number of people affected by war.

However, researchers who conducted studies on the application of traditional methodologies in rehabilitating war-affected children also pointed out the weaknesses in these practises. One such weakness in traditional practises is the difficulty to scientifically prove its positive results. Moreover, there is no reconciliatory aspect to these practises (Green and Honwana, 1999). There also prevails a strong gender disparity to these methods, especially, when they are being practised in countries where male dominance and gender stereotyping is strongly inbuilt (Tol, et al, 2013). Therefore, in this paper the aim is to explore how the selected rehabilitation programme operates in rehabilitating war-affected children using social context methods. It will also explore how far this programme fulfils the needs and requirements of war-affected children living in war-affected areas in Sri Lanka.

IV. THE MUDITHA PSYCHOSOCIAL REHABILITATION PROGRAMME⁵

The *Muditha* programme operates in a Sinhala village of the *Vavuniya* district in the North Central Province of Sri Lanka. This programme was initiated by a Buddhist monk, in a Buddhist temple. At the time of this study, there were nearly 80 children, about 90 percent of whom were Tamils who came from Jaffna and *Killinochchi* in the Northern Province. The remaining 10 percent were Sinhalese from *Vavuniya*. The Buddhist monk conducted the programme by himself, with the support of his mother who helped in caring for the children along with a few other villagers. The programme only had boys of different ages, ranging from new born infants to adolescents.

5. I re-named this programme as Muditha, to preserve confidentiality. The given name was taken from the Buddhist religion, representing attitudes towards other beings. Mudita means sympathetic joy

According to the monk, the main purpose of the programme was to help children recover from mental trauma instigated by the war. He explained that direct and indirect war experiences such as losing one's parents and loved ones, being displaced and missing out on education opportunities could affect the mental stability of children, and impact badly on their social life. Therefore, the *Muditha* rehabilitation programme intends to help them overcome such trauma and gradually assimilate into society as normal citizens.

Many researchers have revealed that in order to conduct a productive rehabilitation programme, sufficient human and material resources need to be in place (Wessells and Jonah, 2006). However, the *Muditha* programme runs on minimum funding; they do not have a regular source of income or a stable funding mechanism. Most of their monetary contributions and generosity stemmed from the community. That being said, it is unrealistic to think that the income of the temple and the poor villagers could provide a regular supply of food for 80 children. When the monk was asked this question, he said that, from time to time, the programme also received some donations such as books, clothes, shoes, etc. from some institutions. Yet, these were not at all sufficient for the smooth running of the programme. When considering the human resources of the *Muditha* programme, there is a shortage of staff in relation to the large number of children. For instance, the Buddhist monk is the only active staff member in this programme, and he is the one who conducts the rehabilitation activities for the children.

The results obtained through fieldwork reveal that the *Muditha* programme has chosen religion-based activities as their main method of rehabilitation by getting children involved in different Buddhist practices, thus using the force of spirituality to relieve them of their mental trauma.

Different types of 'meditations' are the main technique used in this programme in order to heal children from the after effects of war. The monk assumes that psychological conditions such as fear, sorrow and anxiety can be easily cured and replaced with loving-kindness (*metta*) and compassion (*karuna*) through meditation. In Buddhism, there is one special practice of meditation named *maitre*

bhavanava (*maitre* meditation)⁶, which the children are made to practice for at least 15 minutes each morning and evening.

Worshiping the Buddha is compulsory, as is part of the rehabilitation process. The children worshipped the Buddha in the morning around 7 a.m. and in the evening before going to bed. According to the monk, this practice is expected to foster mental balance and optimistic attitudes among the children.

Another technique used by the *Muditha* programme was to delegate responsibilities to these children in performing various tasks. Children who were more than 16–17 years of age were given the responsibility to look after the smaller children and to act as a 'god-father' for a group of children. With the exception of very young children, almost everyone had to take up some form of responsibility be it helping out in the kitchen or cleaning the garden.

The unique feature of the *Muditha* programme's rehabilitation process was to engage children in community activities to help them develop relationships and achieve reconciliation. Since most children were from Tamils living in Sinhalese communities, reconciliation was important to ensure the healing of mental trauma. Even though the monk did not make special efforts to network with the village people, traditionally the villagers come to the temple, worship and bring alms for the monk. He uses this as an opportunity to introduce the children to them. Gradually, the children start participating in village activities, taking part in common festivals, rituals and social activities. The monk was of the idea that all these activities would foster peace and harmony, and give the children the opportunity to learn, practise and respect each other's cultures.

6. The Sanskrit word *maitre* means friendliness, or loving kindness, while *bhavanave* (meditation) means virtue or quality. So *maitre bhavanave* is the practice of expanding loving-kindness without limits, or unlimited friendliness (<http://portland.shambhala.org/ongoing-offerings/maitri-bhavana>. Accessed on 25 October 2014).

V. ASSESSMENT OF THE MUDITHA PROGRAMME

In the previous section, the selected rehabilitation programme was briefly described in detail based on how they initiated children to the programme, objectives, rehabilitation approaches, methodologies and general activities of the programme. In this section I attempt to assess and examine whether the selected programme adheres to and operates according to the 'accepted practices' as identified in the literature.

When considering the main rehabilitation approach and methodologies, it seems that the *Muditha* programme totally adhered to the social cultural approach and used Buddhist religious values as their main rehabilitation technique of rehabilitation. As described above, Buddhist literature records some examples of fostering peace and providing psychological relief through different ritualistic practices. Even according to the general belief, they (rituals) have the capacity to address conflict and to create peace. Therefore, many believe that Buddhism has complex yet successful healing methods for both psychological and physical healing (Rinpoche, 1998; Clifford, 1990).

However, the main problem here is whether these children were able to grasp these deep salient doctrinal teachings, which need a mind of cultivated intellectual discernment. According to age appropriate child development concepts, cognitive capabilities are different for each child. For instance, Piaget (1952), Erikson (1995) and Wilber (1986, 1996) have clearly mentioned in their child development theories that children below 11 years of age are less capable of logical thinking, and only after 12 years of age can they gradually develop that ability. This situation might change according to different experiences that children have, the way they socialise and according to different socio-economic situations. However, if a methodology that is simple, suitable and interesting can be put in place, chances of obtaining greater benefits exist.

Further, the programme does not consider the socio-cultural background of the children. The majority of them were either born as Hindus or Christians. Since 90 percent of these children were non-Buddhists, there is room for criticism regarding these types of practices, because there is a great agitation in Sri Lanka saying that there is a conspiracy aiming to convert Buddhist people

to Christianity. As such, one may wonder whether this is also a conspiracy to convert non-Buddhists to Buddhism. But the leader was of the opinion that since his intention was not to convert them, but to rehabilitate them by using Buddhist values and practices, it was acceptable. For instance, he stated that since he only knew of Buddhism as a rehabilitative mechanism, he used his knowledge for the sake of the war-affected children.

As mentioned earlier, one of the key processes that will decide the success of a rehabilitation programme, as mentioned earlier, is its target area and target group selection process. Any programme should give priority to select children who are in immediate need of psychosocial care. If the selections are not properly administered, the programme can overlook children who have severe trauma and cater to children with lesser needs, for trauma can have its variations. This factor can cause the programme to be unsuccessful (Duncan and Arnston, 2004). Therefore, researchers are of the view that it is important to identify children who are really affected by war and are in need of care in a war situation (Agger et al., 1995).

In the Sri Lankan context, most rehabilitation programmes were based in the Northern and Eastern Provinces because the worst effects of war were seen in those areas. Therefore, the target groups were also from the same areas. However, as mentioned before, the *Muditha* programme never followed a specific criterion for child selection. According to the leader of the programme, the doors were always open to any child who needed help; children were encouraged to come on their own or through an adult. Therefore, the leader of the programme was of the opinion that children who had joined the programme were the ones who were really affected by the war and were in need of psychosocial assistance. He reasoned that if parents and relatives of these children could be found, they would have chosen to be with them instead. Since the children had lost all they had including connections with family and community, they joined the programme. Even though his argument seems to be practical given the context, when it comes to the selection process, one may argue that even though children joined the programme on their own or through an adult, there could be others who deserve care but were not able to access the facility. Because this programme was not known by those in the area, perhaps due to the limitation of communication and access, there was very little chance for word to spread. Also, the temple was situated in a rural village, away from

the city. So children who really need help may not have been able to access it unless someone led them to it.

Also I highlighted above that this programme supported only boys who were less than 18 years of age. They might have been following this strategy due to practical reasons, but someone could argue that it was a weakness in itself since they ignored girls who could be affected by war (Tol et al., 2013). In looking at the *Muditha* rehabilitation programme, we can see this assumption being confirmed because the programme was located in a Buddhist temple. According to their religious beliefs it is against the discipline to retain females in the temple premises. Due to this and the insufficient security facilities for female children, the programme only supported male children. This scenario stands out as strong evidence to prove that gender disparity can surface in psychosocial approach when using traditional beliefs for rehabilitation.

Even though, few weaknesses could be identified in their activities, the *Muditha* programme was a purely volunteer based programme which ran only on individual donations and support from the community. Even though limitations in funding affected the rehabilitation process to some extent, the leader managed to mitigate its effects using the assistance of the social context, and it was clear that they tried their best to provide for the children's needs although psychological and psychiatric provisions were missing in this programme.

VI. IMPACT ANALYSIS OF THE MUDITHA PROGRAMME

Impact of a rehabilitation programme can be viewed via different time scopes: immediate, intermediate and long-term. Given the scope of this project, we can only analyse immediate and intermediate impacts since most psychosocial rehabilitation programmes were started in recent years (Nyland et al., 1999). Therefore, I will analyse the impact of the programme, while paying special attention to immediate and intermediate impacts in relation to the following four elements: 'fulfilment of basic needs of the children, empowerment through investments in children's education plus reconciliation, rebuilding the social context and individual psychological development of the children.'

One common criticism against psychosocial programmes is that they are limited to attempting to fulfil only the psychological needs of war-affected people (Williamson and Robinson, 2006). However, some researchers argue that not only material needs but also non-material needs such as 'trust-building', 'identity', and 'security' should be considered simultaneously in this regard (Wessells and Jonah, 2006).

When taking into account the above element, it seems that children in the *Muditha* programme were clearly lacking in fulfilment of both material and otherwise, before they joined the programme. Many of them had lost their parents and lived in refugee camps. Even though refugee camps do their best to cover the basic provisions, there is always a lack due to funding and administrative constraints. Therefore, the *Muditha* programme took much effort to fulfil the basic needs of these children, although resource constraints curtailed their ability to do so. Food, shelter and clothing needs were met as much as possible, while every effort was made to give the children an opportunity for education. Since Sri Lanka has a free education system, it was easy for them to enrol children in government schools.

According to the leader of the programme, they tried to give love, care and a sense of belonging to the children even with their limited human resources. It could be observed that the leader (monk) was personally involved in their primary care such as bathing and feeding the younger children. They all called him 'father'. The adaptation of the 'god-father' concept was also one method to give love, attention, a sense of belonging and security. He also received his mother's support in looking after the young children. She was the only helper around the centre. As for the second element, it seems that the programme tries its best to empower children using many channels around them; mainly through education. Children in the *Muditha* programme had been displaced over a long period of time, moving from one shelter or refugee camp to another. Therefore, continuous education had not been a possibility for them. However, after joining the programme, they had the opportunity to re-enrol in school. This was a major achievement in their lives, and many of the children enjoyed being able to go back to school. Teachers stated that those children's capacity and ability to learn were not satisfactory but schooling helped them develop cognitive skills, social behaviour and nurture spirituality, to some extent.

Education can empower children in many ways. For example, Sierra Leone's rehabilitation programme was intended to focus on four main objectives, besides psychological considerations such as "identity formation, curriculum and education consideration, labour market consideration, and community education" (Maurin, 2000). As pointed out by Machel (1996), enhancing language and life skills through education can increase their economic opportunities, it also helps cultivate positive attitudes towards the future (Betancourt, 2005) and achieve a sense of normalcy (Sommers, 2003).

Having observed the children of the *Muditha* programme, I can safely say that they had achieved some of the intended outcomes of education as mentioned above. Teachers reported that when they first came to school, they had trouble concentrating and used to urinate in class making all the other children uncomfortable. But later, owing to their teachers' care and disciplining they have become more orderly in their ways. Their ability to converse in Sinhala, effectively increases their economic opportunities. The Principal of the school is of the opinion that these children are on their way to becoming worthwhile citizens for the country. Even though education was not the main rehabilitation methodology of the *Muditha* programme, they had managed to achieve a significant degree of rehabilitation through education.

The *Muditha* programme also has taken some important steps to direct children towards peace and reconciliation. Engaging the children in community activities are one of them. They get children involved in cultural activities of the respective communities, including festivals, weddings and funerals, in keeping with the communal nature of these events. In so doing, their intention was to bring about unity among diverse groups and let them learn and understand traditional cultures and practices and make peace with groups of opposing ethnicities. During the war, the LTTE was responsible for the loss of many lives of villagers in the Sinhalese border villages which culminated in a widespread hatred of Tamils at large. Many Sinhalese were against the rehabilitation of Tamil children. However, the monk has managed to ease their anger and hatred through these reconciliation activities.

As pointed out by Moskovitz (1983), making children understand that they are still an essential part of society and making them responsible for community work is an important strategy to heal children who have undergone any stressful experience. Accordingly, in this programme,

giving children responsibilities was an important part of their rehabilitation process. Further, Kimchi and Schffner (1990) state that developing interpersonal skills is a better way to rehabilitate children. According to the above examples, it is clear that this programme also uses the same methodology in creating positive interpersonal relationships between the children and the members of the community.

As described earlier, the children of the *Muditha* programme had lost their parents and families, schools and villages due to the war. This means their social context was completely destroyed and lost to them, especially since they were physically removed from their area. Therefore, social context had to be re-built from scratch; according to my observations, the *Muditha* programme had made efforts to recreate the lost contexts to the best of their ability. Given that the children were orphans and did not belong to any particular society, building them up in a re-created social context was challenging, yet many had positive feedback to give on this.

One of the key components of their programme was to recreate the family concept in their midst, allowing children to call the leaders 'father' and 'mother', and their peers 'brother'. Another key component was creating educational opportunities for these children with the support of the government's education authorities. Since 70 children out of 80 were attending school from the centre, the government took the initiative to build new classrooms and even appointed new teachers to the school.

When taking into account the psychological development, in the *Muditha* programme, children were provided with basic needs creating an environment where they could feel protected and enjoy peace and freedom. They had time to play, read books and watch television, engage in gardening and a few other recreational activities, which indirectly helped them regain a sense of normalcy and mental balance. Another key feature was the adaptation of the 'god-father' concept where they believed love, care, friendship and security were delivered and received. They appointed older children in the programme god-fathers and expected them to look after the younger ones, trying to build up a sense of family relationships. As pointed out by Boyden and Mann, (2005), this helped children to develop positive attitudes and behaviour. Younger children tended to prefer the company and friendship of their older brothers.

VII. CONCLUSION

The main aim of this paper was to describe the ways in which Buddhist principles can be used in order to rehabilitate war-affected children in Sri Lanka. When considering accounts in ancient chronicles and even the previous research in this area, it is obvious that Buddhist practices can be used as alternative healing mechanisms, especially for psychological related problems. But according to this research, since this particular programme mainly focus war-affected children, few practical issues could be observed when they used Buddhist practices as their main rehabilitation methodology. They can, for example, be less appropriate for young children and may not take into account the child's background etc. But if the particular programme uses the Buddhist philosophy and practises it with a good understanding of child psychology, then the successful results could be achieved. This idea was confirmed by the school teachers that were interviewed by the researcher. Therefore, this study revealed that practical issues have arisen due to the programme's organization rather than the methodology that they use. Even though this particular programme shows some weakness in rehabilitating children, it tries its maximum to keep children happy and healthy, and school teachers, community leaders and children themselves proved that children showed significant improvement psychologically and in their participation in social activities mainly because of Buddhist practices.

Accordingly, what has become evident through this study is that in developing countries, where mental health development is not at a satisfactory level, there is a possibility (and an interest) of using social contextual features in the psychosocial healing. In this, importance is given especially to religion and education, and there are a few reasons for this. The first reason is that by using these features, a better service is provided to the community at large more than at an individual level; it also helps to ensure that children affected by war will not be ignored. The second reason is that even though the war could destroy certain social contextual features (for example, family unit); institutions like religion cannot be destroyed easily. Its physical infrastructure might be destroyed, but the ideology itself cannot be erased totally from a society. This study has proved that even with few resources, using religion as a concept, it is possible to rehabilitate children to a certain extent. The third point is that even though advanced and systematic methods exist in psychosocial

rehabilitation, those methods seem to have been hindered by lack of resources in many a war-torn area.

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SOCIAL AND PSYCHOLOGICAL DIMENSIONS OF QUEER REPRESENTATIONS IN INDIAN CINEMA: AN INTERPRETATIVE ANALYSIS

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Abstract- There are many subject matters that are concealed under the veils of invisibility and ignominy by the society and the issues revolving around sexuality and gender rightly qualifies under this category. Such is the overwhelming presence of stigmatization around the topic that any analytical study attempted on it opens up another Pandora's Box of troubles owing to its spillovers into other quarters of the society. India too is not an exception from this social set up where heterosexuality is viewed as the only form of organizing sexuality invisibilising all the other categories i.e. homosexuality, transgender, etc. which does not fall in the normative one. Protests against such essentializing tendencies have taken various forms within the sub-continent. In this paper, we focus on one of most influential tools of resistance, i.e. cinema. We proceed in doing this by taking the cases of a few movies and analyzing its impact on the fulfilling the larger objective of bringing about inclusiveness in the society. The conceptual framework of this research is designed to evaluate the subject matter through a qualitative research methodology which is mainly based upon secondary sources. While doing so, we start with an interpretative analysis of queer cinema in India and look at the larger debate of queer theory in understanding its impact; we also try to understand the larger queer movement in India and the role of cinema in it. We use both social and psychological dimensions of representations of queer sexuality in the Indian cinema. Hence, on the basis of an interpretative analysis, we make a case for the presence of queerness in Indian cinema as the first stammering steps towards bringing about inclusiveness in the Indian society from a social and psychological perspective.

Keywords- Queer, cinema, representations, heteronormativity

I. BACKGROUND OF THE STUDY

There are many subject matters in our society that are concealed under the veils of invisibility and ignominy; the issues revolving around sexuality and gender undoubtedly are one of these subjects that need to be unveiled and discussed. Such is the level of stigmatization around the topic that any analytical study attempted on it opens up another Pandora's Box of troubles owing to its spillovers into other arenas of the society. Infact, our social structure is compounded with such ideals and norms that anything that does not fit the normative standards is termed abnormal and isthus stigmatizedand excluded from the mainstream. The structure of heterosexuality is nothing but one of thatideal creation of the state and society which represented a dominant strand of thought at a particular juncture of time. However, its overarching presence in society symbolizes its influence in preserving the heteronormative mindset of the society and regularizing a specific kind of sexuality as normal and acceptable. Now, the presence of alternative sexualities, like homosexuality, asexuality, etc. challenges this heteronormative social set up and that is where queer movement comes into the picture. Queer movement is a movement of 'the different', of the ones that are not regular; and the ones whose very identity problematizes normative sexuality and gender.

Ironically, "The idea of sex and sexuality as a dangerous and corrupting force, that needs to be contained within the structures of family and marriage was both Indian and Victorian in its origin" (Kapur, 2001). It is because though gender-fluid identities and homosexuality marked its presence in many ancient texts and scriptures, it was always treated as an evil which came to India with the advent of the British rule. Further, it was the British regime who tried to regularize sexual behavior under several codes like the section 377 of the present IPC list. Thus, regularization of bodies and desires went hand in hand.

However, the untamable and volatile nature of the subject has made its way towards limelight only since the last two decades. With the surfacing and re-surfacing of alternative sexualities in various areas of the society, the universalized categories of heterosexuality, male-female binary, etc. have come under critical scrutiny.

Besides the legal protests like organizing pride parades and filling petitions for repealing section 377 of IPC, movies, documentaries, novels, paintings, photography, etc., have become an important and innovative way to communicate the resistance against the naturalized categories of sexuality and gender by the society and state. However, before embarking upon a detailed study of the representations of queerness in Indian cinema, let us first understand the queer theory.

II. QUEER THEORY: AN ANALYSIS

Queer theory is a brand-new area of study and theoretical speculation; it has been named as an area only since about 1991. Queer theory largely followed the premises of post structuralism. Infact, it is in the context of deconstruction and post-structuralism that the category of gender gives way to queer theory (S. Seideman, 1994). In simple terms, queer means something which is unique, weird or different from the rest. However, it is at present closely associated with the increasing LGBTI activism which aims at dismantling the universalized binaries and rejecting heterosexuality, heteronormativity, and heteropatriarchy which seem to dominate ones understanding of sexuality. Teresa De Lauretis coined the term queer and proposed a post-gender theory (Lauretis, 1988). The importance of her theory in conceptualizing transgender lies in its emphasis over 'semiotics of gender' and the process of 'engendering'.

Lauretis believes that sex and gender besides being social constructions are also a semiotic system whereby the construction of gender is both the product and the process of representations. It is a chain of meanings that through a continuous process of semantic connections and usual association produce the subject and their bodies in addition to sex-gender co-relation (Lauretis, 1987). The representation of sex and gender and their connections become concrete reality when they become self-representation. This self-representation takes place when the subject himself/herself assumes an identity through the 'technologies of gender'¹ (*ibid*).

Thus gender is produced within such representation and self-representations as the result of which the subject is engendered. Engendering is a continuous process of attribution of meanings and assimilation that is always reviewable and changeable. This process produces the body which is an abstract social form that is realized when individuals take on representations of their own self (*ibid*).

Thus queer theory, taking the understanding of gender one step ahead, questions the entire process of how bodies derive its meaning through the interpretation of signs and symbols associated with it. And the entire process of creation of a reality about bodies become further concretized when individuals themselves choose a representation for them guided by the overarching systems that speak about the discourses on sexuality.

III. INDIAN QUEER MOVEMENT: ROLE OF CINEMA

Narrain and Bhan (2005) in their famous work *Because I Have a Voice*, argues that the term queer represents a deep personal identity and a defiant political perspective, which means it is personal and political at the same time. It exemplifies a rejection of the primacy given to heterosexual, patriarchal family as the cornerstone of our society. It not only captures and validates the identities and desires of gay, lesbian, bisexual, *hijra*, *kothi* and transgender people but also represents, for many, an

¹ Technologies of gender is a term used by Lauretis in her famous work *Technologies of Gender*, 1986. It means the theories and systems that articulate discourses on sexuality.

understanding of sexuality that goes much beyond the categories of heterosexual and homosexual. In fact, it creates alternative ways of being and ventures into new ways of viewing life.

Queer politics speaks about the issues of these communities as 'minority issues'. It also takes into consideration and questions the larger understanding of gender and sexuality in our society that affects all of us regardless of our sexual orientation. It speaks of sexuality as a politics intrinsically and inevitably connected with the politics of class, gender, caste, religion and so on, thereby both acknowledging other movements and also demanding inclusion within them (Narrain and Bhan, 2005: 3-4). Narrain and Bhan, thus also highlights the intersectional character of sexuality with other categories like class, caste, gender, etc. and it is only through a systematic study of the intersections of all these factors that a clear picture of the discrimination that sexual minorities face in the society can be understood.

In the context of India, it must also be said that it was only in the 1990s when the issue of sexual minorities came into the limelight. Previously, though several steps were taken on individual and collective level to educate the masses, like bringing out journals, documentary, novels, etc., yet it was only when Naz Foundation filed a case in the supreme court to repeal section 377 from the constitution, that the debates around sexuality became inclusive enough to factor in the experiences of sexual minorities into the arena. However, it also must be acknowledged that the very 1st Gay protest happened in India on 2nd August 1992 when a group of gay men and activist assembled in front of Delhi police Head-quarter and shouted slogans about the police harassment incurred upon gay people (Dave, 2012). Nevertheless, it was the release of the Bollywood movie *Fire* (1996) which is recorded to be the 1st mainstream queer cinema in India. The movie was the first of its kind to break the silence about lesbian desires. It sparked waves of reaction all around the country some of which were even hostile like burning of theatres where the movie was screened.

Cinema has always acted as important tools for articulating and dissimilating ideas upon the general masses. The influence of cinema can be felt in each and every corner of the Indian society. Besides the legal dimension of the Indian Queer Movement, Cinema has developed to be an influential creative tool of resistance towards the heteronormativity of Indian society. In fact,

as already been stated, it was the movie *Fire* which for the first time brought the plight of lesbian lovers in the silver screen pushing the topic of alternative sexuality into the forefront at the level of commercial cinema.

The importance of this release were many but the most important change brought by this was that the topic of homosexuality was, for the very first time, articulated on a much bigger scale for a national audience. The movie represented the visibility of alternative sexualities by bringing them to the public realm through cinema.

With the coming of the 21st century, several other movies celebrating alternative sexualities hit the silver screen. Sridhar Rangayan, one of the award-winning directors of India, highlighted the sexual stereotypes existing within the Indian society by making movies like *Gulabi Aaina* (2003), *Yours Emotionally* (2006) and *68 Pages* (2007) which were a leap forward in the field of queer Indian cinema. The self versus other (us versus them) battle is intricately exhibited in the characters portrayed by the director in these movies. He meticulously tries to encapsulate the "othered" treatment imparted to the sexual minorities under a heteronormative social set up (Bhattacharyya, 2016). *Gulabi Aainais* said to be the first Indian film to extensively center on Indian transsexuals with the entire story illustrating the lives of two transsexuals and a gay teenager's attempts to seduce a man - Samir (RufyBaqal). The film explored the outlawed subject matter of transsexuals in India which is still much misinterpreted and looked down upon. The film has received tremendous support and critical acclaim from reviewers, festival directors and global audiences for its successful portrayal of one of the most marginalized section of the society. It has screened at more than 70 international film festivals and won a couple of awards (ibid).

IV. REPRESENTATION OF QUEER CINEMA: SOCIAL DIMENSIONS

From the discussion above we can safely infer that the presence of queerness in Indian cinema has given a new dimension to the social representation of queerness as a subject in the society. Cinemas are considered one of the largest medium of reaching out to people and the very way that the audiences react to movies can portray the mindset and understanding of the society.

The very first social dimension of queer representation in Indian Cinema is the very manner in which the audiences receive or react to the movie. They either view it as something completely alien to Indian culture and hence derogatory, or as something they would want to see considering that people with alternative sexualities exist in our society and has been existing since a long past. It is the second attitude, i.e. of seeing it differently and in a much more tolerant manner is what is cultivated in recent times. We can understand this changing tolerant attitude with the help of the following example. When *Fire* was released back in 1996, the reaction to it was a drastic one. But, it is not the same case when two decades after its release, *Angry Indian Goddesses* and *Margarita with a Straw*, two movies dealing with lesbian love were released in 2016. Dealing with the subject matter of lesbian marriage, these movies problematized many other social issues like rape, eve teasing, sexual objectification of women in cinema, sexual desires of autistic individuals, etc. which revolved round the life of a gender non-conforming or homosexual individual. Hence, the changing attitude with which the cinema-goers have started to view movies with queer elements in it, speaks much about the fact that the society has taken steps towards a more tolerant way, if not inclusive, with their approach towards the subject.

The second social dimension of representing queer cinema in India is the very entry of queer subject into mainstream Bollywood movies. Though initially approached in a much lighter way to add the fun element in the movies, movies like *Kal Ho Na Ho* have portrayed same-sex relationship in the past decade. However, there is a shift in the approach of dealing with the subject at recent times. The 2016 release of mainstream Bollywood movie *Kapoor and Sons* from the same director as *Kal Ho Na Ho*, deals with the issue of gay love in a much more serious manner where the elder son of the family is portrayed as a gay whose family is devastated to know his sexual inclination. The movie deals with different kinds of family turmoil, one of which is presented as the same-sex inclination of the eldest son of the family. Besides this, there were several other movies in the same year which brought the subject of queerness and the struggles of queer individuals into the Indian silver screen like *Angry Indian Goddesses*, *Margarita with a Straw*, etc.

Hence, cinema has played a very important part as a creating a creative tool of resistance against the subjugating forces of heterosexuality and heteronormativity in the society. By representing various gay characters in the

silver screen movies have been able to portray the plight of sexual minorities within the country and their stories of rejection from the mainstream.

V. REPRESENTATION OF QUEER CINEMA: PSYCHOLOGICAL DIMENSIONS

Cinema is a form of illustration which to a large extent is able to represent novel topics and discover spaces from where one can speak of those topics. Queer cinema in this matter has contributed immensely in bringing about that awareness about the lives, struggles, and self-dependence of specially-abled individuals. Individuals who are not within the societal standards of normal are rarely the subject of discussion in movies and serials. They are never portrayed as they general people who take part in everyday life chores like any other individuals and even if they are part of the story-line, the focus is generally on their impairment (Reeve, D, 2006).

In this essay, we have tried to understand the psychological dimension of queer cinema through the lenses of 'psycho-emotional disablism'. Carol Thomas have given an extended social relational definition of disablism where she says 'Disablism is a form of social oppression involving the social imposition of restrictions of activity on people with impairments and the socially engendered undermining of their psycho-emotional well-being.' (Thomas, 2007: 73).

Negative cultural images and the rejection and exclusion of the so-called 'different' bodies from mainstream society have an effect on how people see themselves and also how they are perceived by others. Thus psycho-emotional disablism can be found in many disabled people who internalize the negative social and cultural images about disability inflicted upon them or experienced within their relationships with family, friends, professionals or strangers (Thomas, 1999). This is one of the foregrounds where sexually deviant people feel themselves to be isolated from the mainstream society and often tend to face depression and isolation. However, it must be mentioned here that in the case of homosexuality or any other gender non-conforming identity, the feeling of oppression leading to psycho-emotional disablism is not based on any disability or impairment of the body but on the negative cultural and social images attached

to such bodies the internalization of which makes sexual minorities suffer emotionally and mentally.

Infact, a 2009 summer report from the University of South Florida on LGBTQI2-S says that about one-third of the total suicides attempts among lesbian, gay and bi-sexual communities occur within the same year of their self-identification of being sexually deviant from the mainstream. This feeling of non-acceptance from the mainstream society creates various kinds of mental pressures within the queer community which often leads to a condition called psycho-emotional disability which sometimes leads to even suicides. Infact, Donna Reeves (2014) argued that there are important interconnections between psycho-emotional disability and disability hate crime - acts such as hate speech have a clear association with hate comments from strangers. Disability hate crime covers a range of actions from intimidating a disabled person, vandalism/graffiti, to kidnap, rape, torture, and murder (Quarmby, 2008; Reeves, 2014). The same ancestry which nourish psycho-emotional disability also fuel disability hate crime – prejudice and contempt for disabled people. Such treatment is ‘rooted in the view that disabled people are inferior; in some cases less than human’ (Quarmby, 2008: 8; Reeves, 2014). In the case of queer individuals, such hate crimes are ample in number and clearly visible in all the records. However, the sad reality is that most of such crimes take place in the open streets and often by the very policeman who sworn to protect the people from crimes.

Now, when it comes to creative cinema, it gives a kind of familiar feeling to the queer community where they can associate themselves with the characters portrayed in the silver screen. This gives a feeling of belongingness among the queer community where they no more feel isolated and different. One of such movies is *Margarita with a Straw*. The movie tries to explore the sensitivity and boldness of the lead character named Laila. It tries to explore different abilities of an individual who is physically ill but is not ready to give up or stop hoping for a better future. Instead of dealing with Laila's physical and psychological problems, the plot revolves more around her queer identity, her confusion about her sexuality, her cancer and how her sexuality liberates her from her cocooned self. Despite all odds, Laila is presented as a strong character that acknowledges her lesbian identity and is not at all uncomfortable with it. Such characters, when are portrayed in the movies, can thus inspire queer individuals to fight the battle within themselves and their psycho-emotional disability.

The experiences of exclusion and prejudice can adversely affect anyone's emotional well-being. In that case, one can prioritize the presence of such creative tools like queer cinema that has throughout time help queer individuals. Queer movies have helped individuals to inculcate in them the relatability with the lead characters which have given a representation to their identity in the silver screen. In that case, the feeling of isolation and exclusive, when is expressed through creative channels like cinema; it not only helps in creating a space for gender non-conforming identities but also help in giving an agency of expression to them.

VII. CONCLUSION

Hence, we can conclude the discussion by stating that queer cinema, though of recent origin; have contributed immensely in bringing queer individuals into the table of discussion. By portraying them through such creative means like cinema, which has a large audience base from different quarters and sections of the society, it have been able to visibilize one of the most stigmatized and invisible sections of the society.

It must also be acknowledged that the very representation of queer bodies in silver screen is very difficult. Be it queer bodies or queer desires, its portrayal becomes utmost important because it not only provides an opportunity to represent the plight of queer individuals but also helps the queer individuals to relate themselves with the characters portrayed.

However, the way they are portrayed raises another difficulty of being misrepresented or wrongly presented. For example in the movie *Sadak* released in 1991, a transgender was presented in the character of “Maharani” who ran a brothel to make a living. With her loud and fierce make-up coupled with the red bindi in her forehead, transgenderism was represented as a freak and villainous character. The same goes with the 1999 release movie *Sangharsh* where a transgender was presented as a child-abductor who sacrifices children to attain immortality. Thus, the presentation of transgender as a criminal psychopath have though paved way for their visibility, yet have only added to the negative imagery of queer individuals. It has presented trans bodies as a cite of crime and mystery and sometimes even hurt.

It is these representations of queer bodies (that includes trans-bodies) and desires that have marked a shift in Indian cinema at the beginning of 2000s. Movies have become more attentive towards queer desires and its representations. It has started addressing the perspective of queer individuals about their lives. It has been able to portray the alternative ways of ‘being’ and experiencing life. Further, the coming of queer film festivals in different cities like Chennai and Mumbai has valuably illustrated their space of self-expression. The same bodies and desires which were presented as a site of mystery, evil and abnormal came to be seen with much more inclusiveness.

Queer cinema not only has proved to be an important and creative tool of resistance but have also provided for a queer space within the mainstream society. It is a space where queer individuals can relate themselves with the many others like them and thus do not suffer in isolation and depression. Infact, amidst the different kinds of resistance towards the essentializing techniques of the state or the heteronormative society, queer cinema with its increasing audience base and its effect on queer individuals themselves, can be seen as one of the first stammering steps towards inclusivity of sexually deviant individuals within the Indian society.

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DETERMINANTS OF MOONLIGHTING OF TEACHING PROFESSIONALS IN SRI LANKA

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Abstract- Moonlighting; holding two or more jobs by one individual has become a key feature in the current labour market in Sri Lanka. The majority of professionals moonlight due to financial motives, heterogeneity motives, flexibility motives or hours constraint motives. The main objective of this paper is to identify the determinants of moonlighting of teaching professionals in Sri Lanka. Teaching professionals recorded the highest rate of moonlighting among the professionals. The study uses two Labour Force Survey (LFS) data of 2015 and 2016, taken from the Department of Census and Statistics of Sri Lanka. It includes 2,705 observations on teaching professionals. Binary logit regression model was used for the regression with moonlighting as the dependent variable. The study revealed that moonlighting among teaching professionals increases with age at a decreasing rate since opportunities are based on the experience. Male professionals have a high probability of moonlighting compared to females who face the triple burden of their productive, reproductive and social productive roles. Primary working hours make a negative impact on moonlighting hours. Increased literacy skills in Sinhala and English increase the probability of moonlighting. Being a school teaching professional has significant positive relationship with moonlighting compared to non-schooling teaching professionals. This might be due to hours constraint motive and the financial motive. Further, wage policies and the regulatory policies towards moonlighting would help to increase the efficiency of the education sector of Sri Lanka.

Keywords- Moonlighting, Education Professionals, Moonlighting motives

I. INTRODUCTION

Moonlighting; holding two or more jobs by an individual has become a prominent feature in labour markets of both developed and developing regions today. According to the American Time Survey (2016), the proportion of individuals who moonlight is around 10 percent of the total employed in USA. Moonlighting has been reporting an increasing trend in Sri-Lanka over the time while the latest rate is recorded as 11 percent in 2016 as per LFS 2016. According to Ranasinghe (2005) and Samaraweera (2015), moonlighting is high among skilled agricultural and fishery

workers and professionals in Sri Lanka. Moonlighting rate in education sector in 2010 recorded 11.1 percent and moonlighting among professionals was recorded 9.8 percent in 2010 (Samaraweera, 2015).

According to literature, moonlighting of workers is mainly affected by four motives as the hours' constraint motive (Shishko & Rostker, 1976; Krishnan, 1990), financial motive (Alden, 1971; Abdulkadir, 1992), heterogeneous jobs motive (Sussman, 1998) and flexibility motive (Alden, 1977) in labour supply. Hours constraint motive discusses the tendency of a worker to moonlight in another job due to insufficient working hours in the primary employment (Shishko & Rostker, 1976). Financial motive is the tendency to moonlight for monetary purposes and to improve the living standards of workers (Alden, 1971). Heterogeneous job motive discusses the tendency to moonlight to perform different skills (Sussman, 1998).

Finally, the flexibility motive explains the tendency to moonlight due to the flexibility in work hours and work places (Alden, 1977).

The number of opportunities to moonlight is the main consideration for labour demand. Number of opportunities is affected by geographical factors like residential sector (Samaraweera, 2016) and province, age, gender, the availability of vocational training and the availability of different skills (Krishnan, 1990; Nadrei, 2003).

Moonlighting among teaching professionals can have both positive and negative impacts on individuals, households, primary and the secondary organizations, and the economy as a whole. Although moonlighting contributes the financial wellbeing of teaching professionals, it could have negative spill over effects from the secondary employment to the primary employment and could lead to inefficiencies in the primary organization. Inefficiencies in the sector of education have a long run effect on the development profile of the country. Hence, this highlights the importance of studying this phenomenon in the country.

The main objective of this study is to identify the factors associated with moonlighting among teaching professionals in Sri Lanka. There are two specific objectives in the study in relation to teaching professionals: (i) to identify the supply side factors associated with moonlighting; and (ii) to identify the demand side factors associated with moonlighting.

II. METHODOLOGY

The study used secondary data from Labour Force Survey (LFS) 2015 and 2016, by the Department of Census and Statistics- Sri Lanka. 25,750 housing units were extracted using two stage stratified sampling procedure for both LFS 2015 and 2016.

Two surveys have been used for the study to obtain a sufficient number of observations for the study. The total sample of the study was 2,705 teaching professionals including 1,313 teaching professionals in 2015 and 1,392 teaching professionals in 2016.

A. Variable selection

The choice to moonlight was taken from the question 21 on secondary job holding in the schedule of Sri Lanka Labour Force Survey. Moonlighting employment, of teaching professionals is considered for all of the four-employment status of employer, employee, self-employed or unpaid family workers according to the definition.

Sixteen independent variables have been used by this study. Considering the supply side, primary job hours have been used in the model to incorporate hours' constraint motive into the model. This was mainly discussed by Alden (1971) and Foley (1997). Financial motive has been incorporated into the model with the primary wage as discussed by Alden (1971) & Culler & Bazzoli (1985).

In the demand side, age (Shishko & Rostker, 1976; Krishnan, 1990), age² (Foley, 1997; Nadrei, 2003), gender (Kimmel, 1995; Samaraweera & Ranasinghe, 2015), marital status (Shishko & Rostker, 1976; Sussman, 1998), education (Shishko & Rostker, 1976; Samaraweera, 2016), race (Krishnan, 1990; Kimmel, 1995), residential sector (Shishko & Rostker, 1976; Foley, 1997), province (Sussman, 1998; Samaraweera & Ranasinghe, 2015), training and skills (Krishnan, 1990) and occupation (Alden, 1971; Krishnan, 1990) were incorporated in to the econometric model based on previous studies.

Due to the lack of variables to represent heterogeneous job motive, it is not discussed further under this model. This is a limitation of this study.

B. Hypotheses under study

Hypothesis of this study is given in Table 1.

Table 1. Hypotheses under study

Hi	Hypotheses
H1	Hours constraint motive has an impact on moonlighting among teaching professionals.
H2	Financial motive has a significant impact on moonlighting among professionals.
H3	Moonlighting opportunities based on the individual socio-economic characteristics has an impact on the moonlighting among teaching professionals.

C. The method of analysis: Binary Logit Model

Data under study is analysed using logit estimation: marginal effects model. Logit model has been used to study probability of moonlighting in several studies including Abdulkadir (1992) and Nadrei (2003).

Following is the logit model used to study the probability of moonlighting using STATA/MP 13.

$$L_{it}(Y) = \ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 X_{i1} + \dots + \beta_{16} X_{i16} + u_i$$

Where Y is choice to moonlight and each Xi represents a variable as given in Table 2.

Table 2. Codes of Variables in model

Variables	Dimension	Variables
X ₁	Hours constraint motive	Primary Job Hours
X ₂	Financial Motive	Primary Wage
X ₃ - X ₁₅	Moonlighting opportunities (demand-side)	Age, Age ² , Gender, Marital Status, Years of education, Race, Type of Settlement, Province, Obtain Training, Literacy in Sinhala, Tamil and English, Being a school teaching professional
X ₁₆	Time Factor	Year 2015 and Year 2016

*Age²- Rate of change in choice to moonlight along with age.

Marginal effects of the model are presented in the output due to the feasibility for economic explanation of the variables. Average marginal effects were used here for the calculations in STATA using the command of margins.

III. RESULTS

As the Figure 1 demonstrates, 17% of moonlighters are professional teachers followed by secondary teachers. However, in absolute figures, there are only 6 professional

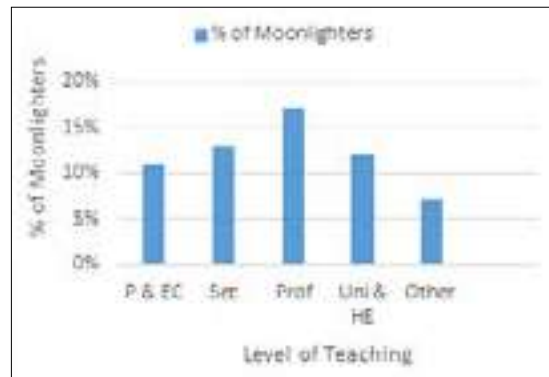


Figure 1: Distribution of Moonlighters based on level of Education

Source: Authors' calculation based on LFS 2015 and 2016

Table 2. Codes of Variables in model

Abbreviation	Term
P & EC	Primary and Early Childhood Teaching Professionals
Sec	Secondary Education Teaching Professionals
Prof	Professional Education Teaching Professionals
Uni & HE	University and Higher Education Teaching Professionals
Other	Other Teaching Professionals

teaching moonlighters while 217 moonlighting secondary teachers.

As per the results (Table 5) of the logit model to identify the determinants of moonlighting of teaching professionals, age, age², gender, primary job wage, literacy in Sinhala and English, occupation and time factors have significant effects on choice to moonlight while marital status, years of education, race, type of settlement, province, primary wage and literacy in Tamil have no significant effect on determining the choice to moonlight by teaching professionals. The model is modelled using robust command in STATA to ensure heteroscedasticity consistent standard errors for the model.

As the marginal effects of logit model explains, when age of a teaching professional increases by 1 percent, the probability of the individual being a moonlighter

increase by 1.40 percent. This means that when a teaching professional is older, the chance of being a moonlighter also increases. This finding is in line with the findings of Foley (1997), Nadrei (2003), Krishnan (1990) and Samaraweera & Ranasinghe (2015). The square of age takes a negative value which implies that when age increases, the probability of being a moonlighter increases but at a decreasing rate (Foley, 1997; Nadrei, 2003). As per Sussman (1998) and Nadrei (2003) when the selected individual is a male, the probability of moonlighting increases. The output of this study is in line with past work. When the selected teaching professional is a male, the probability of that person being a moonlighter increases by 17.54 percent.

When considering factors under hours constraint motive, the primary job hours is critical when making the choice to moonlight. Since time is a fixed factor, it cannot be purchased. If the primary organisation does not fully utilize the capacity of the teaching professional, they have time that can be utilized for another income generating activity. But if the primary organisation fully utilises the time of the employee then, he/she will not have time to engage in another job. This means that the relationship between primary job hours and being a moonlighter is negative (Shishko & Rostker, 1976; Nadrei, 2003; Krishnan, 1990; Samaraweera, 2016). Though the coefficient of primary job hours in the model is not a comparably large value, still it is in line with the past works. When primary job hours increase by one percent, the probability of the teaching professional being a moonlighter decreases by 0.48 percent.

When the skills of professionals improve then usually the probability of choosing to moonlight increases (Krishnan, 1990). As per this model, when literacy in Sinhala increases by 1 percent the probability of being a moonlighter increase by 7.10 percent. When the selected teaching professional is literate in English, the probability of making the choice to moonlight increase by 2.81 percent. Further when a selected teaching professional is a school teaching professional, the choice to moonlight increases by 6.83 percent. Compared to non-schooling teaching professionals, schooling teaching professionals have spare time to moonlight.

Further when considering the time factor, when the teaching professional is from the 2015 the probability of choosing to moonlight decrease by 3.42 percent.

When assessing the overall model, pseudo R² of the logit model under study is recorded as 14.48 percent. The suitability of this model cannot be assessed using this metric. It conveys that the independent variables in the model describes 14.48 percent of the variation in choice to moonlight of teaching professionals.

Since the Prob > chi² is 0.0000, we can conclude that the model is significant at a significance level of 5 percent. This conveys that overall model is significant in defining choice to moonlight using the stated independent variables.

- Base Category: Being female, never married, being non-Sinhalese, residing in non-rural sector, resides in a province except Western province, doesn't obtain a training and illiterate in Sinhala, Tamil & English, being a non-school teaching professional.

IV. DISCUSSION AND CONCLUSION

A. Discussion and Conclusion

The paper seeks to identify the determinants of moonlighting of all teaching professionals in Sri Lanka using the LFS data for 2015 and 2016. Logit model was used in the study. The original data extracted from LFS 2015 and 2016 was adjusted in some cases to dummy variables to ease the study. As per the study, it was evident that age at a decreasing rate, being male, literacy in Sinhala and English and being a schooling teaching professional have significant positive effects on choice to moonlight. Primary job hours have negative effects on choice to moonlight of teaching professionals in Sri Lanka. As per the results, financial motive has no significant effect on the decision to moonlight of teaching professionals while hours constraint motive have significant effects on the decision to moonlight. This may be explained by teaching professionals having more spare time to spend on secondary employment.

B. Policy Recommendations

As explained, financial motives are not the main motive behind moonlighting behaviour of teaching professionals. What motivates teaching professionals to moonlight is hours constraint motive on the supply side and moonlighting opportunities on the demand side. Further it was evident that older individuals are more likely to

Table 4. Descriptive Statistics of Teaching Professionals Moonlighting

Determinants	Variable	No. of Observations	Mean	Standard Deviation
Dependent Variable	Being a Moonlighter (d)	2705	0.1198	0.3248
Hours constraint motive	Primary Job Hours	2705	33.71312	8.42381
Financial Motive	Primary Wage	2349	33878.55	23611.38
Moonlighting opportunities (demand-side)	Age	2705	40.9597	11.3873
	Age2	2705	1807.32	976.9776
	Being Male (d)	2705	0.2684	0.4432
	Being Ever Married (d)	2705	0.8055	0.3959
	Years of Education	2705	14.2654	2.4718
	Being Sinhalese (d)	2705	0.6917	0.4619
	Being a Rural resident (d)	2705	0.7412	0.4380
	Being a Western Province Resident (d)	2705	0.2277	0.4194
	Skills			
	Obtained Training (d)	2705	0.3786	0.4851
	Being Literate in Sinhala (d)	2705	0.7856	0.4105
	Being Literate in Tamil (d)	2705	0.3475	0.4763
	Being Literate in English (d)	2705	0.6348	0.4816
	Being a schooling teaching professional (d)	2705	0.8799	0.3252
	Time factor	Year 2015 (d)	2705	0.4854

Source: Findings of Researchers based on LFS 2015 & 2016

Table 5. Results of Logit Model of Moonlighting of Teaching Professionals

Determinants	Variable	Coefficient in marginal effects of logit (dy/dx)	Standard Error	P value
Hours constraint motive	Primary Job Hours	-0.0048	0.0010	*0.000
Financial Motive	Primary Wage	0.0001	0.0001	0.926
Moonlighting opportunities (demand-side)	Age	0.0140	0.0049	*0.004
	Age2	-0.0001	0.0001	*0.007
	Being Male (d)	0.1754	0.0127	*0.000
	Being Ever Married (d)	0.0196	0.0225	0.383
	Years of Education	-0.0042	0.0027	0.122
	Being Sinhalese (d)	0.0325	0.0369	0.378
	Being a Rural resident (d)	-0.0129	0.0158	0.414
	Being a Western Province Resident (d)	-0.0053	0.0167	0.749
	Being a school teaching professional (d)	0.0683	0.0229	*0.003
	Skills			
	Obtained Training (d)	0.0205	0.0133	0.123
	Being Literate in Sinhala (d)	0.0710	0.0297	*0.017
	Being Literate in Tamil	-0.0047	0.0298	0.875
	Being Literate in English	0.0281	0.0141	*0.046
	Time factor	Year 2015 (d)	-0.0342	0.0129
Constant	N/A	Logistic -5.2223	1.1813	*0.000

Source: Findings of Researchers based on LFS 2015 & 2016
 *Significant coefficients at 10% significant level

moonlight. Similarly, males moonlight more compared to females, while better literacy skills influence the decision to moonlight.

To encourage moonlighting among teaching professionals, responsible authorities should pay attention to utilising the capacity of working hours that teaching professionals are willing to contribute. To encourage female moonlighting, they should be given support for the triple burden they face. Establishing child caring organisations is a possible solution for teaching mothers to engage in moonlighting. Organising training programmes to improve language skills at school/institutional level will encourage the teaching professionals to moonlight. A proper mechanism should be implemented to utilize the unutilized capacity of non-school teaching professionals to ensure that they will also be enthused to moonlight.

V. ACKNOWLEDEMENT

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TOURIST MOTIVATIONAL FACTORS THAT AFFECT TOURIST VISITING DECISION-A CASE OF SRI LANKA

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Abstract- With the globalization and the open market policies of different nations, the movement from one country to another has been drastically increased among the people. Out of the most sustainable industries in the world, the tourism industry is showing a significant landmark over the years. There is a trend in the global market towards tourism industry as many people are currently looking for self-fulfillment needs over basic needs (Maslow's Hierarchy of Needs). Sri Lanka is possessing the geographical advantage over other countries with the natural beauty and peaceful environment within the local territory. After 30 years of war and the new development practices in modern Sri Lanka provide good insights to the foreigners to visit Sri Lanka. In this context the most important thing is to understand the reasons for choosing Sri Lanka over other countries and what exactly impact on their visiting decision. Therefore the main objective of this study is to understand what motivates a foreign tourist to visit Sri Lanka and what motivates on their visiting decision. This study will be based on push (Intrinsic) and pull (Extrinsic) motivation factors as those are the main driving motivational factors in the tourism industry. The sample population for this study was 100 foreign tourists and which have been selected from the departure section of the Bandaranayake International Airport. The data was gathered through structured questionnaire and Statistical Package for the Social Science (SPSS) used to analyze the data.

There were many surprising key findings of this study and it founded that Sri Lanka is an emerging destination towards sightseeing, sports activities and other leisure activities. Findings clearly showed that the tourist who visits Sri Lanka has very less motivation to stay at hotel and get the comfort of the hotel. Staying and relaxing at

the hotel is not that much strong motivational factor in the Sri Lankan context. The findings will help many sectors in Sri Lanka such as hotel industry, travel and tourism industry, sports and leisure management industry, event management industry, to incorporate good improvements to their tourism products.

I. INTRODUCTION

Sri Lanka is a country which is filled with natural beauty and it has the unique features that most of the countries are lacking with. Because of this beauty, Sri Lanka is named as the Pearl of the Indian Ocean. Since the history in Sri Lanka it attracts a lot of foreigners from different countries for different reasons. Because of its diversity in terms of culture, religions, weather conditions, and all other climatic conditions, it attracts most of the tourists over the years. As the industry is boosting and the many government incentives are coming to this industry (Ex: Year 2011 they named as "Visit Sri Lanka Year" (Anjana et al., 2012)), it is worth of studying the foreigners travel motivations to visit Sri Lanka.

Therefore as a country we should have a responsibility to clearly categorize all the possible types of motivational factors. The reason is the tourist satisfaction depends on the level they meet their exact motivations. As an example if a tourist having a motivation to do wildlife photography, we as a service provider needs to facilitate that.

When we are studying about the tourist motivations there are two main motivation types namely Push motivational factors and pull motivational factors. Even though the motivation is only the one variable of the tourist decision,

it is highly impacting on the tourist visiting decision (Baloglu & Uysal, 1996).

'Push' factors are internal feelings or inner factors and it is more intangible oriented. Intrinsic expectations of the individual traveler e.g. rest and relaxation, adventure, health or prestige, sports, culture and heritage studying motivations are some examples.

'Pull' factors are external factors and it is linked with the attractive characteristics of a particular destination and they are more tangible and visible in nature such as wildlife, shopping destinations, medical destinations(Cuba), beaches, accommodation, heritage, religious sites and cultural and historical resources according to Uysal & Hagan, 1993 (as cited in Kozak, 2002) .

When it comes to the global context, there are a few studies regarding tourist motivational factor analysis. The uniqueness of this study is addressing the Sri Lankan situation and the model has adjusted to the Sri Lankan context. There are no sound studies conducted regarding what motivational factors affect tourist visiting decision in Sri Lankan context. This study address that gap and reach some good findings to match with Sri Lankan tourist market requirements.

With the intention of filling that gap, this study is focusing to address the following two research objectives.

1. To understand the push motivational factors that affect foreigners to visit Sri Lanka as tourism destination.
2. To understand the pull motivational factors that affect foreigners to visit Sri Lanka as tourism destination.

II. LITERATURE REVIEW

Global Tourism Industry

In the global context the global tourism is defined as the type of a practice of travelling for somewhere for different reasons such as business, education, pleasure or relaxation (Simkova & Holzner, 2014). According to the World Travel and Tourism Council the global travel and tourism industry is the biggest industry in the world. When we look at the past growth of the global tourism industry we

can find immense growth over the time period. In 1950 the International Tourist Receipt was 2.1 billion USD. In 2002 it showed that 478 billion USD (World Tourism Organization, 2003). It was recorded around 1.25 trillion USD revenue by the end of 2014.

Sri Lankan Tourism Industry

Most of the important part of the Sri Lankan tourism industry is the location of the country. The uniqueness of the location itself attracts most of the foreign tourists to the country. Over the year the expansions of the hotels, resorts, spas and other infrastructures promote Sri Lanka as a nice destination to be visiting among the foreign visitors.

As a very much important milestone of the Sri Lankan tourism industry, the Ceylon Tourism Board was formed by the Sri Lankan government in 1966 and in 2005 the Sri Lanka Tourism Development Authority formed under a new parliament act (Sri Lanka Tourism Development Authority, 2015).

Travel purposes

In the tourism industry there are two main types of tourism purposes. The first one is leisure travel purpose and the second one is business travel purpose (Mill & Morrison, 2012).

According to their studies there are many activities included under the leisure travel motivations. Meet friends and relatives, Family sightseers, outdoor vacation, resort vacation, foreign vacation, shopping, beaches and adventure. When it comes to the business travel purpose it includes the regular business travels, participating meetings, conferences, conventions and occupational designations (Mill & Morrison, 2012).

Motivation

When we define the motivation it's better to find how the word "Motivation" derived. The term "Motivation" has been derived from the Latin word of "Movere". In Latin "Movere" means move, energize or activate (Jyothi, 2011). According to Jyothi (2011), there are two main types of motivation namely "intrinsic motivation" and "extrinsic motivation". Intrinsic refers the internal driving factors of a person and extrinsic refers the outside third party factors which make the influence on the human behavior.

Tourist Travel Motivation

The tourist travel motivation can be mentioned as the key factor to any tourist when they decide their next tour or vacation in a new country. The outcome of any tourist decision will be based on the type of motivation they have. Most of the researches have used Maslow's hierarchical theory (1970) as the base for the tourist motivational studies according to Jang and Cai, 2002 (as cited in Huang & Hsu, 2009) Based on the kind of motivation they have in their mind will decide their next tour package.

According to "Psychology of travel" (2015), says that a motivation of travel is multiple and there are variety of motivations to visit a particular destination. Ex: escape, relaxation, relief tension, family togetherness, education, status and prestigious are some of examples. According to "Psychology of travel" (2015), it further identifies four types of "Travel Motivator types".

1. **Physical Motivators:** This involves the physical activities like rest, sports participation, beach walks and recreation and entertainments.
2. **Cultural Motivators:** Willingness to study about the new cultures and enthusiasm to being part of the new cultures.
3. **Interpersonal Motivators:** Here the people would do travel because they want to meet new people, meet their friends in foreign countries, see neighbors etc.
4. **Status and Prestigious Motivators:** This category comes with the Ego satisfaction of each of the tourist and to get social status by travelling. They believe that the travelling will enhance their recognition and their individual reputation.
5. According to Hailu (2013) different level of travel experience of individual can be impacted on the individual travel motivation and he identifies domestic travel experience, International travel experience and Age as the three main levels of such travel experience.

Push motivation

Push motivational factors refers that the intrinsic factors or the person oriented factors according to Yoon & Uysal 2005 (as cited in Correia, Kozak & Ferradeira, 2013). From one person to another, requirements, willingness are

different. Individual desires can be considered as one of the most powerful determinant factor of the intrinsic or push factors according to Reiss, 2004 (as cited in Correia, Kozak & Ferradeira, 2013). Ex: There are some tourists they like to stay in a hotel and relax for the entire day.

There are some tourists they do not like to spend the day in a hotel but they want to travel as much as they can, engage some sports and adventure activities. There can be some tourists they like wild life, photography and natural beauty. Therefore they like the hotels located inside the jungles, sightseeing, ecofriendly hotel arrangements and they do not like to stay in city based hotels. Therefore it is very clear that there are some people oriented factors that pushes people to make their visiting decisions and based on that factor they will plan their entire foreign vacations. According to Baloglu and Uysal (1996), desire for escape, rest and relaxation, health and fitness, adventure, prestige, and social interaction are considered as push motivation factors.

Push motivation factors again can be varied from male tourist to female tourist. Based on the gender of a person, there can be different types of internal motivation factors. As suggested by Kirkwood (2009) females have different push motivation factors and males may have different motivation factors. Most of the cases the push factors are related to the ego satisfaction of the individuals where social status maintaining and showing their social values. As human beings all of the people like to show their social levels to others and they feel the travelling as one of the ways of expressing their personal brand. Satisfying their ego will be the key determinant factor of any tourists and the initial location settings will be based on the push motivation factors (Dann, 1981).

Pull motivation

Pull motivational factors refers the external attributes or destination oriented factors. That destination factors can influence the tourist visitation decisions according to Correia and Pimpa, 2008; Crompton, 1979; Dann, 1977, 1981; Uysal and Jurowski, 1994 (as cited in Correia, Kozak & Ferradeira, 2013). These factors are varied from destination to destination.

These factors explain why a particular destination has selected by the tourists as per Dayour, 2013 (as cited in Dayour & Adongo, 2015). Pull factors are having the

capability of attracting the tourists to the particular destination. Ex: Sigiriya has the unique attributes in terms of the heritage, arts. That feature itself attract tourists to the Sigiriya. Kithulgala has the location advantage for the water sports and activities. Therefore that place attracts the people who likes rafting.

Modern atmosphere and activities are the first identified pull factor in the tourism sector. It has the following sub areas of factors. Visiting to modern developed cities, playing games like casinos, star class hotels, participate musical concerts and experiencing new atmosphere (Yoon & Uysal, 2005). Wide space and activities is the second factor and there are three sub factors under this heading. Get away from crowd and be relax, budget accommodation and different activities to watch (Yoon & Uysal, 2005).

Small size and reliable weather acts as the third factor of the pull factor and it is also having three sub factors. Personal safety, expected and reliable weather conditions and manageable size. The safety of a particular location is very important factor for tourist and weather reliability is one of the main determinant factors of the safety (Yoon & Uysal, 2005). Natural scenery plays the fourth factor of destination attributes and it has two main sub factors under it. Rock and mountain areas, remarkable and outstanding scenes motivate people to visit beautiful locations. People like to see natural beauty and get the relax feelings (Yoon & Uysal, 2005)

Therefore visitors from different countries may visit such destinations solely on getting that experience. According to this study the culture of a particular country or a destination acts as one of the most influencing attractive factors.

Interrelationship between push motivation and pull motivation

There are many importance of understanding the inter relationship between the push and pull factors and both the marketers and destination promoting professionals should understand both the specific destination attributes and tourist psychological needs to introduce more customized service (Mohammad, Mohammad, & Som, 2010). Firstly the individual tourist's visitation decision arises from the intrinsic factor (Push factor) and it can be changed based on the actual attributes of the particular destination according to Gartner, 1993; Dann, 1996;

Baloglu and Brinberg, 1997 (as cited in Mohammad, Mohammad, & Som, 2010).

According to the Crompton (1979) push-pull theory is mutual theory which defines the overall tourist behavior. Therefore by isolating just one theory and come to the conclusion about the tourist behavior is not practical (Crompton, 1979). Tourist motivations are varied from time to time and they are multiple. One theory alone cannot perform or give the conclusion about the impact they create on the entire tourist behavior (Crompton, 1979).

The initial travel decision is starting with the intrinsic motivation of the individual and it will follow by the pull factors of a particular destination. According to the above given examples even it clearly says that the because of their inner feelings, people will be searching a particular place for the best fit to fulfill initial desires. That is very much clear that tourist visiting decision will only occur when the both push and pull factors intersect to each other (multifaceted).

Tourist satisfaction

Tourist satisfaction is inherent factor for individual tourist and the difficulty of measuring the tourist satisfaction is because of the intangible nature of it. The satisfaction may be varied from one person to another even in the same tourist product.

As the tourist satisfaction is inherent factor, the best way to satisfy all the tourist is to have some standardize form of tourist products and services with high quality standards. When it comes to the location management or promoting the destination, it is very much important to maximize the tourist satisfaction. That will be the key factor of the success of any tourist product (Mohammad & Som, 2010). The best way to enhance the destination loyalty is maximizing the tourist satisfaction. When they get the positive feelings about the particular destination, happy about their services, automatically they will be loyal to that specific destination (Mohammad & Som, 2010).

The destination management professionals should formulate strategies in a way that satisfy the tourist expectation. It has the direct relationship with the tourist satisfaction. To ensure the positive viral marketing effect and the revisit, satisfying their exact needs is very much

needed. The strategy formulation of their destination should be based on "how we can satisfy our visitors?". The post experience evaluation is very common in the tourism industry and it will be completely based on the level of satisfaction they gained.

Relationship between tourist motivation and satisfaction

The extent the country, particular hotel or a tourism company that meets the exact tourist motivation will determine the level of tourist satisfaction. Tourism satisfaction is most commonly studied topic in the tourism sector as discussed by Kozak et al., 2003 (as cited in Correia, Kozak & Ferradeira, 2013). According to Olivier and Swan, 1989 (as cited in Correia, Kozak & Ferradeira, 2013) there is a theory in this sector call "Equity theory" which says the satisfaction is the kind of tradeoff between what tourist sacrifice and what tourist gain actually.

Satisfaction is something that fulfilled gain by the tourist after consuming some tourist product as per Oliver, 1997 (as cited in Dayour & Adongo, 2015). Understanding the tourist satisfaction is one of the most important parameter that can use to analyses the performances of the particular tourist activity according to Noe & Uysal, 1997; Schofield, 2000 (as cited in Yoon & Uysal, 2003). There is a causal relationship between tourist motivation and tourist satisfaction according to Yoon and Uysal, 2005 (as cited in Aziz & Ariffin, 2009).

Hypotheses

Based on the research questions, research objectives and the theoretical framework, the following ten hypothesis can be developed and at the end of the research study each and every hypothesis will be tested. However in this study area there is a lack of previous study about the "Motivational factors that affect tourist to visit Sri Lanka" and because of that it suffers with lack of developed existing hypothesis exactly in Sri Lankan context. But there is a very similar research done in Northern Cyprus by Yoon and Uysal, 2005 and in that study they have identified several push and pull factors and they have developed hypothesis based on that factors (Here 5 from each factor).

H1- Knowledge factor/Education will have a positive effect on tourist visiting decision.

In the above Knowledge factor will refer the education considerations that each tourist focus by visiting to a

particular country. There are five sub categories have been identified under the Knowledge factor by Yoon and Uysal, 2005. They are experiencing new/different lifestyles, trying new food, visiting historical places, meeting new people, being free to act how I feel (Yoon & Uysal, 2005).

H2- Relaxation factor will have a positive effect on tourist visiting decision.

According to Yoon and Uysal, 2005 there are two main sub relaxation factors that creates an effect on the tourist's visiting decision. Doing nothing at all, getting a change from a busy job. According to Mohammad, Mohammad, and Som, 2010 has identified three sub categories of Relaxation such as to be away from home, to relax physically, to find thrills and excitement.

H3- Sightseeing factor will have a positive effect on tourist visiting decision.

Sightseeing is the intrinsic feature of an individual tourist that has an effect on their visiting decision (Yoon & Uysal, 2005). There are sub areas of sightseeing such as to fulfill my dream of visiting a foreign land/country, to sightsee touristic spots, to explore cultural resources (Mohammad, Mohammad, & Som, 2010).

H4- Maximizing prestige factor will have a positive effect on tourist visiting decision.

It consists with increasing social status, enjoying simpler and solitude life style according to Mohammad, Mohammad, and Som, 2010 there is an impact of the escape factor on the tourist visiting decision.

H5- Enhancing relationship factor will have a positive effect on tourist visiting decision.

There is a relationship between enhancing relationship and visitation decision and it consists with four sub categories as to enhance communication with local community, to exchange custom and traditions, to participate in new activities, to appreciate natural resources (Mohammad, Mohammad, & Som, 2010).

H6- Natural scenery factor has positive effect on tourist visiting decision. Mohammad, Mohammad, and Som, 2010 says that natural beauty is a determinant visiting

factor of tourists. According to them it is one of the pull factors and it has two main sub categories namely Natural Reserves, Beautiful Beaches.

H7- Different cultures will have a positive effect on tourist visiting decision.

Interesting and friendly local people, Different culture, Historic old cities are considered as the most important cultural reasons as to why tourists visit to a particular destination (Yoon & Uysal, 2005). Therefore the above hypothesis can be developed.

H8- Sports and water activities will have a positive effect on tourist visiting decision.

There are some places very much suited for sports and water activities because of the special attributes of a particular place. Water sports, surfing and adventurous games are very much popular among sports tourists (Yoon & Uysal, 2005). Therefore the above hypotheses can be developed.

H9- Small size and reliable weather will have a positive effect on tourist visiting decision.

Climate and weather will be a key external attribute of a particular destination and tourists are willing to get that experience (Yoon and Uysal, 2005; Mohammad, Mohammad, and Som, 2010). Therefore the above hypotheses can be developed.

H10- Easy access and affordability will have a positive effect on tourist visiting decision.

When the tourists are selecting some destinations, there is a tendency of considering the affordability of the tour package and convenience of getting visa to that particular destination (Mohammad, Mohammad, and Som, 2010).

Theoretical Framework

In order to understand and reducing the number of push and pull motivation factors, here uses the Exploratory Factor Analysis (EFA) model, which has been used in a similar study done in Northern Cyprus and the findings of that study can be applied for the here as well in order to develop the independent variables as well as the hypothesis (Yoon & Uysal, 2005).

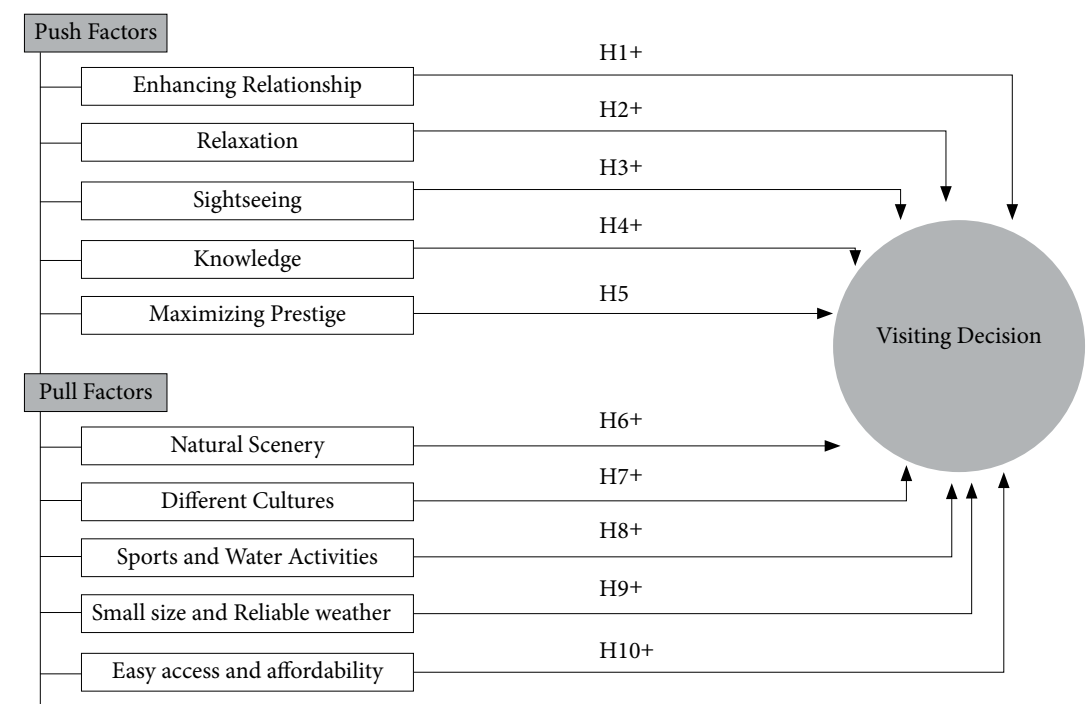


Figure 1. Theoretical Framework for the Research

III. METHODS

Population and Sample

The population of the study is the targeted unit of analysis in the particular study. The purpose of using the population is collecting the data we need for the study. Selecting the right population will be very much critical to reach an unbiased evaluation and conclusion. In this research the target population is the foreign tourists they are visiting to Sri Lanka from all around the world. The sample of the study is the targeted respondent from the population for the purpose of the data collection. All the questioner distributions and interviews have been done among the targeted sample. In this research the sample is 200 foreigners among the foreign tourists visiting to Sri Lanka from different country.

Data Analysis

In the data analysis section, the gathered data has been evaluated by using different types of techniques. In order to analyses and measure the push and pull factors the five point Likert-type scale has been used. From very much agree to not at all agree (Yoon & Uysal, 2005). The hypotheses have been tested against the information we gathered by distributing questioners and based on the data we gathered through interviews. The final objective of the data analysis is to understand and interpret the relationship between push and pull factors and the tourist's visiting decision. In order to analyze data in this research the Mean value, regression analysis, T-test and One-Way ANOVA test has been used.

IV. RESULTS AND DISCUSSION

This section presents the analysis and discussion of the empirical findings of the study. This study consist of 10 hypothesis and different techniques have been used to test each of those. Mean value has been used to test the H1, H5, H6 and H7. Such mean values showing 4 and above in the Five-Point Likert scale citing that all the above independent variables relating to H1, H5, H6 and H7 are positively impact on the tourist visiting decision to Sri Lanka.

In Five-Point Likert scale 1 represent the poor impact and the 5 shows the very high positive impact. As all the above

hypotheses are showing high impact, we can conclude that Sri Lanka is very much rich in terms of the above motivational factors.

H2 and H9 have been tested using the regression analysis. In both H2 and H9 shows high R2 values closer to 1. With that need to consider the ANOVA significance value as well. H2 shows 0.063 significance and H9 shows 0.000 significance values. It indicates that H2 is rejecting and H9 will be accepted in this study. It is surprising that the relaxation factors does not positively effect on the tourist visiting decision to Sri Lanka.

This finding was very much remarkable and it is unique to the Sri Lanka. According to this finding we can categorize Sri Lanka as one of the destinations to travel, sightseeing and not a popular place to stay and relax.

H8 has been tested using T-test technique. The overall significant value of the H8 records value below 0.05. It indicates very much significant positive impact by the sport and water activities to the tourist visiting decision in Sri Lanka.

H3, H4 and H10 have been tested using One-way ANOVA test. Here the focus is given to the significant value and all the above three hypotheses show 0.000 significant values. It indicates that all the above three independent variables are highly significant to the dependent variable and positively impact to the tourist visiting decision to Sri Lanka.

V. CONCLUSION AND IMPLICATIONS

Conclusion

Tourism sector in the world is boosting as part of the modern development and Sri Lanka is one of the best destinations in the world to get the more tourist attraction. The most important factor for the successful tourism is to first understand what motivates them to visit Sri Lanka. By identifying that we can fulfill their exact requirements and then it will increase their post satisfaction. In this study the priority is given to understand and examine the tourist motivational factors.

According to the findings in this study there are more Western Europe tourists in Sri Lanka. East Asians hold the second place. Therefore it is clear that these two categories

are from two regions. Therefore there are huge difference in terms of culture, language, food patterns and income distributions. As a country we have to consider that as well when we make decisions regarding tourism development in Sri Lanka. And also as a country we have to introduce our own tourism package including above mentioned services and this would help us to differentiate Sri Lanka from the rest of the tourist destinations.

Therefore in conclusion we can mention that most of the foreign tourist visit to Sri Lanka is having knowledge enhancing motivation and travelling all around the country to watch nice places in Sri Lanka. They do not have much intention to stay at Sri Lankan hotels and just relax.

Limitations of the study

This study was conducted by targeting foreign tourists. Therefore the main problem faced was the poor corporation from the tourist. As Sri Lanka is still a developing country, most of them are not willing to share their ideas. And also it was very difficult to collect data when there are enjoying their days in Sri Lanka. Most of the foreigners are not familiar with English even though it considers as international language. Therefore get the support from them was a bit tough task.

As the motivational factors may be varied with person to person the sample size should be large. But with the time constraints and other difficulties (Get the approval from Airport and Aviation authority) reaching large amount of foreigners were difficult.

Direction for Further Research

Study about tourism motivation is one of the most important determinant factor of the successful tourism industry. Whenever they decide to travel away from their home country the first thing matters is the motivation According to Mak, Wong and Chang, 2009 (as cited in Dayour & Adongo, 2015). Therefore it is clear that tourist motivation is very important factor. In Sri Lanka there is lack of studies conducted related to tourist travel motivation. There are many reasons for that. As tourist motivation may change from time to time, as it could vary from one tourist to another can be seen as reasons to the lack of studies relating to this topic in Sri Lanka.

In this study I have used five push motivation factors and five pull motivation factors. I have tested how all these ten motivation factors could impact on the tourist visiting decision in Sri Lankan context. But there are many other push and pull factors in the tourism sector.

There is a lack of studies about those factors that I haven't covered in this study and lack of studies regarding how those factors could affect visiting decision in Sri Lankan context. There are eight push motivation factors and ten pull motivation factors in the tourism sector (Yoon & Uysal, 2005). There are eight push and pull motivation factors in the tourism industry (Mohammad, Mohammad, & Som, 2010). Therefore it is very clear that there are many other tourist motivation factors which haven't tested in this study. Therefore I provide direction to future researchers to focus on those areas in the future studies and do the studies regarding how those factors could affect to the Sri Lanka tourism industry.

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THE IMPACT OF TRANSACTIONAL CONTRACT FULFILLMENT ON ORGANIZATIONAL COMMITMENT IN SELECTED BANKS IN BATTICALOA DISTRICT

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Abstract- Employees are the essence of success in every bank. In order to be successful, a bank must ensure the organizational commitment among the employees. Transactional Contract Fulfillment has been considered as one of the most important predictors of Organizational Commitment. In Sri Lankan context, a few empirical studies have been conducted with the relationship between Transactional Contract Fulfillment and Organizational Commitment of employees. So, there is an empirical knowledge gap exists in the Transactional Contract Fulfillment and Organizational Commitment. Hence, this study attempts to fill this knowledge gap. This research is limited to the 12 Licensed Commercial Banks (LCBs) main branches in Batticaloa District. Total of 174 questionnaires were distributed to employees in banking sector in Batticaloa District. Only 150 questionnaires were received and used for analysis. The data were analyzed using by descriptive analysis, Pearson correlation and multiple regression analyses with the support of Statistical Package for Social Science (SPSS 19.0). The results show that the level of Transactional Contract Fulfillment and Organizational Commitment are in high levels in selected banks in Batticaloa District. Overall finding from this study is identified that, there is a strong positive relationship between Transactional Contract Fulfillment and Organizational Commitment in selected banks in Batticaloa District. Lastly, the regression analysis between Transactional Contract Fulfillment and Organizational Commitment indicated that 27.1% of total variance of Organizational Commitment is explained by Transactional Contract Fulfillment in selected banks in Batticaloa district.

Keywords- Affective Commitment, Continuance Commitment, Normative Commitment,

1. INTRODUCTION

The transactional contract is the reciprocal set of employer and employee obligations and the beliefs an individual hold concerning the implicit terms of an agreement between the employee and the employer (Coyle-Shapiro & Kessler, 2002). The transactional contract is based on the material benefits' satisfaction of both sides. Employees do not become the organizational members really but they only concern about the short-term material rewards and personal benefits. Closed-ended time frame, exchange of economic resources, unambiguous performance standards and limited mutual investment between employer and employees are the characteristics of transactional contract (Rousseau 1995).

Organizational commitment reflects the psychological status between employees and organizations. Organizational commitment implies employee determination of whether to stay or not stay in the organization (Meyer & Allen, 1991). Organizational commitment is directly related to employees' performance, organization's profitability and competitive position in the market. Therefore, organizational commitment is treated as an issue of great importance. The strength of the commitment is dependent on various factors. In this study, the researcher is tried to identify the relation of

Transactional Contract Fulfillment with Organizational Commitment in Selected Banks in Batticaloa District.

There is a lack of transactional contract researches referring to employer fulfillment of psychological contract to the employee (Grimmer & Oddy, 2007). The examination of the relationship between Transactional Contract Fulfillment and Organizational Commitment within different context is valuable in order to understand the influence of context on these relationships (Kraft, 2008). A few studies had been conducted on the types of Transactional Contract Fulfillment and the relationship with the three component of Organizational Commitment, although the three components of organizational commitment results are often inconsistent (Anderson, 2014).

Due to the significant cultural and organizational differences between Sri Lanka and developed countries in the West, the transactional contract theory proposed in the Western world may be not suitable in Sri Lanka. Many current studies of transactional contract fulfillment have considered entire employees in researches but lack concrete discussions of employees with different sector (Zhao et al., 2007). In Sri Lankan context, few empirical studies have been concerned with the relationship between Transactional Contract Fulfillment and Organizational Commitment of employees in selected banks. So, bankers must study about the Organizational Commitment with the Fulfillment of Transactional Contract. So, researcher examines this problem in this study and attempt to fill this knowledge gap and provide facts on the current state of employment relationship.

Therefore, the objective of this study is to investigate the impact of transactional contract fulfillment on organizational commitment in selected banks in Batticaloa District. Therefore, the research question of this study is: "How does Transactional Contract Fulfillment Impact on Organizational Commitment in Selected banks in Batticaloa District?"

II. METHODOLOGY

According to the Central Bank of Sri Lanka (2014), the Sri Lankan banking sector comprises of 2 major categories, namely Licensed Commercial Banks (LCBs) and Licensed Specialized Banks (LSBs). As at December 2014, there were 25 LCBs and 9 LSBs in Sri Lanka (Central Bank of Sri Lanka, 2014). In those 25 LCBs, there were 12 LCBs in Batticaloa District. This research is limited to the

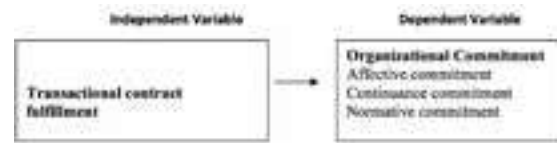


Figure 1 Conceptual Framework of the Transactional Contract Fulfillment and Organizational Commitment (Source: Zhou et al., 2014)

12 Licensed Commercial Banks (LCBs) in Batticaloa District. As there were limitations in time and resources it is limited to main branches in Batticaloa District. The total population of the study was 174 of employees of selected banks in Batticaloa district. Selected 12 Licensed Commercial Banks (LCBs) are Amana Bank, Bank of Ceylon, Commercial Bank, DFCC Bank, Hatton National Bank, National Development Bank, Nations Trust Bank, Pan Asia Bank, People's Bank, Sampath bank, Seylan Bank, Union Bank. In this study, the researcher considers population as a sample, because number of respondents in the population is very small (174) and it is practically possible to collect data from every element of the population. The study totally depends on primary data. The final questionnaire includes utilized scale is Likert's five-degree range. The questionnaires are issued to 174 employees who are working in the selected 12 Licensed Commercial Banks main branches in Batticaloa District. However, out of total 174 questionnaires, 86% questionnaires were received (150 respondents) for analysis.

III. RESULTS AND DISCUSSION

All attributes of the transactional contract fulfillment and organizational commitment were tested for reliability analysis. Transactional contract fulfillment cronbach's value is 0.923 and organizational commitment cronbach's value is 0.935. A Cronbach's Alpha coefficient of 0.7 and higher is adequate and signifies high reliability (Jermier & Berkes, 1979; Sekaran, 2003).

3.1 Univariate Analysis

3.1.1 Univariate Analysis of Transactional contract fulfillment and its Dimension

The Table 1 shows clear picture about the level of transactional contract fulfillment and its dimension of

Table 1. Univariate Analysis of Transactional Contract Fulfillment and its Dimension

Dimension	Mean	Std deviation	Decision Attribute
Limited involvement	3.17	1.09	Moderate level
Training for current job	3.26	1.03	Moderate level
Job boundary	3.31	0.98	Moderate level
Limited duties	3.16	1.04	Moderate level
Short term employer expectation	3.08	1.07	Moderate level
Low commitment to retain	3.07	1.01	Moderate level
Short term employment	3.05	1.01	Moderate level
Short time opportunity	2.99	0.96	Moderate level
Transactional contract fulfillment	3.14	0.83	Moderate level

(Source: Survey data)

selected banks in Batticaloa District. The mean value of the transactional contract fulfillment is 3.14 with the deviation of 0.83. According to this it revealed that there is a high level of transactional contract fulfillment (High level= 3.13 < X1) in selected banks in Batticaloa District. Further, all dimensions of transactional contract fulfillment are moderate level in selected banks in Batticaloa district. Among the of the transactional contract fulfillment, job boundary has the high mean value (\bar{x} =3.31) with the deviation of 0.98 while compare with other indicators.

3.1.2 Univariate Analysis of Organizational Commitment and its Dimension

The Table 2 shows that, the organizational commitment in terms of affective commitment, continuance commitment and normative commitment are high level in selected banks in Batticaloa district. Finally, overall organizational commitment mean value is 4.03 with standard deviation 0.53 which shows that there is high level of organizational

Table 2. Univariate Analysis of Organizational Commitment and its Dimension

Dimension	Mean	SD	Decision Attribute
Affective commitment	4.18	0.61	High level
Continuance commitment	4.01	0.56	High level
Normative commitment	3.85	0.64	High level
Organizational commitment	4.03	0.53	High level

(Source: Survey data)

commitment among employees in selected banks in Batticalao district.

3.2 Bivariate Analysis between Transactional Contract Fulfillment and Organizational Commitment

The correlation coefficient (r) value between transactional contract fulfillment and organizational commitment is 0.525 at 0.05 significant level ($P < 0.05$). So, the correlation coefficient (r) value is fall on first attribute ($0.5 < r < 1 =$ Strong Positive Relationship) of the decision rule. This provides a strong positive relationship between the Transactional Contract Fulfillment and Organizational Commitment in selected banks in Batticaloa District.

3.4 Regression Analysis

The result of multivariate regression analysis between the transactional contract fulfillment and organizational commitment are shown in Table 5 in order to identify

Table 3. Correlation of Coefficient between Transactional Contract Fulfillment and Organizational Commitment

	Transactional Contract Fulfillment	
Affective Commitment	Pearson Correlation (r)	0.398
	Significance Level (P)	0.000
Continuance Commitment	Pearson Correlation (r)	0.464**
	Significance Level (P)	0.000
Normative Commitment	Pearson Correlation (r)	0.527**
	Significance Level (P)	0.000
Organizational Commitment	Pearson Correlation (r)	0.525**
	Significance Level (P)	0.000

** Correlation is significant at the 0.01 level (2-tailed)
(Source: Survey Data)

the impact of transactional contract fulfillment on organizational commitment in selected banks in Batticaloa District.

The “R Square” statistic indicates that the independent variables in the regression model account for 27.5 percent of the total variation in organizational commitment. In other words, 27.5% of the variation in the organizational commitment is explained by transactional contract fulfillment.

The “Adjusted R Square” 27.1% indicates that it is an adjustment of the R-squared that penalizes the addition of extraneous predictors to the model. The Adjusted R2 statistic is typically smaller than the R2 statistic because it downward adjusts the R2 statistic when additional variables of limited significance are added to a model. It is a common practice to say that one regression model “fits” the data better than another regression model if its adjusted R2 statistic is higher.

The unstandardized constant statistic is 2.788 units. It shows that the model would predict if all of the independent variables were zero. The b coefficient for transactional contract fulfillment is 0.344. This means that on average, if go up 1 point on the transactional contract fulfillment scale then organizational commitment will increase by 0.344 units. According to the p-values, transactional contract fulfillment is significant at 0.00. This means there will be a positive relationship between transactional contract fulfillment and on organizational commitment in this study.

Based on the Table 6, the equation for the regression line is:

$$Y = 2.788 + 0.344X1 \quad \text{Where,}$$

X1 = Transactional contract fulfillment

Y = Organizational Commitment

Table 4. Multiple Regressions of Transactional Contract Fulfillment on Organizational Commitment

R Square:	0.275	F Statistic:	56.251	Adjusted R Square:	0.271	Sig.	0.000a
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Table 5. Multiple Regression Model

Model	Unstandardized Coefficients		Sig.
	B	Std. Error	
Constant	2.788	0.169	0.000
Transactional contract fulfilment	0.344	0.046	0.00

(Source: Survey Data)

According to the regression analysis Transactional Contract Fulfillment positively and significantly impact on the Organizational Commitment in selected banks in Batticaloa District.

IV. CONCLUSION

The descriptive and correlations studies were helpful to find out the level of transactional contract fulfillment and organizational commitment and relationship between two variables. The finding of this study clearly shows that, level of transactional contract fulfillment is moderate level and organizational commitment is in high level and also 27.1% of the variance of organizational commitment is explained by transactional contract fulfillment in selected banks in Batticaloa District. So, it can be revealed that there is a positive and significant impact of Transactional Contract Fulfillment on Organizational Commitment in selected banks in Batticaloa District.

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CAUSAL ATTRIBUTIONS OF PRODUCT HARM CRISIS AND CONSUMER MORAL REPUTATION TOWARD THE WOUNDED COMPANY- HOW DOES SOCIETAL DAMAGE MATTER?

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Abstract - Despite large body of research on product harm crisis, wide spreading crises in the global market place induce the study to investigate the matter through a new empirical angle, i.e., company's moral responsibility that reflects consumers' moral reputation toward the affected company. Societal damage significantly shapes consumers' moral reputation toward the affected company during product harm crises. Total 201 respondents participated in two crises grounds; company culpable and consumer culpable, in two cultures; China and Sri Lanka, showed that consumers' moral reputation toward the troubled company downgrades significantly during product harm crises regardless of the cause of the crisis. Perceived societal damage further downgrades the negative effect of company culpable crisis on consumers' moral reputation toward the troubled company. Interestingly perceived societal damage was insignificant when consumer himself culpable for the crisis. Further study showed that national culture significantly shapes consumers' moral reputational perceptions. Being consumers from a low uncertainty avoidance country, Chinese were morally disrepute the wounded company lower than their Sri Lankan counterparts. This study provides interesting theoretical and managerial implications in conjunction with future research directions for a sustainable marketing environment.

Keywords - Causative Dimensions, Moral Reputation, Perceived Societal Damage, Product Harm Crisis, Uncertainty Avoidance

I. INTRODUCTION

When a crisis occurs, the general public wants to know what happened and consequently, there is a need to uncover the causation of the accident (Dean, 2004). Moreover, consumers spontaneously construct attributions of blame for faulty or harmful products (Folkes and Kotos, 1986). Therefore, after the product harm crisis event, consumers often become involved in an Attributional activity (Folkes, 1988) and seek to assign blame (Janoff-Bulman, 2004). These attributions are important from a marketing perspective, because they form the basis of consumers' brand judgments and behavior. Product harm crisis are grounded by consumer ethical beliefs (Vassilikopoulou et al., 2011), and perceptions of product harmfulness and target vulnerability affect publics' judgments of the ethics of the strategy (Smith and Cooper-Martin, 1997). Product harm crises can be regarded as ethical situations not only because crises can inflict harm on individuals (Hartel et al., 1998), but also due to the involvement of a responsible agent (Lerbinger, 1997). Product harm crisis causes consumer negative emotions toward the affected company (Vassilikopoulou et al., 2011), and these emotions are key drivers of moral behavior (Greene and Haidt, 2002). Moral reputation defers from reputation in the sense that moral thought reflects ethics and one's moral reputation may be something too important to be entrusted just to one's moral sense (Sperber and Baumard, 2012). Moral values are those preferences that are integral

to any moral reasoning process. It is the art-science that critically evaluates the subject. As such, ethics identifies the norms or standards of behaviors that either are or can become the values that are implemented through moral reasoning (Muller, Charles, and Yzerbyt, 2005). Further, there is a significant positive relation between blame, anger and ethical beliefs (Vassilikopoulou et al., 2011). Therefore, it is rational to assume that consumers who hold the company responsible for the product harm crisis, tend to express high levels of anger (Vassilikopoulou et al., 2011) thereby may reduce their moral reputation toward the troubled firm. Hence, from a company's reputation perspective, moral reputational perceptions may be more fruitful to consider than reputational perceptions in product harm crises, as crisis events are characterized as the most important, unexpected ethical situations (Hagan and JoLong, 2005) that threaten a company's existence (Muller, 1985).

Even the situation exists as such, not a single has addressed the consequences of product harm crisis, on the basis of consumers' moral reputational perceptions toward the troubled company.

In addition, even the visual phenomenon of product harm crisis is a societal damage that judges the consumers' actual feeling; very few research investigations have discussed on this issue so far (Siomkos and Kurzbard, 1994; Vassilikopoulou et al., 2009).

Therefore, this study tries to address these gaps in product harm crisis literature. Hence, the main purpose of current study is to uncover consumers' moral perceptions toward the wounded company in a product harm crisis comparatively to two Asian grounds. The specific objectives are to find how causative dimensions and societal damage of the crisis shape consumers' moral perceptions in the Asian context.

II. HYPOTHESES DEVELOPMENT

Present study bases its rationale on the key differences between two main causes of product harm crisis; company and consumer culpable, and the key differences between two main cultures; china and sri lanka, while incorporating consumers' moral reputation toward the troubled company.

A. Key Differences Between the two Main Causes of the Crisis with Respect to Consumers' Moral Reputation toward the Company and Brand

Klein and Dawar (2004) showed that if the crisis is company located (internal) and the behavior is stable and controllable, observers (consumers) tend to attribute responsibility to the actor (company) and subsequent consumer behavior such as blame or anger is directed toward the actor. Therefore, when a negative event occurs due to controllable cause, the observer evaluates the action according to his/her moral beliefs, attributes, responsibility, and then becomes angry and wants to punish the subject (Weiner, 1986; Alicke, 2000). In addition, when a bad outcome is due to another's controllable actions, a person feels angry (Weiner 1980b). Product harm crisis can severely harm a consumers' trust in a brand or a company when an organization is not able to handle a product harm crisis properly and it results the permanent damage to the reputation of a brand (Wix and Mone, 2007). Based on the possible attribution tendencies suggest by Shaw and McMartin (1977), observers of a product harm crisis are more motivated to avoid harm than to avoid blame, as a result they will blame to the company. Three crisis studies (Jorgensen, 1994, 1996; Kaman Lee 2004) have demonstrated that internal controllable crises (when the actor is responsible) resulted in worse consumer reactions than external uncontrollable crises (external factor).

B. Key differences between the two countries with respect to response to product harm crisis

Weiner (1979) has noted the placement of a causal attribution in terms of causal dimensions vary greatly from person to person, as well as from situation to situation implying the importance of a cross-cultural study in the face of product harm crisis. A body of literature suggested that different beliefs, value orientations, and perceptions are influenced by individual differences in attribution thinking and cross-cultural orientation (Betancourt, Hardin, & Manzi, 1992; Fletcher & Ward, 1988; Kluckhohn & Strodtbeck, 1961).

Even it is well accepted phenomenon that consumer perceptions vary across cultures (Laufer and Coombs, 2006; Laufer et al., 2005; Sorrentino et al., 2013), not a single research tries to capture consumer moral perceptions in

cross-cultural perspective during product harm crisis. Product harm has not yet become a crisis in Sri Lanka and China is a common ground for crises according to the crises history. Out of 152 consumer products recalled by the United States Product Safety Commission since January 2007, 104 were made in China (Roth et al., 2008). In 2008, out of the 86 consumer products recalled in the UK, 72% or 62 of these products were made in China (Rapex, 2009). Hence, to the best of our knowledge, this study is the first study of comparing two countries; Sri Lanka and China where consumers' experience related to product harm crises can drastically vary. Moreover, this is the first study capturing Sri Lankan consumers' view in a product harm crisis ground.

In terms of cultural differences, Hofstede (1997) showed four dimensions by which countries could be differentiated. As study concerns product harm crisis, discussion of the uncertainty avoidance dimension will yield fruitful results, out of other three: namely, power distance, individualism- collectivism, and masculinity-femininity (Hofstede, 1997), as product harm crisis events are uncertain events. Hofstede (1997, p.263) defined uncertainty avoidance as "the extent to which the members of a culture feel threatened by uncertain or unknown situations". According to that dimension, Greece, Belgium, Japan, Russia Germany, etc., are classified under high uncertainty avoidance countries, while, Singapore, USA, UK, China, India, etc. are classified as low uncertainty avoidance countries, along with their respective UAI (Uncertainty Avoidance Index). Unfortunately, Hofstede did not provide UAI for Sri Lanka. However, study posits that there exists a variation among consumer perceptions.

C. How perceived societal damage shapes consumer perceptions during product harm crisis

Product harm crises are defined as well publicized incidences where in products are found to be defective or dangerous (siomkos and kurzbard, 1994). Therefore, crises by definition generate substantial risk. Indeed, crises damage to the society. Robbenolt (2000) reviewed studies examining the psychology's defensive attribution hypothesis and found that when an incident results in a more severe outcome, more blame will be attributed to a potentially responsible party by an observer to the incident. Damage resulting from a product harm crisis depends on the perceived seriousness of the failure by the consumer (dawar and pillutla, 2000). Moreover, in the product harm crisis literature, the construct problem severity has been proposed as a moderating factor in consumer attributions

of product harm crisis (su and tippins, 1998). Related to the celebrity publicity, zhou and whitla (2012) showed that in the event of negative celebrity publicity, perceived societal damage is likely to amplify the impact of celebrity's personal misconduct of attribution on evaluation of the moral reputation of that celebrity. According to the weiner's attribution theory, in the first stage the individual evaluated the outcome and typically experiences happiness or sadness depending on the outcome. It is perfectly reasonable for consumers to evaluate the company negatively, when the perceived danger associated with the product they use is high. Consumers expect a degree of good assurance from companies whose products they use and hope that the products they buy will be unadulterated and reflect a reasonable fit with the purpose they intend. When company fails to protect that faith and when the company is responsible for the occurrence and the controllability of that product defect which is stable over time, the reduction of moral sense toward that company is unavoidable. However, when consumer is responsible for the crisis and when it is unstable and uncontrollable by the company, the societal damage seem unlike to moderate this link.

H2: perceived societal damage of the crisis accelerates the negative impact of company culpable crisis on consumers' moral reputation toward the wounded company

H3: perceived societal damage of the crisis will not accelerate the negative impact of consumer culpable crisis on consumers' moral reputation toward the wounded company

III. METHODOLOGY

A self administrated, pre-tested questionnaire survey was conducted to test the proposed hypotheses. The study used a fictitious product harm crisis scenario to highlight the company and consumer culpable product harm crises situations. Two experimental surveys were conducted in October, 2012 in Sri Lanka and November, 2012 in China. Experimental condition preferred as experimental researches are essential to build evidence based- knowledge for crisis management (Coombs and Holladay, 2008). Moreover, Theofilou et al., (2011) showed the significance of using imaginary scenarios as a valid method in crisis management research. Experimental scenario was followed by different questions to elicit perceptions of the locus, stability and controllability of the cause of the crisis event, and consumer moral

reputation toward the company. A fictitious yogurt brand "X" was used as the stimulus brand in both experimental situations. A fictitious brand related to a fictitious crisis scenario was taken to avoid confounding effects due to consumers' potential relationships or experiences with existing brands and past product harm crisis situations (Siomkos and Kurzbard, 1994).

Sample and Conceptual Framework

Study conducted a survey of convenience two samples of Sri Lankan (n=100) and Chinese (n=101) based undergraduate marketing and business management specialized students. The convenience sampling method was preferred since questionnaire can be easily and quickly collected and respondents are more corporate (Malhotra and Peterson, 2006; Vassilikopoulou et al., 2009). Questionnaires were distributed randomly in two countries in classroom sessions. Following Siomkos and Kurzbard's (1994) recommendation, equal numbers of respondents (50) were assigned to each crisis situation as ANOVA was used as one of the main methods of analysis. It is noteworthy that although the sample seems to be convenience, the interviews were conducted randomly at different classrooms and on different days and times, in both countries in order to reduce response-bias resulting from date, time and location parameters (Vassilikopoulou et al., 2011). Yogurt was chosen as the product category because pretest revealed the interest and familiarity of yogurt in the subject population. Respondents were informed of the confidentiality of their views and opinions and debriefed after the survey. Participants completed the task individually and took less than 10 minutes to complete. Figure 1 schematically presents the conceptual framework of the current study.

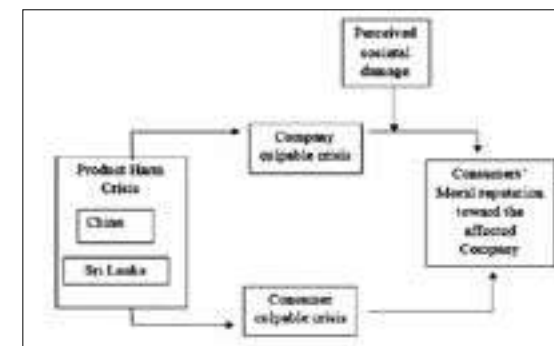


Figure 1: The conceptual Framework

Measures

The survey instrument included measures of causal attributions, perceived societal damage, and moral reputation of the company. Each of these constructs with measurement items, detailed in Tables 1 and 2. The items used for attributions (locus, stability, controllability), perceived societal damage, and moral reputation (Zhou and Whitla, 2012), were measured with 7- point Likert scales ranging from 1= "strongly disagree" to 7= "strongly agree". For example, in case of internal locus of attribution, "the cause is something that reflects an aspect of the company" was measured by using 1= "strongly disagree" and 7= "strongly agree" (Zhou and Whitla, 2012). Respondents rated fictitious experimental situations as, 1= "not realistic at all" and 7= "very realistic" at the end of each scenario to ensure the plausibility. The seven point Likert scale has been shown to reach the upper limit of the scale's reliability (Nunnally, 1978).

Analyses

Collected data were analyzed by using SPSS (version 20.0). Independent samples t tests, and ANOVAs were run to analyze the proposed hypotheses. Answers for the variable, consumers' moral reputation toward the company, which stated negative questions were reversed in order to comply with the scales of the rest of the variables in the questionnaire. Moreover, answers for the variable, perceived societal damage, measured by seven point likert scale was rearranged in ANOVA as, high (the responses 6 and 7), medium (the responses 3 to 5) and low (the responses 1 and 2). Factor analysis identified the validity and reliability of the different items used in each construct measured the same underlying construct (Pallant, 2008). The reliability of the scales was accessed by reliability coefficient, Cronbach's alpha (Cronbach, 1951). Preferably, the reliability coefficient should be above 0.7 (DeVellis, 2003). In case of validity analysis, Kaiser, Meyer and Olkinn (KMO) sampling criterion (KMO>0.5) and the statistically significant Bartlett's sphericity criterion (P<0.001) were used to verify the adequacy of the sample (Field, 2005).

IV. RESULTS AND DISCUSSION

Manipulation Check

Analysis revealed that majority of the respondents in two countries recognized correctly the locus, stability and controllability of the product harm crisis as internal locus (96% Chinese and 96% Sri Lankan), stable (98% Chinese and 90% Sri Lankan) and controllable (96% Chinese and 90% Sri Lankan), which the experimental scenario needed to accentuate. In addition, majority of respondents in China (78 %) and Sri Lanka (92 %) stated that the experimental scenario was realistic. The similar results were obtained related to the consumer culpable crisis. Consumers recognized the crisis as external locus (80% Chinese and 96 % Sri Lankan), unstable (86% Chinese and 82 % Sri Lankan) and uncontrollable by the company (86% Chinese and 94% Sri Lankan). Majority of respondents in China (65 %) and Sri Lanka (92 %) stated that the experimental scenario was realistic, which reflects the successful manipulation. In addition, this provided the guarantee of the absence of fundamental attribution error (Ross, 1977; Berry et al., 2002). All the constructed items guaranteed the reliability and validity under these two crises grounds

Independent samples t test showed that national culture has a significant effect on consumers' moral perceptions toward the troubled company during a company culpable crisis ($t_{98} = 5.58, p < .001$). Non significant Levene's test ($P > .05$) recognized the equality of variances. Chinese exhibited comparatively higher values ($M = 3.35, SD = 1.00$) than Sri Lankans did ($M = 2.25, SD = .96$). However, low mean values indicated the low scores in valuing moral reputation of the firm. Consumer culpable crisis yielded similar results. Independent samples t test showed that national culture has a significant effect on consumers' moral perceptions toward the troubled company during a consumer culpable crisis ($t_{99} = 5.59, p < .001$). Non significant Levene's test ($P > .05$) recognized the equality of variances. Chinese exhibited comparatively higher values ($M = 3.52, SD = .89$) than Sri Lankans did ($M = 2.48, SD = .97$). Low mean values indicate the low scores in valuing consumers' moral reputation toward the affected company. Therefore, H1a and H1b are supported.

A 2 (national cultures: China; Sri Lanka) x 3 (levels of perceived societal damage: low; medium; high) between subject experimental design was used to test hypotheses H2 and H4 under the company and consumer culpable

crises grounds. As expected, study found the moderating effect of perceived societal damage on moral reputation toward the firm under company culpable crisis ground ($F_{2, 94} = 6.29, P < .001$) with highly significant main effects ($p < .001$), substantiating H2.

Most interestingly, consumer culpable crisis ground also yielded the expected results. The interaction effect (perceived societal damage) x (national culture) was not significant ($p > .05$), supporting H3 (figures 2 and 3). Seeing the locus of the product harm crisis is something related to the company, and the stability and the firm's responsibility for the controllability of that crisis, perceived high societal damage due to product harm crisis further downgrades consumers' moral reputation toward the affected firm in the eyes of consumers. In contrast, in the situation of an external locus (consumer), unstable and uncontrollable by the firm, perceived societal damage of the product harm crisis does not accelerate the negative impact of causative dimensions on moral reputation of the affected company. In other words, when the internal locus of the product harm crisis (company responsible for the occurring the event), perceived societal damage accelerates the impact of causal dimensions on moral reputation of the affected firm while the product harm crisis is external (company is not responsible for the occurring the event and consumer themselves responsible), perceived societal damage does not accelerate the impact of causative dimensions on moral reputation of the affected firm. This finding is aligned with Zhou and Whittle (2012) who discussed the internal and external locus of attributions related to the celebrity endorser. Authors revealed that when consumer saw the negative celebrity publicity as the internal (related to the celebrity's misconduct), the perceived societal damage accelerated the impact of negative celebrity publicity on moral reputation of the celebrity, whereas, perceived societal damage did not moderate this link when the celebrity was not responsible for the action. Moreover, current finding supports the view of Robbenolt (2000). Based on Psychology's defensive attribution hypothesis author suggested that when an incident results in a more severe outcome, more blame will be attributed to a potentially responsible party by an observer to the incident.

V. CONCLUSION

National culture shapes consumer moral perceptions significantly. Being a low uncertainty avoidance country,

Chinese exhibited relatively higher moral reputation toward the affected company than their Sri Lankan counterparts revealing their respective national ideology. Moreover, perceived societal damage shapes the link between culpability of the crisis and consumers' moral

reputation toward the wounded company. It accelerates the negative link, when company is culpable. However, it does not accelerate the negative link when consumer is culpable. These findings provide important theoretical and managerial implications.

ANALYSIS OF HEALTH AND SAFETY PRACTICES AFFECTING THE PRODUCTIVITY OF HUMAN RESOURCES IN THE APPAREL INDUSTRY IN SRI LANKA

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Abstract - The apparel industry contributes a significant amount to Sri Lanka's economy and GDP. It is one of the fastest growing industries in Sri Lanka and it is a major employment generator. As it is relying highly on human capital, the productivity of employees is vital. For higher human resource productivity, there has to be a safe and healthy environment where hazards and accidents are eliminated or minimized. Therefore it is important to identify the health and safety practices which affect the productivity of the human resources. Thus, the objective of this study was to identify the significant health and safety practices which affect the productivity of employees. Primary data was obtained through questionnaires. The sample of the study was selected based on judgmental sampling which is a non-probability sampling technique and large scale manufactures were selected. The respondents were team leaders, executives and managers of apparel manufacturers. The sample size was 100. Four independent variables; investments on safety measures, personal protective equipment usage, training workshops and drills and the awareness of the employees were used and employee productivity was the dependent variable. Cronbach's alpha value of 0.818 was obtained. Factor analysis (Rotated Component Matrix) was carried out using SPSS. Three factors were identified and these three factors explained 78% of the variance of the dependent variable. The research identified three main health and safety practices which affect the productivity of employees; investments on health and safety practices, personal health and protective measurements and action for breach of regulations.

Keywords - Health and Safety Practices, Productivity, Investments, Training workshops and drills, Awareness

I. INTRODUCTION

The apparel sector is one of the fastest growing industries in Sri Lanka. It can be known as a major contributor to the export revenues in Sri Lanka since 1986. Further, the apparel manufacturing and exporting industry also contributes a major portion to the GDP in Sri Lanka (Perera, 2013). As there is a huge competition for the apparel companies in Sri Lanka which exports the apparel products. The quality of the apparels which are manufactured, and the quality of the raw materials should be maintained throughout the process of manufacturing. Else there can be serious issues which will affect the company in a negative manner. To gain the competitive advantages, it is very important to manage the resources well. In that case, utilization of human resources while ensuring their safety is highly considered.

Due to the open economy policy in the 1980's the apparel industry grew as an alternative to the Indian garment manufacturers. Sri Lanka also became an attractive venue for businesses as Sri Lanka had a trade and investment friendly environment during the 1980's. In the recent times most of the exports to United States is largely from MAS and Brandix with a smaller percentage from Hirdaramani Group. Apparel industry is the major contributor to the Sri Lankan economy. MAS, Brandix and Hirdaramani Group

are the three main companies in the apparel industry that majorly contribute to the economy of Sri Lanka. The United States is the major importer of textiles from Sri Lanka.

The apparel industry in Sri Lanka is considered ethical due to the opposition of child labor. Apparel manufacturing is largely based on human labor and women are highly involved in the apparel manufacturing process. According to the Sri Lankan statutory laws all the employees in every organization should be paid with EPF and ETF which is similar to a retirement plan. This is a mandatory requirement for the employees to be provided by the employer. These funds are a proportion of the employee's salary.

The employees of the apparel companies play a significant role in the process of maintaining the quality of the apparels which are produced by the company. The impact of health and safety practices for the employees affect the entire manufacturing process which will result in the productivity of the organization. Apparel manufacturing companies therefore should implement better health and safety practices to enhance the productivity of the entire organization. According to the previous researches the productivity depends on the working conditions, investments made for the safety measures, training and development programs given to the employees, the number of accidents, the days missed from work and the contracts entered with the insurance companies.

In the global context the health and safety measures are identified as a significant measure that affects the productivity of the employees in any industry. As Sri Lanka is a developing country and the textile industry is largely contributing to the economy, the implementation of health and safety measures must be prioritized. Therefore, this study analyses the health and safety practices affecting the productivity of human resources in the apparel industry in Sri Lanka.

II. LITERATURE REVIEW

The apparel industry is one of the largest growing industries in Sri Lanka and plays a key role as an industry which generates high revenue to the country. Health and safety affects the effectiveness and efficiency in any industry. As the apparel industry is highly based on human resources and their capabilities, maintaining and improving the health conditions and assuring the safety of the employees

will lead to higher performances and productivity levels of the individuals and in the company.

Not only the investments made in the organizational infrastructure, but the firms also invest in the health of the employees. Therefore, labor market institutions have been designed to protect the health and safety of employees through financial and monetary mechanisms (Tompa, 2002). "The main policy levers for providing such incentives are occupational health and safety regulation and experience-rated workers' compensation insurance" (Tompa, 2002).

The direct cost of an organization with respect to health and safety issues such as accidents include indemnity payments, insurance administration expenses and medical services which are directly paid by the employers to the employees. But this direct cost does not include the productivity losses due to injuries and illnesses of the employees of the organization. High absenteeism could also result from poor health and safety practices. Therefore the total cost of such incidents is much more.

When considering health and safety practices the working environment around should not be unpleasant to the workers as it can affect the mentality of the workers. Therefore, proper investments need to be made on the infrastructure as it affects the health and the safety of the employees of the organization. The working environment should ensure the safety of the employees working in the organization. The working environment has a significant effect on the employees of the organization as they are the ones who always interact with the environment of the organization. Improper workplace environment may lead to physical and emotional stress, low productivity and poor quality of work. There are many issues that are related to the workplace environment which are crucial to determine the productivity level of employees. Proper workplace environment will lead to cost reductions related to health risks, accidents that can happen at the workplace and also illnesses due to poor working conditions. In order to create a better workplace environment, factors such as noise, heavy lifting burden, availability of resources and facilities and internal climate conditions should be considered. Further by focusing more on the machines and tools, job designs and design of the facilities the organizations can provide a better workplace to the employees (Shikdar and Sawaqed, 2003).

Not only the physical assurance of a better workplace but also having rules for the employees and effective

utilization of resources will ensure the safety of the employees. A satisfied, motivated and healthy workforce contributes more towards the success of any organization (Jilcha, 2016).

An organization should pay proper attention to the equipment that are not guarded and should take proper measures to guard this equipment well. There can be overloading and unsafe storage which will make the working environment unsafe for the employees. To ensure the safety of the human resources of the organization, there needs to be adequate safety devices such as, clothing, helmets and goggles. Based on the type of the risks in the organization personal protection equipment (PPE) should be given. The employees should be provided with fall protection, nail gum protection, eye protection and skin protection equipment accordingly (Vinotha, 2015).

Shikdar and Sawaqed (2003), discusses that improper workplace designs, ill-structured jobs, adverse environment, poor worker health and workplace hazards have been identified as the factors which affect the productivity of the company. These factors not only affect the productivity but also the quality and this leads to an increase in the cost of the company.

Another significant aspect of industry health and safety is the Occupational Health and Safety Act (OSHA) which came into action in 1970. With the introduction of OSHA standards were to assure the safety of the employees in any organization. Whereas companies should abide by the OSHA standards, the companies where the employees work in unsafe working conditions will be charged with penalties. The injury rates have reduced significantly with the introduction of Occupational Safety and Health Act which came into context in 1970 and OSHA standards have a higher impact on the productivity of the employees (Viscusi, 2006).

Therefore by taking all these factors discussed in previous literature the conceptual framework of this study was developed.

III. METHODOLOGY

The research has a deductive approach as it is conducted to explain the relationship between the dependent and

independent variables. Primary data was collected to conduct the study. The data to conduct the above study were collected through survey methods where questionnaires were provided to the sample population of the study. In this study qualitative data was quantified using a scale. The time horizon of the study is cross sectional as data is collected from the sample population at the same time. In order to collect primary data to perform the analysis 5-point Likert scale was used. Primary data was obtained through questionnaires. The sample of the study was selected based on judgmental sampling which is a non-probability sampling technique and large scale apparel manufactures in the Western province were selected. The respondents were team leaders, executives and managers of apparel manufacturers. The sample size was 100. Four independent variables; investments on safety measures, personal protective equipment usage, training workshops and drills and the awareness of the employees were used and employee productivity was the dependent variable as depicted in Figure 1.



Figure 1: Conceptual Framework

After the completion of data collection process, SPSS software was used to analyze the data obtained from the questionnaires. Factor analysis method was the main analysis method used. The factors which have a significant effect on the productivity of employees was identified through this study.

IV. DATA ANALYSIS

The data obtained was analyzed using the SPSS software. In order to accomplish the objectives of the research reliability analysis, KMO test, and factor analysis have been performed.

Cronbach Alpha value is taken as a measure the internal consistency of the data set. The Cronbach Alpha value of 0.818 was obtained which represents that the obtained data set is consistent to continue with the analysis process.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	2492.315
	df	136
	Sig.	.000

Kaiser-Meyer-Olkin test is a measure to value how suitable the data is to perform the factor analysis. The test measures sampling adequacy. When interpreting the statistics KMO values between 0.8 and 1 is stated as adequate, less than 0.6 states that the sampling is inadequate and values closer to 0 shows that there are large partial correlations. The obtained data set of the study can be interpreted as adequate according to the KMO test as the value is 0.838.

A. Factor Analysis

According to the Eigenvalue rule, four factors have been identified as factors that affect the productivity of the employees in the apparel industry in Sri Lanka. Table 2 depicts the Initial Eigenvalues and the Rotation Sums of Squared Loadings. Three factors have been obtained (the factors which have eigenvalues above 1). These three variables identified explain 79% of the total variance of the dependent variable of productivity. The first factor explains 57.52 percent of the variance, the second factor describes 13.74 percent of the variance while the third factor explains 7 percent variance of the independent variable.

Components are not defined at this stage of the analysis as it is only done in the next stage, using Table 3. Rotation Sums of Squared Loadings represent the distribution of the variance after the varimax rotation. Varimax rotation tries to maximize the variance of each of the factors extracted, so the total amount of variance accounted for is redistributed over the five extracted factors. Table 3 shows the variables which come under each component. Table 3 contains the rotated factor loadings, which represent both how the variables are weighted for each factor and also the correlation between the variables and the factor. Each variable of the study is assigned to the component with which it has the highest correlation as marked in bold in Table 3 (Eg: Improved working conditions has a correlation of 0.819, 0.011 and 0.228 respectively with the three extracted components respectively. Therefore the highest correlation is with the first component. Hence improved working conditions is assigned to the first component). Therefore assigning of variables to components is based

on this correlation values. Table 3 interprets the factors which were obtained through the analysis by taking into consideration the variables assigned to each factor.

The following functions can be defined with these factors according to Table 3:

Component 01- Improved working conditions, Regular workplace inspections, Pleasant working environment, Employee insurance schemes, Application of international safety standards, conducting high quality workshops, Training programs related to the jobs, Conducting training programs for specific needs, Ergonomics assessment
 Component 02- Health state, Occupational health and safety tools, Provision of sufficient PPE to the employees, Awareness of employees on reporting hazards and accidents
 Component 03- Penalties on violation of regulations, Efficient usage of PPE, Attitude of employees towards safety practices

These three components can be named as following: Component 01 as Investments on health and safety practices, Component 02 as Personal health and protective measurements and Component 03 as Action for breach of regulations.

V. CONCLUSION

The apparel industry contributes a significant amount to Sri Lanka's economy and GDP and is a major employment generator. As it is relying highly on human capital, the productivity of employees is vital. For higher human resource productivity, there has to be a safe and healthy environment where hazards and accidents are eliminated or minimized. Therefore this study has researched on the health and safety practices which affect the productivity of the human resources. Thus, the objective of this study was to identify the significant health and safety practices which affect the productivity of employees. Primary data was obtained through questionnaires. The sample of the study was selected based on judgmental sampling

which is a non-probability sampling technique and large scale manufactures were selected and the sample size was 100. Four independent variables; investments on safety measures, personal protective equipment usage, training workshops and drills and the awareness of the employees were used and employee productivity was the dependent variable. Through factor analysis three factors were identified. These three factors can be named as Investments on health and safety practices, Personal health and protective measurements and Action for breach of regulations. This is related to the findings of previous studies which state that by investing more on the machines and tools safety, job designs and design of the facilities the organizations can provide a better workplace to the employees (Shikdar and Sawaqed, 2003). Further previous studies also discuss that the employees should be provided with fall protection, nail gum protection, eye protection and skin protection equipment accordingly which come under personal health and protective measurements (Vinotha, 2015).

Therefore organizations in the apparel industry should focus on these factors in order to improve on health and safety which will affect their human resources' productivity.

Further research can be suggested to be done for the small and middle-scale apparel manufacturing organizations on the level of implementation of health and safety practices in the middle and small scale apparel manufacturers in Sri Lanka and how these practices affect the human resource productivity of the organizations.

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Table 2: Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.204	57.524	57.524	6.453	40.334	40.334
2	2.198	13.738	71.263	3.546	22.166	62.500
3	1.120	7.002	78.265	2.522	15.765	78.265
4	.799	4.991	83.256			
5	.640	3.998	87.254			
6	.516	3.224	90.478			
7	.319	1.996	92.474			
8	.299	1.870	94.344			
9	.284	1.772	96.116			
10	.206	1.286	97.402			
11	.128	.799	98.201			
12	.095	.594	98.795			
13	.069	.432	99.227			
14	.053	.331	99.558			
15	.041	.258	99.816			
16	.029	.184	100.000			

Extraction Method: Principal Component Analysis.

Table 3: Rotated Component Matrix

	Component		
	1	2	3
improved working conditions	.819	-.011	.228
regular workplace inspections	.770	.319	.157
penalties on violations of regulations	.402	-.412	.605
health state	.091	.946	.031
occupational health and safety tools	.460	.823	.152
pleasant working environment	.721	.389	.311
employee insurance scheme	.615	.115	.541
application of international safety standards	.828	.321	.361
provision of sufficient PPE to the employees	.478	.785	.095
efficient usage of PPE	-.043	-.258	-.913
conducting high quality workshops	.660	.232	.211
training programs related to the jobs	.772	.274	.185
conducting training programs for specific needs	.850	.307	.268
ergonomics assessment	.857	.286	.098
awareness of employees on reporting hazards and accidents	.575	.666	.111
attitude of employees towards safety practices	-.418	-.064	-.722

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 6 iterations.

EMERGING OF ARMY BULK PETROLEUM RESERVE AS A CRITICAL SUPPLY CHAIN INFRASTRUCTURE IN SRI LANKA ARMY

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Abstract - The present military logistics system would be planning in such a manner that military forces should be able to sustain the men and material for any type of war scenarios. Oil is the main energy source of all running equipment except few machines which are energized by the electricity. Therefore, oil can be identified as the main energy source for any military logistics planning and the term oil has broader understanding and petroleum represents as the main engine running energy source where it can be further sub-divided as petrol and diesel. It is obvious that the military cannot be engaged into the petroleum production but petroleum is mostly required for the Army for maintaining their battle efficiencies in terms battle tanks movement including troops carrying vehicles. Nevertheless, the military forces should have a continuous petroleum supply either from selected sources or self-sustain schemes. Army Bulk Petroleum Reserve (ABPR) is a paramount important factor for the military forces where it can be maintained as the first reserve of petrol and diesel stock when the regular supply would be cut off due to manmade or other disturbances. It is merely identified that Sri Lanka Army does not maintain such an ABPR for the consumption in uncertainties and the main objective of this research is to identify the immediate operational requirement of maintaining an Army Bulk Petroleum Reserve in Sri Lanka Army in order to fulfill the emergency fuel requirements and studying the alternative petroleum procurement strategies available for the strategic level decision making process.

Keywords- Army Bulk Petroleum Reserve, Strategic Petroleum Reserve, Critical Infrastructure, key performances indicators, Design of Oil Storage Tanks

I. INTRODUCTION

The petroleum market of Sri Lanka has been gradually increased since the colonial era and the market was shared by three major private companies. The Ceylon Petroleum Corporation (CPC) came into the market in 1963 and expanded its capacity by entering into crude oil refining industry in 1969.

The Sri Lanka Army is the biggest government organization in Sri Lanka where the organization would be in the position of maintaining of petroleum bulk storage to cater for the emergency situations at strategic level.

By having such critical environment of supply chain management, there are two major factors which Sri Lanka Army can predict on the availability of petrol and diesel. Firstly, the man made disturbance can paralyze the supply of petroleum to Army. Secondly, the natural calamities can disrupt the supply chain.

II. OBJECTIVES OF THE STUDY

Objective of this research document under the title of Emerging of Army Bulk Petroleum Reserve as a Critical Supply Chain Infrastructure in Sri Lanka Army as fol:

- a. To identify the immediate operational requirement of maintaining an Army Bulk Petroleum Reserve in Sri Lanka Army in order to fulfill the emergency fuel

requirements and studying the alternative petroleum procurement strategies available for the strategic level decision making process.

- b. To optimize the emergency petroleum requirement by maintaining an Army Bulk Petroleum Reserve for the operational consumption of Sri Lanka Army.
- d. To hold a 2nd line stock of petroleum as a buffer stock for the operational consumption requirement in the Sri Lanka Army.
- e. To discover feasibility means to hold an Army Bulk Petroleum Reserve as a backward integration policy.

III. RESEARCH QUESTIONS

- a. How does the Army Bulk Petroleum Reserve (ABPR) identify to diminish the criticalness as the infrastructure in supply chain management in military logistics in Sri Lanka Army ?
- b. What are the available alternatives to maintain the Army Bulk Petroleum Reserve (ABPR) for the Sri Lanka Army ?
- c. How could Army Bulk Petroleum Reserve (ABPR) be utilized in order to manage a petroleum reserve for provisioning of Sri Lanka Army as an immediate reserve?
- d. How could the military forces be strengthened of confirming the continues availability of sufficient petroleum stocks at any emergencies ?

IV. LITERATURE REVIEW

- a. Maintaining an Army Bulk Petroleum Reserve in order to fulfill the emergency fuel requirements and study the alternative petroleum storages as an immediate reserve for the strategic level decision making.

Role and tasks of Quartermaster Petroleum Depot of USA Army

The Quartermaster Petroleum Depot of USA Army has been established to maintain the adequate petroleum stocks in the terminals in order to meet the fuel requirement of the USA Army, the depot is facilitated by military petroleum tanks and pipeline facilities to conduct

the distribution of petroleum within the organization. The depot is also carrying out the laboratory service in order to maintain the quality of the petroleum. The role of the Quartermaster Petroleum Depot of USA Army is to maintain the Army Bulk Petroleum Reserve (ABPR) to cater the emergencies of the Army. The depot is capable of handling 500,000 barrels of petroleum as a reserve and the petroleum platoons which are attached the depot are the emergency petroleum suppliers in the Army by laying the emergency pipeline network. The depot is capable of establishing 6 petroleum pump station within 90 miles distance in an emergency. Moreover, Quartermaster Petroleum Depots are attached to each corps headquarters to minimize the logistics burden of the supplying of petroleum in the USA Army. (USA Headquarters Department of The Army, 1960)

The USA Army has identified the strategic importance of Army Bulk Petroleum Reserve (ABPR) in 1960 and the Quartermaster Petroleum Depot has been established to minimize the threat of having petroleum shortages in an emergency in the military. The depot is capable of maintaining 500,000 barrels of petroleum and one barrel has the capacity of 158.987 liters where the depot is having a reserve of 59171 metric tons. It would be sufficient to fulfill the total demand of Sri Lanka for 19 days since the Sri Lanka average consumption of petroleum is 3000 metric tons per day. However, the military force of any country is important at strategic level and it should be supplied with required petroleum stocks as a reserve. Therefore, the petroleum bulk depot can be established within the Army organization in order to cater the emergencies and offensive requirements.

Role and tasks of Australian Army Bulk Depot

The objective of establishing the Australian Army Bulk depot is to maintain the existing defence standards in terms of the Army Bulk Petroleum Reserve (ABPR). The depot has not been tasked to conduct the daily issuance of petroleum for the consumption and primarily it has been designed to store the Army Bulk Petroleum Reserve (ABPR) to cater the emergencies in the Australian Army. These oil tank capacities are higher than the regular daily issuance maintaining stocks of petroleum. In fact, the reserves are to be used only in emergencies which would be required more maintenance cost of the oil tank farm to reduce the potential corrosion, contamination and quality changes and those aspects are the challenges of Army Bulk Petroleum Reserve (ABPR) rather than producing it for

the commercial purposes. The main objective of the Army Bulk Petroleum Reserve (ABPR) is to ensure the whole of life of performances in the military in terms of the continuous petroleum supply. The duties of the Australian Army Bulk Depot are as follows: (Australian Army Department of Defence, 2011)

- a. Procurement of bulk fuel and lubricants.
- b. Provision of advice on strategic and bulk reserves.
- c. Quality assurance of petroleum.
- d. Provision of logistics and operational support
- e. Contractual management.
- f. Payment of all petroleum products.
- g. Documentation of policy related Petroleum products.

In the Australian Army, the main objective of maintaining the petroleum depot is to ensure the whole of life of performances in the military activities of the Australian Army. Therefore, the Army organization has carried out its threat analysis in terms of the logistics and a major issue of petroleum in an emergency has been answered successfully by having an Army Bulk Petroleum Reserve (ABPR) to ensure the smooth functioning of Australian Army in severe lack of supply of petroleum. Even though, Sri Lanka Army has identified its important, the development of Army Bulk Petroleum Reserve (ABPR) is not yet launched in the organization.

V. METHODOLOGY

- a. Conceptual Framework - The conceptual framework which is shown under Figure 01 has been drawn from the literature review.



Figure 01: Opportunities available for Army Bulk Petroleum Reserve
Source: Developed by author (2017)

Army Bulk Petroleum Reserve (ABPR) is the dependent variable and Dedicated Unique Portion from Strategic Petroleum Reserve, Outsourced Storage Facility and Army Owned Petroleum Storage Depot are the independent variables of this study.

In order to verify the validity of the model in terms of internal and external treatments, unit test was conducted among five respondents to amplify the validity of the result.

A. Formulation of Empirical Model

$$Y = f(X_1, X_2, X_3) + \text{err}$$

Y = Vectors of Army Bulk Petroleum Reserve (ABPR).

X₁ = Vectors of Dedicated Unique Portion from Strategic Petroleum Reserve (SPR).

X₂ = Vectors of Outsourced the Storage Facility.

X₃ = Vectors of Army Owned Petroleum Storage Depot.

i = of an organization.

err = Error margin and other factors.

B. Sample Profile

The study Area of the research was the all 30 Army Officers who held the appointment of Officer Commanding of the Sri Lanka Army Service Corps Supply Squadrons and Composite Squadrons which are located under Security Force Headquarters (Jaffna), Security Force Headquarters (Wanni), Security Force Headquarters (East), Security Force Headquarters (Mulative), Security Force Headquarters (West), Security Force Headquarters (Central), Security Force Headquarters (Kilinichchi). Therefore, the data collection could be carried out among all these sub unit commanders and due to the size of the population, the whole population was considered as the sample of the research.

C. Data collection Method

The data were collected in the form of semi-structured questionnaire from the Sri Lanka Army Service Corps Supply Squadron and Composite Squadron Commanders who were involving the maintaining and issuing of

petroleum to the military vehicles in the Army. The interview was also be carried out with staff officers of the Directorate of Supply and Transport of Army Headquarters to find some important data for the research. Primary data was defined as the data are collected for the research purpose by the researcher himself. The researcher collected the primary data in the form of questionnaire from the Sri Lanka Army Service Corps Officers in the capacity of sub unit commanders. The researcher also carried out interviews with army staff officers who were involving in petroleum procurement and budgeting at strategic level. The collected primary data would be analyzed by using the SPSS in the form of charts and tabulated presentations.

D. Testing of the Developed Model

When the model was being tested by the researcher, all respondents were observed that they had been experienced of cutting off regular oil supply due to the rejection of oil shipment by CPC in late 2017. Hence, the model was undergone on testing with 5 respondents who were selected randomly which helped to eliminate the outcome of inappropriate results.

E. Data Analytical Method

The researcher discussed both primary and secondary data in the analysis by using statistics formula, pie charts and tables and descriptive measures. The researcher collected the primary data in the form of questionnaire from the Sri Lanka Army Service Corps Officers in the capacity of sub unit commanders and also interviews provided some important statistical data to reach up to some important conclusions which suited to facilitation mixed method.

VI. FINDING DISCUSSION AND CONCLUSION

A. Finding

Storage Capacities of Petrol Stocks

Sri Lanka Army Service Corps Squadrons which held the petrol bulk storage capacities of the storage tanks in the Petrol stations. Independent Supply Squadron was the most resourceful organization which was having 171,850 liters capacity and it was established in Kalaniya

with decentralized fuel station around Colombo district. Apparently, 1st Supply Squadron which was located at Panagoda Army Cantonment carriers the 2nd position of having storage resources for petrol in the Army where it also provided its facility for Army and Ministry of Defence vehicle fleets in Colombo and suburbs where it was necessary. However, other SLASC squadrons also maintained the petrol storage capacities but these storage facilities lesser than the Independent Supply Squadron and 1st Supply Squadron.

Storage Capacities of Diesel Stocks

Sri Lanka Army Service Corps Squadrons which held the diesel bulk storage capacities of the storage tanks in the Petroleum stations. 1st Squadron was the most resourceful organization which was having 226936 liters capacity and it was established in Panagoda with decentralized fuel station around Colombo and suburbs. Outwardly, Independent Supply Squadron which was located at Kalaniya carriers the 2nd position of having storage resources for diesel in the Army. However, other SLASC squadrons also maintained the diesel storage facilities at an expected level all around the country to cater the diesel fuel requirement in the Sri Lanka Army.

Lead time for Petrol/Diesel

The lead time in no days of 30 SLASC organizations which were primarily tasked to maintain stocks and issue the daily requirement of petrol and diesel of army and other detailed vehicles of Ministry of Defence. It showed that except 510, 520, 530 and 550 composite squadron which were establish in Jaffna peninsula, all other squadrons records 2 days of lead time of receiving petrol stocks to their storages. Apparently, Sri Lanka Army demanded only 95 octane from the and it was not available in the CPSTL regional depots so that those stocks should be transported from the main CPSTL at Kolonnawa to all around the country which would take three days of lead time. However, CPSTL was capable of transporting diesel requirement within one day from its regional depots so that all the squadrons received diesel bulks during the period of one day.

Safety Stock of Petrol and Diesel

This area was focused on the calculation of the safety stock of petroleum as per the data gathered at the interview of

the Staff Officer 3 (Petroleum) of the Directorate of Supply and Transport. For the better command and control of Army supply and composite squadrons, they had been under commanded to 7 army units and one independent depot as per the operational area coverage of Sri Lanka Army.

Sri Lanka Army did not face any stock out situation in the year of 2017 except curtailing the demand during the fuel crisis in the month of November in 2017, therefore the service level could be considered as 98% since no stock out situations reported during the interview.

B. Discussion

The recent incident of fuel crisis occurred due to the engagement of the LIOC and CPC on oil procurement. Sri Lanka Army is the largest organization of Sri Lanka and it always needed to have assistance from the government sector rather than having a private partnership in strategical decision making. Sri Lanka Army should trust the private sector for its backward integrations but it has to plan under well framed lawful agreement. Sri Lanka Army would reach to self-sustained in ABPR with the self-governed organization which could be established under the Directorate Supply and Transport with the supervision of CPC. Sri Lanka Army should gain a self-efficient procuring system to adopt this method to have the ABPR in the Army storage premises. Petroleum and its inventory cost was comparatively higher than the ordinary warehousing. Therefore, it needed further researches to be carried out on this regard. Carrying out the payments for the petroleum stocks was another challenge which needed continuous supervision if such an organization would be established in the Sri Lanka Army. As it was produced through a statistical method the re-order level with safety stocks may give an overall idea on which the decisions on military logistics could be planned but military occurrences would always be unforeseen and it has to be treated with proper deductions on security condition of the country. The safety stock had been calculated for both petrol and diesel and it could be used for maintaining ABPR in the self-governed organization or contracted tank warehouses for the usage of Sri Lanka Army. It was found that the Re-order level of the petrol stock with the safety stock 8,102.43 liters and diesel is 153270.41 liters where the Sri Lanka Army should maintain such a stock at a time to survive at an unforeseen situation.

VII. CONCLUSION

The study was mainly focused to find some alternative means which are available to Sri Lanka Army when it would maintain an Army Bulk Petroleum Reserve as the 1st reserve of petroleum bulk stock to run the military mechanism during operations even though the CPC would not be in a position to provide required petroleum product due to the manmade or natural calamities. The Safety stock formula produced the safety stock of both petrol and diesel stocks where the Sri Lanka Army should maintain for the movements of all combat and other necessary vehicles. Therefore, three alternatives are available to the Sri Lanka Army as the model developed by the author.

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KNOWLEDGE MANAGEMENT INVOLVEMENT IN IMPROVING HUMAN RESOURCE MANAGEMENT OF THE ORGANIZATIONS

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Abstract – Human Resource Management is identified as essential for driving the human resource of any organization towards the success. Since they possess the knowledge required to execute job functions and create new knowledge to do it better, Human Resource Management is a knowledge intensive process, and, thus, knowledge management practices should be involved in the process of improving Human Resource Management functions. This study was carried out investigating how knowledge management practices could be involved in human resource functions for a better implementation. Hence, a quantitative research was conducted along with a questionnaire distributed among human resource professionals which resulted many positives towards the importance of using knowledge management practices in their job functions. Five Knowledge Management practices were identified that could make an impact for Human Resource functions as of; knowledge creation, acquisition, sharing, storage and implementation. In the forms of brainstorming sessions, cross functional teams, regular meetings, databases, internal magazines, notice boards, special meetups after training; knowledge sharing and storage have found to be required, considering the importance of sharing expert knowledge to perform the Human Resource functions better, as well as reusing best practices through proper storage of knowledge. Recent studies have also evidenced an increased interest towards the topic emphasizing that it would ultimately result in conducting the Human Resource functions in a consistent and improved manner as a result of creating and acquiring best knowledge, which is then shared and stored across the company effectively.

Keywords- Human Resource Management, Knowledge Management, knowledge sharing.

I. INTRODUCTION

Considering the fact that human knowledge is identified as exceedingly important for the success of any organization, and that human capital is managed via human resource management functions, knowledge management and its links to HRM have becoming a trending research area (Omotayo, 2015). Even the situation is such, how knowledge management practices could be involved in improving the HRM functions are not given a broad attention (Iles et al, 2004). Knowing the existence of knowledge management practices such as, knowledge creation, sharing, acquisition, storage and implementation, there could be many instances where those practices could be involved in HRM functions (Gholami et al, 2013). Investigating those possibilities would lead a company to better manage its human resources and thereby manage human knowledge in an effective manner.

As described in (Danish et al, 2012) following issues have been identified as of the absence of proper knowledge management practices. (1) Difficulties of managing organizational changes (death, retirement, transfer, promotion), (2) Work repetition, (3) Waste of time and money, (4) Unable to manage work, in the absence of expertise.

All organizations can benefit from their people sharing, innovating, reusing, collaborating and learning. If the

employees share their knowledge with each other and reuse existing knowledge for smooth operation of the company, it would enable a company in many advantages as follows said by (L. Quast, 2012). (1) Enabling better and faster decision making, (2) Making it easy to find relevant information and resources, (3) Reusing ideas, documents, and expertise, (4) Stimulating innovation and growth, (5) Increase customer satisfaction

The main objective of this study is to identify how Knowledge management improves the functions of Human Resource Management in organizations. Following objectives are also intended to be achieved. (1) To identify whether Knowledge management can be used to enhance Recruitment and selection, (2) To analyse the impact Knowledge Management has on employee performance appraisals, (3) To analyse the importance of knowledge management for improving employee training and development, (4) To assess the effect of Involving Knowledge management practices in rewards and compensation management

With regards to above issues and the benefits, when organizational HR functions are to maintain best workforce for the company, poor knowledge management practices could make difficulties. In the absence of the subject expertise, other staff members are unable to perform a smooth maintenance within the department (Harman and Brelade, 2007) Hence, all other employees could be dissatisfied and demotivated. If the subject expert had shared the knowledge with subordinates and stored that knowledge effectively, then the situation would be controllable for the department (Desouza, 2011). Therefore, it is important to explore the knowledge management practices that could be integrated with the HR functions in order to perform an improved level of service towards the company and the employees. Hence, exploring the knowledge management practices that could be utilized within the HR department along with their HR practices would be advantageous in saving time and money wasted on repeating the same functions in the absence of its experts (Girard, 2015). Therefore, this research would take an effort towards finding better ways of implementing HR practices via knowledge management practices; such as, storing expert knowledge effectively, reusing that knowledge for future work and disseminating the best knowledge down to the staff for building a more competent employees and better HR implementations (I R Edvardsson, 2004).

II. METHODOLOGY

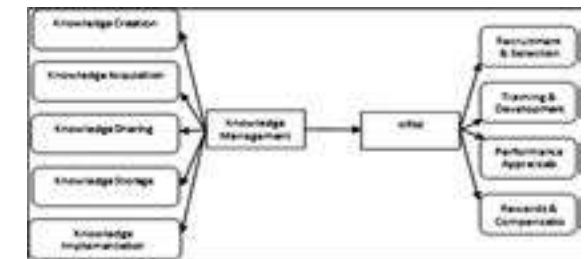


Figure 1. Conceptual Framework
Source: Author

As per the (Gholami et al, 2013), five knowledge management practices have been found which support the independent variable, knowledge management in the above conceptual framework. Hence, their involvement over four key resulting HR practices have been examined through this study as for supporting the dependent variable, human resource management.

Therefore, a questionnaire with a five point Likert scale was prepared consisting questions focused on both dependant and independent variables in aid of continuing a quantitative data gathering. Sri Lankan HR professionals were selected as of constituting the population, which was later filtered in to HR professionals among five companies in both manufacturing and service sectors. After conducting a reliability test over the questionnaire by gathering data from selected HR experts, which resulted in an average of 0.894 of Cronbach's Alpha through the SPSS Statistical package, the data gathering was further continued up to a sample of 150. Eventually, correlation analysis and regression analysis were performed in order to obtain conclusions regarding the study.

III. RESULTS AND DISCUSSION

According to Pearson Correlation Analysis, knowledge storage variable indicates to have the highest coefficient of 0.550 at a confidence level of 99%, spotlighting a strong positive relationship between knowledge storage and performance management variables. Accounting for the second highest correlation coefficient value of 0.541, significant at 0.01 level, knowledge storage variable signposts a strong positive connection to the dependent

variable of recruitment and selection. Moreover, knowledge creation variable indicates correlation coefficient values of 0.413, 0.466, 0.467 and 0.487 for the selected four dependent variables consecutively, that are significant at 0.01 level. Furthermore, knowledge acquisition, storage, sharing and knowledge implementation variables also shows correlation coefficient values that are significant at 0.01 level and show a positive relationship towards the dependent variables of selected HRM functions.

According to the model summary of the regression analysis, R is 0.581, 0.630, 0.571 and 0.660 for all four dependent variables which indicate that the model is successful in predicting elements. R² is the proportion of variance in the dependent variable, which can be explained by the independent variables. In the present study, R² is 0.338, 0.397, 0.326 and 0.435 for all four dependent variables, which signposts that 34%, 40%, 33% and 44% of the variation in selected HRM functions are explained by the said knowledge management practices. As per the ANOVA table, F-values are 14.683, 18.947, 13.899 and 22.204 for all four dependent HRM functions whereas all the P-values are 0.000 which is significant at 0.01 level. This indicates that the variance in the involvement and improvement for HRM functions is significantly explained by the set of independent variables as of the knowledge management practices.

According to the regression coefficient table, the regression coefficients beta values of all the independent variables are statistically significant except for knowledge implementation and knowledge storage for recruitment and selection function and training and development function accordingly. The highest magnitude represents the knowledge storage variable having a coefficient beta value of 0.432 significant at 0.01 confidence level suggesting that there is a positive relationship between knowledge storage variable and recruitment and selection variable. As a consequence of this relationship, a unit change in the former variable would mean a corresponding change of 43.2% in the latter variable, validating the hypothesis H11, showing that there is an involvement if knowledge management to improve recruitment and selection function via proper knowledge storage.

The next highest magnitude of 0.280, belongs to knowledge acquisition variable. The positive relationship between this independent variable and the dependent variable of training and development indicate that a unitary increase or decrease in knowledge acquisition variable would lead to increase or decrease improvement in the training and

development function by 28% respectively. This endorses the hypothesis H31, depicting the impact of knowledge management towards improving the training and development function as a result of knowledge acquisition. Knowledge creation variable on the other hand, accounts for a magnitude of 0.233 that is significant at 99% confidence level emphasizing a positive relationship, which would lead to mean 23.3% corresponding change in performance management variable as a result of a unitary change in the said variable, hence confirming the hypothesis H21 for showing an involvement in performance management through knowledge creation.

Focusing on the knowledge sharing variable which indicates a magnitude of 0.215 that is significant at 99% confidence level emphasizing a positive relationship. This endorses the hypothesis H41, revealing the impact of knowledge management practices as of knowledge sharing has an involvement for improving the compensation management function. Signifying the lowest coefficient beta of 0.205, significant at 0.05 level, knowledge implementation spotlights that the positive relationship would result in 20.5% corresponding change in training and development variable in case of a unitary change. This relationship corroborates the hypothesis H31 again.

Impact of knowledge management practices on recruitment and selection function (H1): As per the aftermaths of hypothesis H11, a positive relationship between recruitment and selection variable and knowledge creation and storage variables are evidenced. The nature of the relationship indicates that it has a prominent influence on the dependent variable thus, emphasizing the vitality of correct implementation of this knowledge management practices, since knowledge acquisition, sharing and implementation have shown insignificant p values towards the dependent variable.

Impact of KM practices on performance management function (H2): The outcomes generated with regard to hypothesis H21 accentuate that there is a moderate positive relationship between the improvement of performance management function and knowledge management practices in terms of knowledge creation and storage leading to confirm the viability of the hypothesis. However, since the relationship is at a moderate level as a result of three p values are shown to be greater than 0.05 for knowledge acquisition, sharing and implementation, the impact the knowledge management practices have on improving performance management function would not be that eminent thus, signposting the knowledge storage

and creation practices could make benefits for better performance management.

Impact of KM practices on training and development function (H3): The empirical results arrived at in terms of H31 articulate a relationship between knowledge creation, acquisition, storage and implementation as for independent variables and the training and development function for dependent variable, which is strong and positive in nature. Thus, the said independent variables would have a significant impact on the dependent variable implying the urge of consideration. Having only a one p value greater than 0.05 for knowledge sharing variable towards the dependent variable, indicates that the relationship between knowledge management practices and the training and development function is significant. Impact of KM on rewards and compensation function (H4): According to the findings on H41, there is an obvious relationship between the knowledge management variables of knowledge creation, storage and sharing in to the dependent variable of rewards management. Since the relationship is identified to be strong and positive in nature, the influence the said variables have on the concerned dependent variable would be substantial. Hence, the necessity of increased concern on knowledge management practices such as knowledge creation, storage and sharing could be raised emphasizing the vitality of them in enhancing HRM. As a result of higher p values shown in knowledge acquisition and implementation towards the dependent variable, it is decided that other KM practices have more involvement with the said HR function for improving its performance.

IV. CONCLUSION

During past years, the increased number of studies have proven that the knowledge management and HRM are becoming a promising research area with the increased value of knowledge worker and the importance of managing them effectively along with the ideal HR practices. In simple terms, the knowledge adds value to the company and that knowledge is created by employees. Hence, the HR functions of a company could also be performed in an improved way, as of utilizing knowledge management practices. Knowing that the knowledge is created by human and effective management of human is the responsibility of HRM department, utilizing best practices of KM to improve HR functions can enable a better workforce with better competencies for the company. Therefore, many KM techniques could be used along

with HR functions under five aspects of KM; knowledge creation, acquisition, storage, sharing and implementing. Such as; brainstorming sessions to share knowledge, regular meetings inside the company, knowledge sharing sessions after training, maintain effective databases for each function, internal magazines and notices, cross functional teams. As of them, if turned into their involvement with HRM, effective databases come in the form of knowledge storage to facilitate many important facts. Meetings, cross functional teams and brainstorming sessions relate to knowledge creation, acquisition and sharing to come up with better ways of doing HR functions, share the existing best practices and pass that knowledge down through the line. In this context, following conclusions could be highlighted. (i) KM in HRM is becoming a popular research topic, (ii) organizations face difficulties due to lack of KM practices in HRM such as low reuse of knowledge, work duplication, difficulty of managing in the absence of expert and the costs. (iii) impact of knowledge creation, sharing, acquisition, storage and implementation on HR function are the reasons for using KM in HRM, (iv) explicit knowledge can make a greater involvement in improving HR functions due to availability and ease of accessing rather tacit knowledge which needs more time and effort in transferring knowledge (v) there is a considerable involvement between KM and HRM, (vi) KM best practices could be utilized in HR functions.

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THE IMPACT OF SERVICE QUALITY ON CUSTOMER SATISFACTION WITH REGARD TO DIVISIONAL SECRETARIATS

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Abstract - The aim of the study was to measure the service quality levels of divisional secretariats and to analyze its impact on customer satisfaction. This study, further, help suggest strategies for the quality of service offered by the divisional secretariats. For this study, the SERVQUAL scale used by Parasuraman, Zeithmal and Berry (1991) was used. Convenience sampling techniques was adopted. 156 persons enjoying or enjoyed services of these divisional secretariats of 4 divisional secretaries were the respondents for the questionnaires. Finding suggest that service quality dimensions such as reliability, assurance, tangibility, empathy and responsiveness are contributing to the service quality of services of divisional secretariats and there are gaps between the customer expectation and perception of the items under the dimension of service quality. Findings further indicate that service quality has an impact on customer satisfaction. There is a gap between the customer expectation and customer perception of the service quality in these divisional secretaries. Thus, as we are government servant or public officer, it is our duty to improve the service of these divisional secretariats and further increase the level of service quality. Government has to give all facilities to these divisional secretariats in order to further improve its quality of services.

Keywords- Service Quality, Divisional Secretariat, customer satisfaction,

I. INTRODUCTION

Service marketing is now vital component in academic researches. As a component of service marketing, service quality plays a major role in determining and creating

customer (people) satisfaction leading to profitability of any forms. Hence, service quality has been considered as central determinant to the success of service firms. Service quality is very difficult to measure, control and communicate. Management must get insight into to the quality that it is defined by the customer and not by the producer-seller. Further, management must strive to maintain consistent service quality level at or above the expectations of consumers (Williams, et al., 1994).

As far as public sectors are concerned, customer orientation is vital for any public sectors since the traditional administration hierarchic system is no longer in any organizations and therefore, public sectors should also focus on customers and provide services as private sectors do (Hsiao and Lin, 2008). Further, Osborn & Gabler (1999) notes that public services are also shifting towards implementation of market orientation in providing services with priority given to the consumers or people. This is due to the fact that providing services at public sector organizations are more complex since it involves finding out stated needs, setting the priorities and allocating resources (Gowan et al., 2001).

It is worthwhile to note here that managerial level personnel are very concerned about satisfying the people in both private sectors and public sector organizations. Managers are very interested in satisfying customers demand and therefore, customer satisfaction is depending on the relationship between the customer and the service provider (Cengiz, 2010).

Services given by the public sector organizations in Sri Lanka is paramount for the people wellbeing and it contributes to the image of the service organizations.

In this context, it is important to focus on the services provided by divisional secretariats functioning under the government. It is pertinent to state that services rendered by these divisional secretariats in the country assist people to uplift and enrich their lives in the country. Quality of services and satisfaction of consumers of service firm have been well recognized and imperative for firms' survival. Accordingly, research on service quality of divisional secretariats and how it leads to satisfaction of the people who get any services for their needs need to be studied. Divisional secretariats offer very important services to the people. Hence, it is important to improve the services rendered by them and if there is any deficiencies need to be rectified and remedy them. Therefore, researcher develops many research questions; what is the gap of service quality exist in the divisional secretariats? What is the level of the service quality at divisional secretariats? What factors affect the service quality of divisional secretariats? How the service quality affect the customer satisfaction? Thus, the objective of the study is to explore the relationship of service quality and customer satisfaction of divisional secretariats and understand the service quality level of divisional secretariats and to suggest strategies to improve the quality of service offered by the divisional secretariats. In order to attain the objective of the study, this paper, firstly, outline introduction addressing the research background. Secondly, brief review of literature and theoretical framework explaining the relationship between service quality and customer satisfaction is addressed. Thirdly, the methodology adopted is explained and finally the discussion of the results of the data analysis is elaborated and finally, conclusion and recommendation are given.

II. REVIEW OF LITERATURE AND THEORETICAL FRAMEWORK

Service Quality

Quality is often used to imply 'excellence' of service product (John S. Oakland, 1999). Quality simply means that meeting customer requirements. This has been stated by many authors in different ways. Juran (1988) expressed that quality has different meanings. Two of his meanings dominate the use of words. Firstly, quality consists of features of the product which meet the needs of customers and thereby provide product satisfaction. Secondly, quality consist of freedom from deficiencies. Further, Juran (1988) defines that as fitness for use.

In order to measure the service quality of firms, Parasuramn et al. (1985) created SEVQUAL instruments which comprise five dimensions of service quality namely reliability, responsiveness, assurance, empathy and tangibles. This also help managers to find the quality gap between expected level of service and customer perception of service level received. The five dimension of service quality are given as under.

- Reliability: The ability to perform the promised service dependable and accurately*
 - Responsiveness: The willingness to help customers and to provide prompt service.*
 - Assurance: The knowledge and courtesy of employees and their ability to convey trust and confidence.*
 - Empathy: the provision of caring, individualized attention to customers*
 - Tangibles: The appearance of physical facilities, equipment, personnel and communication materials.*
- (Parasuraman et al., 1985)

Any service organizations need to improve the service quality that will lead to higher profitability. Rust et al (1995) show that there is a relationship between service quality and profitability of the service organizations. This is explained with the help of Figure 1.

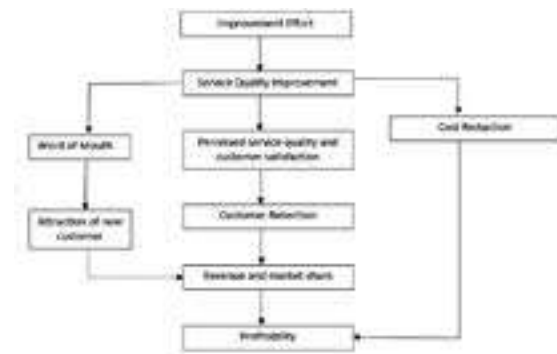
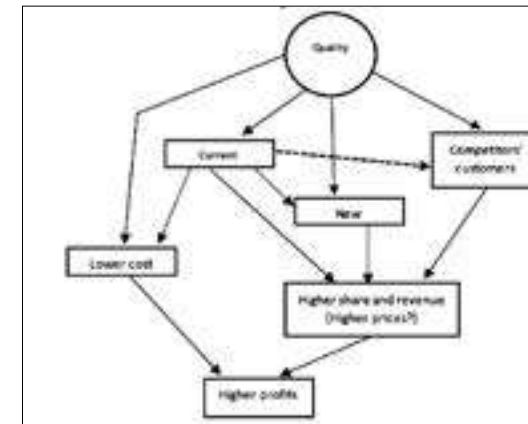


Figure 1 Relationship between Service Quality and Profitability
Source: Rust et al (1995)

As per the model of Rust et.al (1995), if the improvement effort is successful, that will result in increased and improved service quality. Subsequently, this will improve the perceived quality and customer satisfaction and will reduce the cost. Improved customer satisfaction in turn contributes to the customer retention and positive word of mouth. Resultantly, revenue and market share go up

due to the higher customer retention and new customer attracted by the positive word of mouth. The increased revenues, combined with the decreased costs, leads to greater profitability.

Service quality has direct relationship with profitability of the organizations. Rust (1994) illustrated this relationship as in Figure.



Source: Rust (1994)

Rust (1994) explains that the general effect of quality on the costs and sales of a firm. The main effects of quality on profits are through lower cost due to efficiencies achieved, increased sales from current customers, greater attraction on new customers, and the possible ability to charge higher prices.

Parasuraman et al. (1991) developed a conceptual model of service quality with five gaps which are shown in Figure 2.

Gap 1 : Gap between consumer expectations and management perception. Management may think that it knows what consumer expect and proceed to deliver this when in fact consumer may expect.

Gap 2 : Gap between management perception and service quality specification. Management may not set quality specifications or may not set them clearly. Alternatively, management may set clear quality specifications but these may not be achievable.

Gap 3 : Gap between service quality specifications and service delivery. Unforeseen problems or poor management can lead to service provider failing to meet

service quality specifications. This may be due to human error but also mechanical breakdown of facilitating or support goods.

Gap 4 : Gap between service delivery and external communications. There may be dissatisfaction with a service due to the excessively heightened expectations developed through the service provider's communications efforts. Dissatisfaction tends to occur where actual delivery does not meet up to expectation held out in a company's communications.

Gap 5 : Gap between perceived service and expected service. This gap occurs as a result of one or more of the previous gaps. The way in which customers perceive actual service delivery does not match up with their initial expectations. (Parasuraman et al., 1991)

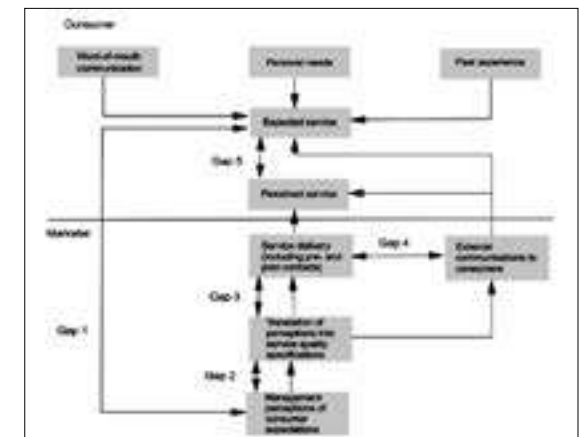


Figure 2 Five Gaps of Service Quality
Source: Parasuraman et al. (1985)

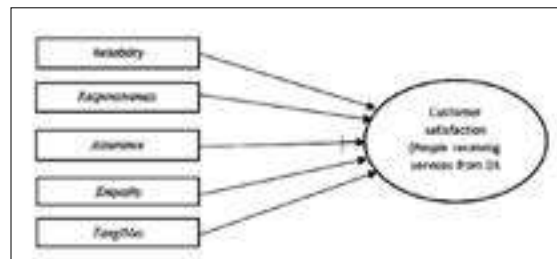
Parasuraman et al. (1990) also found that customers evaluate a firm's service quality by comparing service performance (perception) with what they think performance should be (expectation). In effect customers' service expectations provide a context for their assessment of the service. When service performance falls short of expectations, a service quality gap is resulted.

III. CUSTOMER SATISFACTION

Customer satisfaction is the result of either pleasure or disappointment of service evaluation connected to the

expectations of service buyer (Oliver, 1980; Leisen and Vance, 2001). Since the customer satisfaction is a key to the success of marketing strategy marketers give higher priority for the customer satisfaction and it helps retain customers. This will lead to and determinant of repeat visitation to the stores, repeat purchase and word of mouth promotion (Anderson et al., 1994; Bearden and Teel, 1983; Zairi, 2000). Further, this highly satisfied customer will be loyal to the organization and will be retained for a longtime (Kotler, 2006; Anderson and Sullivan, 1993).

For any organization achieving the sustainable competitive advantage depends on delivering high quality service that should result in satisfied customers (Shemwell et al., 1998). Many researches have been carried out and found the direct relationship between service quality and customer satisfaction (for example Swanson and Davis, 2003; Ravichandran et al., 2010; Zeithaml and Bitner, 2000). With these review of literature, the research model is given as under;



Source: Review of Literatures

Thus, researcher hypothesizes that Service quality dimensions of the divisional secretariats contributes to the satisfaction of the people who obtain the service from the DS offices.

III. METHODOLOGY

The methodology adopted for this research is quantitative in nature. Since all the people in the areas experienced the services of divisional secretariats, researcher used convenience sampling technique. Data was collected from 156 respondents who enjoyed or are enjoying the services of divisional secretariats at Sainthamaruthu, Nintavur, Kalmunai and Samanthurai. Data was collected with the help of undergraduate students.

Researcher used questionnaires to collect the data. The questionnaire adopted from Parasuraman et al (1985). SERVQUAL instrument included 22 items for customer expectation and perception and demographical characteristics of the respondents. Hence, people enjoying services of division secretariats were required to answer twice at a time for expectation and for perception. All items in the questionnaire was with five points likert scales ranging from strongly disagree to strongly agree.

Collected data were fed into the SPSS and analyzed using descriptive statistics and multivariate analysis. Factor analysis was carried out in order for data reduction. Multiple regression was used to test the relationship between dimensions of service quality and customer satisfaction.

IV. RESULTS AND DISCUSSION

Factor analysis was carried out using principle component analysis. All communalities were more or equal to 0.5. The variances of service quality dimensions are given in Table 1. The cumulative variances for each variable for tangibles, reliability, responsiveness, assurance and empathy were 63.74%, 76.30%, 76.19%, 60.56% and 62.80% respectively. This indicates that the data collected from the respondents well represented in the study.

Reliability statistics show that it had internal consistency with Cronbach's alpha value of 0.936 which is more than 0.70.

Table I: Variances

Variables	Variance
Tangibles	63.74
Reliability	76.30
Responsiveness	76.19
Assurance	60.56
Empathy	62.80

Source: Survey data

Demographical characteristics of the respondents are given in Table 2

Table 2 Demographical Characteristics

Characteristics	Percent (%)
Age	
< 25	20.0
25 - 34	21.1
35 - 44	26.9
45 - 55	19.2
> 55	12.8
Educational Qualification	
< GCE O/L	25.6
GCE O/L	33.9
GCE A/L	19.2
Basic Degree	17.9
Postgraduate Degree	3.2
People Belongs to DS	
Kalamunai	38
Sainthamaruthu	46
Nintavur	42
Sammanthurai	30

Source: Survey Data

Table 2 explains the demographical characteristics of respondents. 20 per cent of the 156 respondents were in the age group of less than 25 and 12.8 per cent of the respondents fall in the category of greater than 55 of age group. In the educational qualifications 25.6 per cent of 156 respondents are with below GCE O/L qualifications.

In order to explore the service quality level of divisional secretariats, the gaps of service quality using its mean score is depicted in Figure 3. Almost in all items of the SERVQUAL items, gaps are visible.

The radar figure explains the service quality gaps found (See Appendix 1) and suggests that there should be

actions to rectify or fill the gaps so that people will enjoy satisfactory services of the divisional secretariats. Correlation analysis was performed to see the associations among the independent variables and dependent variables. There is significant correlation between dependent variable customer satisfaction and dimensions of service quality such as tangibles, reliability, responsiveness and assurance at the 0.01 level with $p < 0.05$. This indicates that there is positive association between these variables (see Table 3).

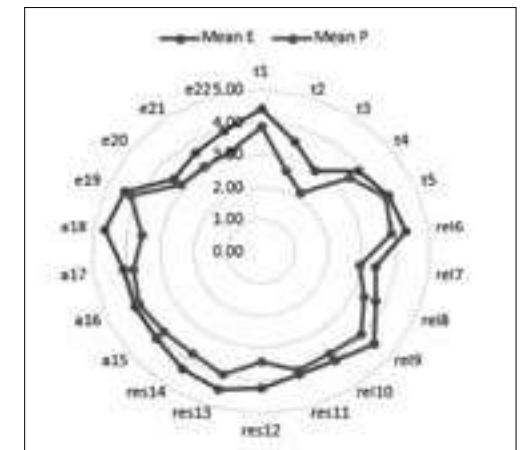


Figure 3 Service Quality Gaps
Source: Survey Data

Regression Analysis and Hypothesis Testing

Service quality and customer satisfaction as proposed in the hypothesis have direct relationship and thus, there is no evidence to reject the hypothesis. The contribution of the service quality to the satisfaction of the people who come for the divisional secretariats for their work is very strong with R Square value of 0.530 and Adjusted R Square value of 0.527 ($\beta = 0.728$, $t = 13.191$, $p < 0.05$, $F1, 154 = 173.999$). This indicates that 53 per cent of variation in the customer satisfaction is explained by the service quality of divisional secretariats.

Since service quality comprises five dimensions, the relationship or contribution of the service quality to the customer satisfaction need to be further explored. Hence, this association and relationship were further analyzed with the help of multiple regression. This is given in Table 4.

Table 4 Regression Results

predictable Variable	Beta	p	t	VIF
Reliability	0.516	0.000	7.863	2.565
Empathy	0.435	0.000	7.791	1.857
Responsiveness	0.714	0.000	7.532	5.363
Tangible	-0.483	0.000	-4.694	6.305
Assurance	-0.178	0.000	-2.760	2.479

Note: R Square = 0.748, Adjusted R Square = 0.740, F5, 150 = 89.240, p < 0.05, n = 155

As far as divisional secretariats are concerned, the model is best fitted with R Square of 0.748 and adjusted R Square of 0.740 with the contributing variables reliability ($\beta = 0.516, t = 7.863, p < 0.05$), empathy ($\beta = 0.435, t = 7.791, p < 0.05$), and responsiveness ($\beta = 0.714, t = 7.532, p < 0.05$). This also shows that R-square value is 0.748 which is significant at 5% level ($p < 0.05$). This explains that 74.8 % of the variation of customer satisfaction of these divisional secretariats are explained by the independent variables namely tangibles, responsiveness, assurance, empathy and reliability. Adjusted R-square of 0.740 reveals that model has accounted for 74.0% of the variance in the criterion variable. In order to check the multicollinearity, Variance inflation factor (VIF) were calculated. The values are less than ten and therefore, there is no serious multicollinearity problem. This is also confirmed with correlation matrix in Table 3.

	Reliability	Responsiveness	Assurance	Empathy	Customer Satisfaction
Tangibles	Person Correlation Sig. (2-tailed) N	0.499** 0.000 154	0.502** 0.000 154	0.523** 0.000 154	0.628** 0.000 154
Reliability	Person Correlation Sig. (2-tailed) N	1 0.000 154	0.486** 0.000 154	0.402** 0.000 154	0.605** 0.000 154
Responsiveness	Person Correlation Sig. (2-tailed) N	0.499** 0.000 154	1 0.000 154	0.507** 0.000 154	0.642** 0.000 154
Assurance	Person Correlation Sig. (2-tailed) N	0.486** 0.000 154	0.507** 0.000 154	1 0.000 154	0.637** 0.000 154
Empathy	Person Correlation Sig. (2-tailed) N	0.402** 0.000 154	0.507** 0.000 154	0.637** 0.000 154	1 0.000 154
Customer Satisfaction	Person Correlation Sig. (2-tailed) N	0.628** 0.000 154	0.642** 0.000 154	0.637** 0.000 154	0.637** 0.000 154

**Correption is Significant at the 0.01 level(2 - Tailed)

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It is also worthy to note here that the customer satisfaction of the services of divisional secretariats is determined by the service quality dimensions as proposed by the Parasuraman et al., (1985) with tangibles, reliability, responsiveness, empathy and assurance. Thus, the regression formula is given as under.

$$y = -0.063 - 0.483_{Tangible} + 0.714_{Responsiveness} - 0.178_{Assurance} + 0.435_{Empathy} + 0.516_{Reliability}$$

Further, researcher tests the adequacy of multiple regression fitted model and the model adheres to the normality assumption. Histogram of the residuals is given in Figure 3.

In addition to the histogram of residuals, in order to test the model fitted with multiple regression, Normal Probability Plot is also tested. NPP is approximately a straight line and it can be said that variables of interest is normally distributed. NPP is given in Figure 4.

Responsiveness is the major factor that highly influence on the customer satisfaction at divisional secretariats ($\beta = 0.714, t = 7.532, p < 0.05$). This means that the willingness of the staff who work at these secretariats helping them providing prompt services to people to complete their

works. Second factor that contributes to the satisfaction of the people is that reliability ($\beta = 0.516, t = 7.863, p < 0.05$) which infers that the employees of the divisional secretariats perform promised services dependably and accurately. The third dimension of the service quality contributing to the satisfaction of the people is empathy ($\beta = 0.435, t = 7.791, p < 0.05$). This reveals that divisional secretariats provide services with caring and individualized attention to the people.

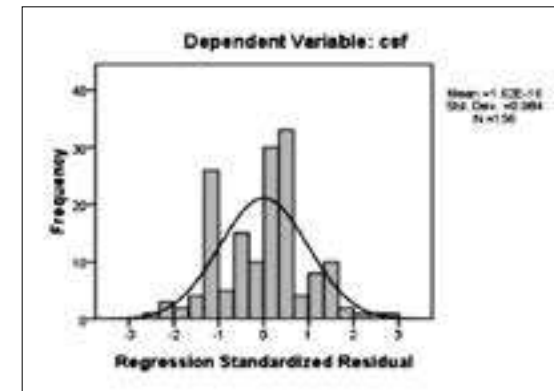


Figure 3 Histogram of Residual

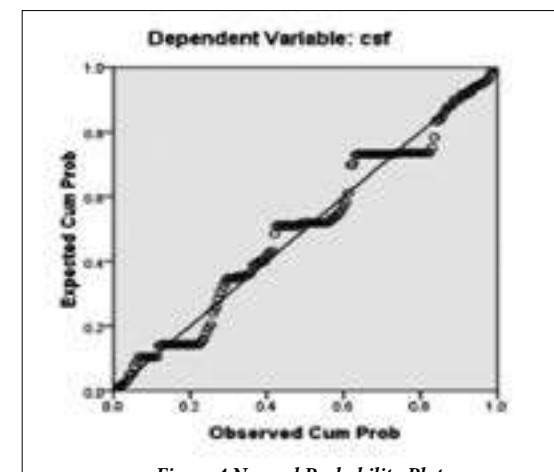


Figure 4 Normal Probability Plot

Other two dimensions of the service quality negatively contribute to the customer satisfaction of the divisional secretariats. The model has negative β value along with negative t values. If a unit of tangible and assurance are increased, customer satisfaction of these divisional secretariats will come down by - 0.483 ($t = -4.694, p < 0.05$) and by - 0.178 ($t = -2.760, p < 0.05$) respectively (see Table

4). These two dimensions of the service quality need to be given more attention by the top administrators of the divisional secretariats to make positive contribution of service dimensions such as tangibles and assurance to the customer satisfaction.

V. CONCLUSION AND RECOMMENDATIONS

The aim of the study was to measure the service quality levels of divisional secretariats and to analyze its impact on customer (people who visit for works) satisfaction. There are gaps in the service quality level in all dimension of service at divisional secretariats. Despite the fact that the two dimensions of service quality do not support to the customer satisfaction, overall model reveals that the contribution of the service quality to the customer satisfaction of divisional secretariats is still significant. However, top administrators / government need to take measures to improve the mostly lacking dimensions to provide people with pleasant and pleasing services from divisional secretariats.

Tangible dimension is the physical appearance of the secretariats, staff, facilities and other materials. This specifies equipment used, visually appealing physical facilities, employees' appearance with dress and physical facilities used in the provision of services. In the context of marketing, this tangible dimension is related to two extended marketing mix such as people and physical evidences. These elements are vital for the success of the service provider and one of the foremost determinants of satisfaction of the people. Ambient condition is also recommended for a service environment. This consists of air quality, noise, music and scent etc. These may also be introduced at Divisional secretariats that will create conducive environment where service provider and service buyer are likely to have official works. This is, in fact, due to the fact that employees are also a part of service environment. Computerized working environment with networking facilities are important. Networking should be done at the office levels and thereby all employees should be able to access the network enabling them for quicker service to the customers. The service scape could be designed from customer perspective. There may be a possibility of implementing a colour culture and soft music as in the private sectors' offices which will differentiate the service of divisional secretariats.

The second negative dimension of service quality is assurance which means that the knowledge and courtesy of the staff at the secretariats and their ability to convey trust and confidence. This infers that trustworthy of employees at divisional secretariats, feeling safe when engaged with employees, politeness of employees and knowledge of the employees about customer request. This is also related to people element of the extended marketing mix and it should be used as strategy to improve the services of the divisional secretariats. The people who work in the divisional secretariats are remarkably important since they are key determinant of customer loyalty or defections. Thus, they play a major role in satisfying the customers. Specially, the front-line employees who have direct relationship with customers at the divisional secretariats are driver of development of trust and confidence among the customers. In addition, front line staff represent the divisional secretariats since they are service provider from the customer perspective. Considering the justifications stated above, employees should be trained in the way that creates knowledge about the operations and specific areas of expertise that will also lead to prompt services to the customers and will unquestionably be satisfied.

Another recommendation that will help divisional secretariats to improve the service quality is that implementation of effective service recovery system. People coming for the official works at divisional secretariats may experience unsatisfactorily. Hence, method of effective complaint handling should also be put into effect. Just keeping complaint box will not be worthwhile and that should be analyzed and root cause must be diagnosed and rectified. The service recovery procedures can be planned and employees must be trained and empowered appropriately.

Accordingly, top administrators or the government could identify the service quality gaps and fulfil it with relevant strategies and that will enable these divisional secretariats to achieve service excellence in the government sector. For this, it is our duty to contribute to the development of these type of public services.

VI. LIMITATIONS, FUTURE DIRECTION AND MANAGERIAL IMPLICATIONS

This study was conducted after the services experienced by the people and when they are out of divisional secretariats

and while engaged in other works. The perceptions of the respondents may be likely to be bias. The future studies should be conducted with the permission of the Divisional Secretary inside the divisional secretariats once respondents experienced services of the office. Only four divisional secretariats were taken for this study. Future study may extend to other divisional secretariats and the results will be more reliable. It is important to state that future studies can also consider other service quality models.

This study provides greater understanding of the factors that makes up service quality of divisional secretariats. This can be used as indicators of improvement of service quality at the local government offices and in case of applying the dimension of service quality as given found in the study, managers will be able to sustain the quality in providing their services to the people. It has been pointed out by many researchers that the prime reason for the poor performance of a service firm is that what customer expects from the firm. By this study, top administrator can understand and formulate their strategy to improve the service performance.

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	Items	Mean (Expectation)	Mean (Perception)
1	Up to date equipment are available at divisional secretariats.	4.42	3.85
2	Physical facilitates that are visually appealing at divisional secretariats	3.53	2.59
3	Employees at divisional secretariats are well dressed and appear neat	2.98	2.17
4	Physical facilities that on appear to be in keeping with the type of service provided	3.79	3.49
5	When something is promised by a certain time, doing it.	4.12	4.04
6	When there is a problem, divisional secretariats show genuine interest in solving it.	4.30	3.89
7	The divisional secretariats will perform its services right the first time	3.43	2.95
8	divisional secretariats provide the service by the time promised	3.70	3.35
9	The divisional secretariats will insist error – free service	4.39	3.89
10	Telling the people exactly when the service will be performed	4.02	3.75
11	Receiving prompt service	3.97	3.82
12	Employees who are always willing to help people who come at divisional secretariats	4.22	3.42
13	Employees who are not too busy to respond to customer request promptly	4.42	3.95
14	Employees who are trustworthy	4.29	3.76
15	The feeling that you are safe when conducting transaction with the firm's employees	4.10	3.80
16	Employees who are polite	4.10	3.95
17	Staff at the divisional secretariats will have the knowledge to answer people's request	4.10	3.82
18	Employees are giving individual attention	4.64	3.54
19	The divisional secretariats will have working hours convenient to all of its customers	4.44	4.22
20	The divisional secretariats will have staff who give its customers personal attention	3.42	3.14
21	The divisional secretariats will have the customers' best interest at heart	3.60	3.10
22	The staff of the divisional secretariats will understand the specific needs of the customer	3.88	3.23

DYNAMICS IN PRODUCTIVITY WITH THE INTERVENTION OF HUMAN RESOURCE MANAGEMENT (HRM): AN EXPLORATORY REVIEW ON MANUFACTURING INDUSTRY

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Abstract - Dynamics in productivity with the intervention of Human Resource Management (HRM) was identified as a significant area in the manufacturing sector. Through-out the research history many of studies have been launched related to this topic. Most of the previous research were focused to the dynamics in productivity with non-Human Resource (HR) factors with reference to both manufacturing and service sectors in the world. When it comes to the manufacturing industry, it is highly driven by the achievement of goals and objectives. HR is one of the key significant resource in achieving goals and objectives. There were six key objectives of this study. The archival method was adopted by the researchers. The review process has covered the published research articles, published books and conference papers in HRM and productivity, which were published within the period of 1990 to 2017. Theories such as Systems Theory, Abraham Maslow's Hierarchy of Needs Theory, Frederick Herzberg's Two Factor Theory and Douglas McGregor Theory X and Y have been used in order to provide a sound theoretical framework.

Effective launch of the HRM functions such as HR Planning (HRP), recruitment and selection, training, remuneration system, system of appraisals, promotion and career advancement, disciplinary management, employee welfare and Human Resource Management Information Systems (HRMIS), enhances the organizational productivity. With the careful handling and effective

usage of organizational factors such as leadership, team working behavior, organizational culture, empowerment, work environment and communication system, ultimately make a bigger contribution in enhancing productivity. And, there is a significant mediating effect of motivation in enhancing the productivity. Personal factors such as attitudes, skills, knowledge, behavior, responsibility and interest have significant effect in enhancing the productivity. Ultimately, based on the research findings, a model was developed for the future development and expansion of the research topic.

Keywords- Human Resource Management (HRM), Productivity, Manufacturing Industry

I. INTRODUCTION

Dynamics in productivity with the intervention of HRM was identified as a significant area, specially referred to the manufacturing sector. Through-out the research history many of the studies were launched related to the topic. However, more research were launched to study the dynamics in productivity with non HR factors with reference to both manufacturing and service sectors in the world. Generally, manufacturing industry is highly driven by the achievement of goals and objectives. HR is one of the key significant resource in achieving goals and objectives of the organizations. HRM is one of the key

functional area in the business organizations that, deals with the various requirements and different matters related to the employees of the organizations. HRM is the efficient and effective utilization of employees in order to achieve goals of the organization; and it is about managing people at work, being the human side of business administration having policies, procedures, rules, and systems influencing employees of the organization (Opatha, 2009). According to Dessler (2008) HRM is defined as the policies and practices involved in carrying out the "people" or HR aspects of a management position, including recruiting, screening, training, rewarding and appraising.

Productivity is one of the crucial factor in production performances in manufacturing organizations including both public and private sectors. Productivity growth helps businesses to be more profitable (Fuller, 2016). According to the Oxford dictionary definition, the productivity is the effectiveness of productive effort, especially in industry, as measured in terms of the rate of output per unit of input. There are different concepts of productivity, which were developed throughout the scientific research process. These are partial productivity, labour productivity, total productivity and multi-factor productivity. Production is a process of combining various material inputs and immaterial inputs in order to make something for consumption. The methods of combining the inputs of production in the process of making output are called technology. When all outputs and inputs are included in the productivity measure, it is called total productivity.

$$\text{Total productivity} = \text{Output quantity} / \text{Input quantity}$$

$$\text{Total productivity} = \text{Output quality} \& \text{ quantity} / \text{Input quality} \& \text{ quantity}$$

According to the above formula, changes in input and output have to be measured inclusive of both quantitative and qualitative changes (Jorgenson and Griliches, 1967). In practice, quantitative and qualitative changes take place when relative quantities and relative prices of different input and quantities and relative prices of different input and output factors alter. In order to accentuate qualitative changes in output and input, the formula of total productivity can be written as follows;

Fifteen (15) major factors were identified in enhancing productivity under four key perspectives; motivation

perspective, task perspective, human resource perspective, top management perspective in Indian manufacturing industry (Kumara and et al., 2016). Under motivation perspective, it was discussed on four (4) factors; encouragement to effective communication, reward, recognize and break the monetary and rotate. Under task perspective, it was discussed on four (4) factors; accountability, follow-up, demand realistic targets, manage the workforce but avoid micromanagement. Under human resource perspective, it was discussed on three (3) factors; team work, proactive employees, courses and improvement options. Under top management perspective, it was discussed on four (4) factors; tools and equipment to raise the productivity, availability of water, power and other input supplies, positive attitudes and involvement of management, good working conditions. Positive attitudes and involvement management, proactive employees and good working conditions, tools and equipment to raise the productivity, availability of water, power and other input supplies have been ranked as top five factors in enhancing productivity in Indian manufacturing industry (Kumar and et al, 2016). Katou and Budhwar (2015) have introduced a HRM – Productivity framework which consists with three distinctive components; the HRM systems, the HRM outcomes and the production process. According to the HRM – Productivity model of Katou and Budhwar (2015), the HRM system involves the traditional HRM areas of resourcing and development influences employees' ability to perform by improving their knowledge, skills and, abilities (Katou and Budhwar, 2015). The HRM system involving the areas of compensation and incentives influences employees' motivation to perform by shaping their attitudes of motivation, commitment, and satisfaction (Katou and Budhwar, 2015). According to Katou and Budhwar (2015), the HRM system including the areas of involvement and job design influences employees' opportunity to perform by shaping their behaviors such as employee retention and presence. Each of these three HRM systems may directly or indirectly influence all three HRM outcomes of employees' skills, attitudes, and behaviors (Katou and Budhwar, 2015). Therefore, the HRM systems may be associated with more than one HRM outcome category (Lepak et al., 2006; Katou and Budhwar, 2015), indicating that the influences of the three HRM systems on productivity may fully or partially be mediated by the three HRM outcomes (Banks and Kepes, 2015; Katou et al., 2014; Katou and Budhwar, 2015).

A study of the factors associated with productivity levels clearly establishes that, the factory management must adopt modern practices to achieve higher productivity (Bheda

and et al., 2003). According to Bloom and Reenen (2010), there is suggestive evidence that, certain types of HRM raise productivity. It was identified that, there is certainly a robust positive cross sectional association between bundles of “modern” HRM practices and productivity, but these are not robust in the time series dimension (Bloom and Reenen, 2010). It was identified that, there is a strong positive relationship between HRM practices and labour productivity mediated by HR outcomes in manufacturing Small and Medium Enterprises(SMEs) in Japan (Gamage, 2015). It was revealed that, certain HRM practices, such as working in teams, greater discretion and autonomy in the workplace and various employee involvement and pay schemes, do motivate workers and generate higher labor productivity (Cully et al, 1999; Boselie and Wiele, 2002; Gamage, 2015). A study of the factors associated with productivity levels clearly establishes that, the factory management must adopt modern practices to achieve higher productivity (Bheda and et al., 2003). It was identified that, the innovative HRM practices raise worker productivity in steel manufacturing finishing lines in United States (Ichniowski and et al., 1997). It was revealed that, the systems of innovative HRM practices have large effects on production workers’ performances in steel manufacturing finishing lines in United States (Ichniowski and et al., 1997).

II. METHODOLOGY

A. Objectives of the Study

To identify the nature of the dynamics in productivity with the intervention of HRM in manufacturing industry

To identify the intervention of HRM (Main HRM functions affect) in enhancing productivity in manufacturing industry

To identify the way that, HRM functions motivate employees in enhancing the productivity in manufacturing industry

To identify the way that, organizational factors motivate the employees in enhancing the productivity in manufacturing industry

To find out the significant organizational factors, which motivate the employees in enhancing the productivity in manufacturing industry

To identify the way that, personal factors motivate employees in enhancing the productivity in manufacturing industry

B. Selected Methodology

In achieving the objectives of the study, the archival method was adopted by the researchers. Similar methodological approaches were used related to the research fields of HRM, motivation and productivity during the past research history (Kumar and et al, 2016; Siebers and et al, 2008). This review process has covered the published research articles, published books and conference papers in HRM and productivity within the period of 1990 to 2017. In order to provide a sound theoretical framework for this review the key theories were used in the fields of management and HRM, such as Systems Theory, Abraham Maslow’s Hierarchy of Needs Theory, Frederick Herzberg’s Two Factor Theory and Douglas McGregor Theory X and Y. Based on the literature review and the theoretical background, the researchers have developed a conceptual framework, which could be able to use in practice for the future research as the next immediate step. Moreover, the operationalization of key independent variables, mediating variables and dependent variable was done, which could be able to use in practice for the next immediate step of the research in real practice.

III. RESULTS

A. Effect of Human Resource Management (HRM) Functions on Productivity

Following nine (09) significant HRM functions have been identified based on the archival method applied throughout the study.

I. Effect of Human Resource Planning (HRP) on Productivity:

It was revealed that, HRP is essential for productivity and organizational effectiveness and efficiency because, it acquires best human resources, focuses on corporate goal, utilizes human resources, develops human resources, reduces uncertainty and labour cost, regularizes production, maintains good industrial relation, keeps records and controls human resources (Anyadike, 2013). According to Anyadike (2013) HRP ensures the

employee productivity in Nigerian public organizations. Koch and McGrath (1996) and Siebers and et al. (2008) investigated the impact of a set of HRM practices on labour productivity, to find that investments in HR planning and in hiring practices are positively associated with labour productivity.

II. Effect of Recruitment and Selection on Productivity:

It was found that, extensive recruiting efforts increase the productivity (Holzer, 1987; Huselid, 1995). Ichniowski and et al (1997) examined an extensive set of variables that describe the seven HRM policy areas considered in the theories; incentive compensation plans, extensive recruiting and selection, team work, employment security, job flexibility, training, and labor management communication. Ichniowski and et al (1997) revealed that, combinations of practices that exist are referred to as “HRM systems.” According to Ichniowski and et al (1997) extensive recruiting and selection is one of the foremost policy area in HRM.

III. Effect of Training on Productivity:

It was revealed that, trainings for managers, supervisors and operators have a positive association with high productivity in Indian apparel manufacturing industry (Bheda and et al, 2003). According to Bheda and et al (2003) it was identified that, induction training has a positive association with high productivity. It was identified that, there is a linkage between the adoption of training programs and productivity growth (Bartel, 1994; Huselid, 1995). Gamage (2005) identified four HRM practices which effect on labor productivity in manufacturing SMEs in Japan. According to Ichniowski and et al (1997), training is one of the significant policy area in HRM. Guzzo (1998), identified that, the training is one of the most powerful way to increase the individual productivity.

IV. Effect of Remuneration System on Productivity:

It was identified that, incentive scheme has a positive effect on productivity (Anderson et al, 1993). According to Rao (2005), implementation of incentive scheme motivates the employees of the company to improve production level, achieve better consumption of raw materials and thus achieve higher productivity. It was found that, implementation of a multi-factor incentive scheme

motivated the employees of manufacturing company to improve production levels, achieve better consumption of raw materials and thus achieve higher productivity (Rao, 2006). It was identified a positive linkage between wages and productivity in large-medium scale manufacturing industry in Indonesian manufacturing sector (Tadioeddin, 2016). According to Trehan and Setia (2014) performance based reward is one of the significant HR practice that would support a healthy and innovation-oriented HR system in an organization. They identified three distinctive set of HR practices that would support a healthy and innovation-oriented HR system in an organization (Trehan and Setia, 2014).

V. Effect of System of Appraisals on Productivity:

According to the findings of Gamage (2005), the four HRM practices; employee staffing, training and development, performance evaluation and compensation management have positive relations with labor productivity in manufacturing SMEs in Japan (Gamage, 2005). According to Trehan and Setia (2014) performance based reward is one of the significant HR practice that would support a healthy and innovation-oriented HR system in an organization.

VI. Effect of Promotion and Career Advancement on Productivity:

According to the research findings of Bloom and Reenen in 2010, promotions is more prevalent in the US and Northern Europe than Southern Europe and Asia. According to Bloom and Reenen (2010) the data on productivity is much better and have shown wide distributions of productivity within and between countries and HRM appears to mirror these patterns. According to the research findings of Jayarathna (2014), it was identified that, there is an impact of career development on employee productivity of executive employees of the Apparel Industry in western province in Sri Lanka.

VII. Effect of Disciplinary Management on Productivity:

According to Anthony (2007), it was found that, the effective disciplinary policy County Education Office HR Department in Turkana County are effective in that the organization has helped in controlling employee’s behavior by ensuring there is teamwork and cohesion in the organization.

VIII. Effect of Employee Welfare on Productivity:

According to Waititu and et al. (2017), it was revealed that, five variables of employee welfare programmes including occupational health; succession plans; training and development; employee referral scheme and remuneration policies, have an effect on employee performance at Kenya Railways Corporation.

IX. Effect of Human Resource Management Information Systems (HRMIS) on Productivity:

It was identified that, Information and Communication Technology (ICT) appears particular important with several pieces of evidence that combining ICT with the right fit of HRM practices makes a large difference for productivity (Bloom and Reenen, 2010). According to Rukumnuaykita and Pholphirulb (2016) Information Technology (IT) plays a key role in enhancing productivity among both professional and production workers in Thai manufacturing sector.

B. Effect of Organizational Factors on Productivity Following six (06) significant Organizational Factors have been identified based on the archival method applied throughout the study.

I. Effect of Leadership on Productivity:

According to the research findings of Islam and Shazali (2006), having a good boss is a significant contributory factor for motivating the workforce towards higher output in labor intensive manufacturing industry. According to Battisti and Iona (2009), moderate degrees of “bossing” would be a contributory factor to motivate the workforce. It was found that, the non-cognitive skills such as leadership skills are also important and seem to have positive relationship to labour productivity among Thai manufacturers (Rukumnuaykita and Pholphirulb, 2016).

II. Effect of Team Working Behavior on Productivity:

According to the research findings of Islam and Shazali (2006), working with a good team is a significant contributory factor for motivating the workforce towards higher output in labor intensive manufacturing industry. Team development is one of the distinctive HR practice that would support a healthy and innovative-oriented HR system in an organization (Trehan and Setia, 2014).

III. Effect of Organizational Culture on Productivity:

According to Needle (2004), organizational culture represents the collective values, beliefs and principles of organizational members and is a product of such factors as history, product, market, technology, strategy, type of employees, management style, and national culture; culture includes the organization's vision, values, norms, systems, symbols, language, assumptions, environment, location, beliefs, and habits. It was revealed that, culture is a key factor not only in achieving organizational goals, but in attracting and keeping desirable employees, creating a positive public image, and building respectful relationships with stakeholders (Kelepil, 2015). It was revealed that, there is a significant impact of Organizational Culture on productivity and quality management in Diamond Operations Unit (Kelepil, 2015).

IV. Effect of Empowerment on Productivity:

According to Battisti and Iona (2009), it was identified that, moderate degrees of empowering would be a contributory factor to motivate the workforce. It was identified that, empowering work practices are related to greater productivity (Capelli and Neumark, 2001; Siebers and et al., 2008).

V. Effect of Work Environment on Productivity:

According Islam and Shazali, (2006), favorable working environment is one of the significant factor effect on productivity. It was identified that, a favorable working environment, such as working with a good team, having a good boss, and liking the physical surroundings in the workplace, is a contributory factor for motivating the workforce towards higher output (Islam and Shazali, 2006). According to Battisti and Iona (2009) their study could be the basis of formulating favorable working environment in terms of supplying drinking water, tea, lunch and first aid.

VI. Effect of Communication on Productivity:

It was found that, the non-cognitive skills such as communication is also important and seem to have positive relationship to labour productivity among Thai manufacturers (Rukumnuaykita and Pholphirulb, 2016).

C. Mediating Effect of Motivation on the Relationships; Relationship between HRM Functions and Organizational Productivity, Relationship between Organizational Factors and Organizational Productivity

According to Bartol and Martin (1998), motivation is considered as a powerful tool that reinforces behavior and triggers the tendency to continue. In other words, motivation is an internal drive to satisfy an unsatisfied need and to achieve a certain goal (Njambi, 2014). It was revealed that, the motivation is the strength and course of behavior, these three concepts can be referred to as how hard be the individuals efforts and for how long are they maintained (Elliot and Zahn, 2008). And, motivation is a term that refers to a process that draws, controls, and sustains certain behaviors and also explored that each employee has different needs and desires which means the motivation factors is different from one employee to another (Anne, 1999). According to Ran (2009), motivation is the process that accounts for an individual's passion, direction, and determination of effort toward attaining a goal. According to Suwannathep and et al. (2006) it was identified that, the human resource development process, including motivation effects on the productivity and competitiveness among middle and higher level employees in Thailand. Implementation of the motivational theories successfully over the workers level in a leading apparel manufacturer in Bangladesh, number of resulting benefits return were obtained from the motivated employees, such as the reduction of the rejection rate from 30 % to 5 % and meeting the on time delivery in Bangladesh apparel manufacturing industry (Ahmad S. and et al., 2010). According to Neff (2002), organizational productivity is increased by the employee motivation. Emery and Oertel (2006) revealed that, by identifying the each employee's needs; both extrinsic and intrinsic employee, motivation process can be launched and it will enhance the organizational productivity ultimately. Moreover, higher organizational productivity is significantly affected by the adequate employee motivation in Nigerian workplaces (Robinson, 2004).

As well as, Chew in 2005 identified that, salary and compensation, fringe benefits, training and development, performance appraisal systems, as well as promotion and career advancement are significantly effect on employee motivation and employee retention among the talented cadres in an organization. According to Rao (2005), implementation of incentive scheme motivates

the employees of the company to improve production level, achieve better consumption of raw materials and thus achieve higher productivity. Moreover, it was investigated that, there is a positive relationship between employee motivation and employee productivity of executive employees in western province of Sri Lanka (Jayarathna, 2014). It was revealed that, monetary benefits such as, year-end bonus, emergency subsidies, pensions, holidays and leave have a positive impact on motivation among both executive and non-executive employees in the public sector in Taiwan (Hong and et al, 1995). Moreover, it was identified that, there is a significant relationship between incentive system and employee motivation in manufacturing firms in Nigeria (Solomon and et al, 2012). The higher monetary rewards motivate the higher performances towards the organizational goal achievement (Wickramasinghe and Dharmasiri, 2006). According to Sandeepanie and Ubayachandra (2014) it was found that, there is a strong positive relationship between employee motivation and productivity in Sri Lankan apparel manufacturing industry. As well as, it was identified that, different organizational factors such as feedback, co-workers, task design, supervision and rewards significantly effect on employee motivation in Sri Lankan apparel manufacturing sector (Sandeepanie and Ubayachandra, 2014). According to Ortiz and Tran (2007) interesting work, promotion and growth in the organization, personal loyalty to employees, good working conditions and tactful discipline are the key significant motivational factors for the employee motivational process. According to Al-Aamri (2010), employee motivation delivers long-term benefits in the form of high productivity the employee's motivation has a significant direct impact on organizational productivity and growth in private sector organizations in Malaysia. According to Armstrong (2006) employees, who are motivated, produce a high quality work. Malik and et al (2011) identified that, there is a significant relationship among all factors; employee's performance and motivation towards the organizational effectiveness. According to Malik (2011), as the employees get self-motivated, spontaneously the organizational effectiveness moves in a positive way. There is a positive and direct correlation between motivation and productivity among organization's employees and being careful about fulfilling the motivation factors causes a considerable improvement (Alibakhshi, 2010).

D. Mediating Effect of Personal Factors

It was identified that, HRM has a positive impact on productivity, through employee skills, attitudes, and

behavior in Greek manufacturing sector (Katou and Budhwar, 2015). According to the findings of a cross-sectional, single-respondent empirical study of 52 Japanese multinational corporation subsidiaries in the US and Russia, it was identified that, employee skills, attitudes and behaviors play a mediating role between HR systems and firm outcomes (Park et al, 2003 Siebers and et al., 2008). It was tested whether HRM outcomes such as employee skills, attitudes, and behavior mediate the relationship between HRM and total production, utilizing a production function and a related HRM system (Guest, 2011; Voorde et al., 2012; Katou and Budhwar, 2015). In addition, it was revealed that, the labour productivity of a firm tends to increase if both groups of workers develop different skills (Rukumnuaykita and Pholphirulb, 2016). Behavioral skills, such as social skills, are found to have a statistically significant effect on professional workers in Thai manufacturing sector (Rukumnuaykita and Pholphirulb, 2016). Moreover, it was identified that, the numerical skills and adaptability skill among production workers are found to have a significant impact on an overall improvement of a firm's labour productivity in Thai manufacturing sector (Rukumnuaykita and Pholphirulb, 2016). It was found that, higher degree of skills, favorable working environment and Research and Development (are important inputs to a labor-intensive manufacturing process, which is positively associated with productivity (Islam and Shazali, 2006). Employee involvement in terms of delegation of responsibility and systems of collecting proposals from employees have a positive impact on productivity (Arthur, 1994). It was revealed that, hiring workers who have a higher education has the most impact on an increase in labor productivity, followed by hiring workers with secondary education (Rukumnuaykita and Pholphirulb, 2016). According to the research findings of Shanmugasundaram and Panchanatham (2011), it was suggested that, labour productivity can be improved

by imparting knowledge and skills to the workforce by arranging training programmes with experts both from India and abroad.

IV. DISCUSSION AND CONCLUSION

According to the research findings, effective launch of the HRM functions such as HRP, recruitment and selection, training, remuneration system, system of appraisals, promotion and career advancement, disciplinary management, employee welfare and HRMIS by the HR managers in manufacturing industry enhance the organizational productivity at last. Moreover, Gamage (2005) also identified four HRM practices such as, employee staffing, training and development, performance evaluation and compensation management have positive relations with labor productivity in manufacturing SMEs in Japan.

In addition to that, with the careful handling and effective usage of the organizational factors such as leadership, team working behavior, organizational culture, empowerment, work environment and communication system, ultimately make a bigger contribution in enhancing the organizational productivity. As well as, according to the research findings, there is a significant effect of personal factors such as attitudes, skills, knowledge, behavior, responsibility and interest in enhancing the productivity in manufacturing industry. Moreover, Sandeepanie and Ubayachandra (2014) also identified the personal factors such as, perception of behavior, interest and needs significantly effect on employee motivation in Sri Lankan apparel manufacturing industry. Based on the research findings of the archival method, five key variables were identified. Moreover, key dimensions were identified for each and every key variables as well (Table 4.1).

Table 4.1 Identified main variables and dimensions

Identified Variable	Type	Number of Dimensions Identified	Identified Dimensions
HRM Functions	Independent Variable	09	Human Resource Planning (HRP)
			Recruitment and Selection
			Training
			Remuneration System
			System of Appraisals
			Promotion and Career Advancement
			Disciplinary Management
			Employee Welfare
			Human Resource Management Information Systems (HRMIS)
Organizational factors	Independent Variable	06	Leadership
			Team working behavior
			Organizational culture
			Empowerment
			Work environment
Productivity	Dependent Variable	04	Level of output
			Goal achievement
			Quality of output
			Resource utilization
Motivation	Mediating Variable	04	Behavior of achieving goals
			Persistence & vigor of action
			Fulfillment of extrinsic needs
			Fulfillment of intrinsic needs
Personal Factors	Mediating Variable	06	Attitudes
			Skills
			Knowledge
			Behavior
			Responsibility
			Interest

Based on the research findings of the archival method, the below model (Figure 4.1) was developed for the future development of the research on Dynamics in Productivity with the intervention of Human Resource Management (HRM) with special reference to the manufacturing industry.

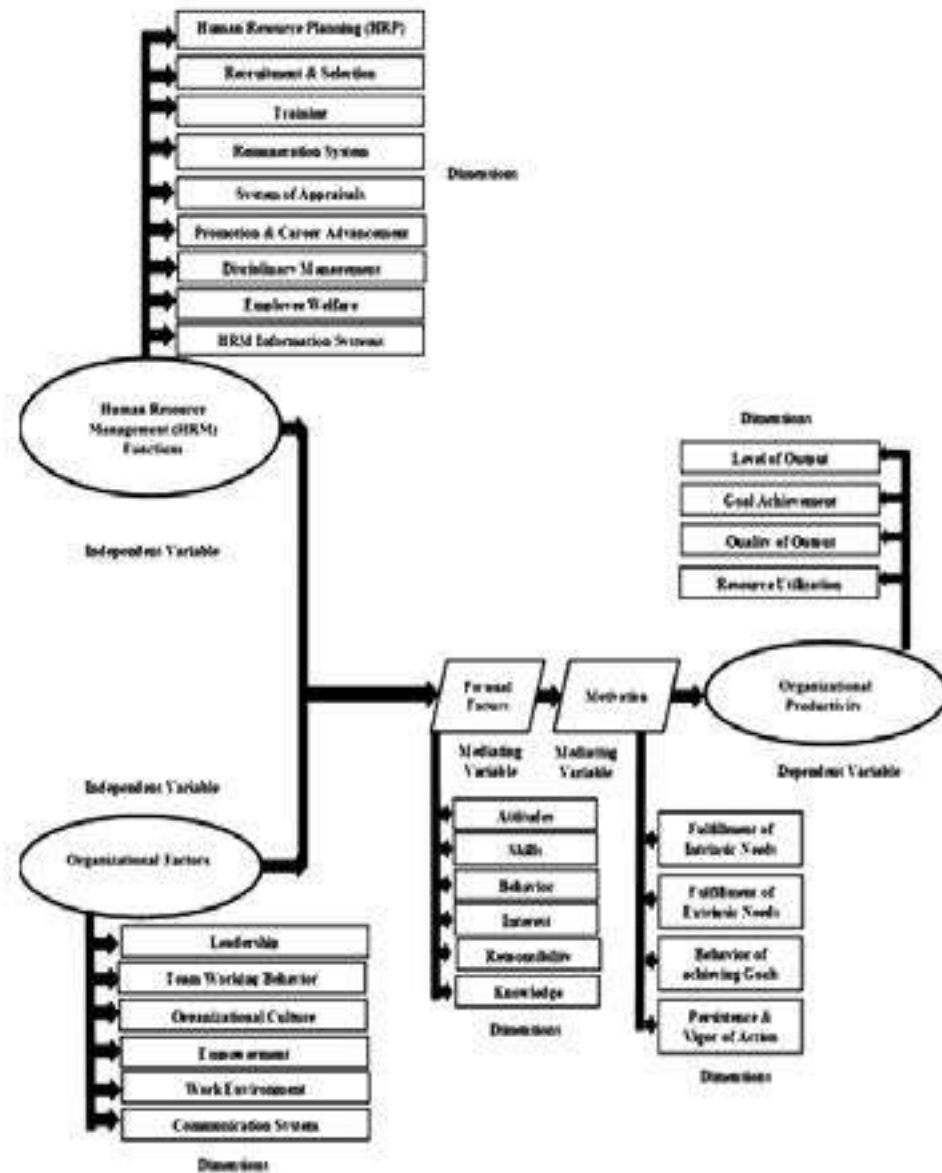


Figure 4.1 The developed Model for the Dynamics in Productivity with the intervention of HRM

This field of research will be a foundation for forthcoming research with respect to the manufacturing industry in Sri Lanka, since there is a significant research gap identified in the same field. Moreover, this field of research will be a base for future research on dynamics in productivity with the intervention of HRM with respect to the service

industry as well. As well as, this developed conceptual framework will be a foundation for a future comparative study between private and public manufacturing industries in Sri Lanka with respect to the dynamics in productivity with the intervention of HRM.

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A STUDY ON THE EFFECTIVENESS OF TSUNAMI WARNING SYSTEM IN SRI LANKA

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Abstract - The Indian Ocean tsunami of 26th December 2004 was the greatest natural disaster ever to hit Sri Lanka. This is considered as the world's first Internet-mediated natural disaster as it got extensive coverage with the power of satellite and Internet technologies. However, the tsunami warning message did not reach the respective coastal communities on time, resulting in massive damage to people and properties. Even though no more tsunamis hit Sri Lanka again, a few early warning and preparedness measures have been taken. Tsunami warnings are generated from tsunami towers and these must provide accurate messages. And the system is supposed to work effectively and accurately to avoid causing panic and unnecessary disruption. The purpose of this research is to identify what factors must be considered to make the tsunami warning system work more effectively. A descriptive research methodology has been used for this research, based on a selected sample from the coastal population in Galle that included 60 cases. The Study has been carried out over a period of eight months and it used a questionnaire as a survey instrument. This study proposes that technology, communication, administration and human resources are the most critical factors needed to put in place an effective tsunami warning system in Sri Lanka. This will support government agencies to deploy a wider range of response strategies.

Keywords- Tsunami warning system, Communication, Technology, Administration, Human resource

I. INTRODUCTION

Sri Lanka was the first country to receive the tsunami warning from Hawaii, US, several hours before the tsunami was about to hit the coastal areas of the Indian Ocean. But due to the lack of well-coordinated communication networks in these countries, Sri Lanka, India, and even Sudan (Northeast Africa) did not receive the Tsunami warning well in time to take the necessary action (Muggah, 2008). There was also the lack of a well-established natural disaster warning system in these countries (UNDP, 2005). On 26th December 2004 the Tsunami struck with great force wreaking havoc. It caused massive damage and killed tens of thousands of people living in coastal areas facing the Indian Ocean (Centre for Research on the Epidemiology of Disasters, 2005).

Sri Lanka was hit badly by this Tsunami, which was triggered by a Richter 9.0 magnitude earthquake off the coast of Sumatra on 26th December 2004. The tsunami was one of the worst disasters ever recorded in the history of the Island. It left thousands of people dead and many thousands more homeless, causing widespread chaos (Pararas-Carayannis, 2003) throughout the Island. In addition to the social impact, the tsunami had a significant impact on Sri Lanka's environment and ecological systems. It caused severe long-term effects on the economy and the society (Samarajiva, 2005).

As of 1st March 2005, estimates stated that 35,322 people perished in the months following the Tsunami (UNDP, 2005). Nearly 800,000 people who lived in the coastal areas of Sri Lanka have been directly affected (Nuwansi, 2005). The Eastern shores of Sri Lanka faced the hardest impact since they faced the epicenter of the earthquake. The Southern and Western shores were hit later, but the death toll was just as severe along those coastlines (UNDP, 2005). The South-Western shore is a hotspot for tourists as well as the fishing economy. Tourism and fishing industries created high population densities along the coast. The coastal lifestyle of people in Sri Lanka contributed to the high death toll. Besides the high number of fatalities, approximately 90,000 buildings were destroyed. Houses were easily destroyed since many of those were built mostly out of wood (Hettige et al., 2004).

The Meteorological Department of Sri Lanka receives Tsunami early warnings through the Regional Warning Centers, which in turn are transmitted to the Disaster Management Centre for the dissemination of that information to all as quickly as possible to ensure prompt evacuation to safety (DMC, 2005). No sooner an early warning of an impending Tsunami is received, required steps will be taken by the DMC to inform the general public through the Police, Radio broadcasts and TV telecasts (DMC, 2009). From the lessons learned from the 2004 Tsunami, the Disaster Management Centre has made arrangements to activate the Tsunami Warning alarm via 77 warning towers spaced along the coastal belt of Sri Lanka (DMC, 2009).

However, on the night of 28th March 2005, three months after the 2004 Tsunami, there was a big earthquake measuring 8.7 on the Richter scale at the Sunda Pit near Nias Island, Southeast of the epicenter of the previous earthquake. Tsunami warnings were issued and millions of people living along the coasts of the Indian Ocean ran out of their houses in the dark. It was not a destructive tsunami though. Unfortunately, some people died while attempting to evacuate, or just out of shock (Nuwansi, 2005). This incident illustrated the problem with the tsunami Warning system which issued false alarms 75% of the time (Associated Press, 2005) resulting in additional costs to the country. DMC (2009) confirmed that as the steel towers are situated near the coastal areas both the towers and even the associated systems are prone to corrode at a fast rate due to the salty air. Servicing and functional tests of these sirens mounted on the towers are not carried out at regular intervals. Therefore, sometimes when the Tsunami warning was activated, the systems

had failed to function as they were not in a serviceable condition to be used even in an emergency (Samarajiva, 2005). Also, casualties have occurred during evacuation due to the lack of a proper evacuation plan and/or failure to educate the public about an orderly evacuation process. (Repetition) These drawbacks are considered to be critical weak points of the Tsunami warning systems in Sri Lanka.

By considering all the problems affecting the existing Tsunami warning system, the purpose of this study is to overcome the existing drawbacks by identifying the remedies that might be applied to improve its effectiveness in the long run. It has been fifteen years since the Indian Ocean Tsunami hit Sri Lanka. Since then the Sri Lankan government has been focusing intently on disaster prevention and initiating several projects at various levels to educate the public and protect them from natural disasters including tsunamis (DMC, 2009). The desired results could be achieved by introducing regular maintenance programs, monitoring them assiduously, linking them with a proper evacuation plan and by educating the public.

II. LITERATURE

A. Tsunami Warning Systems in the European Region and Western Countries

The Tsunami Warning System is a method that was devised to help minimize the loss of life and property during a tsunami strike. The National Tsunami Warning Center at Palmer, Alaska, monitors worldwide earthquakes and tsunami events. If a tsunami is original, they issue advisories, watches, and warnings, as well as information about it to the United States of America, Canada, and Puerto Rico (Titov et al.). The Pacific Warning Center in Hawaii provides similar services to all other US territories in the Pacific Ocean. They also serve some countries in the Pacific Ocean, Indian Ocean and the Caribbean basin. These two tsunami warning centers use the earthquake information, tidal gauges and also a new tool now from the NOAA (National Oceanic and Atmospheric Administration). This is known as the Appropriate detection device, developed by NOAA Pacific Marine Environmental Laboratory. A total of 39 buoys are currently deployed in the North Pacific with nearly two dozen scientists to analyze their data and determine if a tsunami has been generated and crossed the Pacific, well before it reaches the North American coast. Another tool

in the tsunami warning centers helps to avoid false alarms. The buoys in the dense network supplement each other and act as mutual backups.

The Intergovernmental Oceanographic Commission (IOC) is coordinating the implementation of the global Tsunami warning system, building upon its experiences in the Pacific to establish warning centers for the Indian Ocean, Caribbean Sea, and the Mediterranean Sea. The Pacific Tsunami Warning Center (PTWC) serves as the international warning center for the Pacific. This international warning effort became a formal arrangement in 1965 when the PTWC assumed responsibility as the operational center for the Tsunami Warning System in the Pacific (TWSP). The ICG/ITSU, presently comprised of 26 international Member States, oversees warning system operations and facilitates coordination and cooperation in all international Tsunami mitigation activities (Dacis, 2008). Until a regional warning center is permanently established in the Indian Ocean, the PTWC and the Japan Meteorological Agency (JMA) will cooperatively provide interim warning services (Dacis, 2008).

The US agency responsible for Tsunami warnings is the National Oceanic and Atmospheric Administration (NOAA) and its predecessor agencies, including the US Coast and Geodetic Survey and the Environmental Science Services Administration (NOAA, 2005). The Pacific-wide Tsunami warning system took advantage of the islands scattered within the vast expanse of the Pacific Ocean and organized international cooperation among these nations at risk to create a "if you detect a Tsunami, alert everyone" movement. Tsunami detectors are tide gauges located around the Pacific 'ring of fire,' and the telephone-based communications systems are tested monthly to ensure reliability in alerting all nations requesting Tsunami services. Tsunami travel-time maps are provided to all participants, so times of Tsunami arrival could be easily determined. This international cooperation initiative benefited affected nations by providing access to a large Tsunami monitoring network and arrival forecasting system for the cost of investing in and operating a portion of the system. This shared cost system worked, but the inaccuracies of the forecasts led to a false alarm rate of 75%. A false alarm is defined as a Tsunami evacuation accompanied by a non-flooding Tsunami. The inaccuracies and high false alarm rate were due, in part, to Tsunami measurements at tide gauges being greatly influenced by local bathymetry. As such, using these data to predict the Tsunami impact at other locations was of little quantitative value. Also, the US earthquake-centric system suffered the

same inaccuracy problems as Japan in using earthquake magnitude to estimate Tsunami impact.

B. Tsunami Warning System in Asian Region

A massive earthquake of magnitude 9.0 on the Richter scale struck off the coast of Sumatra Island in December 2004, setting a record as the most devastating tsunami in modern times, and affecting 18 countries in Southeast Asia, Southern Africa, and Sri Lanka. It caused enormous damage in terms of life and property along the coasts of the Indian Ocean (USGS, 2004). The number of deaths and missing persons was estimated at 300,000, and almost 1.2 million people were affected by the event (OCHA, 2005). The scale of the damage that occurred has been attributed to the absence of an Indian Ocean early warning system such as that which exists in the Pacific Ocean, and a lack of knowledge about tsunamis (Gregg et al., 2006; Colombage, 2006).

The chairman of the National Disaster Warning Council, Ranong Branch, Thailand has mentioned that many towers were not functioning properly, as thieves had stolen and removed loudspeakers and other equipment from the towers in Ranong, Thailand. There were 13 warning towers in Ranong, one of the six southern provinces hit by the 2004 Tsunami. The chairman also complained that the signboards were rather confusing and so people might not have been able to find safe evacuation routes in times of emergencies (Nations, 2012).

In 2007, the Indonesian Parliament passed Law No. 24/2007 on Disaster Management, which explicitly stated that the government of Indonesia was responsible for disaster response, including mitigating disaster risks and protecting the society from natural hazards. In 2008, Badan Nasional Penanggulangan Bencana (BNPB) was established as a new National Disaster Management Agency responsible for disaster coordination and management of all natural hazards. The BNPB is responsible for coordinating other government agencies assigned with specific disaster response functions and operations (Morin, 2008). Other existing disaster agencies were also institutionally empowered. A mechanism was established to issue the first Tsunami warning alarm within 5 minutes of an earthquake event. However, in practice this has not performed well, thereby proving that the TEWS ideally needs an additional 500 accelerometers (devices that measure the proper acceleration of Tsunami waves) distributed around the Indonesian coasts to predict a Tsunami within two minutes after an earthquake.

This is because the earthquake epicenter, on average, is located from 250 to 400 km away from the nearest coast of Indonesia. This reduces the amount of time available to warn citizens living near the coasts vulnerable to Tsunami hazards and also gives them less time to evacuate (Chatfield, 2013). The warning messages have also been disseminated through social media like Twitter.

C. Tsunami Warning System in Sri Lanka

The tsunami of December 2004, caused by a 9.0 magnitude earthquake, is the most devastating tsunami of modern times with the consequences being felt in many areas. In response, since December 2004, the Meteorological Department of Sri Lanka has announced Tsunami warnings on three occasions, specifically on 29/ 03/ 2005, 17/ 09/ 2007 and 11/ 04/ 2012, resulting in evacuation in all three occasions. However, no disastrous situations were experienced. It must be noted that all undersea earthquakes can give rise to a tsunami. It depends on the magnitude of the earthquake and the depth of water at that location. If the earthquake occurs near the Indonesian shores, then the meteorological Department of Sri Lanka will be rather concerned about the possibility of its effect on Sri Lanka. However, it was found in 2012 that some of the Tsunami towers set up in the coastal areas of Sri Lanka had not functioned properly due to technical failures when a Tsunami alert was issued during a drill (DMC, 2012).

The Meteorological Department of Sri Lanka gets data about earthquakes through the Global Telecommunication System (GTS) and this includes details like magnitude and depth of earthquake with reference to sea level. Then the Meteorological Department analyzes the information and if necessary, alerts the population. They will analyze mostly earthquakes of magnitude above 6.5 Richter scale that occur at depths of 100 meters below the seabed. They will also consider the weather forecast, and the IOTWS is responsible for passing along such warnings. However, when an earthquake capable of triggering a Tsunami occurs nearby Sumatra, it will take a minimum of one and a half hours to reach Sri Lanka; but if an earthquake occurs on the nearest fault line towards the West of Sri Lanka, then it will take around five hours for the waves to reach Sri Lanka (DMC, 2009).

The Disaster Management Centre of Sri Lanka plays a vital role in broadcasting the warning message in liaison with relevant authorities to assist the public in evacuation. There are two types of evacuation namely horizontal and vertical evacuation. For horizontal evacuation, locations

2km from the sea shore are considered as safe. Vertical evacuation refers to the process of selecting hilly areas. Evacuation routes are marked clearly to enable easy retreat by the public (DMC, 2009).

Once the DMC receives the warning message about an earthquake under the seabed, the Meteorological Department in turn, will send a facsimile message to the Disaster Management Centre (DMC). As soon as the DMC receives such a message it will be passed on to the general public by following the Standard Operation Procedure practiced at DMC. This is done via 77 Tsunami towers situated in the coastal areas. Before sounding the warning, the operational staff of DMC will inform about the situation to the Director General of DMC and then to the Hon. Minister of Disaster Management at the ministry. The DMC activates the Tsunami warning system mounted in towers through satellite communication.

The DMC will follow up by passing the warning message through Police (119 division), Army, Navy & Air Force, SMS alerts, a committee appointed in Tsunami vulnerable areas and through the DMC sub units established in the district divisional secretariats.

D. An Effective Early Warning System

Early warning is the strategy that is considered as the main element in Disaster risk reduction. It helps a country's administration to prevent loss of life and significantly reduce economic losses to a minimum. 'Communication saves lives' stated Dr. Zavazava in his presentation at the World Conference on Disaster Reduction held in Kobe (United Nations, 2005). An efficient and effective early warning system comprises four elements – (1) Risk awareness: prior knowledge of the likely risk scenarios that communities face (UNISDR, 2006; Chatfield, 2013; Izadkhah, 2008). (2) Monitoring and warning service: monitoring for early signs of these risks and engaging in rapid and reliable decision-making processes for issuing early warning (UNISDR, 2006; Chatfield, 2013; Izadkhah, 2008). (3) Communication: dissemination of understandable warnings and preparedness information to those at risk (UNISDR, 2006; Chatfield, 2013; Izadkhah, 2008). (4) Response capability: knowledge, preparedness and capacity to act by all partners of the information chain (UNISDR, 2006; Chatfield, 2013; Izadkhah, 2008). Failure in any one part of the chain can result in the breakdown of the whole system (United Nations, 2005). Developing information communication technologies is needed to facilitate information sharing and dissemination. Such

information must be accurate and fully compatible with the needs of developing countries.

- 1) Response Capacity (Communication, Human resource, Technology and Administration controls)

Response Capacity includes public reaction to the warning and the response to the disaster itself. The local population must understand the risks, respect the alert and know how to react. Education and preparatory programs play a key role, and it is essential that proper disaster management and preparedness plans are put in place, well-practiced and tested. Disaster Preparedness Plan describes the activities and measures taken in advance - before the disaster strikes to ensure an effective response, including the issuance of timely and effective early warnings and temporary evacuation (Chatfield, 2012; Jahangiri et al., 2011; Basher, 2006; Vilagran De Leon, 2000).

The community must be well briefed on the safe behaviors and practices that should be adopted to avoid damage and loss of property. There are five major areas that come under Response Capacity and they are, i) Warnings and Guidance Instructions Respected, ii) Evacuation Plans Developed, Disseminated to the Community and Practiced, iii) Disaster Response Plan Established, iv) Community Response Capacity Assessed and Strengthened, v) Public Awareness and Education Enhanced (Izadkhah, 2008).

- 2) Risk Knowledge (Administration and Human resource controls)

The risk of a tsunami comes from the combination of tsunami hazards and vulnerabilities at a particular location. Tsunami risk assessment requires systematic data collection and analysis and should take into account the dynamic nature of hazards and vulnerabilities arising from processes such as urbanization, rural landfills, degradation of environment and climate changes. A Tsunami risk assessment map helps and motivates people to set up an early warning system and guide disaster preparedness, prevention and response (UNISDR, 2006; Izadkhah, 2008).

- 3) Monitoring and Warning Service (Human resource, Administration and Technology controls)

Most of the communities living in tsunami-prone areas are at risk of tsunamis. Locally generated tsunami waves may reach the coast in a very short time. For that reason, local communities should pay special attention to natural warning signs (Vilagran De Leon, 2000). The first warning sign that communities may receive is the tremor felt from a strong but distant earthquake; this is barely detectable when the epicenter is far away. Unfortunately, ground shocks are not a very reliable tsunami indicator, and this is subjective. There is also the possibility that the earthquake occurred on land, and therefore, no tsunami danger exists. There have also been reports of local tsunamis, preceding which people did not notice any ground shaking. Earthquake data are generated by many different countries collaborating in an international network of seismic stations. New seismic data is compared with a Tsunami Simulation and the existing Database to estimate the probability of a tsunami, the expected wave height, and areas that would be affected. Based on this information a first warning will be issued. A second component monitors the ocean processes and determines whether a tsunami was generated. Monitoring and Warning service operates 24 hours a day (Izadkhah, 2008).

- 4) Dissemination and Communication (Communication, Human resource, Administration and Technology controls)

A communication method will be selected to disseminate the early warning message at the national level or the community level. Public media (radio, TV) are used to inform the general public. Additionally, warnings will be conveyed to selected institutions and persons by SMS. Special radio and Internet-based communication technologies will be applied to disseminate warnings directly to people and institutions in risk areas. There are three major themes related to Dissemination and Communication to be considered at the local level: i) Organizational and Decision-making Processes Institutionalized, ii) Effective Local Communication Systems and Equipment Installed, iii) Warning Messages Recognized and Understood (Izadkhah, 2008; Basher, 2006; UNISDR, 2006).

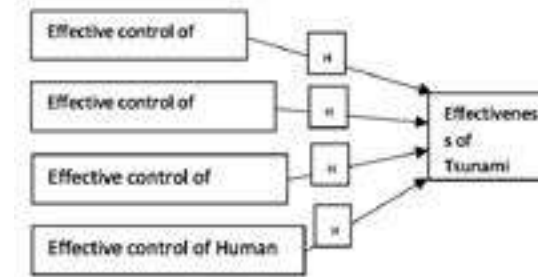


Figure 1. Conceptual framework
Source: Developed by the authors

- 5) Emergency Operations (Communication, Human resource, Administration and Technology controls)

Emergency Operations Centers (EOCs) are facilities set up in one location to implement the execution of three key tasks: multi-agency coordination, decision-making, and management of information (Izadkhah, 2008). An EOC is physically arranged to facilitate coordination and information-sharing among all those involved in its operations.

The EOCs normally carry out their operations using EOC SOPs and generate the information that is later disseminated to the media and the public via bulletins or through press conferences. A lack of inter-institutional coordination can lead to the duplication of effort, or give rise to gaps or voids in response and cause costly delays in decision making. The use of EOCs in conjunction with contingency plans helps emergency managers to minimize such inefficiencies (UNESCO, 2015).

By considering all the important points discussed in the previous studies (Izadkhah, 2008; Vilagran De Leon, 2000; UNISDR, 2006; UNESCO, 2015) and the inputs of the Sendai Framework (2015) on Early Warning System, the authors of this study developed four independent variables that can be described as “Effective control of Communication, Effective control of Human resource, Effective control of Administration and Effective control of Technology” to measure the dependability of an effective Tsunami warning system.

H1. Effective control of Technology has a positive impact on the effectiveness of Tsunami early warning system

H2. Effective control of Communication has a positive impact on the effectiveness of Tsunami early warning system

H3. Effective control of Administration has a positive impact on the effectiveness of Tsunami early warning system

H4. Effective control of Human resource has a positive impact on the effectiveness of Tsunami early warning system

III. METHODOLOGY

Quantitative research was conducted to meet the aim of this study, which is to identify drawbacks of the existing Tsunami warning system and identifying those elements that would improve its effectiveness in the long run. Based on the descriptive nature of the research which is dictated by the aim of this research, a quantitative research methodology was selected to test the relationship between the effective control of communication, technology, administration and human resource and an effective Tsunami warning system (Saunders, Lewis, & Thornhill, 2009). From the research objectives perspective, this research can be classified further as a correlational study also, since it attempts to discover/ establish the existence of a relationship/ association/ interdependence between the variables and support for the overall effectiveness of the system (Saunders, Lewis, & Thornhill, 2009). This is presented in Figure 01. The reliability of the research instrument (questionnaire) was tested using the reliability analysis of SPSS. The questionnaire was adjusted after calculating the Cronbach's alpha value using SPSS reliability analysis. The questionnaire was adjusted until it reached 0.80 of Cronbach's alpha value. To ensure validity at the data analysis stage, validity checks that are unique to qualitative methodologies were applied. Descriptive, interpretative, theoretical, and external validity tests were conducted to ensure the validity of the qualitative study (Kumar, 2012).

The primary data were collected from a questionnaire answered by people in the coastal areas, engineers, and designers of the warning towers/systems and management of DMC. The questionnaire consisted of 19 items to measure all four variables and their correlation with the effectiveness of tsunami warning system. The sample was selected based on the Simple Random sampling method, by ensuring each person was actually living in the coastal area and could provide reliable information. As indicated in the following table, the Population was 6,639 persons, representing three Grama Sevaka Divisions in Galle District, that are highly vulnerable to a Tsunami. Numbers were assigned to the members of all the families and then each second person was selected from 20 families out of each G.S. Division to arrive at the total 60 cases in the sample.

Table 1. Details of the Population and Sample size

District	Divisional Secretariat	GramaSevaka Division	Families vulnerable to Tsunami		No. of questionnaires	Percentage
			Families	Members		
Galle	Four Gravets	(96) China Garden 99 B	307	1993	20	1 %
		Pettigalwatta	337	1318	20	1.5 %
		99 Magalle	418	3328	20	0.6 %
Total		03	1062	6639	60	0.9 %

Source: Developed by the authors

IV. FINDINGS

Using the SPSS, the Cronbach's α value is generated for the latent factors in the hypothesized theoretical framework. This was carried out during the pilot study using seven datasets. The questionnaire items were readjusted until they reached a Cronbach's α value of approximately 0.80

within a grouped variable set on par with the hypothesis. The least significant factors (variables) were ignored when carrying out real data collection. The Pearson correlation coefficient was calculated for each combination of the independent and dependent variables; this result is presented in Table 02. Each independent variable consists of two or more indicators. Item definition is given in Annexure 01.

Table 2. Correlations

Effective control of Technology	Q1	Q2	Q3	Q4	Q5	Q19
Pearson Correlation	1	0.150	0.314*	0.141	0.142	0.020
Sig. (2-tailed)		0.253	0.014	0.283	0.281	0.882
Effective control of Communication	Q6	Q7	Q8	Q9	Q19	
Pearson Correlation	1	0.279*	0.242	0.126	0.141	
Sig. (2-tailed)		0.031	0.063	0.338	0.283	
Effective control of Administration	Q10	Q11	Q12	Q13	Q14	Q19
Pearson Correlation	1	0.252	0.124	0.315*	0.371**	0.267*
Sig. (2-tailed)		0.052	0.345	0.014	0.004	0.039
Effective control of Human resource	Q15	Q16	Q17	Q18	Q19	
Pearson Correlation	1	0.468**	0.452**	0.496**	0.496**	
Sig. (2-tailed)		0.000	0.000	0.000	0.000	
N	60	60	60	60	60	60

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Source: Survey data

There is a linear relationship between the effective control of technology, communication, administration and human resource and the overall effectiveness of the tsunami warning system. The influence of all four variables on the dependent variable represents a positive correlation though it is not very strong. However, the influence of independent variables on the dependent variable can be accepted as significant.

Linear regression analysis was used in hypothesis testing in this research. In this analysis the dependent variable is tested against the independent variables by looking at the model fit "ANOVA" first. The last column denotes the significance of the model ("It is the model to explain the deviations in the dependent variable") and also shows the goodness of fit of the model.

Table 3. Model Summary for H1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736a	0.599	0.329	1.005

Source: Survey data

Table 4. ANOVA for H1

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	23.394	4	5.848	5.785	0.001b
Residual	35.381	35	1.011		
Total	58.775	39			

Source: Survey data

Table 03 explained that R is 0.736 and therefore the correlation between the effective control of technology and the effectiveness of the tsunami system is positive. The variance explains the R Square (0.599). Table 4 illustrates that the regression is statistically significant at the 0.001 level. This indicates that effective control of technology has significantly explained 59.9% of the variance in the effectiveness of tsunami warning system. Thus, the relationship between the effective control of technology and the effectiveness of the tsunami system is statistically significant. Hence H1 is accepted.

Table 5. Model summary for H2

Model	R	R Square	Adjusted R	Std. Error of the Estimate
1	0.632 _a	0.583	0.244	1.067

Source: Survey data

Table 6. ANOVA for H2

Model	Sum of Squares	Df	Mean Square	Sig.
Regression	30.850	4	7.712	0.001
Residual	0.000	55	0.000	
Total	30.850	59		

Source: Survey data

Table 5 explained that R is 0.632 and therefore the correlation between the effective control of communication and the effectiveness of tsunami warning system is positive. In table 6, the R Square (.583) explained the variance and the results of regression are significant at the 0.002 level. This indicates that the effective control of communication has significantly explained 58.3 % of the variance in the effectiveness of tsunami warning system. Thus, the relationship between the effective control of communication and the effectiveness of tsunami warning system is statistically significant. Therefore, H2 is accepted.

Table 7. Model Summary for H3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.429 _a	0.184	0.109	0.683

Source: Survey data

Table 8. ANOVA for H3

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	5.686	5	1.137	2.440	0.46b
Residual	25.164	54	0.460		
Total	30.850	59			

Source: Survey data

Table 7 explains R is 0.429 and R square is 0.184 for the correlation between the effective control of administration and the effectiveness of tsunami warning system. Table 8 shows that the regression is statistically significant at the 0.046 level. This indicates that the effective control of administration has significantly explained 42.9% of the variance in the effectiveness of tsunami warning system. Accordingly, the correlation between the effective control of administration and the effectiveness of tsunami warning system is statistically significant. Hence H3 is accepted.

Table 9. Model summary for H4

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000a	1.000	1.000	0.013

Source: Survey data

Table 10. ANOVA for H4

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	16.644	2	8.32	7.309	.00b
Residual	42.131	37	1.13		

Source: Survey data

Table 9 shows the result of the correlation between the effective control of human resource and the effectiveness of Tsunami warning system by indicating that R and R square are the same (1.000). Table 10 explains that the regression is statistically significant at the 0.013 level. This indicates that effective control of the human resource has significantly explained 100% of the variance in the effectiveness of tsunami warning system. Therefore, the correlation between the effective control of human resource and the effectiveness of Tsunami warning system is statistically significant. Hence, H4 is accepted.

V. DISCUSSION

Based on the analysis and testing of the hypotheses on the correlation between independent variables and the dependent variable, the effective control of Technology, Communication, Administration and Human Resource factors were identified as the most critical factors (UNISDR, 2006; Chatfield, 2013; Izadkhah, 2008) affecting the overall effectiveness of the Tsunami Warning System in Sri Lanka.

During the study, it was revealed that in the 2004 tsunami disaster, most of the deaths could have been avoided if an early tsunami warning had been issued about 03 hours before the Tsunami waves hit the coast of Sri Lanka. This indicates clearly that the early warning message was not transmitted in time. Later on in 2005, a few incidents occurred from time to time, when some tsunami warning towers issued false warnings that led to some bad situations (Samarajiva, 2005). This happened due to the malfunctioning of some towers.

It is important to note that among all four critical factors, the effective control of human resource is identified as the most important aspect to be considered in improving the effectiveness of the tsunami warning system in Sri Lanka. This finding supports the outcome of an earlier study that also identified the same elements (Chatfield, 2013; Basher, 2006). The staff at the operational level in the management of a disaster is supposed to play a vital role by managing all other aspects such as administration, technology and communication. For example, effective communication prevails only if the respective staff receives, interprets and responds to the international warning messages by disseminating it to the public within the predetermined timeline. Effective control of the human resource is the foundation on which the other three factors such as administration, communication and technology rest.

People presently tend to use mobile phones and the Internet more often to get news updates on the imminent disasters, while the media also play a timely and active part in responding to same. Both mass media and social media (Sorensen, 2000) expect the authorities to issue the necessary warning and people are now getting used to checking on their phones frequently during a disaster period. This finding shows that corrective actions have been taken by the government, and this has been pointed out by research (Samarajiva, 2004). However, the telecommunication systems may easily get disrupted when disaster strikes as experienced recently during flood situations. This supports the research findings of Basher (2006). The electricity supply may also get disrupted leading to communication failures during a disaster.

Further, Tsunami warning towers do not always send accurate messages sometimes as experienced during some of the drills. The local government authorities frequently provide tsunami drills and evacuation maps so that people will become familiar with the preparedness measures and evacuation routes; but there does not appear to be a high level of understanding (Gregg et al., 2006; Colombage,

2006) and therefore, it is important to encourage community participation in disaster response further (Kogami, 2007). The continued maintenance of tsunami towers is necessary as it is the most critical element in the tsunami warning system. According to previous research (Kogami, 2007; Basher, 2006; Gregg et al. 2006), different countries may use different types of Tsunami warning systems with different technologies. Currently, the most advanced and efficient Tsunami warning system is the Pacific system that serves the International Tsunami Warning Center that networks with over two dozen member countries in the Pacific and Indian Ocean Basins as well as the Caribbean. The administration and the staff who are working in tsunami-prone areas need to be trained and strengthened further in numbers as well as with the requisite tools. Though no massive tsunami warning has been received in years, it is nevertheless important to continue with training and knowledge building since Sri Lanka continues to be vulnerable to earthquakes and tsunamis (DMC, 2009).

VI. CONCLUSION

This study intended to explore the importance of communication, technology, administration and human resource factors on running an effective tsunami warning system in Sri Lanka. As per the findings of

this study, it was found that Human resource is more critical than other factors to run an effective tsunami warning system. However, the other three factors also contribute significantly to an effective tsunami warning system, though they work on top of the human resource factor, which acts as the foundation for all of them. The findings of this study could contribute to more effective management of the tsunami warning system as they point out how to improve the response capacity of government agencies, intergovernmental organizations and other international organizations. Technology, Communication, Administration and Human resource are the critical factors to consider in developing a new framework to maintain a proper tsunami warning system. Further, this supports the Sri Lanka government to extend its existing strategies and measurements on tsunami response.

This research directs future researchers to measure the efficiency of the tsunami warning system as that will enable an increase in the speed and accuracy of issuing warnings in future. Also, it is important to explore to what extent people have taken mitigation and preparedness measures by learning from the lessons of the 2004 Tsunami. The level of understanding regarding the consequences of the tsunami is still not adequate among the communities. Therefore, future research can come up with strategies to improve the community's understanding of Tsunamis and participation in preparedness measures.

Annexure 1. Description of items

Q1	Availability of Mobile technology
Q2	Warning received from Internet technology
Q3	Available social media and technology
Q4	Delivery speed
Q5	Nearby tsunami warning towers and technology
Q6	Accuracy and the pitch of the message
Q7	Delivery in three languages
Q8	Accuracy of the message during drill
Q9	Evacuation directions in three languages
Q10	Training programmes from the government
Q11	Sufficient education on preparedness by the government
Q12	Safety of the designated locations to which people should evacuate
Q13	Installation of adequate signage indicating evacuation routes
Q14	Maintenance of tsunami towers by the staff
Q15	Government agencies to conduct frequent training and drills
Q16	Importance of drills and community participation
Q17	Commitment of the staff who conduct drill
Q18	Staff on duty on 24/7 basis in the tsunami vulnerable areas
Q19	Satisfaction level of the system

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CONSUMER PURCHASE INTENTION TOWARDS ORGANIC FOOD; WITH SPECIAL REFERENCE TO UNDERGRADUATES IN SRI LANKA

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Abstract - Sri Lanka is a country rich with full of natural resources which can cater a considerable portion of ever-growing market demand for organic products in the World. Identifying this fact is important for the Sri Lankan food and beverage industry to focus on organic farming and supplying various products grown under ecological systems. Based on this the study was conducted to investigate the factors influencing on consumer purchase intention towards organic food in Sri Lanka with reference to Undergraduates. Based on extensive literature review, the study adopted factors such as attitude, health consciousness, consumer knowledge, environmental concern, perceived behavior control and subjective norms to assess the purchase intention of organic food products. The primary data were gathered using a structured questionnaire from a sample size of 111 and SPSS software with version 21.0 had been used to analyze the data collected. The results show that attitude is the most influential factor that influence on purchase intention of organic food in Sri Lanka. Insights from this study can be used to further expand the organic food producing markets as it contributes marketers to target and retain health conscious customers more effectively. Further research can use the same model to investigate the factors and to facilitate full understanding of the consumer-decision making process regarding organic produce while considering the tradeoffs that consumers make between values and product as well as consumer segmentation.

Keywords- Organic food, Attitudes, Purchase intention

I. INTRODUCTION

The growing global population has resulted in ever increasing the pressure to produce more food. This has ultimately resulted in the heavy use of chemicals to produce more output to satisfy the market demand. However, in today's world the human concern towards natural environment is rapidly increasing and the consumers are tending to seek for green aspect of the food and beverage items not only to satisfy their physical needs but also to fulfill their social needs along with being more concerned about their health. According to Yin et al., (2010) these factors have led to creating a tremendous market opportunity for organically grown food.

Organic food is considered as products which are produced with the support of adopted environmentally joined techniques, by the means of following production methods which is grown without the use of chemicals and where animals are raised in more natural conditions with ensuring the harmless impact to human (Chinnici, et al., 2002). According to Thøgersen, (2010), organic food is viewed as being a more sustainable alternative to conventional food as it provides many advantages to both consumers and producers in terms of healthy lifestyle, social benefits, animal welfare, environmental preservation and environmental friendliness.

There is a growing global interest in organic food than conventional food even though the sales are relatively low

than conventional food. As a result, the global organic market has shown a continuous growth in accordance to the increase of its agricultural cultivation area. According to the Organic Trade Association's (OTA's) 2017 Organic Industry Survey there is an increase of \$3.7 billion in organic food sales in the U.S. from the previous year and it presented that now it accounts for more than five percent 5.3 percent to be exact of total food sales in this country. In addition, Europe and North America are the two largest markets of organic food in which organic food are consumed by a clear majority of population. However, today Asia is also considered as a potentially growing market for organic food (Sheng, et al., 2009).

Several studies in the western world have concluded that there are many frequent buyers of organic food across several countries (Aertsens, et al., 2009; Mhlophe, 2016; Latacz-Lohmann & Foster, 1997). When it comes to Asian region many researches have been concluded that there is a growing trend for organic farming and a potential market with the highest growth rate per annum (Hossain & Lim, 2016; Kouya, et al., 2016; Chen & Hsu, 2014; Yang, et al., 2014). In general, all these results show that people in all around the world start to pay more attention and be more aware of the benefits of consuming organic food (Bo, et al., 2012; Parichand, 2012).

Besides, the rapid growth of organic food industry in Sri Lanka the Export Development Board showed that it is more oriented towards exporting rather than domestic market. As a result, the domestic consumption of organic food has become limited in Sri Lanka than other countries. According to Ranaweera, (2008) the term organic has been widely misused in Sri Lanka without having very clear understanding about it. This is due to defining all the ecological farming systems, applying compost on crops, natural home garden practices, neglecting lands without applying natural and artificial inputs as organic which is not actually can be defined as organic farming. Organic is a kind of labelling system that is granted for ecological production when the whole process is certified by an accredited third-party organization whereas without a third-party guarantee on the compliance of set international standards on organic production methods, a product cannot be labelled, termed or called as organic (Ranaweera, 2008).

Regarding Sri Lanka, a few studies have been carried out based on different factors affecting on organic food consumption (Weerasiri, 2016; Narmilan & Amuthenie, 2016; Gunawardana & Perera, 2014). Most of these

previous studies highlighted that majority of the Sri Lankan consumers are health conscious and are aware of places where organic food is available (Weerasiri & Cooray, 2016; Gunawardana & Perera, 2014). However, the fact that organic food is expensive than conventional food, insufficient supply on the market, lack of information reach to the consumers regarding the availability and market place and mistrust of the product have led to less consumption (Narmilan & Amuthenie, 2016).

Based on the influential factors which have been discussed by past studies as mentioned above, the research gap is created to conduct this research. In particular, it is in demand to investigate which factors and in which way they could specifically influence the purchase intention of organic food in Sri Lanka. It is important for a marketer to examine how the purchase intention of organic food will be influenced by different factors such as attitudes, beliefs and norms (Ajzen, 1991). Following this gap, it is essential to identify the relationship between each factor and purchase intention towards organic as there are not many researches this fact from the perspective of consumers in Sri Lanka. Weerasiri & Cooray, (2016) suggested that only few studies about this subject have been done in Sri Lanka and suggested that further studies should focus on this area due to the rapid expansion of Sri Lankan economy in recent decades, especially in the area of organic food.

A. Objectives of the study

Main objective

To discover the most influential factor affecting on the purchase intention of organic food in Sri Lanka. More specifically the key objective of this study is to study the factors influencing consumer purchasing decision regarding organic food while identifying the most influential factor among them.

Secondary objective

To identify the relationship between pre-purchase related factors such as attitudes, behavior control and norms and consumer purchase intention of organic food

B. Research Questions

- I. What is the most influential factor influencing on the purchase intention of organic food in Sri Lanka?

II. What is the relationship between pre-purchase related factors and purchase intention of organic food?

Sri Lanka is a country, rich with full of natural resources which can cater a considerable portion of ever-growing market demand for organic products in the World. Identifying this fact is important for the Sri Lankan food and beverage industry to focus on organic farming and supplying various products grown under ecological systems. For instance, from the year 1998 to 2001 organic labelling has created a value addition to tea industry resulted in additional production of about one million kilo grams of conventional teas (Ranaweera, 2008). The encouragement of the government to support organic sector provides a significant value to the organic agriculture in Sri Lanka. Recently some of the government institutes launched programs to identify the potential areas and producer groups for organic agriculture and the Export Development Board of Sri Lanka has immensely assisted to promote organic sector in Sri Lanka by assisting the private sector to seek new markets for organic products. However, changes of the government and the fiscal policy changes directly affects to this industry as it consists large part of the economy as price is considered as an important factor which can negatively affecting on purchase decision of organic food (Narmilan & Amuthenie, 2016). Hence, analyzing deeply on this topic seems to be much more important.

Through reviewing the literature, only a few research papers were found based on the exact nature of the research topic being studied. Therefore, it can show the significance of this research in such a way that it aims to fill a knowledge gap that already exists while contributing academics, researchers, scientist and other professionals in the respective fields to educate manufactures and consumers of organic food. Even though some studies have clearly identified the relevance factors affecting buying decision of organic products the root cause of the behind the decision was not found, thus not been treated. Deeming all above mentioned, this research is undertaken with the intention of identifying the key factors influencing the consumer purchasing decision regarding organic foods of undergraduates in western province; Sri Lanka.

II. LITERATURE REVIEW

This study employed the Theory of Planned Behavior (Ajzen, 1988) which is designed to predict and explain

human behavior in specific contexts in related with the behavior specific factors such as broad attitudes and personality traits to address the research objectives. This theory is an extension of the original Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) which deals with understanding and predicting motivational influences on behavior. According to Ajzen, (1991) the model developed for the Theory of Planned Behavior incorporates to capture the motivational factors that influence on intentions to perform different kinds of consumer behaviors. These intensions can be predicted with high accuracy from attitudes toward the behavior, subjective norms, and perceived behavioral control together with perceptions of behavioral control, account for considerable variance in actual behavior. Ajzen, (1991) stated that each of these factors reveals a different aspect of the behavior, and each can serve as a point of attack in attempts to change one's behavior.

Holst & Iversen, (2011) demonstrated that this model can be applicable in many studies on consumer purchase intentions and those that seek to determine consumers' actual behavior. Likewise, many previous studies have been stated that the Theory of planned behavior (TPB) is one of the most widely applied expectancy-value models used to predict and explain the consumer food choice behavior convincingly and the consumption of organic food (Dean, et al., 2008; Tarkiainen and Sundqvist, 2005; Aertsens et al., 2009).

The current study intended to examine how the antecedents of trust influencing organic purchase intentions based on related theories such as attitudes, perceived behavioral control and norms. Moreover, this study mainly focuses on consumer decision processes to buy organic foods by selecting the above factors as the main variables in the proposed conceptual model. This review function as a main part of the study by providing a valuable foundation for the formulation of the appropriate conceptual model and hypotheses that will ultimately direct the way the subsequent survey will be conducted.

According to Ajzen (1991) consumer purchase intentions can be viewed as the immediate determinant of action and the predictor for future buying decisions. It is being argued that the consumer behavior which is defined as the process of receiving information of goods, the circumstance to purchase, and deposing of goods or services is backed by these purchase intentions (Blackwell, et al., 2007). The construct of intention is fundamental to the Theory of Planned Behavior (TPB), as this variable is intended to

pull together all the motivational influences or antecedent determinants of attitude, subjective norm and perceived behavioral control, typified in the three key constructs that are prior to it (Ajzen, 1991).

According to the soil association organic food can be defined as foods prepared under a strict set of standards by the farmers and manufacturers under more environmentally sustainable management of the land and natural environment with a certificate awarded by an industrial body. Organic foods encompass of lower level of pesticides, free of artificial colors and preservatives, high standards of animal welfare and Generally Modified free. Generally, many studies have confirmed the view that consumption of organics is an increasingly mainstream activity (Stewart, et al., 2004). Aertsens, et al., (2009) stated that organic food is perceived to have better taste than conventional food and it is also perceived to be more environmental-friendly. This fact was aligned with the

study by Thøgersen, (2007) confirming that consumers perceive organic food as more environmental-friendly can be connected to the value of universalism and it is said to be the dominant value when consumers purchase organic food.

However, with reference to Shepherd, Magnusson & Per-Olow (2005) there are differences between behaviors regarding organic foods as some consumers may have positive views on organic foods but may not have an intention to purchase the items. This conclusion was aligned with the study by Tarkiainen and Sundqvist (2009) stating that there are low purchasing trends among the respondents towards organic food. In contrast number of researchers found that there is a growing number of consumers claim to pay attention to buy organic food after considering different factors like health (Newsom, et al., 2005), environment (Saleki & Seyedsaleki, 2012) and so on. Studies have found that health is strongly connected to the notion of organic food and that it is the strongest purchasing motive when purchasing organic food (Yang, et al., 2014). In addition, many studies have investigated that factors like perceived beliefs and attitudes, consumer knowledge, availability, price, government support and policy are influencing the purchase intentions towards organic food (Yang, et al., 2014; Dean, et al., 2012; Mhlophe, 2016; Kouy S, et al., 2016).

III. METHODOLOGY

The study is based on reviewing previous researches and the Theory of Planned behavior (TPB) involved in the

review of literature. As a result, seven hypotheses were developed. Therefore, the deductive approach which is generally applied within a positivist research paradigm was more suitable to apply in this circumstance. In deductive approach, the researcher continues to collect data to test the hypotheses in the light of existing theories and principles. Furthermore, the study collected empirical data by conducting questionnaire to test the existing theory and adapted model instead of generalizing a new theory. From this perspective, deductive approach was supported and fulfilled requirement.

Besides, the study also adopted the quantitative approach because of quantification in the collection and analysis of the data and the purpose to make a generalization of the data. In specific, the researcher attempts to reach a large amount of Sri Lankan undergraduates by online questionnaire. Thus, the quantitative approach was selected for this study as it acts as a strategy that emphasizes quantification in gathering and analyzing of data which entails a deductive approach. With reference to Bryman and Bell (2007) a quantitative approach allows the researchers to collect numerical data from large sample sizes, then to be measured in a statistical manner where a large sample size ensures the possibility and credibility to make generalization of the chosen population regarding the corresponded theory.

This study focuses on investigating the relationship between different potential factors that might affect consumer purchase intention towards organic food and identify the proper influence between individual factors on consumer purchase intention, if it was positively or negatively affected. Based on these measurements constructs were developed to measure each theoretical concept and a population is also specified. As a result, this study was categorized under descriptive design which attempted to investigate the relationship between different variables. According to Saunders et al., (2009) a descriptive research design aims at formulating an understanding of situations, individuals or events. In general, a quantitative research with a descriptive research design the researcher mainly focuses on investing the relationships between different variables.

In this study, primary data was collected by the researcher originally with the purpose of solving research questions with the use in demand of up-to-date and tailored information. According to Yin (2009) collecting primary data is claimed to be a time consuming and costly process with the risk of limited responses. However, as this study

follows a deductive approach the first-handed data would expected to be applied to increase the credibility of research findings since all the data were lately collected and specifically tailored the research questions. With reference to Ghauri and Grønhaug, (2005) primary data can be collected from experiments, interviews, focus groups, surveys, etc. Since the researcher has adopted a descriptive research design the most suitable research strategy to use is survey. Survey is a strategy which can be used in choosing many individuals from a population as a sample to gather data to make statistical generalization on a certain issue (Yin , 2009). The study adopted a cross sectional survey design as it collects data on a wide range of variables at a given time using structured questionnaires. The sample was chosen among the undergraduates of the private and government universities in Sri Lanka.

A. Target Population and Sample

According to Bryman & Bell (2007), the population refers to the all entities or the individuals who share the similar characteristics in a country, region, organization or in a group of people. In this study, the population comprises of all the consumers of organic food in Sri Lanka. As the researcher aims to analyze the purchase intention towards organic food, the target population was identified as consumers. To get an understanding on the perceptions of most of the consumers towards organic food consumption a population consisting of people aged over 18 years who purchase and consume organic food was considered for the study as it covered a considerable proportion of consumers.

A relatively small subset derived from a population with the purpose of investigating can be defined as a sample (Bryman & Bell, 2007). Based on accessibility and limited resources a sample was chosen from the above population representing the undergraduates aged over 18 years and below 28 years who consume organic food in the western province. According to statistics of 2014 Western province shows the highest contribution for the food and beverage expenses compared to other parts in the country as it has the highest population density which is around 5.6 million (Report, 2014). By considering the demographic figures across Sri Lanka, it shows that young adults aged between 15-30 years consisting about 3.5 million strong and their expenditures on food products keeps growing. (The Nielsen Company, 2014)

B. Hypotheses

- H1:** There is a positive relationship between attitudes and purchase intention towards organic foods.
- H2:** There is a positive relationship between health consciousness and purchase intention towards organic foods.
- H3:** There is a positive relationship between consumer knowledge and purchase intention towards organic foods.
- H4:** There is a positive relationship between environmental concern and purchase intention towards organic foods.
- H5:** There is a positive relationship between perceived behavior control and consumer purchase intention towards organic foods.
- H6:** There is a positive relationship between subjective norms and consumer purchase intentions consumers have towards organic food.

The following conceptual model, depicted in figure 2 was developed based on the arguments of the literature review and research objectives, to investigate the influential factors on consumer purchase behavior in the context of organic food consumption. Briefly stated, the model hypothesized the impact of attitudes, health consciousness, environmental concern, consumer knowledge, perceived behavioral control and subjective norms which eventually lead to take decision to purchase organic food.

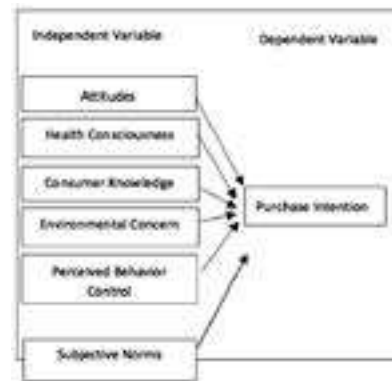


Figure 3.1: Conceptual Model
Source: Author

IV. DATA ANALYSIS

Simple descriptive statistics were used to summarize the respondent's basic features of the data collected. The demographic factors are analyzed based on the consumers' gender, age, residence, the outlets they visit mostly and monthly household income. This study adopts different types of methods to describe data such as tables, graphical descriptions and statistical commentary. The demographic factors are explained as follows.

Regarding gender, majority of the respondents were females (62%) as well as around 38% of the male contributed in this survey, with much responsibility. As the researcher has selected undergraduates as the sample all the respondents were considered as having equal educational qualifications.

The 111 respondents were categorized into three groups under different age levels of 18-21, 22-25 and 26-28. Among them age group between 22-25 accounted for the majority (52%) of the respondents who are willingly consuming organic food. Second highest rate forms at age between 18-22 which is 31% as many of the respondents in this age group are more dependent of parental influence. Finally, the last group of respondents with age between 26-28 accounts for 17%.

Among the respondents 44% of undergraduates are from urban areas and 49% from suburban and 7% from rural areas respectively. From this perspective, it is evident that the organic products are mostly consumed by people from suburban areas.

Further the highest percentage of people are in the group of income level over Rs. 100,000 with a 37%. However, there is no a large difference between the respondents with the household income of Rs. 75,000 – Rs. 100,000 and over Rs. 100,000 as it stands for 36%. There are 27% of respondents with the monthly household income between Rs. 50,000 – Rs. 75,000.

According to Hair et al., (1995) regression analysis is an analytical method which is generally used for service quality studies that involve the attitudes and perceptions of consumers or the decisions that consumers make about products. Several studies regarding organic food consumption have adopted regression analysis to assess the relationship between consumer purchase intention and the overall factors affecting on consumer purchase

intention (Yang, et al., 2014; Aryal, et al., 2009; Tshuma, et al., 2010). In this study Multiple regression analysis was used to determine the effects or impacts of several independent variables which are the factors influencing on organic food consumption on a dependent variable namely the purchase intention. Summary of Regression Analysis treating purchase intention dimensions which were accepted by the results of correlation analysis as predictors and consumer purchase intention as criterion variable was shown in Table 4.1, Table 4.2 and Table 4.3.

When considering on the R square value it indicates a positive linear relationship with the dependent variable. R square (R2) indicated the proportion of explained variance between 0 and 1, it can be interpreted as a percentage. The higher the value is, association is better proved. In multiple regression analysis adjusted R square is considered as the modified version of R squared that has be adjusted for several predictors in the model.

Table 4.1: Model summary

Model	R	R square	Adjusted R square	Standard error of estimate
1	.595	.354	.323	.478

Source – Sample survey, 2017

In terms of the relationship between factors influencing on purchase intention and consumer purchase intention towards organic food, the adjusted R2 = 0.323 was statistically significant. It was suggested that the selected factors effecting on purchase intention explained 32.3 per cent of the variance in the customers 'purchase intention' towards organic food. The overall standard error of the estimate in the above table indicates how far the sample mean deviates from the population mean. According to Nolan and Heinzen, (2011) the smaller number in std. error of the estimate represent the more sample of the overall population. Reflecting to the table 4.7 value of standard error is .478 which indicates that the sample (n= 111) could be representative of the overall Sri Lankan population.

Based on the results of the ANOVA table (table 4.8), it was observed that the overall regression model was significant (F=11.515, p<0.05) under 95% of confidence level. It is parallel to the findings of Yang, et al., (2014) that the relationship between Attitude and factors

affecting on consumer purchase intention of organic food was significant and strong. With reference to the significance level in previous analysis it was found that except subjective norms the other factors including attitude, health consciousness, consumer knowledge, environmental concern and perceived behavior control indicates a high level of significance which impacts on purchase intention. The lower its value is, the higher the significance level is. Therefore, by looking at the overall significance level given in the ANOVA table which is .000 under 95% of confidence level it can be concluded that THE MODEL IS statistically significant.

Table 4.2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.157	6	2.631	11.515	.000b
Residual	23.995	105	.229		
Total	37.152	110			

a. *Dependent Variable: Purchase Intention*
 b. *Predictors: (Constant), Perceived behavior control, Environmental concern, Health consciousness, Attitude, Consumer Knowledge*

Source – Sample survey, 2017

The standardized beta coefficients provided the relative importance (Table 4.9). In here, the dimension with the largest coefficient represents the most important dimension in terms of its influence on consumer purchase intention. The next largest coefficient represents the second most influential dimension and so forth. The higher the beta co-efficient, more is the contribution of factors in explaining the consumer purchase intention towards organic food.

As shown in the Table 4.9, the consumer purchase intention was influenced by all the six factors with “Attitude” as the most important factor, which achieved the strongest association with consumer purchase intention towards organic food (beta coefficient .328). It could be explained by the fact that most of the Sri Lankans are now much interested on consuming organically produced products than conventional products. With the rapid increase of non-communicable diseases mainly, in the western province people have become more conscious on choosing food outlets and they are willing to purchase organic food in the future than now. In addition, consumer knowledge also shows a beta value of .313 which is the next highest

value with a high significant value. Among all the variables in the regression, ‘perceived behavior control’ appeared to have least association (with beta coefficient = -.056) with consumer purchase intention. This shows that the perceived availability and price instils confidence in customers as the least important for influencing their purchase intention towards organic food.

When considering the significant values of individual parameters only attitudes (sig.-.001) and consumer knowledge (sig. - .002) indicates significant values less than .050 under 95% of confidence level therefore the final result of regression analysis can be interpreted by using these two variables which are influencing on purchase intention of organic food in Sri Lanka.

Table 4.3: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	.601	.508		1.184	.239
	Attitude	.376	.112	.328	3.353	.001
	Health consciousness	.088	.099	.086	.892	.374
	Consumer Knowledge	.306	.097	.313	3.149	.002
	Environmental concern	.067	.115	.054	.588	.557
	Perceived behavior control	-.058	.096	-.056	-.602	.548

Dependent Variable: Purchase Intention
 Source – Sample survey, 2017

The results of the above coefficient table 4.9 can be summarized as regression equation given below.

$$\text{Purchase intention} = .369 + .328 (\text{Attitude}) + .313 (\text{Consumer knowledge})$$

In conclusion, with reference to the above table we can predict the variation of the purchase intention regarding each individual factor. For instance, if attitude increase by one unit while holding all the other factors constant, purchase intention will increase by .328 units on average. Likewise, when consumer knowledge increases by one unit while holding the other factors constant, purchase intention will increase by .313 units on average.

V. CONCLUSION

Based on the results, Attitude is found as the most significant factor that influence on purchase intention of organic food products of Sri Lankan consumers. In general, it can be concluded that Sri Lankan consumers hold a positive attitude in purchasing organic food and they think it is a wise and important decision to make regarding food choice.

This study mainly adopted six factors which generally influence on purchase intention towards organic food. Based on the results, in addition to attitude, health consciousness, consumer knowledge, environmental concern, perceived behavior control proved to have appositive influence on purchase decision of organic food in Sri Lanka. This result represents that Sri Lankan consumers are more conscious about their health and most of their purchase decisions are based on the previous positive experience regarding organic food consumption. Moreover, it has been proved that the consumers have a knowledge on organic food based on their environmental friendly labelling and they are more concerned on following actions to reduce the harm to the environment. As consumer knowledge indicates a significant influential result on purchase intention it can be said that most probably the purchase intention towards organic food depends on the previous experience of purchasing, consuming, hearing from others or reading about it. Price and the availability of organic products are also proved to have positive impact on purchase intention as most food outlets in Sri Lanka have now focused on organic farming and most of the organic products are available in the local market same as the price of conventional food. In contrast, subjective norms do not show a positive influence on purchase intention towards organic food. This is mainly due to the people who are consuming organic food do not depend on the social pressure to influence themselves towards consuming or purchasing organically grown products.

The result of this study could be served as a foundation for further research about organic food in the future while exploring the effects of these antecedent variables on consumers’ purchase intentions in a wider context. For instance, further studies should be pay more attention on deeply explaining each factor by using qualitative analysis methods such as interviews or focus groups. Further research can use the same model to investigate the factors and to facilitate full understanding of the consumer-

decision making process regarding organic produce while considering the tradeoffs that consumers make between values and product as well as consumer segmentation.

In terms of the sample size, a small sample of 111 respondents is not adequate in most of the instance. Since organic food products are used by most of the people regardless of the gender, age and region a considerable sample size should be used for an effective representative of the entire study population chosen from different cities rather than choosing one city only. In addition, demographic factors could be further investigated such as specifying into different ranges to observe the impact of these factors on purchase intention more clearly. Lastly, in terms of the influence of factors on consumer purchase intention, future studies could replicate it in another context such as different geographical location and cultures.

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DISASTER MANAGEMENT, MEASURES AND FACTS IN INDIA: NEEDS TO IMPROVE

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'Disaster is a crisis situation that far exceeds the capabilities'.

Abstract - 'Disaster' is defined as a crisis situation causing wide spread damage which far exceeds our ability to recover. Thus, by definition, there cannot be a perfect ideal system that prevents damage, because then it would not be a disaster. It has to suffocate our ability to recover. Only then it can be called as 'disaster'.

Disasters are not totally discrete events. Their possibility of occurrence, time, place and severity of the strike can be reasonably and in some cases accurately predicted by technological and scientific advances. It has been established there is a definite pattern in their occurrences and hence we can to some extent reduce the impact of damage though we cannot reduce the extent of damage itself.

Floods, droughts, cyclones, earthquakes, and landslides have been recurrent phenomena. About 60% of the landmass is prone to earthquake of various intensities; over 50 million hectares is prone to floods; about 9 % of total area is prone to cyclones and 71% of the areas are susceptible to drought. In the decade 2000-2010, an average of about 54422 people lost their lives, and about 45 million people were affected by disaster every year. The 10th Five Year Plan documents have a detailed chapter on Disaster Management. The plan emphasizes the fact that development cannot be sustainable without mitigation being built into development process. Each State is supposed to prepare a plan scheme for disaster mitigation in accordance with the approach outlined in

the plan. In brief, mitigation is being institutionalized into development planning.

The Government of India has issued guidelines that where there is a self of projects, projects addressing mitigation with be given priority. It has also been mandated that each projects in a hazard prone area will have disaster prevention/mitigation as a term of reference and the project documents has to reflect as to how project addresses that term of reference. In the sections are discussed the measures shortcoming, measures taken for the mitigation of the disaster.

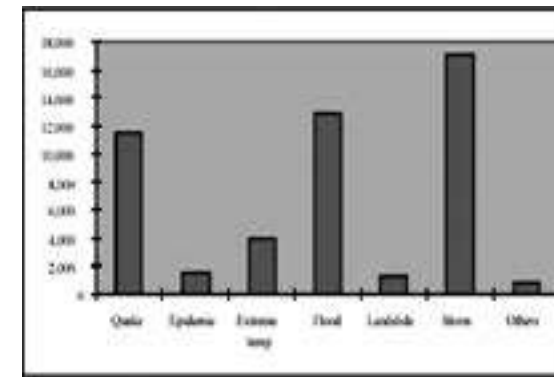
Keyword:- Disaster Management, Measures, Facts and Need to Improve.

I. INTRODUCTION

The disaster management and risk reduction: strategy and coordination plan does not only provide the framework for the specific sector plans, therefore contributing to the three S2020 strategic aims, but also focuses on the delivery of initiatives of a global nature and scope. These initiatives intend to address identified gaps in the way we manage information and knowledge across sectors, as well as supporting funding for community resilience interventions and other interventions. With the establishment of decentralized functions at regional level (zone offices), it is essential to provide adequate technical support, information management and coordination capacity globally in support of regional and country level

staff as well as National Societies by using innovative methods and approaches that can respond to developing external trends and better enable the zones to respond to the needs of National Societies.

It is really an unfortunate and undesirable situation that in our country where more than 6 crore people are affected by disasters every year. Statistics is shown in figure,



We have no policy on systematic disaster Management. It is only after a disaster strikes that the wheels of the government, both at the centre and at the states, move and that too slowly. Despite the need to build up capabilities to meet the challenges of disasters, the thrust has unfortunately been on alleviation and relief. Even the relief has not been quick and adequate, as few disasters such as Orissa super cyclone of 1971 and 1999, Tsunami of 2004, Gujarat earthquake of 2001, Land Slide of Assam-1991, Nagaland-1993, Flood of North East India-1978, Assam-1994, even recently happened Earth quake of J&K, U P, Bihar and other disaster like Utterkhand flood etc. experiences has shown, India's response to and tackling of this five major disasters has thrown up the following weakness in our disaster management efforts.

A. Lack of Preparation in Early Warning System:

Though, the forecasting, monitoring and warning mechanisms are beautifully articulated on paper in practice, the warnings are not early enough and they do not reach all those likely to be affected. In case of Tsunami, 2004; Bhuj, J & K earthquake, and recent flood of Utter Khand etc for example, communication facilities which could have resulted in better co-ordination of warning and reduction of damage to life and property were inadequate.

B. Lack of Pre-disaster Preparedness:

With disasters striking India with increased regularity, there should be a plan in place to tackle the disaster and reduce its impact. On the contrary, people are caught unawares time and again. There is not planned information system as to what needs to be done when faced with calamity. For example, during Tsunami, 2004, dead bodies laid floating in the water for many days due to the unavailability or lack of required equipment to meet the need of the time/emergency, and in Kedarnath flood so many bodies were not recovered.

C. Inadequate and Slow Relief:

Relief is an important aspect of the disaster management to provide help to the affected people. The relief operations are temporarily handled and haphazard manner. How efficiently to provide food, medicine, to reduce the suffering of the affected people etc are addressed and met improperly. Even days after the Bhuj earthquake, and Tsunami, 2004, many people could not be provided with safe drinking water, temporary shelter, and medicines. Such a scenario gives rise to law and order problem- looting of the relief materials and outbreak of the epidemic due to rotting dead bodies on the other hand, in the name of relief fund some of them looted on the highways also.

D. Lack of Co-ordination:

Disaster management requires concerted efforts from Central Government, State Government, NGOs, International agencies and private sectors etc. Because of the lack of the co-ordination, relief material is not properly distributed among the people. Even worst happens when they are mis-utilized and are not distributed uniformly.

E. Slow Rehabilitation and Reconstruction:

While immediately after a disaster strikes, there is hectic relief and rescue mission, mainly aimed at feeding the people and stalling the outbreak of an epidemic, relief and rescue cannot go on endlessly and rehabilitation and reconstruction should be given proper attention. However, this is an area which is often ignored and progressed is slow once the initial attention fades away. Restoration of infrastructure, hospitals, schools, houses, and sources of living of the people needs to be given proper attention.

F. Proper Administration

A quick assessment of the extent of the damage is necessary so that relief and rehabilitation work can be properly planned. However, it was seen that even many months after the Bhuj earthquake, Tsunami of 2004, and Utter khand flood, the government was yet to finish the preliminary survey of assessing the total impact of the damage. Apart from this, poor administration frustrated the best intentions and efforts of private initiatives. After the quake, Gujarat government was too slow and indecisive on some of the best rehabilitation plans proposed by the NGOs and Corporate.

G. Poor Management of Finances for Post-disaster Relief:

Mostly relief and rehabilitation work suffers from the lack of co-ordination, proper management, and supervision at all levels and indicated the absence of adequate planning and preparedness to meet any emergency. Consequently, the funds are mis-utilized and relief measures were tardy and inadequate, providing scope for pilferage of relief and rehabilitation remained unutilized and there is huge shortfall in distribution of emergency relief, shelter material cloths, house building assistance etc. There have also been reports of relief and rehabilitation funds being utilized for paying salary arrears of the state government employees.

Thoughts and Decisions, taken by the Government of India to improve Disaster Management:

At Central Level:

At the central or national level, Ministry of Home Affairs is entrusted with the nodal responsibility of managing disaster. At the apex level, there are two cabinet committees viz. cabinet committee on national calamity and cabinet committee on security. All the major issues concerning natural disasters are placed before cabinet committee on natural calamity whereas calamities which can affect internal security or which may be caused due to use of nuclear, biological or chemical weapons etc are placed before cabinet committee on security.

The NCMC (National Crisis Management Committee) is the next important functionary. The cabinet secretary heads it. It includes secretaries of concerned department/ministers. Its main function is to give direction to Crisis

Management Group (CMG) and any minister/department for specific action needed for meeting the crisis situation. CMG lies below the NCMC. The Central Relief Commissioner is its chairman. His primary function is to coordinate all the relief operations for natural disaster. Apart from coordinating the relief operations, it reviews the contingency plans formulated by Central Ministers/Department and measures required for dealing with natural review the relief operation and explore all possibilities to render all possible help to the affected region.

At State Level:

At the state level, there are state relief commissioners who are in charge of the relief measures in wake of natural disaster in the perspective states. The chief secretary is the overall in charge of the relief operations in the state. The relief commissioner and additional relief commissioner work under his direction and control. In addition, there are number of secretaries, head of various departments who also work under the overall direction of chief secretary. At the district level, districts are headed by District Collector or district magistrate who is responsible for the overall supervision and monitoring of relief measures and preparation of disaster management plans. At this level DSO/SDM take care of the disaster management.

Despite there being a general tardiness about the manner in which we respond to disasters, there has been significance progress in this area and there have been many experiments and success stories worth emulating,

(1) Learning from the Latur-1993, earthquake calamity, Govt. of Maharashtra has launched India's first disaster management information-network. Soon after this quake, state government launched the Maharashtra Emergency Earthquake Rehabilitation Programme (MEERP). The programme aimed at achieving preparedness through an info-network so that unpredictable and uncontrolled disaster impacts could be offset with planned and manageable disaster mitigation efforts.

The state has been mapped for potential disasters. Statistics for potential natural calamity zones are now being compiled. Record for the tide movements, potential typhoons and earthquake prone zones are being linked up with geographical information system to mitigate the disaster. The Multi-hazards Disaster Mitigation Plan will create disaster management information at emergency operation centre at state government headquarters. Apart

from forewarning of calamities like flood, earthquake, etc; post disaster relief and rehabilitation is another area of use of this network. It will help in co-coordinating among hospitals, voluntary organizations, ambulances, fire brigades and government relief measures.

(2) Some State Government has got their acts together, learning from past experiences. In 1991, A.P. Government was able to implement previously planned programme to evacuate 6 lakh people from the path of an approaching cyclone with 52 hours. Fatalities numbered less than on tenth of what could have otherwise been. This was achieved through a planned approach combining both traditional and advanced channels.

(3) The Indian Meteorological Department (IMD) has set up a National Seismic Telemetry Network to anticipate threats from seismic disturbances. After the Gujarat quake, 10 new seismological observation equipped with latest facilities were set up and 14 of the 45 existing observatories were upgraded with state of the art digital seismograph for better monitoring of effects of earthquake in the seismic zones.

(4) The Indian Meteorological Department (IMD) has set up cyclone warning centers along many coastlines. Information on cyclone warning is furnished to the central control room in the Ministry of Agriculture. Besides, high powered cyclone detection radars are installed at various places on the coastal belt, that can track disturbances within a range of 400 KM. Satellite imagery is another tool used when cyclone are beyond the range of the coastal radars. The ISRO has placed 250 storm warning receivers all along the Indian coast. In a time of crisis, these receivers are switched on via satellite and broadcast siren and local language warnings.

(5) Measures for flood mitigation were taken from 1950 onwards, as against the total of 40 million hectares prone to floods, area of about 15 million hectares have been protected by construction of embankment. The State Government has been assisted to take up mitigation programmed like construction of raised platforms etc. Flood continues to be a menace however mainly because of the huge quantum of silt being carried by the rivers emanating from the Himalayas. This silt has raised the bed level in many rivers to above the level of countryside. Embankment has also given rise to problem of drainage with heavy rainfall leading to water logging in area outside the embankment. To evolve both short-term and long term strategies for flood management / erosion control,

Government of India have recently constituted Central Task Force under the chairmanship of Central Water Commission. The task force will examine causes of the problem of recurring floods and erosion in States and region prone to the flood and erosion; and suggest short term and long term measures.

(6) Due to erratic behavior of monsoons, both low and medium rainfall regions are vulnerable to periodical drought. Experience has been that almost every third year is a drought. However, in some of the States, there may be successive drought years enhancing the vulnerability of population in these areas. Local communities have devised indigenous safety mechanism and drought oriented farming methods in many parts of the country. From the experience of managing the past droughts particularly severe drought of 1987, a number of programmes have been launched by the Government to mitigate the impact of drought in the long run. This programme includes Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), and Integrated Water Development Projects (IWDP) etc.

(7) In order to respond effectively to floods, Ministry of Home Affairs has initiated National Disaster Risk Management Programme in all the flood prone States. Assistance is being provided to the States to draw up disaster management plans at the State, District, Block, Taluka and village levels. Awareness generation campaigns to sensitize all the stakeholders on the need for flood preparedness and mitigation measures. Elected representative and officials are being trained in flood disaster management under the programme. Bihar, Orissa, West Bengal, Assam, and Uttar Pradesh are among the 17 multi hazard prone States where this programme is being implemented with United Nations Development Programme (UNDP), U.S. Agency for International Development (USAID) and European Commission.

(8) A comprehensive programme has been taken up for earthquake risk mitigation. Although, the Bureau of Indian Standards (BIS) has laid down the standard for construction in the seismic zones, these are not being followed. The building construction in urban and suburban areas is regulated by the Town and Country Planning Act and Building Regulations. In many cases, Building regulations do not incorporate the BIS codes. Even where they do, the lack of knowledge regarding seismically safe construction among the architects and engineers as well as lack of awareness regarding their vulnerability among the population led to most of the

construction in urban and suburban areas being without reference to BIS standards. In the rural areas, the bulk of the housing is non-engineering construction. The mode of construction in rural areas has also changed from mud and thatch to brick and concrete construction thereby increasing the vulnerability. The increasing population has led to settlement in vulnerable areas close to the river bed which are prone to liquefaction. The Government has moved to address these issues.

A National Core Group for Earthquake Risk Mitigation has been constituted consisting of experts in earthquake engineering and administrators. The core group has been assigned with the responsibility of drawing up a strategy and plan of action for mitigating the impacts of earthquakes' providing advice and guidance to the States on various aspects of earthquake mitigation; developing/organizing the preparation of handbooks/pamphlet/types designs for earthquake resistance construction.; working out systems for assisting the States in the seismically vulnerable zone to adopt/integrate appropriate BIS code in their buildings; evolving systems in the training of municipal engineers as also practicing architects and engineers in the private sectors in the salient features of BIS codes; Evolving a system of certification of architects/engineers for testing their knowledge of quake resistance construction; evolving systems for training of masons and carry out intensive awareness generation campaigns.

II. CONCLUSION

In order to assist the State Government in capacity building and awareness generation activities and to learn from the past experiences including sharing of best practices, the Ministry of Home Affairs has compiled/prepared a set

of resource material developed by various organization/institutions to be replicated and disseminated by State Government based on their vulnerability after translating it into the local languages. These resource materials cover planning to cope with disaster; education and training; construction toolkit; and education and communication toolkit including multi-media resources on disaster mitigation and preparedness. The planning section contains material for analyzing community risk, development of preparedness. Mitigation and disaster management plans coordinating available resources and implementing measure of risk reduction.

India in the recent years has made significant development in the area of disaster management. A new culture of preparedness, quick response, strategic thinking and prevention is being ushered. The administrative framework is being streamlined to deal with the various disasters. Effort are also being made to make disaster management a community movement wherein where is greater participation of the people. However, a lot more need to be done to make disaster management a mass movement in near future.

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USE OF COMPUTER ASSISTED LANGUAGE LEARNING FOR IMPROVING ESL LEARNERS' ACADEMIC WRITING SKILLS

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Abstract - Poor performance in academic writing skills, lack of innovative strategies and technology for language teaching and learning (Embogama, 2010, Maharoof, 2014, Ratwawatte, 2012) are some of the major areas which should be focused when teaching English as a Second Language (ESL) learners. Therefore, the main focus of the current study was to find out the effectiveness of developing academic writing skills among ESL learners in a Computer Assisted Language Learning (CALL) environment. For the study setting, the researcher chose one of the state universities in Sri Lanka where the language lecturers do not use CALL to maximize the language learning opportunities for undergraduates off campus. To achieve the purpose of the study, an experimental study was designed, and it was conducted for eleven weeks which had randomly selected 54 second year undergraduates in the sample. Then the participants were randomly assigned for experimental and control groups. Those who were in the experimental group worked in CALL while the control group worked in class. The data were analyzed using mix method approach. The findings indicate that both learning modes have advantages for improving academic writing skills. Thus the introduction of blended learning is recommended while successfully addressing issues in both learning modes. It is believed that the knowledge obtained in this study can make contributions to the field of CALL and applied linguistics.

Keywords- academic writing, CALL, ESL, in-class.

I. INTRODUCTION

According to Lombana (2002) writing is the most difficult skill to master both in one's first language (L1) and second language (L2). Therefore mastering writing in L2 must be strategic and realistic. Making the transition from general writing to formal/academic writing is important for university students as they are expected to be competent in academic writing skills at tertiary level (Giridharan, 2012). Further, most universities give recognition to undergraduates/ post graduates who have achieved higher scores from international examinations which test their competency in academic writing skills (Luna & Ortiz, 2013). Poor academic writing skills have also often been identified as a factor that contributes to students' failure in meeting institutional literacy expectations. As further substantiated by Kelley (2008), successful performance at tertiary level depends on the individual's competency in academic writing skills. According to Williams (2003) CALL would be the best method for teaching academic writing because it can cater for different levels, and learners have the facility of access during convenient time slots. The facility to communicate with each other through chat, e-mails and forums makes learners take part in discussions regardless of confidence and communicative ability. In addition, Sun and Chang (2012) and Zhytska (2012) point out that although computers will not be a substitute for teachers, it would provide a richer and better learning experience for language learners.

II. STATEMENT OF PROBLEM

Research indicates that non-native speakers of English face more difficulties in academic writing than native speakers do (Al Fadda, 2012; Pecorari, 2006; Rababah, 2003). The majority of the non - native speakers of English have been exposed to General English for a long period and when they start using academic writing, most of them fail in mastering it. Studies which have been conducted to find out difficulties/issues in the academic writing competencies of ESL students have found out the major problems are in the areas of cohesion, coherence, synthesizing information, reviewing, critiquing, grammar, syntax and vocabulary. Further, limited knowledge in that specific area of study, anxiety in writing, L1 interference, structural errors and difficulties in lack of practice and experience in academic writing skills are also hindered the writing skills of ESL learners (Al Badi, 2015; Ashraf & Bilal, 2016; Cai, 2013; Chou, 2011; Evans & Greens, 2007; Fareed, Giridharan & Robson, 2011; Lee & Tagino, 2008; Ntereke & Ramoroka, 2015).

As many researchers conclude, it is the responsibility of ESL practitioners to introduce better teaching materials and strategies to motivate learners to ensure positive learning outcomes by finding effective solutions for the existing problems in language learning and teaching in academic writing (Embogama 2010; Felea & Stanca 2014; Javid, 2015).

Since the growing presence of computer mediated instruction is being highly demanded by the learners, the experience in working in CALL can make a significant impact in language learning (Grgurovic, 2010). According to Embogama (2016) “in order to facilitate this process, we, as educators, need to change existing conventions and take our students beyond the boundaries of the classroom space and guide them to the world of education through technology” (p.77). Since the use of computers and internet can render more time and opportunities for off campus activities, it can be a better solution for the issue of inadequacy of time to focus equally on academic writing lessons/activities during the time period which has been allocated per week for language teaching and learning. Further in a language learning classroom there are students in different levels, thus focus on each individual within a limited time period is also a very difficult task. In addition, academic reading and writing require more time and ESL students need to spend an additional period of time specially on academic writing because editing, proof reading, referring other sources take more time than simply answering question/s.

Following above mentioned recommendations and proposals for future research, the current study sought to find out the effectiveness of CALL for improving ESL learners’ academic writing skills.

III. LITERATURE REVIEW

Pecorari (2006) in his study points out that most of the academic writing skills are unaddressed and students are graduated without having learnt the skills of academic writing. So he suggests that it is necessary “to address the full range of students learning, and not merely the visible tip of the iceberg” (p.27).

In the study of “ESL Learners’ Writing Skills: Problems, Factors and Suggestions”, Fareed, Ashraf and Bilal (2016) discuss the problems the ESL undergraduates face in writing skills in Pakistan. According to the findings the major problems in writing are in the areas of grammar, syntax and vocabulary. Further anxiety in writing, L1 interference and structural errors also hinder the writing skills of the ESL undergraduates. Inexperienced teachers, unsatisfactory teaching strategies, lack of practice in writing and poor motivation are some of the causes which influence on poor writing performance of ESL undergraduates. The findings highlight that the need for experienced teachers, learner motivation, improve vocabulary teaching and writing skills for ESL learners in improving academic writing skills.

Ntereke and Ramoroka’s (2015) study focused on the effectiveness of writing activities and instructions in an academic writing course where English is taught as a L2 at the University of Botswana. Participants were challenged more in academic writing when they were synthesizing information. In addition the use of proper academic writing style and expressing ideas more clearly were also some other challenges that they faced in writing. Al Badi’s (2015) study on “Academic writing difficulties of ESL Learners” also focused on the difficulties faced by the ESL learners in academic writing. The subjects were twenty ESL postgraduates from Korea, China, Taiwan and Oman who were studying Masters in TESOL at an Australian University. The results indicate that the ESL learners have more issues in coherence and cohesion in writing. In conclusion it was stated that the major reason for these difficulties is lack of practice and experience in academic writing skills.

As Zhytska (2012) states, the use of computers can motivate the ESL learners to improve academic literacy in an innovative and effective manner. The instructions which are provided through CALL should be more appropriate and individualized than in natural classroom settings. The materials should support the learners’ “linguistic knowledge, content interests, learning style, and metalinguistic awareness” (Chapelle, 2006, p. 78), but this mainly depends on how CALL materials fit with the needs of the learners. As Al Fadda (2012) and Williams (2003) emphasize CALL can cater for different levels and learners have the facility of access during convenient time slots. However, Warschauer (1996) mentions that the CALL should be applied and used in the proper manner because the effectiveness depends on the message than on the medium.

Ramachandran (2004) in her study focused on the effectiveness of integrating technology in improving ESL learners’ EAP literacy skills at University of Toronto. The findings indicate that the use of technology supported in improving the participants’ critical thinking and logical conclusions. Further, Ramachandran (ibid) suggests that the language teachers need hands-on training on different literacy based technologies and to be aware of how to integrate the technology to successfully improve the academic literacy skills of the learners. Moreover, the language teachers should be aware that the use of technology should not interfere negatively on the teaching and learning process. In addition teachers should also know the strengths and weaknesses of technology based teaching. Hegelheimer’s (2006) study investigated the effectiveness of using iWRITE, an online resource in improving ESL learners’ grammar competency in academic writing and he concludes that the effectiveness of integrating electronic resources into language learning should be further researched.

Following the mentioned proposals and recommendations, the current study was designed to investigate the effectiveness of CALL for improving academic writing skills of ESL learners. Further, student-centered learning for academic writing skills through CALL was also promoted.

IV. METHODOLOGY

The current study was set out to answer the following research question:

1. *How far is CALL effective in improving the academic writing skills of ESL learners?*

The study was conducted in an on- going second year ESL programme which is offered as a non-credit bearing course, at one of the state universities in Sri Lanka. There were randomly chosen 54 participants in the sample whose L1 is Sinhala and learning English as their L2. The participants were then randomly assigned into experimental (n=27) and control (n=27) groups. Those who were in the experimental group worked in CALL environment and those who were in the control group worked in class. The participants worked collaboratively in both experimental and control groups which consisted of three members in one group.

The consent of the university was granted before conducting the study. The data were collected for eleven weeks and the study was conducted within an extra one hour without making any disturbance for the ongoing two hour language learning programme of the participants. In the first week, a pre-test was given to the participants and the same test was also given after the intervention in week eleven, to comparatively measure the competency level in academic writing skills between control and experimental groups. In addition each week an assignment was given from each lesson. A learner analysis and a needs analysis (NA) were also conducted before the intervention. The NA was given to select the topics which learners prefer most and to know about their present situation in academic writing. When selecting the sub skills in academic writing, Jordan (1997) and Baily (2003 & 2011) were majorly referred. A presentation was also given to the participants in the experimental group to show how they should work in Moodle. From week two to week ten, the participants worked on the academic writing materials in the assigned learning environment. In the final week, the post questionnaire was distributed.

Moodle, the non-commercialized Learning Management System was the virtual platform which was used in the current study. The materials were uploaded by the researcher for the experimental group and for the control group the materials were e-mailed. Six days were given for the learners to study the uploaded/e-mailed materials and on the seventh day they had to work on the given activity/es. To complete the activity/es, one hour was given for both

groups. Both groups had to submit only one answer sheet after discussing and finalizing the answers in groups. While they were working, the researcher closely monitored the performance of the participants both online and in-class. Those who worked in class had to submit their answer sheets to the researcher and the experimental group uploaded their answer sheets into Moodle.

A rubric was developed to measure the performance of the learners. The ESL Composition Profile (Jacobs, Zingraf, Wormuth, Hartifel, Hunghey, 1981) was used for this purpose by changing the original version in relevance to the current study. This was applied for both experimental and control groups and depending on the participants' marks, the learner performance in academic writing skills was measured. Finally the data were analyzed using mix method approach.

V. DATA COLLECTION

The following instruments were used to collect data:

A. Learner Analysis

This was used to collect demographic information, first year language learning experience and computer experience of the participants. The data were collected through open and close - ended questionnaires and Lickert type questions.

B. Needs Analysis

NA was consisted of Lickert type questions, open and close ended questionnaires and it was subdivided into two sections as: Present Situation Analysis and Target Situation Analysis.

C. Post questionnaire

The post open and close ended questionnaire survey was formed under three main categories: Language learners' preferred learning strategy/s, Activity engagement and Course satisfaction.

VI. FINDINGS

The findings of the current study were explained under performance, preference, benefits and difficulties.

A. Performance

After comparing the marks of the pre-test through an independent t-test before the intervention, it was found that the mean value of the experimental group was 33.11 and 32.26 of the control group. The difference between the mean value of the two groups was thus 0.85. After the intervention, in the post test the mean value in the experimental group was 50.37 and 46.67 in the control group. The difference between the two groups in mean value was 3.7. The mean value of pre and post-tests scores on academic writing skills between experimental and control groups are shown below in Table 01 and Table 02.

Table 01. mean values of the pre-test on academic writing between experimental and control groups

	N	SD	Mean	Mean Difference	T	P
Experimental Group	27	9.02	33.11	0.85	0.34404	.366103
Control Group	27		32.26			

Table 02. mean values of the post-test on academic writing between experimental and control groups

	N	SD	Mean	Mean Difference	T	P
Experimental Group	27	7.48	50.37	3.7	1.86039	.034245
Control Group	27		46.67			

Selected lessons, average marks for each assignment and the average total of assignments of both experimental and control groups are shown below in Table 3.

Table 3. Average total of assignments

Lessons	In-class	CALL
Academic vocabulary	18.25	20.00
Abbreviations	18.00	17.50
Punctuations	7.49	15.25
Referencing skills-part 01	12.63	14.06
Referencing skills-part 02	12.81	14.69
Paragraph Writing	10.63	12.25
Short Essay Writing	9.81	9.13
Summary Writing	8.56	7.69
Paraphrasing	12.44	14.19
Average total	10.90	13.86

The average total for the assignments and the mean values in the post test indicate that the performance of

the experimental group was better compared to the control group, which highlights the effectiveness of the intervention. Yet it is difficult to completely reject the in-class learning for developing academic writing skills, because there is not much disparity in the performance in academic writing between experimental and control groups.

B. Open and Close ended questionnaire

The post questionnaire was analyzed under thematic analysis. The collected data were coded and evaluated under two main themes: preference and benefits & difficulties.

- 1) Preference: 56% of the participants in the experimental group stated that they like to work in CALL environment for academic writing and 44% do not like to work in CALL. Flexibility, improvement in other skills, support of the lecturer

and new technology were stated as the reasons for their preference for CALL. Since most of the foreign countries use online education, the experimental group is satisfied with the novel exposure that they experienced for academic writing skills. Besides as Kirschner and Erkens (2013) bring up, the experimental group agreed that they have ample of time for discussions and to share knowledge when they work off campus. For barriers in CALL technical (Moodle was down sometimes, logging issues), financial (have to spend money on data cards) and communication issues (poor writing and vocabulary skills) were mentioned.

78% of them in the control group, stated that they prefer in-class learning for academic writing because its synchronous, can use printed materials, face-to-face learning and convenience for communication. 22% do not like to work in-class due to distractions (noise from other classes, personal discussions of the group members) lack of interest and monotonousness with the traditional teaching and learning.

- 2) Benefits & Difficulties: as for the benefits in CALL, the participants were happy to get the exposure to a virtual learning environment for academic writing skills. Further, the easy access to materials rather than relying on printed materials and access to audios and videos are also seen as benefits of modern technology which supported learners in enhancing language competency. CALL also supported them in language development in improving writing skills and vocabulary.

Technical issues, issues in communication were some of the difficulties the experimental group experienced while engaged in academic writing activities in CALL. In contrast, the control group did not have technical issues, instead they had the facility to deliver the message without much delay. Further the participants consider the in-class learning communication as convenient mainly due to positive attributes of face-to-face discussions and the face-to-face discussions were also considered to be livelier than discussions in CALL. For the difficulties of in-class, though most of them attended for discussions regularly during the allocated nine weeks some of them considered staying after lecture hours was very boring. Moreover sometimes personal discussions of some group members made other group members to lose interest in work.

VII. DISCUSSION & CONCLUSION

According to Ordena and Burgess (2015), provision of a suitable environment helps in improving students' academic writing skills. Hence according to the findings in the current study, the provision of CALL could be considered to be an effective learning mode in improving students' academic writing skills. Moreover, allocating time for students to engage in academic writing activities in class and evaluating their writing by pointing out and explaining mistakes sometimes take more time than the allocated duration for regular lectures for language learning. Therefore in addition to improve academic writing skills, the introduction of CALL off campus, successfully answers for the issues in duration and monitoring individual performance. This agrees with Martinez-Lage & Herren's (1998 cited in Chen, 2011) suggestion which is, the use of technology supports learners to work on more or additional materials off campus in a learner-centered environment which would undoubtedly make learners work at their own pace.

The preference for traditional language learning environment by the experimental group for discussions of essay type answers agrees with Fisher, Phelps and Ellis's (2000) statement which is though some contents are successful in virtual environment, some may not work in that same environment. The main reason for this is the participants' incompetency in writing and poor vocabulary skills to conduct discussions in English. According to Evans and Greens (2007) in academic writing the learners face many difficulties in language itself compared to the structure of the text and content. When learning in CALL environment, the participants found that it was difficult to express ideas accurately, smoothly and appropriately. Grammar, style and cohesion were also major areas which they found difficult to grapple with. Very often this does not happen in the in-class learning because at some occasions the participants discussed some facts using their L1 (Moallem, 2003; Okonkwo, 2011; Sarita & Sonia, 2014).

To learn academic writing skills with interest in CALL, the learners must be convinced that working on extra writing materials in CALL would support them in improving their writing skills. To facilitate learners' engagement in CALL, initially learners must be given gradual exposure to Moodle. The learners should also be encouraged to adopt a more learner-centered approach

and learner autonomy in constructing knowledge on academic writing skills in CALL. In addition, the content in academic writing lessons must be chosen in a very careful manner. Uploading lesson materials and videos should also be chosen with care to arouse interest and to meet the needs of the learners. Moreover by encouraging the learners to explore new concepts in lessons with the support of new technology would provide a variation to the presence of the teacher than in regular language learning classrooms. At the same time, it would be better if the language lecturers could also be trained to work in Moodle to get familiar with the new teaching learning environment.

Finally, it can be concluded that, by implementing the proposed suggestions, the competency of ESL learners in academic writing skills can be improved productively in CALL. At the same time, the blended learning environment is also recommended as the participants see benefits in both in-class and CALL to improve academic writing skills.

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EFFECT OF LANGUAGE PROFICIENCY ON ACADEMIC PERFORMANCE: SPECIAL REFERENCE TO THE UNDERGRADUATES OF GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY

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Abstract- English language plays an important role in education, obtaining employment and even gaining power and special privileges in Sri Lanka. With the introduction of Official Languages Act of 1956, prominence given to English became a downfall. The shift towards the mother tongue in school education lead to offering degrees in Sinhala and Tamil medium in tertiary level education. However, most of the BSc and MBBS degrees continued to be conducted in the English medium.

This research examines the effect of English Language proficiency of the undergraduates on their academic performances.

The study was carried out in General Sir John Kothalawala Defence University (KDU) based on a self-administered questionnaire and a test paper. The sample was 50 civil Engineering undergraduates at the faculty of Engineering (FOE).

The study showed that the students who have done their secondary education in English medium (20% of the target group) performed well in the test paper and believed that their medium of study during A/L was a good platform to their degree programme. The remaining (80%) have achieved low marks for the given test paper. They preferred to have participated in an English intensive course before they started academics even though they

have obtained good grades at Advanced Level General English.

Thus, it was proven that language proficiency is a decisive factor in academic performances especially during the 1st year. It was also found that as they progress through semesters, they become competent and comfortable with the language which lead to a positive impact in academic performances.

Keywords- Language proficiency, Secondary education, academic performance, Faculty of Engineering

I. INTRODUCTION

English language governs Sri Lanka since early 19s despite, Sinhala and Tamil are the national languages which natives use in inter ethnic communication. According to Allen, (1993) “when the British took over Sri Lanka, they provided schooling entirely in English for an elite who were expected subsequently to become administrators in the civil service. The vernacular schools continued to function in Sinhala and Tamil in the rural areas”.

The professionals of the country had to work using both their mother tongue and English since communication

skills is essential for the betterment of any career. This is no exception to Engineers as they have to master the English language apart from their 1st language in order to be outstanding professionals in their respective fields. Thus according to the University Grants Commission of Sri Lanka, 7 Sri Lankan state universities offer BSc in Engineering and all the degrees are conducted in the English medium.

Therefore, a sound knowledge in the English language is very important for the undergraduates who are reading for BSc in Engineering. Especially, when English is not the native language, catching up lessons during the lectures become a challenge for them. The medium of the degree programme has become an issue mainly for the first year undergraduates as most of them have done their secondary education in their mother tongue and are not exposed to study in English medium.

Identifying the level of current language proficiency of undergraduates, recognizing student-friendly ways of improving language and identifying ways which will improve vocabulary and writing of the undergraduates were the objectives of the study.

Thus the research focuses on the “Effect of language proficiency on Academic Performance”, referring to the 1st year undergraduates at the faculty of Engineering of General Sir John Kotelawala Defence University and the hypothesis was “Lack of language proficiency of the undergraduates at the Faculty of Engineering leads to a deficiency in obtaining results in semester end examinations”.

II. LITERATURE REVIEW

A. English Language Teaching in Sri Lankan Universities

Literatures comprehend the importance of using a singular benchmark to measure the undergraduate language potential, such that a promising job opportunity be granted to the undergraduates considering the competitive world or careers. Hwang, Martirosyan and Wanjohi (2015) point out that the skills such as academic reading and writing, reference skills, listening and note taking ability along with interactive language skills are the ones to be brought to limelight. According to Wijetunge

and Jayasinghe, (2015) “KDU undergraduates need to be highly skilled and master the language competencies to thrive in the field”.

Similarly, the research done by Ranasinghe and Ranasinghe, (2012) reveals that the deficiency in English Language communication skills among present day undergraduates in Sri Lanka is a key factor in deciding the employability in the private sector. In addition, it points out that many universities shifted from the vernacular medium of instruction to English even without adequate facilities to teach English Language to undergraduates. Overall, the problem seems persistent where the root of it is mainly in the language used during secondary education.

B. International Necessity of English Language

Widening the scope internationally, similar researches carried out in conceptualizing undergraduate language resistances have revealed that usage of plagiarism is on the rise and in return dropout rate too increases. According to Evans and Morrison, (2011) there are plenty of language-related challenges that first year students face when adjusting to the demands of English Medium higher education in Hong Kong given that many foreign students enroll themselves with a variety of mother tongues.

The other argument Jeyasala (2016) points out is despite of proficiency shortage of second language in India, development of skills and strategies for communication and improvement of interpersonal skills among academic peers might advance second language skills. Similarly, Hwang, Martirosyan and Wanjohi, (2015) elaborate on how in USA, the GPA of undergraduates enrolled in four-year degree programmes is directly proportional to the English Language proficiency and statistically proves that undergraduates with self-perceived language proficiency tend to have a higher GPA and less difficulties in skills such as writing, reading, listening and speaking.

Table 1. Language proficiency vs. GPA

Language Proficiency	Mean GPA
Average	3.09
Good	2.97
Excellent	3.57

Since this research is based on a target group reading for BSc in Engineering, proficiency in technical terms / jargon is of highly importance to excel in related academics. There is a research gap on language proficiency due to the lack of related jargon in tertiary level worldwide. Related researches mainly focused on vocabulary and grammar aspects of the language.

C. Multiple Intelligence Theory (Mi Theory)

Howard Gardner explains how human intelligence can be broadly categorized into eight scopes rather than seeing a person excel in a single modality. An individual student can inherit all or many intelligences. Each student has his own mix of intelligences, with some dominating over others. According to Barrington (2004), “Gardner’s MI theory has received inadequate concentration in higher education”. Verbal-linguistic intelligence, which is one of the eight, elaborates on how one’s ability to write and speak languages enables to achieve life goals. Higher competency in linguistic intelligence also relates to more efficient problem solving and reasoning abilities. MI Theory is a “useful instrument for fostering the development of high school students’ unique talents and abilities within an interdisciplinary curriculum” (Weber, 1998, p 209). MI Theory also hints that children could depict their talents not in one single way, but in many different ways. “The job of an educator, then, becomes identifying the ways in which children exhibit intelligence and using their particular strengths to help them learn”. (Hoerr, 2003, p 92)

III. METHODOLOGY

The research included both qualitative and quantitative elements. It was done in 2 steps. First, a questionnaire was distributed to the target group. The target group consisted of 50 undergraduates at the FOE; 25 each from the first year and the second year. Convenience sampling method was used to select the undergraduates. They were randomly grouped for English. Along with it, a trivial test was distributed to find out the existing English knowledge related to Engineering. The data gathered were analyzed and presented using MS Excel.

The questionnaire was based on General English qualifications, medium of secondary education, undergraduate view point of the issue, how the

undergraduates managed to cope up with the vocabulary related to ‘Engineering English’ despite their capacity of vocabulary and writing skills. It also focused on finding out the modules in which the target group had to face difficulties due to lack of knowledge related to technical English words. Also, the frequency of the use of four basic skills; reading, writing, speaking and listening which every undergraduate yearns was also analyzed. The variables; more frequently, some times and seldom were used in analyzing the usage of skills.

The question paper was based on some commonly used engineering terms, few widely used theorems, few multiple-choice questions related to ‘Engineering jargon’ and grammar. Here, the direct-indirect speech (reported speech) was given prominence as it is widely used in writings in the field of Engineering. Knowledge on engineering terms was found out to assess the basic ‘Engineering English’ knowledge. Understanding the theorems were tested to comprehend the ability to answer questions within a short period of time and their familiarization with the Engineering terms. Fluency on such terms is usually proportional to language proficiency. Multiple choice questions were included to analyze the students’ ability to grasp literacy skills of Engineering terms without confusion. Also MCQs are a more reliable method of assessment.

Target groups from two different semesters were chosen to analyze the improvement of engineering vocabulary within a year.

IV. DATA REPRESENTATION AND ANALYSIS

A. The Target Group

Sinhala was the native language of 47 undergraduates. There was one undergraduate whose native language was Tamil. The other two were from Zambia and their native language is Bemba.

Most of the undergraduates were from the western and central provinces of Sri Lanka and had relatively good fluency in speaking, reading and understanding the English language. Considering the medium of secondary education, it was found that 68% were educated in the Sinhala Medium while 28% in English Medium and 4%

in Tamil medium when it comes to the undergraduates of the second year. Thus, the majority has not done their secondary education in the English medium.

From the first year target group, it was found that 84% was educated in Sinhala Medium and 12% in English Medium. 4% of them haven’t mentioned the medium of Secondary Education. The majority of this group has also done their studies in the Sinhala Medium marking none in Tamil Medium and very few in English medium.

B. Analysis Of Data Collected From The Questionnaire

First half of the questionnaire was based on the undergraduates’ capacity of English knowledge before the degree programme commenced. Grades obtained for GCE A/L examination General English paper are as follows

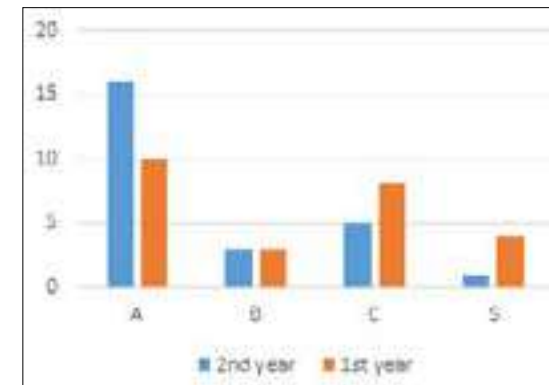


Figure 1. G.C.E Advanced Level General English Results

The undergraduates have had a sound knowledge in basic English (General English) as more than 50% from both batches got A or B passes.

Yet, only 18% of the target group had participated in the English Intensive Programme conducted by KDU before commencement of the degree programme. They have mentioned that it was a good and well-structured module which helped them to improve their reading, writing and speaking abilities. The university has not conducted English Intensive programme in 2017 so the 1st year undergraduates haven’t had the opportunity to take part in such a programme.

For the question where it was probed if Engineering English was manageable throughout the lecture series, 72% said it was handy and the rest couldn’t manage it. Even though they have mentioned that some of the modules like Soil Mechanics, fluid Mechanics, Fundamentals of Manufacturing and Geology were difficult to grasp due to their lack of knowledge in Engineering English.

Subsequently, the research was carried out to perceive the usage of certain English skills with respect to 1st semester lecture series.

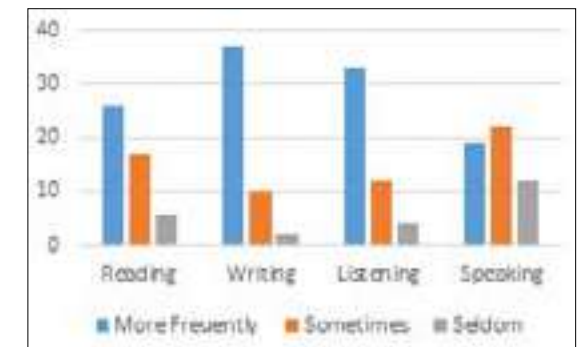


Figure 2. Usage of English Skills in the 1st Semester

As per the results, Reading, Writing and Listening are the skills an undergraduate needs the most in order to increase their grades at semester exams. So that improvement of English vocabulary / jargon related Engineering is a must. Speaking is specified as the only skill among the four basic skills that is not used frequently with regard to the language abilities of the 1st semester academics.

The target group also agreed that the lack of knowledge related to ‘Engineering English’ is a major problem for the 1st year undergraduates and have given some suggestions to overcome the issue. Some of them are watching subject related videos, listening to subject related documentaries in English and increasing time of reading. 72% of them suggested self-studying as a good method to overcome language barrier. Also 83% of the target group, people who haven’t had the opportunity to take part in pre-English course of the university suggested that KDU should re-start the English Intensive course. Few undergraduates requested the lecturers (language and subjects) to use Sinhala terms in teaching the very 1st modules since it helps in reducing the language gap and helps the learners build confidence of their academic activities as English language plays a pivotal role in their academic success.

C. Analysis Of Engineering English Test

A trivial test was handed along with the questionnaire to assess the basic knowledge that the target group possessed. It included 4 sections namely defining technical terms, knowledge on indirect speech, multiple choice questions and theoretical knowledge.

Majority of students (who have done their secondary education in Sinhala Medium), scored less than five marks and all the students who have done their secondary education in English medium scored above five, which clearly defines a boundary between the two. This also indicates that the familiarity in the medium of education affects the overall scores. Knowledge in indirect speech was tested as it is a skill needed for undergraduates at the FOE when presenting assignments and laboratory reports (in practical sessions) during the 1st semester. None of the students from Sinhala Medium scored full marks while 4 out of 7 from the English Medium students scored full marks.

Multiple Choice Questions is a skill that all students develop during the course of secondary education. Even so, majority of the target group failed to score high marks while majority scored more than 50% in this criterion. Multiple-choice questions included many numerical questions and the questions related to basic Engineering knowledge. Thereby it was assessed how the language used in secondary education affected the 1st semester lecture series.

Lastly, theoretical knowledge was assessed or rather the comprehensive skills were put to test. It was the most crucial in identifying grammar, spelling and vocabulary of the students. The skill here showed the same trend as the prior skills. The significance was that the interest in answering these comprehensive questions were mostly shown by some undergraduates while some showed a reluctance in answering any of the theoretical based questions.

From the second year target group, the highest score was 25 out of 30 and the undergraduate who scored the

highest was educated in English during G.C.E. Advanced Level / secondary education.

In the first year test paper analysis, one student got 20 out of 30, which is the highest mark obtained by an undergraduate of the 1st year. Only 8 students got marks greater than 10 for the paper, while others got less than 10. But in this set of papers the majority of the undergraduates have done their secondary education in Sinhala medium. Average mark of the paper was 7.5 while 11 students out of 25 were able to go through this average mark, which is only 44% of the 25 undergraduates.

V. FINDINGS AND DISCUSSION

The sample of undergraduates who had participated in the research, had taken a competitive test of English language at the KDU entrance examination. They were selected as they were eligible to follow a degree in English medium. Therefore, KDU undergraduates at the FOE, have the basic English knowledge compared to the undergraduates of other state universities. Also when it comes to General English at GCE (A/L), every student in the target group had passed the exam and most of them obtained A and B passes which is a higher expectation from state university students. Also some of them have participated in a pre-English course conducted by KDU which helped them catch up with the basics for the students who got comparatively lower marks in the university entrance English exam.

Even though the target group has a good knowledge in general English, it was found that they face many difficulties in their first semester academics due to lack of knowledge in 'Engineering English' because they were not familiar with the English engineering terms / jargon. The reason behind this was the medium they used for their secondary education. It was found that nearly 80% was educated in their mother language while only 20% did in English Medium during the course of G.C.E. Advanced Level prior to enrolment at the University. Thus, majority had a 'Non-English' background in secondary education.

The sample of the undergraduates didn't perform well in the evaluation test. Only very few were able to obtain more than 20 marks out of 40. Those few who have done their secondary education in English medium comparatively proved to have a good knowledge in technical English terms related to Engineering.

Regarding the comparison of two groups, the second year undergraduates proved to have a higher capacity in the scope of 'Engineering English' as they have spent nearly two years as engineering undergraduates and had more exposure to the field than the first year undergraduates who were exposed to the language only for few months.

VI. CONCLUSION

It was observed that the effect of language proficiency was predominant during the 1st semester. Furthermore, the hypothesis was proven signifying that the medium of secondary education is highly affective. On top of that, undergraduates have developed their vocabulary of English related to the degree programme (within a year). This was evident through the marks obtained for the trivial test distributed to the target group of 2nd year undergraduates. This highlights the fact that the rapid usage of a language results in its gradual development. The second year undergraduates; irrespective of their medium of secondary education, have shown considerable progress of language competencies related to vocabulary / jargon.

This concludes that the medium of secondary education matters enormously for the 1st semester as the undergraduates who completed secondary education in Sinhala or Tamil medium can hardly catch up the diverse teaching styles with an unfamiliar set of words during the lectures and this leads to getting inadequate grades for the modules even though they got excellent results in Advanced Level Examination.

VII. RECOMMENDATIONS

The pre-English course which is conducted by KDU prior to the academics can be made compulsory despite the results of the General English module. Also, a separate lecture should be introduced in the 1st semester to elaborate technical terms related to Engineering and develop vocabulary and grammar needed to grasp the lectures.

Developing interpersonal relationships between senior undergraduates, such that assistance can be obtained if lack of understanding of lectures prevails throughout the semester and also making the lecturers available during evening hours for the students to approach and

Table 2. Analysis of Engineering English Test

	SINHALA MEDIUM		ENGLISH MEDIUM		TAMIL MEDIUM	
	0-5 marks	6-10 marks	0-5 marks	6-10 marks	0-5 marks	6-10 marks
Defining Technical Terms						
2 nd year	10	7	0	7	1	0
1 st year	18	3	2	1	-	-
Knowledge on Indirect Speech	Less than 5 marks	5 marks	Less than 5 marks	5 marks	Less than 5 marks	5 marks
2 nd year	17	0	3	4	1	0
1 st year	19	2	3	0	-	-
Multiple Choice Questions	0-4 marks	4-8 marks	0-4 marks	4-8 marks	0-4 marks	4-8 marks
2 nd year	10	7	3	4	1	0
1 st year	19	2	2	1	-	-
Theoretical Knowledge	0-4 marks	5-7 marks	0-4 marks	5-7 marks	0-4 marks	5-7 marks
2 nd year	10	7	1	6	1	0
1 st year	14	6	3	0	-	-

clarify their doubts especially with respect to language proficiency.

Similarly, encourage students to analyze short texts, newspaper articles and other authentic texts related to Engineering during English Module of 1st semester. Likewise, the free Wi-Fi available in University premises can be utilized to watch YouTube Videos that enhance listening skills.

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USING VISUAL SPATIAL INTELLIGENCE BASED ACTIVITIES TO DEVELOP WRITING SKILLS

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Abstract- Lack of interest and motivation on writing activities can be noticed among undergraduates, and it hinders the development of their writing skills. The focus of this study is to explore the effectiveness of the use of visual spatial intelligence based activities to motivate undergraduates to develop writing skills. The participants of this study included 39 undergraduates selected randomly. A pre-test was conducted to measure the students' existing proficiency of essay writing skills. Among the 39 students, 54% earned less than 09 marks out of 20. Most of the students' essays did not have a clear introduction. Further, other common planning and structure errors include poor structure with little or no linking expressions, weak or non-existent topic sentence, the absence of examples to support the main idea. In addition, lack of motivation to complete the given writing task was also observed. As a remedy an intervention was designed including visual spatial intelligence based writing activities which were different from traditional lecturing. To measure the effectiveness of the intervention, a post-test was conducted. The results appeared positive in various aspects. The statistical analysis of students' pre and post test marks showed that there was a significant difference between the mean scores of the pre-test (M= 9.833, SD= 2.3657) and the mean score of the post-test (M= 15.08, SD= 1.620), $t(38) = (-20.663, P = .00 < .05$ (two tailed). The post-test results indicated that visual spatial intelligence based essay writing activities were effective in developing the undergraduates' essay writing skills. Further, the students were enthusiastic in completing the given essay writing tasks due to visual prompts, which led them to conduct research on the given topic, brainstorm and write rich contents in their essays. This study shows that using visual spatial intelligence-based teaching techniques stimulate thinking ability,

which enhances students' performance in essay writing. Visual-spatial intelligence-based teaching techniques can be easily applied in the English language classrooms in which students are demotivated.

Keywords- Visual Spatial Intelligence, Teaching Writing, Multiple Intelligences, Traditional Method

I. INTRODUCTION

Developing writing skills of undergraduates is important to provide them with an essential skills to gain good grades in their academic studies. Though writing skills should be given prominence in academic context, lack of interest towards writing activities is visible among undergraduates due to various factors. Basically, it delays their improvement in learning writing in English. It seems that there should be effective strategies to motivate the students to improve their writing skills. Visual learning plays an important role in language teaching, but there are limited studies on visual approach in teaching essay writing skills. This study focused on using visual spatial intelligence based activities to motivate undergraduates to write their essays effectively.

Giving a special attention to individual differences in creating lessons is an effective technique, which helps the students to engage in activities willingly. Visual spatial intelligence is one aspect of Howard Gardner's Multiple Intelligence Theory (1983). According to Gardner everyone has his/her own learning process, and their intelligence levels are different from each other. He emphasized that in the teaching process, teachers can

reach their students by addressing the intelligence of each student in the class. At the same time, it is believed that the learners can be motivated easily when a special interest is given to their prominent intelligence.

II. BACKGROUND OF THE STUDY

Motivation in language learning has been a major topic among teachers throughout the years as it is a significant aspect in language learning process. Motivation is essential to complete the given task successfully. It is visible that students find writing as a laborious task, and they do not show interest doing writing activities, which would hinder the development of their writing skills. At the same time, though academic writing is the main aspect of teaching and learning in higher education, it is often a neglected area of the curriculum because there is a notion that academic writing is assumed to be part of the 'common sense' knowledge which students should have, and it is not often taught explicitly within disciplinary courses.

There are various reasons behind the lack of interest towards writing activities. It is obvious that "language of academia is a very specialized discourse which presents a problem for all students whether they are first or second language speakers" of English (Archer, 2010). They "need to develop their writing skills in order to cope with university course work" in different disciplines (Bacha, 2002). It is commonly identified that students may show lack of interest towards writing lessons, which is a main barrier of effective learning process. In this regard, their lack of willingness to complete the given writing task hinders their development of writing skills. According to Dislen's (2013) traditional teaching method such as argumentative teaching and boring colourless lessons, and too many similar types of exercises and questions lead to lack of motivation and enthusiasm in students towards language learning.

It is obvious that using visual aids in language teaching is a common practice, specially in primary and secondary levels. However, in the university sector due to the large group lecturing, students lack interactive learning opportunities with visual aids which promotes student-centred learning. It seems that in the university sector student-centred teaching is not much popular. The reason is lecturing is a simple, fast and cheap method to present the vast issues to many groups of learners (Fathnejad and

Mokhtari, 2007). On the other hand, lecturing is one-way communication which does not promote active leaning and they forget what they heard sooner. Moreover, as the learning process is tiring and lacks interest, the students are demotivated, and it hinders their skill development. Due to the above-mentioned limitations it is important to consider a new approach which promotes active learning specially in teaching writing skills which needs motivation and enthusiasm to finish the given task successfully. Therefore, this study focuses on effectiveness of using visual spatial intelligence-based activities to motivate the undergraduates to develop writing skills.

III. LITERATURE REVIEW

Visual spatial intelligence is one of the many types of intelligences described in Multiple Intelligence Theory. Multiple Intelligence (MI) is a concept introduced by Howard Gardner, a psychologist in his book, *Frames of Mind* (1983). He claims that humans do not possess a single intelligence, but a range of intelligences (Gardner, 1983). He listed seven intelligences: musical/rhythmic, verbal/linguistic, visual/spatial, bodily/kinesthetic, logical/mathematical and intrapersonal /interpersonal. According to Gardner, most of the learners have all these intelligences, but in each person one or more of them is more pronounced. Multiple intelligences are becoming a popular approach in language teaching. It identifies leaners as different individuals in designing lessons. MI Theory opens the doors to a variety of teaching strategies that can easily be applied in the language classroom. It gives opportunities to widen modern teaching strategies and activities.

According to Gardner (1983) visual spatial intelligence incorporates a capability to perceive and represent the visual spatial context precisely and to shape and control mental pictures. Lohman et al (1987) defines that spatial intelligence is an ability which helps to manipulate the information presented in a visual, diagrammatic, or symbolic form in contrast to verbal, language-based modality. It is widely accepted that students have preferred learning style. In this regard, visual learning is a learner style. If teachers can stimuli their preferred learning style, it increases the students' motivation.

People with strong visual/spatial intelligence often have a strong visual memory and are artistic. 'Visual-spatial thinking develops from birth, together with language and

other specialized abilities, through interactions between inherited capabilities and experience'(James, 1999). According to Alejandro (1994) there is a connection between art and literacy and both aspects depend on each other. The New London Group (1996) mentioned that there is a requirement of broadening the literacy practices in the classroom. As an example, 'multimedia technologies used for communicative purposes, such as visual design in desktop publishing suggest that using a visual pedagogic approach within the classroom is an effective way to capture students' attention and in doing so, it facilitates learning'.

The students who show lack of interest to do writing activities in the classroom may prefer to do activities which are based on visual spatial activities. Most of the language teachers seem to agree that the use of visuals can enhance language teaching. According to Brinton (2000) visual aids help teachers to bring the real world into the classroom, they make learning more meaningful and more exciting.

Visual aids that can be used are diagrams, charts, pictures, visual organisers, videos and all the other extra linguistics features. They are effective in deriving meaning from context. Though many researchers emphasised the preferred learner styles, many visual spatial learners have been neglected by the traditional textbooks which do not have visuals. Therefore, teachers should make lessons by incorporating visual clues as 'Visual aids stimulates thinking and cognize' (Kishore, 2003).

Many studies have found that artistic activities help students to develop interest and skills of writing. According to Kauffman and Khan (2000) giving students time to sketch before getting into groups help to think their personal connections before discussions. Miller (2000) mentioned that the drawings help as a rehearsal for writing ad help to develop creativity. At the same time Hoyt (1 992) found that students who have difficulty in writing may find that artistic expressions serve them to organise their thoughts and find a way to express their opinions.

A. The Significance of the Study

The significance of this study includes the fact that the traditional lecturing process only provides much attention on giving students the basic ideas on essay writing, and it

is not adequate to produce a motivated language learner who likes to complete the given writing task successfully. Hence, Sri Lankan universities should promote visual spatial learning instead of lecturing method to teach writing skills.

B. Hypothesis

The hypothesis of this research is that visual spatial intelligence based techniques are effective tools that should be used to teach essay writing to undergraduates who are not motivated in writing activities.

C. Objectives

The objectives of this study are as follows.

- 1) To explore the effectiveness of the activities based on visual spatial intelligence to improve undergraduates' motivation in essay writing
- 2) To find out in what ways the undergraduates are motivated in writing tasks based on visual spatial intelligence

III. METHODOLOGY

Methodology of this study includes both quantitative and qualitative approaches. The study included a pre-test, post-test and an intervention. Qualitative data was collected through classroom observations and quantitative data was collected through the students' pre and post test marks. The sample includes 39 second year law undergraduates. A pre-test was conducted to measure the students' existing skills in essay writing 57% of the students obtained less than 12 out of 20 marks. The intervention was conducted throughout five weeks. Five lessons were conducted as the intervention of the study to teach argumentative essay writing including writing topic sentences and paragraph writing. The lessons were based on visual-spatial intelligence based techniques.

IV. RESULTS

Quantitative data was analysed statistically. The results of Paired Sample t-tests of the pre-test and post-test of the group indicated that there was a significant difference

between the mean scores of the pre-test ($M= 9.833$, $SD= 2.3657$) and the mean score of the post-test ($M= 15.08$, $SD= 1.620$), $t(38) = (-20.663$, $P = .00 < .05$ (two tailed). It is evident that students' scores increased after using visual spatial intelligence theory-based techniques. These results suggested that visual-spatial intelligence-based activities helped to develop the writing skills of the students.

Qualitative data was collected through classroom observations. Teaching essay writing skills were done using five lessons which were designed to teach the structure of a paragraph, writing topic sentences, structure of an argumentative essay and researching about the essay topic. The students were taught the structure of a paragraph using a picture of a hamburger to visualise the organisation of the topic sentence, supporting details and concluding sentence of a paragraph. According to the classroom observations students were delighted to have a worksheet of a hamburger where they had to write their paragraph in it. It promoted subconsciousness learning. For them visualising the structure of a paragraph using a picture of a hamburger was memorable and enjoyable.

The next lesson was introducing the structure of the argumentative essay using a diagram. This lesson was a remedy for students who found it difficult to understand the organisation of the essay. When the structure was visualized using a diagram, the students could understand the pattern and they can adhere to the given structure which helped to produce a good and well organised essay.

The next lesson was designed to motivate the students to write an essay successfully through proper research and critical thinking. After presenting the structure of the argumentative essay students were asked to write their opinion on Somalian Pirate issue, a topic under Law of the Sea, which they would study as law students. The above-mentioned topic was selected as the students should be provided an opportunity to practice the target language items in a meaningful context.

After analysing students' writings, it was clear that they lacked idea generation on the given topic and organisation of the essay contents though they were explained the structure of the argumentative essay. Further, according to the classroom observations it was visible that they were not motivated to complete the given task and they produced lesser contents as they did not have much information to include in their essays due to

lack of research on the given topic. Lack of awareness on the Somalian piracy issue hinders their idea generation process. After analysing students' writings which were not successful they were given an opportunity to watch the movie Captain Philip which is a 2013 American biographical survival thriller film directed by Paul Greengrass. The movie is based on a true story from 2009 about a Somali pirate attack on an American container ship. Films can be used as a pedagogic means to introduce academic writing skills, based on the premise that, since viewing film is already a common literacy practice for many students, its use can help to facilitate learning inside the writing classroom (Baratta, 2008). After watching the movie, the students had a discussion on the issues discussed in the movie and it seems that the movie was thought provoking and the students were emotional and sensitive on the fate of Somali pirates. According to the classroom observations the discussion went successfully as the students actively participated in the discussion by presenting their opinions.

According to Seferoğlu (2008), films provide authentic language input and a stimulating framework for classroom discussions. Specially, they developed logical arguments on Somali Piracy issues on different perspectives. It was observed that they did further research on piracy and Somalia and they were given an opportunity to present their opinion on the themes discussed in the movie. As a production the students wrote an argumentative essay on Somalian Piracy Issue. After analysing students essays it was found out that students included rich contents. At the same time, it was visible that they clearly understood the structure of an argumentative essay.

Findings of this study may be served as guidelines for teachers when implementing visual based teaching to motivate the students to complete their writing activities. At the same time, it was visible that visual learning creates interesting learning environment where students leads to think critically and express their opinions willingly in the form of writing.

IV. CONCLUSION

This study concludes that using visual- spatial intelligence-based teaching techniques stimulate thinking which enhance students' performance in essay writing. Visual-spatial intelligence-based teaching techniques lead to

innovative teaching strategies, which can be easily applied in the English language classroom in which students are demotivated.

The active participation of the students makes them responsible for their own learning. At the same time these activities help to break the monotonous learning environment where students show lack of interest to complete the given writing task willingly. Further, students experienced a pleasant and enjoyable learning process and they complete their writing task enthusiastically.

It is obvious that teaching essay structures using visuals found interesting for students. Further, providing visual prompts to write essay is more effective than assigning them a topic which they do not have any interest. Therefore, the findings and the intervention of this study can be used by English language practitioners in the university sector to motivate the students to develop their writing skills because visual-spatial intelligence-based activities are effective than traditional lecture method which hinders the improvement of students' writings. Future studies can be done to explore new strategies of teaching essay writing skills using visual spatial intelligence.

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