

Use of Distance Learning Technologies Efficiently in a Crisis/Pandemic Situation

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Abstract: Due to the outbreak of the COVID-19 pandemic situation in the world distance learning is playing a huge role in the education sector. Several shortcomings could be seen in this method since it was started as an alternative. This survey involved both students and teachers in Sri Lanka. Altogether the survey was passed to 300 individuals and 234 successful responses were grabbed within a week. The survey helped to identify the shortcomings and barriers to effectively conduct distance learning in Sri Lanka. The lack of enough advisors online, marketing advantages, lack of physical facilities to go online for the students and teacher, non-readiness of teachers and parents for the change etc. The paper allows to sort out the identified problem and form a set of guidelines on how to use distance learning hereafter in a pandemic/crisis by overcoming the shortcomings.

Keywords: Distance Learning, Online Educational Management, Covid-19 pandemic

Introduction

Learning is the process of acquiring new understanding, knowledge, behaviour, skills, values, and preferences. The act of learning drives down to a deep past in the human history. The man has evolved to a state of learning through the internet at present. Most of the tasks in the world today are done online considering about the convenience of the people. There are several online learning methodologies for example Asynchronous

Online Courses, Synchronous Online Courses, Hybrid or Blended Online Courses etc. Online learning is also referred to as e-learning among other terms. Online learning is just one type of “distance learning”.

Distance learning also has taken a major role on human day today lives. Many students and teachers are not able to interact with each other without meeting physically hence they are connected virtually through computers and the internet. Various educational platforms and learning management systems provide the opportunity for distance learning. Distance learning plays a major role in today’s world after the breaking out of the COVID-19 virus back in 2019. Due to the lockdowns and curfew situation in many nations around the world all industries and work environments are facing a crisis carrying out their work. This has affected the educational sector as well. In this kind of situation Distance Learning plays a major role to carry out the educational practices around the world. Online working platforms such as Learning Management Systems,

Live classrooms are used to connect students and teachers for communication and interaction. Students have also tended to do self-study using the internet to further develop their knowledge.

Online communication platforms such as ZOOM Meetings, CISCO WebEx Meetings, Google Meet etc. are in action to provide an environment for the students and teachers to carry Distance Learning. People around the world tend to find newer ways to conduct

Distance Learning so that the involvement of students will be higher than average. The main expectation of Distance Learning techniques is to increase the quality of the learning and teaching in the education system. The contribution of this study is to review the challenges and opportunities in Distance Learning under the prevailing pandemic situation and to produce a framework which will overcome the challenges related to Distance Learning.

Literature Review

E-Learning is defined as “The process of learning online through internet”. A case study of a Higher Educational Institute for three months has offered support for the proposition that measurable improvements can be made in the design delivery of online program. The design delivery can be improved by upgrading or enhancing technologies like communication , video conferencing, electronic portfolio, discussion forums and developing an effective plan with quality materials. (Xu, 2007)

Most Egyptian universities face many problems in traditional learning and the Moodle is the only eLearning method most of them has used. Moodle can be used in delivering e-content and to provide possibilities for implementing e-learning web-based modules. This research contains on facts to improve student motivation within e-learning and because of the lack of personal contact between and the instructor it is a bit difficult. To avoid this instructor can perform intime assessments, assignments and quizzes. Like wise use of the interactive features of e-learning increases the motivation of undergraduates for a better learning process. (El-seoud et al., 2009)

Frequencies of distance education notions means and standard deviations for statements, T-test and One-way Anova analyses has performed using two universities in Turkey. Females, vocational

high school graduates and full-time working students agree with this online learning statements more than others do. Probably it may be because of students are satisfied with the education system which provides great convince in time and cost. The deficiencies and defective points of distance education are also determined. Accounting instructors should offer more opportunities for meaningful dialogues by the use of modern updated multimedia technologies. (Angay and Gulmez, 2012)

Distance learning has great potential to set a high standard for valuable learning experiences in virtual environments. Identified the main barriers to the effective implementation of modern distance learning technologies in the university teaching and learning process. Non-readiness of teachers and parents, the lack of necessary skills of applying the computer-based online learning systems, inability to interact with the faculty and teachers, the lack of sufficient academic advisors online. (Leontyeva, 2018)

Most studies have investigated students' qualities in Distance Learning and found that specific attributes lend to a superior distance learner. This study researched students' self-efficacy convictions of Distance Learning, achievements in Distance Learning, and the relations to students' attributes. Distance Learning self-efficacy, SRL skills, and registering abilities were end up being the significant indicators of students' general accomplishments in Distance Learning. Significant gender contrasts were seen on both Distance Learning self-efficacy and Distance Learning attainment. All the elements should be considered to structure steady, adaptive, and powerful Distance Learning systems. (Distance et al., 2001)

Representing of the primary examination directed in Italy at college level to distinguish the impacts initiated on students by the trade of the educational processes from physical to completely virtual, brought about by the

Coronavirus epidemic. Results appeared as, although students appear to miss and avoid physical settings and face to face activities, the transitory change from physical to completely virtual setting has been decidedly retained. The general rising situation demonstrates that an enormous part of the present generation of university students is prepared for novel instructive procedures, to a great extent grounded on blended learning activities. (Giovannella, 2020)

Distance learning definition includes technologies, opportunities, challenges, concepts, and contributions as it is becoming an essential part of the day to day life and in the educational systems in both developed and developing countries. Using new technologies to ways of teaching new knowledge is not confined by space and time anymore. virtual economy is one of the main reasons for globalization and economic networking. Education is important for every child in his world, to improve knowledge and to change the world into a better place. Because of geographical distances, developing, and unavailability of technologies many the world's populations is uneducated. (Bušelić, 2012)

Education can become groundbreaking when instructors and students integrate data across subjects. weigh altogether alternate points of view, and fuse different requests. Teachers can build such prospects by cultivating basic learning spaces, in which understudies are urged to expand their abilities of examination, creative mind, basic blend, imaginative articulation, mindfulness, and deliberateness. Eeffective online education is based on well-designed course content, good communication between the teacher and students, supportive teachers. (Sun and Chen, 2016)

Higher education difficulties, for example, required educational roads or the institutional set facing the interest of the populace, accomplishments in worldwide

learning, giving space to rise to access to learning, research on money-saving advantage examination, educational advancements, and association, utilization of educational innovation, quality assurance system, a requirement for sufficient assets for the development of higher education. (Bordoloi, 2018)

Methodology

The objective of this paper is to finalize the outcome of the Distance Learning process during COVID-19 pandemic. A survey was created to get enough responses covering the area of students, teachers, and lecturers. This survey involved within students, teachers, and lecturers in Sri Lanka. The contribution of this study is to review the challenges and opportunities in Distance learning under the prevailing pandemic situation and to produce a framework which will overcome the challenges related to Distance Learning.

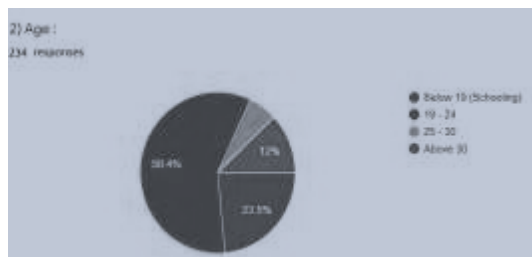
From the first stage of the survey the team have engaged with the research question based on the use of Distance Learning Technologies Efficiently in A Crisis/Pandemic Situation. In the second step, establish the identification of contents of the research papers which was read on the studies. In the third step the team have decided to do a survey based on the research question. In the fourth step gathered the analysed data which was collected from the survey. From the last step identified the last outcome based on the survey.

At first, testing was to decide the facilities of having adequate materials for both parties. And have looked up about the students' performance of online learning. The questionnaire comprised of using Distance Learning technologies efficiently in a crisis/pandemic situation. Information were collected within a google form and then placed into a database as in a excel sheet to follow and organize the information. The number of relevant forms after the survey

was exceeding 200. Quantitative data were deciphered using descriptive analysis. Based on questionnaire analysis and the study of the teaching and learning process quality, the main issues of introducing the Distance Learning principles were recognized. Our system was intended to eliminate the identified barriers.

From that quantitative data information, the team have gained most of undergraduates are contained within the Distance Learning process. Overall, this quantitative data was represented from the side of students are preferred to using distance learning technologies efficiently in pandemic situation. According to the lecturers and teachers, they prefer teaching in the classroom than using distance learning technologies, so the use of traditional teaching method is still requested by the teachers.

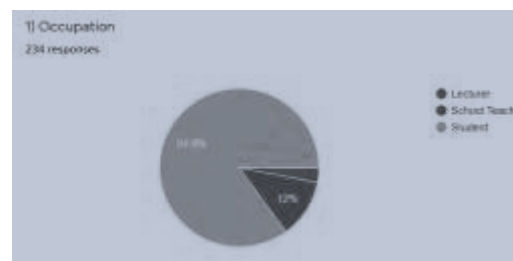
According to the survey, identified the enough materials for using technologies, modes of accessing, availability of enough connection and tools which are used for online



education. At the final stage we have identified the facts as having sufficient equipment and facilities to participate for online education, having sufficient IT skills and knowledge to manage, possibility of distractions from family background during online education and having a pleasure about the student-teacher or student-lecturer interaction during online education. In this context, it helps to identify the progress of using Distance Learning technologies efficiently during a Crisis/pandemic situation.

Results and Discussion

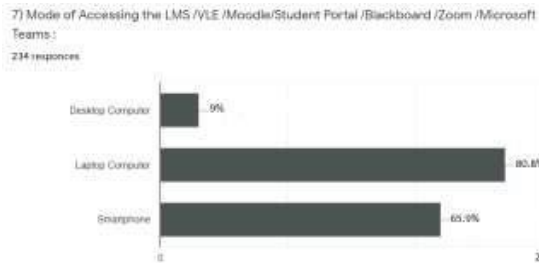
The existing research papers won't discuss the situation occurred due to COVID-19 pandemic. Therefore, a well analysed survey is the best option to discuss the results and the modern conditions accurately. The questionnaire is conducted to identify influencing factors for the effectiveness of online learning and teaching during COVID-19 pandemic in Sri Lanka, according to the students, Teachers and lecturers' perspective. The questionnaire contains 10 main questions and under the question number 10 there are 10 more rating questions for the audience for the better understanding. The questionnaire was distributed among nearly 300 people and we had received 234 responses within a week targeting students' schoolteachers and university lecturers.



According to the results the majority are students and the percentage is 84.9% while the schoolteachers are 12% and university lecturers are 3.1%. It is a normal situation that majority are student who undergo several courses by that time. As the number of university lecturer count who has contributed to this questionnaire is in a lower level this research may basically discusses mostly about the learning during a pandemic situation.

The audience consists of various age limitations and majority (58.4%) is between 19 years and 24 years old. The rest divides as 23.5% are below 19 ,12% are above 30 and the least count is in between 25 -30 years old. As above the majority of the responders are students the survey further filters that among them 26% are from semi government

schools, 24% are from government universities, 24% are from private universities, 19% are from government schools and the rest is from private and international schools.



In this research for distance learning the user must have essential components to succeed and among them a device and a good internet connection is considered. According to the survey 96% of the audience have an internet connection at home and as the most used device laptops can be mentioned. 94% of the audience have a laptop and otherwise most of the students use their smart phones in accessing the Moodle. When considering the softwares the questionnaire shows how the audience interact with several popular softwares and applications during the pandemic. According to the bar chart graph zoom can be considered as the mostly used software application during the pandemic period and 85% uses it. There are many other software's used, but Zoom, Microsoft Teams, Google Classroom, Moodle/LMS/VLE are the software's which are popular among students, lecturers and instructors. Among those software's 53% of the audience uses Microsoft teams, 40% of the audience use Moodle/LMS/VLE/student portals and the rest use google classroom in advance.



The survey showed more than 50% of the students and instructors were satisfied with enough equipment's and the facilities. Rest of

them has the issues with internet facility and data limitations even though they are consisted with enough computer literacy (71%). That is a serious issue but when the instructors use learn servers or another specific default server under the rules and regulations of the local Internet Service Providers that issue can be solved easily, and students can access their classes and lectures without data castration. When considering individual ideas of users who interacted with distance learning methods during the pandemic, most of the students (81.4) think distance learning is applicable in higher studies but teachers and instructors are not that much satisfied with distance learning.

By considering the overall survey results and existing research papers we can come to a conclusion that distance learning is the most relevant educational service which can be easily accessed by anyone anytime at anywhere. The lecturers and instructors must define creative and unique ways of giving and sharing their lecture modules with students. Assessments and online quizzes can be used to interact with students and as well as designing new software's that can be used in distance education which takes less amount of data while streaming and video conferencing would do a massive job in this sector.

Conclusion

After thoroughly analyzing the data that contain in many research papers and the survey, could see that Using Distance learning technologies plays a huge role in the success in the field of higher education when a crisis occurs. The evolution of technology has become a huge impact to our future, the digital environment is capable of reshaping our world to a new direction and along with development with this evolving technology which has resulted into a range of benefits and opportunities. Though it looks like a perfect opportunity at first, when analyzing the data that we analyzed, that still some areas need further development. And still, some people are unable to facilitate these new technologies. through the survey

created, it received sufficient responses covering by the area of students, teachers, and lecturers. This survey involved students, teachers, and lecturers in Sri Lanka. The questionnaire was comprised of using Distance Learning technologies efficiently in a crisis/pandemic situation. Quantitative data were deciphered using this survey. Based on the questionnaires we recognized the distant learning principles. As per the given responses, 91.5% of students are using online education during this crisis. Age 19-24 students are mostly involving in the Distance Learning process.

According to the statistics mostly undergraduates are engaged within the Distance Learning process. Overall, data gathered from students preferred to using distance learning technologies efficiently in a pandemic situation. According to the lecturers and teachers, they preferred teaching in the classroom than using distance learning technologies. From this survey, we identified that there are not enough devices, connection to use the online education facility, technologies, modes of access, or tools which are used for online classes. There are so many limitations in the service of providing internet facility throughout some countries. Therefore, couldn't achieve that much of improvement in the field of higher education. Moreover, the lack of basic Informational Technological knowledge in rural areas is also make a huge impact on online education. As mentioned above this paper discusses the fact that student and teachers may lack their knowledge of using these technologies. lecturers are the ones who are responsible for delivering the knowledge for the student, as if they failed to go along with the evolving technology there will be a great loss in delivering their service. After going through the survey and the data that was collected one of the main points which was noticed is that the world is changing day by day rapidly. It takes a second to change everything, as a country, it needs to develop many areas. Together people can make a huge change in the country for the

success of education as education means the only available tool to develop one's own life. The contribution of this study is to review the challenges and opportunities in Distance learning under the prevailing pandemic situation and to produce a framework that will overcome the challenges related to Distance Learning. The research statistics are based on google form analytics for the moment and the team will be using a more advanced statistical tool for calculations (SPSS, Minitab) in the future to get highly accurate data which can be relied on for further efficient results.

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Author Biographies

GGA Ranasinghe is a 3rd year undergraduate student of the Information Technology department at General Sir John Kotelawala Defence University. He was actively involved in creating the survey based on the topic and focused on the results and discussion in this paper. He also covered the area of completing the abstract and introduction.

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Mr. RPS Kathriarachchi obtained his BSc (Hons) in Computer Networks from University of Wolverhampton UK and his master's degree in MIT in the same University. He also a CISCO certified network associate and having more than 15 years of IT and IS systems. His current research interests include Internet of Things, Machine Learning, SWARM technologies under his name.