

Citation Analysis of Undergraduate Dissertations: an Assessment of the Utilization of Information Sources as a Collection Development Tool

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ABSTRACT

This study examines bibliographic references of undergraduates' dissertations accepted by the faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka in the year 2017. The study focused on the citation variables such as type of information sources (Journals, books, reports etc.), year wise distribution of publications, use of grey literature and most frequently used material by the undergraduates. There were 32 dissertations which included 1456 citations inspected in the field of pharmacy, nursing, medical laboratory sciences and radiography. The purpose of this study is to identify use and awareness of information sources in respective subjects among undergraduates, their information needs, and to understand the use of grey literature in the dissertations. The study revealed that journals were the most cited source of information by undergraduates in the field of Allied Health Sciences accounting for 67% of entire citations and hundred and eighty- six (186) citations found for the books as a second source of information. Also official websites of the professional organizations and commercial sites were cited by the undergraduates. WHO publications were the most frequently used grey literature (39%) followed by reports, theses, dissertations, conference proceedings and news bulletins by the dissertations. Moreover, it was found that the majority of materials cited by undergraduates in Allied Health Sciences were published in the time period of year 2006 to 2015.

Keywords: Citation Analysis, undergraduate dissertations, Grey literature, Information Sources, Allied Health Sciences

INTRODUCTION

Identification of patrons' research needs is one of the core factor in collection development of Academic libraries which will be directly affect with its usage. Value of the library mainly depends on the user satisfaction with its immense resources and proper services manipulating properly. Academic librarians have been addressed on user needs of information sources in different manner with many objectives by using various methodologies. Citation analysis is a technique used by many researchers all over the world to examine and evaluate lists of references available in the theses, dissertations, journals, monographs and other materials. Librarians have conducted citation analysis as an important tool to identify different factors related to the libraries such as collection development tool, usage information sources, user needs and journal evaluation method. (Sheoran, Kumar, Kumar, & Verma, 2018) used the citation analysis as a method to identify scholarly contribution on marketing field by analyzing its top ten journals. (Calma, 2017; Nowrouzi-Kia, Chidu, Carter, McDougall, & Casole, 2018) also addressed on analyzing highly ranked journals in selected subject areas to examine cited materials and its characteristics.

There are many studies in citation analysis which were done by researchers based on the theses and dissertations in various disciplines. (Barnett-ellis & Tang, 2016; Fasaie, 2011; Nagaraja & Prashanth, 2015) investigated citations of undergraduate and postgraduate theses, dissertations of biology, agriculture and pharmaceutical sciences. According to the (Nagaraja & Prashanth, 2015) study it was focused on understanding useful resources for pharmaceutical students and extensive use of electronic resources. Moreover, comparative study had been conducted based on the printed, subscribed and consortium journals in order to identify most related journals in pharmaceutical sciences.

This study has focused on citation analysis of undergraduate dissertations submitted to the Faculty of Allied Health Sciences (FAHS), General Sir John Kotelawala Defence University (KDU), Sri Lanka in 2017. Lists of references in randomly selected dissertations in Nursing, Medical Laboratory Sciences, Pharmacy and Radiography were examined in this study in order to identify different characteristics of the citations.

Identification of different types of information sources used by undergraduates is beneficial for librarians when they develop library collection. Furthermore, this study provides an opportunity to understand student's awareness on citation styles and helps to develop information literacy module for them.

General Sir John Koteawala Defence University is functioned under the Ministry of Defence, Sri Lanka and Faculty of Allied Health Sciences was established in 2012 as its one of the faculty that consists with five departments as Nursing and Midwifery, Pharmacy, Physiotherapy, Medical Laboratory Sciences and Radiography. Dissertation collection which has been maintained by Allied Health Sciences Library were assessed in this study.

OBJECTIVES

The purpose of this study is to examine variables of citations found in the undergraduate dissertations in Allied Health Sciences in 2017. The study aims at assessing the information sources used in dissertations by undergraduates which can be used as a collection development tool of the library. Followings are the objectives addressed by this study.

- i. Examine the type of information sources cited by undergraduates in Allied Health Sciences for their final year dissertations.
- ii. Determine the cited information sources by disciplines.
- iii. Identify the usage of grey literature for undergraduates' dissertations.
- iv. Determine the most frequently cited journals by them.
- v. Identify the year wise distribution of publication in the citations.

LITERATURE REVIEW

Researchers have focused their consideration on citation analysis in different aspects nationally and internationally. According to existing literature, different characteristics basically addressed by the citation analysis can be listed as below.

- to identify information sources used by researchers
- to determine changes of citation patterns
- as a collection development tool
- citation and content status of journal
- Publication trends in particular subject field.
- Geographical distribution of cited materials
- Authorship patterns.

Numerous authors have examined citations from theses and dissertations submitted to the academic institutes. Understanding on use of information sources by the library users is beneficial for academic librarians to develop their collection and the enhancement their services. (Barnett-ellis & Tang, 2016) analyzed biology theses as a collection development tool. Findings show that journals (75%) were the more often cited material than books and other sources. Government documents, websites, dissertations, and theses were defined as other cited materials (15%) by this study.

(Condic, 2015) investigated randomly selected seventy-five Ph.D. dissertations and sixty-three faculty scholarly journals in reading and educational leadership. According to the study researchers and students mainly cited the journal articles followed by monographs, technical reports and dissertations. Furthermore, this study shows that there is a significant usage of grey literature by the researchers and students. (Kumar, K and Reddy, 2012) emphasized similar findings in their study as journals were the most utilized material among the citation in master's degree dissertations of Library and Information science. Authorship patterns, geographical, subject and language wise distribution also studied by this. According to the subject wise distribution, Library science in general has been identified as the highest ranked (32.19%) subject area followed by library management and cataloguing. Moreover, Web, conference proceedings, seminars, workshops and technical reports have also have been utilized by the graduate students for their research works.

Citation analysis can be identified as a method to identify the type of literature used by different researchers for their studies. Understanding the use of grey literature in

undergraduate dissertations is a one of the objective of this study. The three studies which have been discussed above revealed that the grey literature has been included among the citations of master level theses and dissertations. Conference proceedings, seminars, workshops, government documents and technical reports were considered as grey literature from previous studies. Moreover, (Eckel, 2009) discussed the use of grey literature in theses and dissertations in his study focusing on engineering scholars. According to his study, doctoral engineering students highly depended on scholarly journal articles while master's students showed greater number of usage in web sites, government papers, grey literature, trade magazines, and patents.

This study attempted to examine undergraduate dissertations in Allied Health Sciences and reviewed existing literature in same field. (Jali, Gs, Shruthy, & Basandi, 2014) analyzed 2,174 citations from Post Graduate dissertations of Oral Pathology and Microbiology. Current trends, frequency, distribution and format of the citations were examined by this study. The information sources mostly cited by PG Scholars is the journal (84.89%) followed by books, e-resources, newsletters and conference proceedings. (Nagaraja & Prashanth, 2015) after reviewing postgraduate dissertations in pharmaceutical sciences, it has been reported the result as open-access and online journals subscribed through HELINET were the most cited materials (73.67%) followed by books, web sites and theses. (Haycock, 2002; Kayongo & Helm, 2011; Waugh & Ruppel, 2004) examined citations in theses and dissertations of different subject areas as citation analysis.

METHODOLOGY

This study analyzed 1456 citations from randomly selected 32 undergraduate dissertations submitted to the Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University in year 2017. The dissertations comprise with main four subjects as Nursing, Pharmacy, Medical Laboratory Sciences and Radiography. Citations of the dissertations were categorized by its format as journals, Monographs, web sites,

World Health Organization (WHO) publications, Conference proceedings, news bulletins, theses/ dissertations and reports, etc. The data had been analyzed by using spreadsheet software and results presented by tables and figures as needed.

FINDINGS AND DISCUSSION

Entire citations of the 32 dissertations examined by this research paper. Data were analyzed and discussed by focusing its different characteristics based on the objectives of the study.

Table 1: Type of Information Sources cited in dissertations

Type of Information Sources	Number of citations	Percentage of citations
Journal	976	67%
Monographs	186	13%
Web sites	151	10%
Grey literature:		
WHO publications	56	
News bulletins	14	
Reports	42	
Conference proceedings/theses/ workshop/data sets	31	
Grey literature: Total	143	10%
Total Number of Citations	1456	

Type of information sources cited by the undergraduates in Allied Health Sciences are shown by table 1 with the number and percentage. According to the table, Journals, monographs, web sites and grey literature were identified as type of information sources cited by them when they conduct their research. Journals were the most frequently cited type of information sources (67%) followed by monographs (13%), Web sites (10%) and grey literature (10%). These findings indicated that the journals were the mostly

consulted materials by undergraduates in Nursing, Pharmacology, Medical Laboratory Sciences and Radiography for their research purposes. (Barnett-ellis & Tang, 2016), (Condic, 2015) and (Kumar, K and Reddy, 2012) emphasized that journals as the most frequently cited material by researchers in different field. Currency, Accuracy and easy access for electronic journals might be led researchers to utilize journals most frequently for their research purposes.

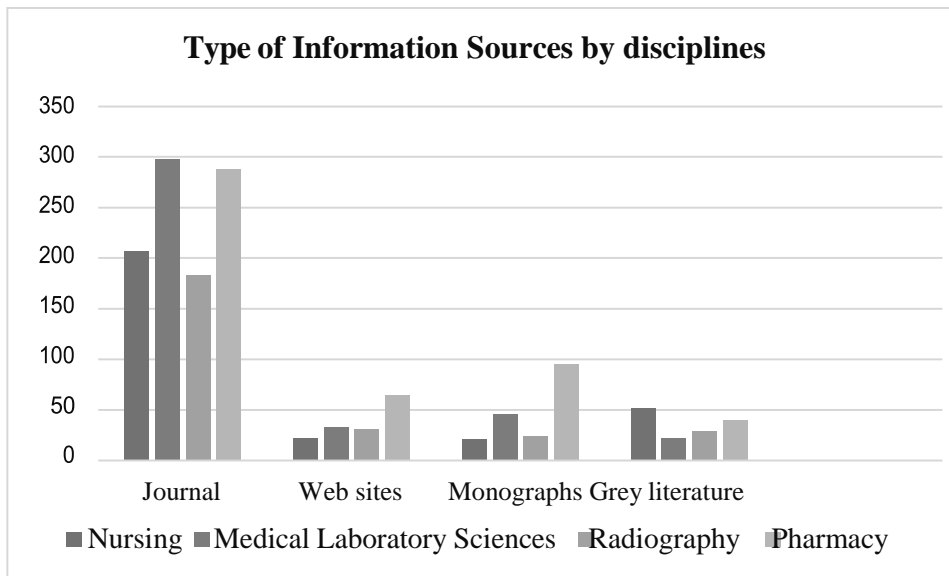


Figure 1: Types of information sources by disciplines

Figure 1 reveals the usage of information sources by disciplines and highest number of journals (298) were cited by the undergraduates in Medical Laboratory Sciences followed by Pharmacy, Nursing and Radiography. Monographs and books were the most frequently cited information sources by Pharmacy students while the highest citations of grey literature were indicated in nursing dissertations. According to the figure 1, lowest citations for monographs was found in Radiography dissertations. Nevertheless, significant usage of web sites was indicated there.

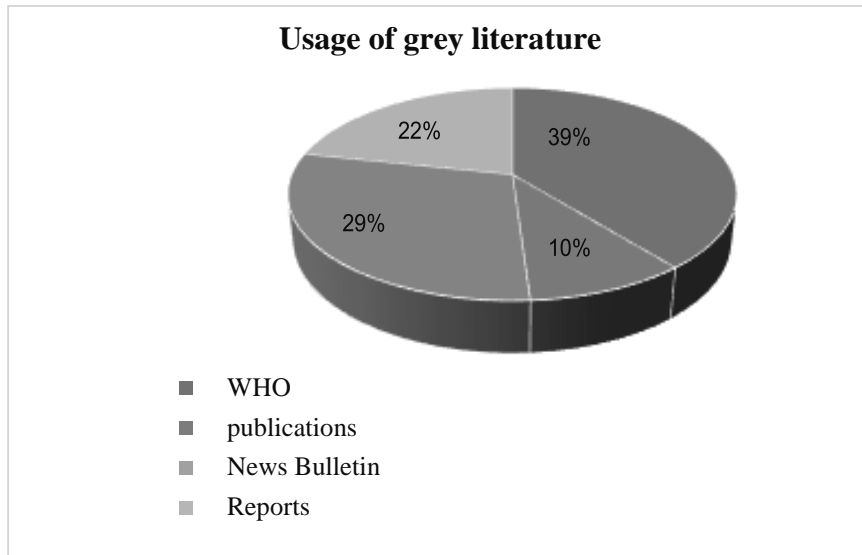


Figure 2: Usage of grey literature in dissertations

Usage of grey literature by undergraduates was presented by figure 2 above and WHO publications (39%) were the highly used materials of grey literature. Citations of the undergraduate dissertations in allied health sciences have illustrated the reports as second highest citations of grey literature. Furthermore, Conference proceedings, theses, workshops and data sets also were shown significant usage and least citations (10%) were recorded by news bulletins. Nevertheless, numerous researchers in health sciences have identified grey literature as an important type of information sources for their research. (Alberani, De Castro Pietrangeli, & Mazza, 1990) mentioned that the grey literature is important as primary sources as well as nonconventional documents that can be used in research works. Moreover, the highest percentage of citations in grey literature was seen WHO publications as an intergovernmental organization by the study. Grey literature is important for health researchers since there is a gap between the time period of origin of the innovative research findings and its publication. Some research findings had never been published due to various circumstances.

Table 2: Top Journals cited by Allied Health Sciences Undergraduates

Title of Journal	Times cited
Asian pacific journal of cancer prevention	14
Clinical infectious diseases	13
European journal of preventive medicine	10
American journal of scientific and industrial research	9
Applied and environmental microbiology	9
American journal of neuroradiology	7
BMC cancer	7
The internet journal of nuclear medicine	7

Table 2 indicated that the Asian Pacific Journal of cancer prevention was the most cited journal while second highest citations were found in the journal of Clinical infectious diseases. Journals that cited more than seven times were included in above table and remaining journals were cited in one to six times. According to the findings, undergraduates in Allied Health Sciences had cited different journals in their final year dissertations. Most of the journals cited by them were indexed in PubMed that can be access through the HINARI database. It might be the reason to cite those particular journals many times since the students have easy access to HINARI trough the university library homepage.

Figure 3 shows year wise distribution of publications in dissertations analyzed by this study. Only Journals and monographs were considered in analyzing below data since the year of publication was not mentioned in some cited grey literature.

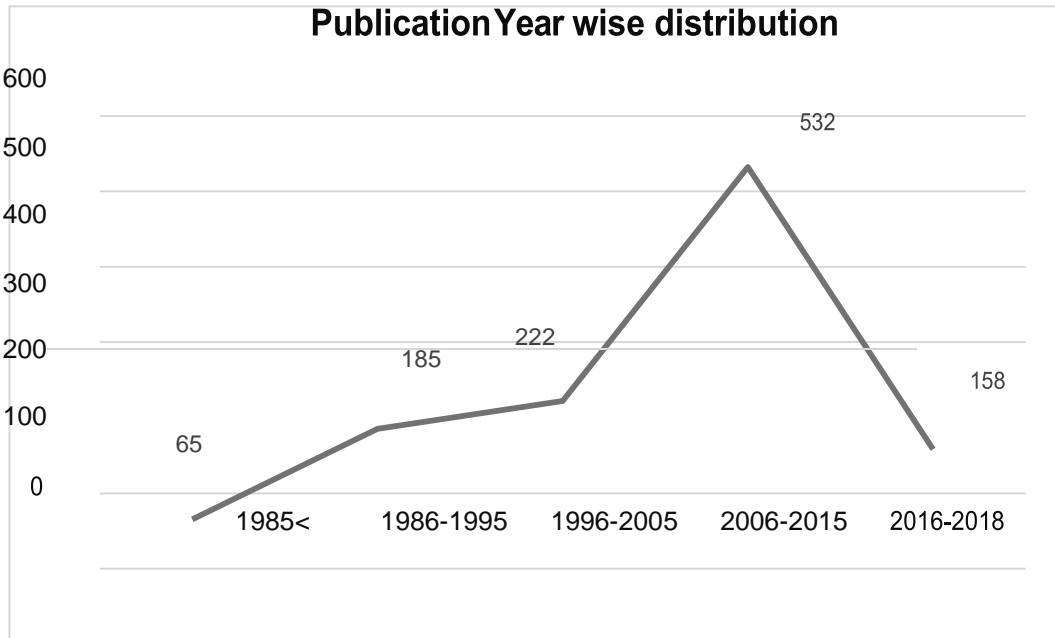


Figure 3: Distribution of Publication Year

The result reveals that the majority of the publications (532) cited by Allied Health Science Undergraduates were published in the time period of year 2006 to 2015. Least number of citations were found in the Publications before 1985. Data of the above figure 3 emphasized that the undergraduates have mostly used recent publications for their researches and it might be their requirement of latest information.

CONCLUSION

Citations of undergraduate dissertations in Allied Health Sciences were examined in this study as an assessment of the type of information sources consulted in their research activities. This study could be used as a collection development tool of the library. Journals, Monographs, web sites and grey literature were mainly identified as type of information sources used in the dissertations. As found in many previous studies, journals were identified as type of information sources which was cited most frequently in this study too. Accuracy, currency and easy access of journals might be led

undergraduate to utilize journals most frequently. Results from this study moreover reveals that the highest number of citations for journals were found in the dissertations of Medical Laboratory Sciences followed by Pharmacy, Nursing and Radiography. Highest number of monographs and web sites were cited by Pharmacy undergraduates. Significant number of grey literature were cited by the undergraduates in Allied Health Sciences and it could be identified as important sources of information in health sciences. WHO publications were the most frequently cited grey literature followed by reports, conference proceedings, theses, news bulletins, etc. Additionally, the findings uncover the most cited journal as Asian Pacific Journal of cancer prevention that can be access through HINARI. It was found that majority of materials cited by undergraduates in Allied Health Sciences were published in the time period of year 2006 to 2015. According to this study, unauthorized as well as commercial web sites that can be identified as inappropriate information sources for academic purposes which were cited by some undergraduates. Furthermore, undergraduates were unaware of using citation styles properly. Librarians could address for this issues by conducting awareness programmes on citation styles and Citation software appropriately. If the library could initiate a lecture series on information literacy for undergraduate, it would be beneficial for them in aware on selecting and accessing quality information sources properly. This study reveals that monographs were poorly cited and it might be due to inadequate material at the library. Findings are helpful to develop the library collection as well as collection development policies. According to the results, library should focus on more subscription of databases and electronic journals rather than purchasing printed materials.

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