Citation Analysis of Library and Information Science Undergraduates' Projects in Kwara State University, Malete (2013-2018)

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KEYWORDS	ABSTRACT
	Citation analysis of Library and Information Science undergraduates' research projects in Kwara State University, Malete (2013-2018). The population of the study consists of all the submitted undergraduates' projects to the Department of Library and Information Science, Kwara State University, Malete from 2013-2018. From this population, a total of thirty-seven (37) final-year students' projects of the Department were selected as the sample size of the study using the systematic sampling technique. Coding sheet was used to collect data. The frequency counts and simple percentages were used for the statistical analysis. The findings revealed that more than half of the citations in the projects were journal articles, one-third of the citations were conference papers, few of the citations were recent, there were no citations without author, and the highest number is seventy-seven (77) while the lowest citation in a project is eighteen (18). The following recommendations were made based on the findings. Final year students should be encouraged to consider more recent research for their projects, students should be advised cautioned against low citation as eighteen (18) in a research project, the university library should consider the acquisition and subscription to journals so as to aid the research of the students.

1. Introduction

Generally, citation analysis has been used as a collection development tool in various disciplines. Literature reveals many citation studies conducted using students' theses or dissertations on a particular field with the purpose of developing a user-centric library collection. "Citation analysis is a branch of bibliometric analysis that examines the citations found in publications such as journal articles and books to look for patterns of use" (Hoffmann & Doucette, 2012, p. 68). This technique is extensively used to determine the most significant journals in a field. According to Wardikar (2013), in any subject stream, there are journals which researchers frequently cite due to the link between their work and the literature in those journals. These are "core journals" of a particular field and "always contain a higher concentration of relevant articles" in that field (Sudhier, 2010, p. 11). Analyzing citations in

students' dissertations is a popular and effective way to examine whether the library is in alignment with users' demands (Gunasekera, 2013). Sulaiman and Kabir (2020) posited that online tools are modern technologies designed to transmit and store electronic information from one end to the other for better understanding which can also be applied in citation analysis.

According to Reitz (2013), citation analysis can be described as a bibliometric technique in which works cited in publications are examined to determine patterns of scholarly communication. For example, the comparative importance of books versus journals, or of current versus retrospective sources, print or electronic, in one or more academic disciplines. The citation in student research papers, theses, and dissertations are also examined by librarians for purposes of collection evaluation and development. Aside policy making in the library with respect to collection development, citation analysis is also important for research evaluation (Iqbal et al., 2021). More importantly, citation analysis is a branch of information science, which enhances the proliferation of science by eliciting citation patterns and behaviour (Bu et al., 2018; Jan, 2022).

Nabe and Imre (2018) highlighted that "dissertations clearly indicate the needs of graduate students, and also indicate the research specialties of the faculty and departments as a whole" (p. 48). Citation analysis supports librarians to make effective collection development decisions against financial and space constraints. Moreover, insights into citation patterns would inform decision makers on library instruction and student outreach programs (Wilson, 2012). Citation analysis as observed by Reiman-Sendi (2015) is the study of the impact and assumed quality of an article, an author, or an institution based on the number of times works and/or authors have been cited by others. Citation analysis focuses on citation process of sources involved in scholarly communication. Some of the details covered include the author, the timeliness of cited sources, quality of the sources, frequency of cited sources and the medium (Nkiko & Adetoro, 2017). Considering the benefit of citation, it has been noted that it could be used as a tool for evaluating the citation habits of undergraduate students (Knight-Davis & Sung, 2018).

Citation analysis is also seen as a tool, which is used to determine competitive position of authors, to study the structure of literature, to manage a collection of journals, to define the structure of science and for scientists to identify useful journals among other things (Mahajan & Kumar, 2017). From an application point of view, citation analysis may be considered as a collaborative peer effort to analyze and promote the quality of scholarly publication and research (Labonte, 2015). Citation analyses study the patterns of citations in documents, an objective method for gathering data about information needs. Williams and Fletcher (2016) explained citation analysis as a nonintrusive method of finding patterns in a specific population's use of research materials. Meho (2017) observed that citation analysis is actually a branch of information science in which researchers study the way articles in a scholarly field are accessed and referenced by others. It has been used for the purpose of scholarly analysis and evaluation in several fields of human endeavour.

Some researchers have difficulty in keeping to the right styles in both references and citations while working on their research (Adeyemi et al., 2020). Citations are an integral part of every research publication, and it also shows the quality of research (Aksnes et al., 2019). It is the process of researcher consulting past research and citing it in their study effort. Citation analysis is one of the important techniques of bibliometric study of literature that examines the relationship between the cited document thus can be used to measure document utilization indirectly (Kainzbauer et al., 2021). A journal's authorship pattern, year-wise citation frequency, publication trend, subject relationship all can be measured using citation analysis (Borthakur, 2020). It is necessary for a library and information science (LIS) researcher to identify the core documents in their field of study to carry out qualitative research work (Boopathi & Gomathi, 2019). The first set of graduates of the Department of Library and Information Science, Kwara State University, Malete graduated in the academic session of 2012/2013. Since the Department of Library and Information Science has no postgraduate as at the time of this study, this study therefore analyse citation undergraduates' projects in the Department.

Statement of the Problem

Academic libraries are constantly under pressure to manage funds effectively and in a consistent manner with teaching and research needs. Faculty interests may be identified from lists of faculty publications, faculty handbooks, and faculty requests for material purchase, but research needs of students can be more difficult to understand. Citation analysis act as a tool for selecting and weeding materials as it provides insight into the materials that are selected by various user groups. Analysis of projects and projects reference lists is one approach used to measure information resources' use by postgraduate students. The quality, recency and number of sources cited in a research underscore the quality of the research. It has however been observed that undergraduate research appears not to undergo rigorous supervision compared to postgraduate studies, hence supervisors pay less stringent attention to recency, sources cited as well as number of cited sources by undergraduate students (Yusuf & Owolabi, 2017).

Undergraduate students are presumed to be new to research culture and most members of faculty tend to focus more on postgraduate student research. This trend appears to affect thoroughness expected in a research. In view of this majority of them copiously cite only textbooks and in some cases newspapers. With the current development in information and communication technology, university libraries in Nigeria are now providing information resources in both print and electronic information resources, but unfortunately, observations and available literature such as Aina (2014) has indicated low use of information resources by students. The evidence of low usage may suggest that students do not use the library resources for their research. Meanwhile, citations used in students' research projects can provide a credible pointer to buttress whether this is the reality or not. Hence, this research aims to carry out a citation analysis of library and information science undergraduates research projects in Kwara State University, Malete.

Objectives of the Study

The main objective of the study is to carry out the citation analysis of Library and Information Science undergraduates' research projects in Kwara State University, Malete (2013-2018). The specific objectives are to:

1.1. Investigate the average number of citations per project;
1.2. Examine citation made according to the types of information materials;
1.3. Determine the recency of information materials cited;
1.4. Assess the types of authorship cited; and
1.5. Identify the highest and lowest citation by an individual project.

Scope of the Study

This study analyses the citations of Library and Information Science undergraduates' research projects in Kwara State University, Malete (2013-2018). This leaves the scope of the undergraduate projects to be studied to five years, which include 2013, 2014, 2015, 2016, 2017, and 2018. Moreover, the study is limited in scope to undergraduates' projects of the Department of Library and Information Science in Kwara State University, Malete, Nigeria. This means that other departments in the Faculty of Information and Communication Technology in Kwara State University, Malete are not included in this study. Further to this, other departments of Library and Information Science in other institutions are not included in the study.

2. Literature Review

The review was done under different sub-headings that fit in with the themes and objectives of the study.

2.1. *Citation Made According to the Types of Information Material*

Edzan (2017) showed that there are more Web citations than citations to books, journal articles, undergraduate reports, masters' dissertations, and conference papers in the final year project reports submitted to the Faculty of Computer Science and Information Technology, University of Malaya, Malaysia. Moreover, most references have their print citations cited correctly but the Web citations cited incorrectly. Fuchs et al. (2016) revealed that journals

served as the primary source for each group followed by monographs from dissertations submitted between 2001-2012 by students of the Departments of Civil Engineering and Educational Psychology, University of Texas, at Austin in the US. Nkiko and Adetoro (2017) showed that students of these research reports cited more of textbooks of the university library from the undergraduates' projects submitted to Covenant University, Ota, Nigeria during 2011-2016. It could be inferred from this result that undergraduates may not be so familiar with journals, which are the primary sources of information. This suggests that students do not use empirical results in conducting their final year project research, which is perceived to be a poor practice.

Unnikrishnan (2019) revealed that no criteria were framed for using reference sources. The study results showed that researchers did not mention the use of Internet resources although they have used these resources in the Ph.D. theses awarded by Mahatama Gandhi University, South India in social sciences during 2017-2018. Gohain and Saikia (2014) revealed that journals were the most preferred sources of information in the field of chemical sciences accounting for 78.83% of total citations, followed by books with 15.57 % citations in the Ph.D. theses submitted to the Department of Chemical Sciences, Tezpur University, Assam. Abba et al. (2019) showed that the ranked list of journals disclosed that the journals citations were from 91 journal titles and the most frequently cited journal was *Library Philosophy and Practice* (e-journal) with 92 citations from the doctoral theses submitted to the Department of Library and Information Science, University of Maiduguri. Banateppanvar et al. (2013) revealed that journals are the most preferred sources of information used by the researchers in the field of Biotechnology accounting for 79.72% of total citations although citations from books, proceedings, theses, reports and patents in the doctoral theses in Biotechnology submitted to Kuvempu University, Karnataka.

Veerabasavaiah and Namboori (2014) found that journals were the most preferred sources of information in the field of education with (39.43%) citations from the doctoral theses submitted for the period from 2003 to 2012 at the Department of Education, Bangalore University, Bangalore. Banateppanvar et al. (2013) showed that journals were the most preferred sources of information used by the researchers in the field of Biotechnology accounting for 79.72% of total citations although citations from books, proceedings, theses, reports and patents are also found doctoral theses in Biotechnology submitted to Kuvempu University, Karnataka. Tunga (2014) indicated that horticulture scientists mainly used journal articles (77.96%) from the analysis of doctoral theses submitted to Bidhan Chandra Krishi Viswavidyalaya (West Bengal) during 1991-2010. Mahajan and Kumar (2016) found that books were highly cited with 42.68% citations followed by journals with 27.36%. The core journals identified were 7 and *Economic and Political* weekly was the most cited journal with 4.25% journal citations from the Ph.D. theses of Public Administration submitted to Panjab University, Chandigarh during 2002-2012.

Tyagi and Kumar (2019) showed that books and journals were the most commonly cited from the of doctoral theses submitted to the Department of Political Science, Chaudhary Charan Singh University, Meerut, Uttar Pradesh. Mahajan and Kumar (2017) found that the most commonly consulted core journals and obsolescence rate of the journals and books from the Ph.D. theses submitted to the Department of History of Punjab University, Chandigarh during 2002-2012. The results obtained from the 8488 citations revealed that most frequently used documents were books, which accounted for 54.16% of the total citations. In Nigeria, Okoye and Okoye (2017) indicated that books are most cited from undergraduate students' projects submitted to the Department of Library and Information Science at Madonna University in Nigeria from 2009 to 2014. This is similar to Okiy's (2013) findings that 60% of citations were made to books, while 24% were to journals.

A research conducted by Iroaganachi, Itsekor, and Osinulu (2014) on the citations analysis of the research project reports of social science bachelor degree graduates between 2009 and 2013 submitted to the Covenant University Library showed that the authors cited more from textbooks than journal and Internet/electronic resources. This was confirmed by Aliyu (2018) that citation from books was 69.4% followed by journals (16%) and Internet/e-resources (8%), among others. Anyaegbu (2016) showed that law students in faculty of law libraries in South-East, Nigeria relied heavily on law reports, statutes and textbooks, which generated 95.77% of

the citations as against journals and other minority sources that produced 4.33%. None of the research projects cited the Internet sources, while most of the frequently cited sources are not available in the law libraries as a result of poor funding and lack of autonomy of faculty of law libraries in Nigeria. Sometimes, researchers make incomplete citations especially undergraduate students, who did not attach much importance to courses on research methods and methodology making citing and references difficult for them (Yusuf & Owolabi, 2017).

2.2. Recency of Information Material Cited

Rosenberg (2015) assessed the use of library resources by Sociology and Anthropology graduate students of University of Jerusalem (Israel) through examination of 4904 bibliographic references. The sample of 32 theses and dissertation was randomly taken from the period 2010-2013. The median age of material cited was 15 years, which suggest that the citations were not relatively recent. The study found that the year of books cited was older than journals. Furthermore, the study revealed that 82% of books cited and 95% of journals cited were available in the library. This contradicts the findings of Yusuf and Owolabi (2017) where the most prevalent citation from their study was not recent which was not a good factor for research since one of the major assessments of good research is the recency of the materials cited. Nkiko and Adetoro (2017) in a study of pioneer bachelor's students of Covenant University, Ota showed that an average of 55.6% of the total citations made were "recent" citations, while 44.4% were "not recent" citations.

Ahmadieh, Nalbandian and Noubani (2016) compared the parameters of cited literature in master's theses of the disciplines of Biology, Mechanical Engineering and Political Science at American University of Beirut, Lebanon. It can be deduced from the study findings that all the disciplines relied on recent publications. This suggests that these journals are the most popular among the students. Aliyu (2018) revealed that the average of 39 citations per report generally was revealed and 55.6% of the total citations made were "recent" citations, while 44.4% were "not recent" citations. Abba et al. (2019) analysed the citations of doctoral theses of doctoral students in the Department of Library and Information Science, University of Maiduguri, Nigeria. The findings showed that majority of the works cited (986, 53.9%) was from 2000 – 2009, followed by 2010 – 2018 with 411 (22.5%) citations which indicated that the cited documents were not current.

Fasae (2012) revealed that almost half (45%) of the dissertations and theses submitted to the Department of Agricultural Economics and Extension at Federal University of Technology Akure were not recent (16 years and above). In another study by Fasae (2018) on the citation analysis of projects submitted to the Department of Chemistry and Petroleum Engineering of Afe Babalola University, Ado-Ekiti, found that many of the resources are recent. Fasae and Aladeniyi (2018) carried out a citation analysis on the projects submitted by graduating students to the College of Engineering of Afe Babalola University and found that the articles cited in the students projects are highly relevant. Kuri and Hajje (2014) found that most of cited articles on "Pearls: A Journal of Library and Information Science" during 2009-2011 were recent.

2.3. Types of Authorship Cited

Sengar (2014) conducted a bibliometrics study on authorship pattern, degree of collaboration and research publication trend among scientists/researchers of Council of Scientific and Industrial Research – Institute of Microbial Technology (CSIR-IMTECH), India 1991-2010 using 902 research papers. The results of his study revealed that majority of the scientists/researchers prefer to publish research papers in joint authorship. The degree of collaborative authorship was found to be 0.83. They also noted that the trend of multi-authorship and collaborative studies was increasing gradually in the CSIR-IMTECH research. Mondal and Roy (2018) presented analysis of 7711 citations collected from 56 theses of five sub-facets of Political Science under the University of Burdwan for the period 1986-2015. It was found that majority of the citations were single authored.

Tyagi and Kumar (2017) revealed that 79.6% of citations of the doctoral theses submitted to the Department of Political Science Chaudhary Charan Singh University Meerut, Uttar Pradesh, India during 2010-2015 were the papers written by single authors. This indicates that Political Science was less collaborative as compared to Science and Technology. Tunga (2014)

revealed that majority of the authorship pattern was found to be multi-authored (78.99%) while 20.69% was single authored papers from the doctoral theses submitted to Bidhan Chandra Krishi Viswavidyalaya (West Bengal) during 1991-2010. Mahajan and Kumar's (2016) revealed that single author works were the majority (83.23%) of the citations in the Ph.D. theses submitted to the Department of Public Administration, Panjab University, Chandigarh. This was also confirmed by Mustafa (2019) that single author works were the majority in the M.Ed. dissertations submitted in the Department of Education and Training, MANNU, Hyderabad during 2008-2010.

Amritpal and Rattan (2015) found that single authorship (59.41%) were the most dominant of the citations compared to multiple authorship works in doctoral theses of Library and Information Science submitted to the Punjabi University Patiala during 1994-2013. Elia and Sife (2018) scrutinized the top-10 articles on LIS published in 2006 and the dataset was extracted from Google Scholar, and revealed that all 10 articles were contributed by 23 authors and four articles were found in a single author pattern. Out of the top five articles, four were written by a single author. The authors of the United States contributed four papers while the other six articles were produced by the authors of five countries. Veerabasavaiah and Namboori (2014) showed that the single authorship was most preferred (54.04%), followed by two authors (27.08%). Their study revealed that most of the cited journals were published from U.S.A., followed by India and UK.

2.4. Highest and Lowest Citations by an Individual Project

This section concerns the total number of citations that each research reports contain. Meanwhile, there are limited studies in this research area. Thus, the review is based on related literature as it concerns highest and lowest citations in an individual journal. Gohain and Saikia (2014) also studied citation analysis of Ph.D. theses submitted to the department of chemical sciences, Tezpur University, Assam. The study was based on 10983 citations appended in the 30 Ph.D. theses of chemical sciences submitted to Tezpur University, Assam for the award of doctoral degree during 2008-2012. The study revealed that the highest citation was journal and e-book while the lowest citation was newspaper in chemical sciences.

Tunga (2014) carried out a citation analysis of doctoral theses submitted to Bidhan Chandra Krishi Viswavidyalaya (West Bengal) during 1991-2010 to ascertain the authorship pattern and degree of collaboration in journal articles, focusing on 8437 journal articles and 1327 books appended in 80 doctoral dissertations. Kumar and Reddy (2012) have conducted a study on the citation analysis of dissertations submitted to the Department of Library and Information Science, Sri Venkateswara University, Tirupati during the period 2000-2007. Analysis was conducted to find out possible relationships between citing, citing articles and bibliographic forms. Frequency and percentage distributions (presented in charts, tables and graphs) and measures of central tendency were used to analyse data. Findings showed that journals in general had the highest number of citations followed by books. The lowest numbers of citations were from newspaper, magazine and others serial material respectively.

3. Method

This study was conducted adopting the citation analytical design. The objective of the study necessitates the adoption of the analytical design, which concerns scientific mapping and the intellectual connections from one publication citing another (Appio, Cesaroni & Di Minin, 2014). The focus of this study is citation analysis of undergraduates' projects in the Department of Library and Information Science, Kwara State University, Malete, Nigeria. Thus, the population of this study includes all the submitted final-year students' projects of the Department from the year 2013 to 2018. In conclusion, all the submitted projects to the Department of Library and Information Science within the six (6) years duration constituted the study population.

To ensure objectivity, the probability sampling technique was adopted for this study. Examples of probability sampling technique include simple random sampling, systematic random sampling, multi-stage random sampling, and so on (Narayan et al., 2023). The systematic random sampling technique involves selecting samples at an interval (Berndt, 2020). Therefore, the projects were selected at 10th interval. The total sample selected is thirty-seven (37).

Coding sheet is the instrument that was used for data collection in this study. Coding sheets are the most appropriate to collect data from primary research reports (Basch & McLean, 2019). The coding sheet, which consists of columns and rows, is designed to facilitate the coding of the citations of the research projects studied.

To ensure the validity of the instrument, the coding sheet was presented to the Principal Investigator for face and content validity. Also, it was shown to one lecturer in the Department of Library and Information Science, Kwara State University, Malete. All the comments and observations were revised to come up with the latest version of the coding sheet, which was used to extract data from the undergraduate projects.

Data for this study was collected from the store where the undergraduate projects of the Department of Library and Information Science were kept. The data extraction was done by the three members of the group, with the guidance of the Principal Investigator. Since the study adopts systematic sampling technique, the projects were selected at 10th interval. This study adopted descriptive statistics of frequency counts and simple percentage to analyse the collected data. The choice of these statistical tools is as a result of the fact that it is popular, easy-to-use, and easily comprehensible.

4. Result and Discussion

The segment shows the data analysis and the interpretation of the data collected for the study.

4.1. RQ1: What is the average number of citations per project?

Table 1
Average Number of Citations

Year	No. of Projects	No. of Citations	Average Number of Citations
2013-2018	37	1530	41.4

Source: Undergraduates' Projects (2013-2018)

Table 1 shows that the total number of projects selected for this study is thirty-seven (37) between the years 2013 and 2018. Also, the total number of citations from these projects is 1530, while the average number of citation is 41.4. This means that an average project submitted to the Department of Library and Information Science, Kwara State University, Malete during the year under study is 41.4.

4.2. RQ2: What are the Citations Made According to the Types of Information Materials?

Table 2
Types of Information Materials

Information materials	Frequency	Percentage (%)
Journals	783	51.2
Books/monographs	95	6.2
Internet/web resources	34	2.2
Newspapers	11	0.7
Conference papers	482	31.5
Grey literature	0	0
Unpublished research projects/dissertations/thesis	125	8.2
Total	**1530**	**100**

Source: Undergraduates' Projects (2013-2018)

Table 2 shows that more (51.2%) than half of the citations in the undergraduates' projects in the period under study were journal articles, followed by conference papers with 31.5%,

unpublished research projects/dissertations/thesis with 8.2%, books and monographs were 6.3%, internet/web resources with 2.2%, newspapers with 0.7%, while there were none on grey literature. This shows that the undergraduate students during the period under study preferred journal articles the most for their research projects while they do not give consideration for grey literature.

4.3.   RQ 3: What is the Recency of Information Material Cited?

Table 3
Recency of Information Material Cited

Citation Years	Frequency	Percentage (%)
Older than 1995	316	20.7
1996-2000	449	29.4
2001-2005	355	23.2
2006-2010	293	19.1
2011-2018	117	7.6
Total	**1530**	**100**

Source: Undergraduates' Projects (2013-2018)

Table 3 shows the analysis of data on the recency of the citations. It can be seen that 20.7% of the citations were older than 1995, 29.4% were between 1996 and 2000, 23.2% were between 2001 and 2005, 19.1% were between 2006 and 2010, while 7.6% were between 2011 and 2018. This shows that majority (73.3%) of the citations were in the year 2005 and earlier. This indicates that most of the citations are old.

4.4.   RQ4: What the Types of Authorship Cited?

Table 4
Types of Authorship Cited

Single Author					Joint Author				
Older than 1995	1996-2000	2001-2005	2006-2010	2011-2018	Older than 1995	1996-2000	2001-2005	2006-2010	2011-2018
F(%)	F(%)	F(%)	F(%)	F(%)	F(%)	F(%)	F(%)	F(%)	F(%)
237(15.5)	164(10.7)	152(9.9)	165(10.8)	68(4.4)	79(5.2)	285(18.6)	203(13.3)	128(8.4)	49(3.2)
Total: 786 (51.4%)					**Total: 744 (49.6%)**				
Citation without author: 0 (0.0%)									

Source: Undergraduates' Projects (2013-2018)

Table 4 shows the types of authorship cited in the projects during the period under study. It was shown that the total number of single author citation is 51.4%, which is more than half of the citations. Also, 49.6% of the citations were joint authors. It can be seen that there were no citation without author.

4.5. RQ5: What are the Highest and Lowest Numbers of Citations by an Individual Project?

Table 5
Highest and Lowest Citations

Items	Number of Citations
Highest	77
Lowest	18

Source: Undergraduates' Projects (2013-2018)

Table 5 shows the highest and lowest number of citations among the projects during the period under study. It can be seen that the highest number of citation in a project is seventy-seven (77) while the lowest is eighteen (18) was the lowest number of citation.

4.6. Discussion of Findings

The findings showed that the total number of the projects under study is thirty-seven, selected between 2013 and 2018. The total number of citations from these projects is 1530, while the average number of citation is 41.4. Kaur and Rattan (2018) established that citation analysis is a popular method in bibliometrics. This means that the citations reflect the usage of previous research. Meanwhile, Wilson (2012) found in a citation analysis of faculty publications from the University of Kansas (humanities, social sciences, and science) that citation analysis could be used for collection management decisions. The focus of citation analysis revolves around the quality, quantity and impact of the publication being cited.

Results of the study showed that more than half of the citations in the projects were journal articles. Moreover, the study also shows that one-third of the citations were conference papers. This means that both conference papers and journal articles were the most used among the students. In dissimilar findings, Edzan (2017) showed that there were more web citations than journal articles, research reports/thesis/dissertation, and conference papers. However, many of the citations were incorrectly cited. However, Fuchs et al. (2016) showed that students of the Departments of Civil Engineering and Educational Psychology (2001-2012) cited more of journal articles. In a different finding, Nkiko and Adetoro (2017) found that students of Covenant University (2011-2016) cited more of textbooks in their research projects. In this study, however, there were few citations for books and monographs. Also, the findings showed that there were no citations on grey literature.

The findings of the study showed that majority of the citations were 2005 or older. The study showed that only few of the citations were recent. Rosenberg (2015) found that Sociology and Anthropology graduate students of University of Jerusalem (Israel) cited materials that were 15 years, which suggest that the citations were not relatively recent. The study found that the year of books cited was older than journals. In a different finding, Nkiko and Adetoro (2005) showed that more than half of the citations from the projects of students in Covenant University, Ota were recent. Furthermore, another contradictory finding showed that master's students in the Departments of Biology, Mechanical Engineering and Political Science at American University of Beirut, Lebanon cited recent materials (Ahmadieh, Nalbandian & Noubani, 2016).

This study found that more than half of the citations were single author citation. This is similar to the findings of Mondal and Roy (2018) presented that students of Political Science under the University of Burdwan (1986-2015) cited more of single author research. Similarly, the finding is the same as the results of Tyagi and Kumar (2017) about their investigation on the citation analysis of the doctoral theses submitted to the Department of Political Science Chaudhary Charan Singh University Meerut, Uttar Pradesh, India during 2010-2015. Their finding showed that the majority of the findings are single author. Similarly, the results of Tunga (2014) about doctoral theses submitted to Bidhan Chandra Krishi Vishwavidyalaya (West Bengal) during 1991-2010 were single author. This study found that there were no citations without author.

The findings showed that the project with the highest number is seventy-seven (77) while the lowest citation in a project is eighteen (18). This is similar to the findings of Tunga (2014). Gohain and Saikia (2014) revealed that the highest citation was journal and e-book while the

lowest citation was newspaper in chemical sciences. Kumar and Reddy (2012) showed that journals in general had the highest number of citations followed by books. The lowest numbers of citations were from newspaper, magazine and others serial material respectively.

5. Conclusion

The study established that the average number of citation of undergraduate students is above forty. Also, it was concluded that the undergraduate students cited more of journal articles for their final year projects. This means that university libraries should ensure they are subscribed to journals and provide access to relevant other open access resources for undergraduate students to conduct their research. In collection development, university libraries should give major consideration to journal subscriptions. Furthermore, it was concluded that the student cited more of old research. This means that many of the evidence in undergraduates' projects are not new and may not be in tune with the reality during the time they were conducting their research studies. Also, lecturers should motivate the students to use more of recent or new research articles or material. Also, the study concludes that there was more single author research. Meanwhile, it is recognized in this study that the variance in the number of citations in students' project is very high, going as high as seventy-seven and as low as eighteen.

Recommendations

The following are the recommendations for this study:

5.1. Students should be encouraged to consider grey literature for their undergraduate research projects.
5.2. Final year students should be encouraged to consider more recent research for their projects.
5.3. Students should be advised cautioned against low citation as eighteen (18) in a research project.
5.4. The university library should consider the acquisition and subscription to journals so as to aid the research of the students.
5.5. Further study should be carried out on the reason why students do not consider grey literature for their undergraduate projects.

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