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Projects Submitted by Graduating Students to College of Engineering of Afe Babalola University, Ado-Ekiti, Nigeria: Citation Analysis

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ABSTRACT

The study aims to investigate projects submitted by graduating students to the College of Engineering of Afe Babalola University, Ado-Ekiti, Nigeria using citation analysis. A descriptive survey design was used for the study. A total of 406 copies of undergraduate projects submitted between 2015 –2017 to the College of Engineering of the institution were retrieved. Data were extracted manually from the title pages and reference lists of each of the project examined and analyzed. The findings show that from 12,741 citations made in all the projects submitted for the 7 programmes run in the College of Engineering, information materials mostly cited by students is journals followed by books and seminar/conference proceeding. The average number of citation per project is 31.38. The students cited more of recent materials, and more of foreign authors compared to that of Nigerians authors. The research provides an opportunity for the library in building their collection towards the area that will meet the needs of engineering students since the analysis shows the preferred formats of resources accessed by the students in their discipline. It was recommended that the supervisor should put more efforts in guiding the students attached to them on how to reference and carry out proper citations of materials consulted.

Introduction

Project writing by graduating students is an essential research expected to be undertaken by a final year students of any programmes in an academic environment. This is done as part of basic requirement in partial fulfillment for the awards of Bachelor Degree, Diploma, National Diploma or Higher National Diploma Certificate, National Certificate of Education, or as the case may be as approved by “The Senate”, “Council” or “Board" of an academic institution. It is a write up that lunch students to research philosophy. However, in caring out the academic research work, every categorical statement is expected to be traceable to authorities or sources from where they emanated (Yusuf and Owolabi, 2017). Kotzé (2016) asserted that it is compulsory that all academic documents such as research reports, assignments, dissertations, projects, research scripts, journal articles, and conference papers must include citations and a list of references at the end listing the sources of information used in compiling the document. To determine the impact of these citations, a study called citation analysis could be carried out by librarians or information experts.

Citation analysis is the study of the impact and quality of an article, an author, or an institution based on the number of times a scholarly work and/or author has been cited by others (Fordham University Libraries, 2018). It is the examination of the frequency, patterns, and graphs of citations in documents. It uses the pattern of citations, links from one document to another document, to reveal properties of the documents (“Citation analysis”, n.d). Some more pragmatic applications of citation analysis include the planning of retrospective bibliographies, finding the age of material used in a discipline, and correlation between utilization of current publications versus older ones, comparing the coverage of secondary services which can offer publishers some assistance to gauge their accomplishments and competition, and can help librarians in evaluating the worthiness of their stock (Mahajan, 2017).

The College of Engineering of Afe Babalola University Ado-Ekiti (ABUAD), was established in September 2010, when the university came into existence. It has four (4) different Engineering Departments namely; Petroleum Engineering and Chemical Engineering Department, Civil Engineering Department, Mechanical and Mechatronics Engineering Department, and Electrical/Electronic Engineering and Computer Engineering Department, while three (3) of the Department runs two different Programmes each including Biomedical and Aeronautical Engineering that were new Programmes. All the Engineering Programmes are fully accredited by the Nigerian University Commission (NUC) and also endorsed by several recognized professional bodies. Its purpose is to produce competent engineers who are of a high standard in Engineering. This will be achieved through the familiarization of students with the basic theoretical and practical tools and techniques required for excellent performance in their future professional work. The programmes were also created to provide world-class training, research, consultancy and extension services to the oil & gas, and allied industries, manufacturing, construction, buildings, communication, and other relevant areas that required engineers at various levels of life.

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The University honors the graduating students of engineering with an award of Bachelor of Engineering (B. Eng). In addition to its programmes, the Colleges commenced its Master Degree Programmes in 2017 in all its Engineering Programmes undertaken in the institution. However, in the course of preparing their project reports, the students visit libraries to consult necessary information materials needed for their research. The engineering librarian in charge of these libraries ensures the research materials required by the graduating students are available. The librarian also provides and guide engineering students on how to access information materials needed for their studies, research, and other academic programmes. This makes it important for the engineering librarians to equip themselves with adequate knowledge of all the engineering collections so as to satisfy the information needs of the students. In some instances, librarians often wonder what resources students use for research and whether the library provides access to these resources (Wilson, 2012). This is one of the reasons why librarians or libraries use citation analysis as measurable tools on their collection to ease these challenges. It is on this basis that this study examined the projects submitted to the College of Engineering of Afe Babalola University, Ado-Ekiti, Nigeria using citation analysis. Within this context, the researcher will be looking at the year the projects were submitted, sources of citations, recency of the citations, types of authorship, as well as highest and lowest citation made by an individual project.

Objectives of the Study

The main objective is to evaluate the information materials use in the College of Engineering of Afe Babalola University, Ado-Ekiti, Nigeria. The specific objectives are to:

1. determine the project reports submitted per year by the graduating students in the field of Engineering;
2. find out the average number of citation per projects in the field of Engineering;
3. examine citation made according to the types of information materials in the field of Engineering;
4. determine the recency of information materials cited in the field of Engineering;
5. find out the types of authorship cited in the field of Engineering; and
6. identify the highest and lowest citation made by an individual projects.

Review of Related Literature

Citation analysis according to Gohain and Saikia (2014) is useful for understanding subject relationships, authorship pattern, impact, publication trends, and bring out useful information like the relative use of different kinds of documents such as books, periodicals, e-resources, reports, projects, thesis, conferences, standards, and patents which can be better utilized for bibliometric studies in many respects. Bibliometric study or assessments of university research are now increasingly valued by research managers in a higher institution as a form of strategic input to decision-making (Boshoff and Akanmu 2017). Citation analysis helps to evaluate and interpret citations received by articles, authors, institutions, and other indicators in order to identify the quality of the information sources which enable librarians in taking a decision on user needs, users most used information resources and other varying information about the users (Curtis 2005 and Coleman 2005). Sam and Tackie (2007) quoting Smith indicated that it helps to determine what titles to purchase, to discontinue, or to weed. Librarians in various disciplines use it to guide against costly low used/ unused journals, purchase needed materials and ascertain core journals needed for patron use, and to reveal the most active research area in a particular area.

The analysis of the citations of projects submitted is in line with one of the major tasks of any university library in evaluating its impact in the area of usage and loans to users (Iivonen et al., 2009 in Maz-Machado, 2012). Edzan (2007) pointed out that librarians have been using citation analysis as a means to determine the usage of their collection development while others have used it to look at undergraduate information behavior. Mahajan and Kumar (2017) stated that citation analysis provides a blueprint to the librarians to make informed decisions about the collection policy as it indicates the use of the resources and their maintenance or ultimate disposal in the library collection. Further, it informs the librarians as to which type of documents should get a higher priority for selection and acquisition on the basis of the cited documents. It also enables the librarians to continuously provide scholars with access to the core journals and books in their fields as well as managing their library collections. Fuchs, et al (2006) evaluates 26 dissertations submitted between 1997-2002 by Civil Engineering and Educational Psychology students of the University of Texas, at Austin. A total number of 3,120 citations were recorded. From the first 30 citations from each dissertation, the work's format was identified and additional details were recorded, including date of publication, title, publisher, and whether the resource was currently held at the library and if so, in print, electronic or both. It was discovered that journals served as the primary source for each group and followed by monographs.

Edzan (2007) worked on the paper that analysis bibliography of final year project reports emanating from the Faculty of Computer Science and Information Technology, University of Malaya. A total of 73 reports were analyzed using a pre-designed scoring sheet and results presented included number of pages, number of citations, types of sources used, usage of Web resources, the currency of sources and citation style. The results indicated that the least number of citations per report is 6 and the most citations per report are 165 with the most number of citations within the range of 11 to 20 cites. There are more Web citations than citations to books, journal articles, undergraduate reports, Masters' dissertations, and conference papers. Also, most citations are not dated and most of those dated are from within the last three years with the most current being 2005 and the oldest dated citation is 1935. Moreover, most references have their print citations cited correctly but the Web citations cited incorrectly. On incomplete citation, Mahajan (2017) suggested that while citing the work of others, the researchers should cite the complete bibliographical information of the source of their materials in a standard reference style in order to avoid the inaccurate and incomplete citation.

In another related study, the New Review Project at Loughborough University, according to Gadd, Baldwin, and Norris (2010), investigated how to improve students' information searching skills and the resulting reference lists through a new approach to teaching the literature review. Final-year projects from the entire cohort of twenty-four M.Eng Civil Engineering students and twenty-three B.Sc Construction Engineering Management students were selected for the study. Comparisons were made between the two programmes, and the students who were studying for an M.Eng degree cited more journal articles, more recent material and fewer web sources than their Bachelor degree counterparts. Despite the original assumptions that students

would cite web-based sources very frequently in their work, the data showed that web-based citations were less pronounced than expected.

Leiding (2005) examined a sample of 101 undergraduate honors theses from 1992-2002 to determine the adequacy of the library collections for undergraduate research. Twenty-two academic departments were represented by the sample that includes sciences, arts and humanities, and social sciences. Citations from the selected theses were accessed and a total number of 3,564 citations were generated. The study found that the overall reliance on journals (41.4%) and monographs (36.3%) were fairly equal. The Internet did not seem to have an effect on the use of monographs over time, but the use of journals did increase slightly after the Internet was introduced. This study suggested that undergraduate use patterns closely followed those of faculty and graduate students. Citation analysis has also been used to provide recommendations for library collection development because undergraduates expect to satisfy their information needs for research activities through library collection (Abeyrathne, 2015). While, Currie and Monroe-Gulick (2013) affirmed from a citation analysis of faculty publications in three broad disciplinary areas; humanities, social sciences, and science from the University of Kansas, that citation analysis could be used for collection management decisions. Also, Williams and Fletcher (2006) studied the materials used by graduate students in engineering to direct library collection development decisions.

In Nigeria, a research conducted by Okoye and Okoye (2017) on the citation analysis of the undergraduate degree projects submitted to the Department of Library and Information Science at Madonna University in Nigeria from 2009 to 2014, indicated that books are most highly cited and that major subject coverage in the degree projects reflects students' interest in employment after graduation. This is similar to Okiy (2003) in her study which found that 60% of citations were made to books and 24% 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 shown that the authors cited more from textbooks than journal and Internet/electronic resources as also confirm by Aliyu (2018). They stated that citation from books was 69.4% followed by journals (16%) and Internet/ E-Resources (8%), among others. The study also indicated that the researcher preferred foreign authors to African authors. But, Nkiko and Adetoro (2007) in their earlier analysis of "Pioneer Bachelor degree citation of Covenant University Students' Research Projects" discovered that authors of these research reports cited more of textbooks of the university library. An 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. 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.

Anyaegbu (2016)'s study sought to find out the types of information sources law students cite in their undergraduate research projects and the availability of these sources in faculty of law libraries in South East Nigeria. The findings showed that law students rely 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 from undergraduate students, who did not attach much importance to courses on research and library courses citation and referencing, may find it difficult citing references and making effective use of library resources for their research activities (Yusuf and Owolabi, 2017). As a way forward, Fasae (2018) suggested that supervisor should always endeavor to discharge their responsibility effectively by guiding their students on how to carry out a review of related literature and proper citations of materials consulted.

Methodology

A descriptive survey design was used for the study. The population of the study is 406 copies of undergraduate projects in all the seven (7) Engineering Programmes submitted between 2015 – 2017 to the College of Engineering of Afe Babalola University, Ado-Ekiti (ABUAD), Nigeria. The copies of the project report sent to the College of Engineering Libraries were retrieved and examined. Data were extracted manually from the title pages and reference lists of each of the project examined. The materials cited were categories into books, journals, Internet, newspapers, reports (including annual, working papers and technical reports), government document, seminars/conference proceedings, projects/theses, lecture notes, manuscripts, manuals, bulletins, news, and magazine. Data obtained were collated between February and March 2018. The data collected were analyzed using descriptive statistics of frequencies and percentage and thereafter presented in tables.

Results and Discussion

A total of twelve thousand, seven hundred and forty-one (12741) citations were generated, while six hundred and ten (610) citations did not have source of information. One hundred and fifty two (152) did not have date of publication and three hundred and ninety-eight (398) citations where cited without an author. The Table 1 below presented project reports submitted. The study discovered that some citation did not have author, source of citation and date of citation.

Table 1: Submission of Project Reports per Year by Graduating Class

Programmes	Years			Total
	2015	2016	2017	
Chemistry Engineering	13	12	11	36
Petroleum Engineering	22	16	33	71
Mechanical Engineering	15	23	34	72
Mechatronics Engineering	-	08	18	26
Civil Engineering	22	14	41	77
Computer Engineering	12	15	17	44
Electrical/Electronic Engineering	18	17	45	80
Total	102	105	199	406
Percentage	25.12	26.86	49.01	100

Source: Researcher's Data (2018)

Table 1 above shows the submission of project reports per year by the graduating Class of 2015, 2016 and 2017. Electrical/Electronic Engineering has the highest projects of 80 submitted, followed by Civil Engineering with 77 projects, and Mechanical Engineering having 72 projects reports. From a total of 406 project reports recorded, the year 2017 recorded199 (49.01%) submission, followed by the year 2016 having 105 (26.86%) and the year 2015 have the least with 102 projects. This implies that more engineering students are graduated in 2017 than 2016 and the year 2015 respectively in ABUAD.

Table 2: Average Number of Citation per Project

Year	No. of Project	Total No. of Citation	Average Citations per Project
2015	102	4537	44.48
2016	105	2316	22.06
2017	199	5888	29.59
Total	406	12741	31.38

Source: Researcher's Data (2018)

The average number of citation per project is reported in Table 2 above. From a total of 12,741 citations made, the average citation was 31.38 per project, while the highest average citation of 44.58 was recorded in 2015, followed by 29.59 in 2017 with the least coming from 22.06 in 2016.

Table 3 shows the citation made according to the types of information materials cited by the students. Journal has the highest citations with 4628, followed by books with citation of 3111 and Seminar/Conference Proceedings with 1599 citation. A total of 12131 citations from information materials with source were made while 610 citations did not indicate their source of information materials. The least citation recorded was from Magazine and News with 12 citations and 20 citations respectively. By programmes run in the College, Civil Engineering has the highest citation of 947 made to journals followed by Petroleum Engineering Electrical/Electronic Engineering having 824 and 786 citations made also to journals respectively. The findings indicated that information materials mostly consulted and cited by graduating students of Engineering of ABUAD is journal. The result corroborates the findings of Fuchs, et al (2006) and Gadd, Baldwin, and Norris (2010) which revealed that journals happened to be the most cited information materials by students from their studies. The study does not agree with Edzan (2007) who discovered that there are more Web citations from the analysis of bibliography of final year project reports emanated from the Faculty of Computer Science and Information Technology, the University of Malaya in Malaysia. It does not also agree with the findings of Nkiko and Adetoro (2007), Iroaganachi, Itsekor, and Osinulu (2014), and Aliyu (2018) studies who all discovered that authors cited more from textbooks than journals, Internet/electronic resources, and other information materials.

Table 3: Citation According to the Types of Information Materials Cited

Information Materials	Chemical Engineering	Petroleum Engineering	Mechanical Engineering	Mechatronics Engineering	Civil Engineering	Computer Engineering	Electrical & Electronics Engineering	Total	Rank Order
Books	165	611	448	273	731	359	524	3111	2
Journals	639	824	555	462	947	415	786	4628	1
Internet/Web Resources	119	209	159	128	263	173	342	1393	4
Newspapers	01	04	04	02	06	02	06	25	11
Reports	39	142	98	101	160	42	175	757	5
Govt. Document	08	06	05	03	10	04	07	43	9
Seminar/Conference Proceedings	36	309	204	168	418	63	401	1599	3
Projects/Theses	24	79	34	41	85	32	72	367	6
Lecture Notes	01	09	04	02	12	03	06	37	10
Manuscripts	-	05	02	-	07	02	05	21	12
Manuals	-	15	10	05	18	07	12	67	7
Bulletins	01	13	06	13	15	01	02	51	8
News	-	02	05	02	05	-	06	20	13
Magazines	01	-	02	-	04	03	02	12	14
Total	1034	2228	1536	1200	2681	1106	2346	12131	
No Source of Information	24	149	47	56	153	83	98	610	

Source: Researcher's Data (2018)

Table 4: Recency of Citations in each Programme been offered

Year	Recency	Chemical Engineering	Petroleum Engineering	Mechanical Engineering	Mechatronics Engineering	Civil Engineering	Computer Engineering	Electrical & Electronics Engineering	Total	Rank Order
2013 – 2017	Highly Recent	303	572	489	321	724	377	696	3482	1
2008 – 2012	Very Recent	272	425	270	309	563	328	476	2643	2
2003 – 2007	Recent	142	318	165	115	458	122	328	1648	4
1998 – 2002	Not Highly Recent	96	274	132	85	354	60	300	1301	5
1993 – 1997	Not Very Recent	73	228	166	126	311	47	280	1231	6
Before 1992	Not Recent	151	503	351	292	395	243	319	2254	3
Total		1037	2320	1573	1248	2805	1177	2429	12589	
No Date of Publication		21	57	10	08	29	12	15	152	

Source: Researcher's Data (2018)

Recently, Anyaegbu (2016)'s survey showed that law students rely heavily on law reports, statutes and textbooks.

Table 4 revealed the recency of citations in each programme offered in the College of Engineering. From the total of 12589 citations made which indicate the year of citation, it was discovered that 3482 citations were made between 2013-2017 classed as "Highly Recent", followed by 2643 citations recorded between 2008-2012 that was also rated as "Very Recent", while the lowest citation of 1231 was made between 1993-1997. The Table also revealed that 152 citations made did not indicate their year of citation. The findings show the graduating students cited more of recent material which is one of the quality or characteristics of good research work especially in the field of engineering that is so evolving these days. The recency agreed with the Gadd, Baldwin, and Norris (2010) that stressed that M.Eng students cited more of recent materials compared with their B.Sc Counterpart. It also in conformity with the results of Iroaganachi, Itsekor, and Osinulu (2014) who pointed out from their findings that 55.6% of the total citations made in research project reports of social science bachelor degree of Covenant University, Nigeria were "Recent" citations. This contradicts the findings of Yusuf and Owolabi (2017) where the most prevalent citation from their study was not recent. The Not Recent category appears to be most prevalent. This is not a good omen for research. One of the major assessments of good research is the recency of the materials cited. Use of materials that are older than ten years from the year research is conducted. Another findings revealing citations made to the source of information materials with no date of publication corroborate the study of Edzan (2007) that noted that most citations are not dated and most of those dated are from within the last three years in Edzan's studies.

Table 5 shows the types of the author cited by the graduating students of the College of Engineering of ABUAD. Between the year 2015-2017 under study, 10661 citations were made to foreign authors, and 1682 citations were Nigerian authors while 398 citations cited did not have author(s). The Table indicated that Civil Engineering Programmes has the highest citations of 2579 to foreign authors followed by 2435 citations from which year 2017 recorded a whole 1222 citations made in Electrical/Electronic Engineering Programmes. The result is in line with the findings of Iroaganachi, Itsekor, and Osinulu (2014) which discovered that the researcher preferred foreign authors to African authors. In the area of Nigerian Authors, Civil Engineering also has the highest with 510 citations. It was therefore clear that graduating students of the College of Engineering of ABUAD cited more of foreign authors compared to that of Nigerians authors. The reason for this could be that the students have more access to foreign information materials both in print and electronic version that the Nigerian authors. From some of the findings, which include citations made without indicating their author, with those citations which did not have source of information materials according to Table 3 and that of citations made to source of information materials with no date of publication as indicated in Table 4, it is also an evident that few students who were involved in these incomplete citations did not have proper understanding of referencing. They are students who did not attach much importance to courses on research and library studies on citation and referencing. So, set of such undergraduate students according to Yusuf and Owolabi (2017) may find it difficult citing references and making effective use of library resources for their research activities. This is the reason Mahajan (2017) suggested that while citing the work of others, the researchers should cite the complete bibliographical information in a standard reference style so as to avoid the inaccurate and incomplete citation.

Table 5: Types of Authorship Cited

Year	Nigerian Authors			Total	Rank Order	Foreign Authors			Total	Rank Order
	2015	2016	2017			2015	2016	2017		
Chemical Engineering	52	12	45	129	5	229	210	337	544	7
Petroleum Engineering	129	117	179	425	2	622	334	947	1903	3
Mechanical Engineering	47	33	80	160	4	305	473	585	1363	4
Mechatronics Engineering	-	7	22	29	7	-	384	352	736	6
Civil Engineering	136	172	202	510	1	528	616	1435	2579	1
Computer Engineering	39	27	48	114	6	371	233	507	1111	5
Electrical/ Electronic Engineering	52	98	165	315	3	713	490	1222	2425	2
Total	455	466	741	1682		2768	2740	5385	10661	
Citation without Author(s)									398	

Source: Researcher's Data (2018)

Table 6: Highest and Lowest Citation by individual Projects

Programmes	Citation	2015	2016	2017
Chemical Engineering	Lowest Citation	10, 16, 20	7, 9, 15	6, 14, 30
	Highest Citation	49, 45, 44	52, 45, 35	76, 58, 47
Petroleum Engineering	Lowest Citation	12, 14, 15	8, 5, 19	8, 9, 9
	Highest Citation	103, 45, 35	52, 36, 35	118, 81, 61
Mechanical Engineering	Lowest Citation	11, 11, 13	4, 8, 12	9, 9, 10
	Highest Citation	34, 34, 32	34, 36, 38	26, 42, 48
Mechatronics Engineering	Lowest Citation	-	7, 9, 11	7, 10, 12
	Highest Citation	-	66, 54, 43	51, 33, 26
Civil Engineering	Lowest Citation	6, 8, 9	7, 11, 14	8, 9, 13
	Highest Citation	30, 27, 26	90, 62, 27	50, 60, 62
Computer Engineering	Lowest Citation	5, 5, 7	4, 6, 9	10, 11, 28
	Highest Citation	37, 32, 29	42, 34, 31	48, 40, 37
Electrical & Electronics Engineering	Lowest Citation	8, 8, 10	5, 10, 14	9. 9, 13
	Highest Citation	39. 30, 27	110, 67, 23	51, 44, 32

Source: Researcher's Data (2018)

Table 6 presents the highest and lowest citation made in the project submitted in the seven programmes offered in the College of Engineering. The highest citations were 118 made in 2017 in Petroleum Engineering, followed by 110 made in 2016 in Electrical/Electronic Engineering and 103 citations in 2015 in Petroleum Engineering Programme. The lowest with 4 citations were recorded in Computer Engineering and Mechanical Engineering in 2015 respectively. The result shows that the highest citation in all the projects was from a Petroleum Engineering project, while the lowest citation was cited in Computer and Mechanical Engineering project. A total of 4 and 118 citations that indicate the least as well as the highest were not too far from that of Edzan (2007) showing the least number of citations per report of 6 and the most citations per report as 165. The high citation count revealed the depth and diversity in the review of related literature carried out by the author of the project. The low citation count recorded could be as a result of not carrying out enough in-depth analysis on the literature of the topic giving to the students, the project topics are not researchable, or much has not been done in their area of study**.** It could also be that the students were not properly supervised by their supervisor(s).

Findings of the Study

The major findings of the analysis revealed:

1. A total of 12,741 citations were cited in study.
2. Information materials mostly cited by graduating students of College of Engineering is journals followed by books and seminar/conference proceeding.
3. The average number of citation per project is 31.38.
4. About 610 citations did not indicate the source of information materials.
5. Also revealed was that 152 citations made did not indicate their year of citation.
6. The findings show the graduating students cited more of recent materials which is one of the quality or characteristics of good research.
7. The graduating students of College of Engineering of ABUAD cited more of foreign authors compared to that of Nigerians authors.
8. The highest citations of 118 was recorded in 2017 from Petroleum Engineering, followed by 110 made in 2016 from Electrical/Electronic Engineering and 103 citations in 2015 also from Petroleum Engineering Programme.
9. The lowest citation of 4 was cited in Computer and Mechanical Engineering project.

Conclusion

This study examined the projects submitted to the College of Engineering of Afe Babalola University, Ado-Ekiti, Nigeria using citation analysis. It also finds out the average number of citation per projects in the field of Engineering; examine citation made according to the types of information materials in the field of Engineering, among others. The study discovered that students make more use of journals followed by books and seminar/conference proceeding in preparing for their project reports. While an average number of citation per project is 31.38. The students cited more of recent materials, and more of foreign authors compared to that of Nigerians authors. Also, some citation did not have author, source of citation and date of citation indicating that there presence of incomplete citations. However, the research provides an opportunity for the library in building their collection towards the area that will meet the needs of engineering students since the analysis shows the preferred formats of resources accessed by the students in their field of studies. The outcome of this study revealed the current status of the trend in the use of information materials consulted by the final year students of College of Engineering in Afe Babalola University.

Recommendations

Based on the findings, the following recommendations were made;

1. there should be an acquisition of frequently cited and up-to-date information materials in Engineering Programmes;
2. there should be regular subscriptions to reputable database in order to encourage the use of a reputable Internet resources and database;
3. use and citing of materials that are older than ten years from the year research is conducted should not be encouraged except where it becomes necessary to cite such materials;
4. The supervisor should put more efforts in guiding the students attached to them on how to reference and carry out proper citations of materials consulted; and
5. citation analysis which is a valuable and measurable tool used in this study may be applied across other disciplines for the development of collections that meet the information and library needs of undergraduate and postgraduate students in ABUAD, and other universities in Nigeria.

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