

Full Length Research

Grey Literatures Citation Usage By Postgraduate Students In Universities In South East, Nigeria.

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The study examined the grey literatures citation usage by Postgraduate Students in Universities in South East, Nigeria. Bibliometric method was adopted for the study. The population of the study is made up of all the dissertations submitted to faculty of engineering in the universities between 2000 and 2019. Dissertations submitted to the universities in south-east from various departments in Faculty of Engineering in the University Libraries were 481 and professional staff that work in various sections in the university libraries were 178 librarians. A total number of 481 dissertations were studied and 75,290 citations were made. Out of the whole citations made, grey literatures cited were 10,094. Three research questions guided the study and Observation checklist and document analysis were used for data collection. Two research question guided the study and one hypothesis were tested at 0.05 level of significance Data obtained were analyzed using descriptive statistics. The findings of the study showed that some grey literatures were available in the universities visited by the researcher. They were companies report; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations). Grey literatures cited were ten thousand and ninety-four (10, 094). It was observed that grey literatures were poorly cited in various universities. FUTO had the highest citations followed by UNN, UNIZIK, COOU, MOUA and least was IMSU. The findings also revealed that UNN had the highest frequency number of recent grey literatures followed by FUTO, MOUA, UNIZIK, COOU, ESUT and IMSU. These showed that grey literatures cited were published from 2010 – 2019 which was a bit recent. Implications of the findings were pointed out and some recommendations were made among which that the universities management of both federal and state should look into the development and growth of the grey literature section in the library as a matter of urgency through the process of acquiring grey literature resources like other materials. Through this process grey literature will be available to researchers.

Keywords: Grey Literatures, Availability Postgraduate Students and Universities

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INTRODUCTION

The word Citation refers to the list of references to other works in a published work. "Referring" means mentioning in the proper context and giving an explicit bibliographical statement in a list of references. According to Anunobi (2002), citations emanating from students' research reports, theses or dissertations form invaluable instrument for continuing provision of quality information resources especially for a university library collection development activities. Citations acknowledge the existence of related literature (Coleman, 2004). They help communicate specialist knowledge (Leydesdorff, 1998). Typically, citation shows that a relationship exists between the work of an author and the previous works done in that field. That is citations in scholarly works are used to establish links to other works. It is one of the

most widely used methods of bibliometrics or it is aspect of bibliometrics, and studies reference to and from documents (Gooden, 2001). In general, a citation implies a relationship between a part or the whole of the cited documents and part or the whole of citing documents.

Citation analysis is a tool for measuring library collection use. It has been applied in the evaluation of journal collections, for deciding whether to acquire, continue or discontinue the subscription (Smith, 1981). Citation analysis is an aspect of bibliometrics, which studies the references used in documents. According to Ane's Encyclopedic Dictionary of library and information science (2006), citation analysis is a major area of bibliometric research, which uses various methods of citation analysis to establish relationships between authors or their work. Citation analysis may be viewed as a collaborative effort that can promote the quality of scholarly research (Rocesseau, 2008). Citation analysis is also a way to understand users. It helps to determine the competitive position of authors and can help identify useful journals (Aina, 2006).

Meho (2007) has 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. Citation analysis was developed to identify core articles, authors, or journals in a field. Johnson (2000) points out that citation studies reveal much about scholarly communication and can guide collection development in academic libraries. Citation analysis is of immense benefit to university library especially as they serve as custodians of information resources in the university. In fact, citation analysis is relevant in collection development of grey literature and other materials in the any library. Availability and utilization of these grey literature acquired is the major issues in library practices

Availability of grey literature to postgraduate students or researchers has been a challenge since there was no collection development policy regarding institutional grey literature, and no established protocol for acquiring or cataloging this material (Siegel, 2010). This begged the question that if university libraries are asked to acquire, process and house different grey literature collections that are externally produced, though of interest to the primary and secondary users of the library then is there not need to prioritize the collection of this literature so as to make this literatures available to academic researchers in tertiary institution in buttressing the challenges to availability of grey literature as observed (Banks, 2005).

Since there is limited indexing and acquisition, availability is usually marred with uncertainty. Absence of editorial control, raising questions about authenticity and reliability are the other constraints. The importance of grey literature is becoming increasingly recognized in many organizations especially in engineering field. It encapsulates the knowledge and know-how and thus is a vital business asset. It has similar importance in quality of life aspects – like engineering field only. Grey literature is an important source of information; it is produced by engineering researchers and practitioners in the field. It can often be produced more quickly, have greater flexibility and be more detailed than other types of literature. Grey literature serves engineers and lay readers alike with facts, statistics and other data that offer more comprehensive view of the topic of interest in the future. Grey literature will be even more important in a world in which free trade and instantaneous communication have been eliminated by many of the barriers to information flow. Osayande and Ukpebor(2012) viewed that grey literature as “the main sources of indigenous information” and believed that is crucial to researchers in engineering.

It is an indispensable resource for an informed and enlightened public and will undoubtedly continue to serve as a necessary supplement to journal literature well into the future (World Heritage Encyclopedia, 2017). Professionals insist on its importance of grey literature to engineering for two main reasons; dissertations(doctoral thesis and conference proceedings) results are often more detailed in reports than in journals, and they are distributed in these forms up to 12 or even 18 months before being published elsewhere (Abelm, 2004).Some results simply are not published anywhere else, in particular educational administrators research produce a great deal of grey literature often for internal and in some cases restricted dissemination (Ullah, Kanwar & Kumar 2004).

Generally, grey literature is the main source of indigenous information in engineering, therefore, it is very relevant in carrying out researches that are home based. Lecturers, researchers and students in universities rely heavily on these literature materials like these, projects, and conference papers, in order to gain firsthand information on topics under study. Other benefits are that, grey literature is more likely to report studies that ceased prematurely, as well as innovative pilot projects(Mohammad, 2014). As a primary source of information, grey literature is even more current than the journal because most journal articles have existed in one grey form or the other prior to publication. For instance, papers presented at conferences are often later published as articles in journals, sometimes years after they were presented. There is no doubt that grey literature is going to be far more important in the future given the development of information communication technologies that seem to enhance its access. Grey literature is invaluable in all areas of engineering, but its usefulness has been more particularly documented in engineering (Umeje, 2010).

From the above viewed, the field of engineering that is divided into a large number of specialty areas: mechanical, electrical, civil, food and technology, nuclear, structural and chemical engineering cannot do without grey literature documents because the documents add more value in their research works. Grey literature is useful in establishing the exact realms of contemporary scientific and technological knowledge thereby delineating gaps in knowledge that needed

to be filled by further research. Its quick and rapid means of generation helps to obviate the rapid obsolescence of scientific and technological literature, which usually stifles research in engineering.

Therefore, universities in South East Nigeria are expected to have sizeable number of traditional grey literature materials to satisfy the demand of the engineers who produce and demand part of the materials for their research writing (dissertations) and reports. Presently, grey literature are now digital format which can be access anywhere by researchers in engineering fields. Many universities over the world have started digitalizing their grey literature into e-grey literature or digital grey literature in most university libraries in the world. Unfortunately in Nigeria, few Universities have taken the bold step to digitalize their grey literatures and make them available for user through institutions repository. Despite the important of grey literature in academic research writing in universities, grey literature usage still have some challenges among researchers. These problems of grey literature accessibility and usage in Universities in Nigeria has made the researcher to embark on grey literatures citation usage by Postgraduate Students in Universities in South East, Nigeria.

Statement of the Problem

Grey literature has an impact in research, teaching and learning mostly done in institutions where academic libraries are situated. Generally, grey literature lacks any strict or meaningful bibliographic control. Basic information such as authors, publication dates and publishing or corporate bodies may not be easily identified. Researchers use grey literature as a resource to support their research, as well as to identify funding priorities.

In engineering, dangers of limited use of grey literature by researchers has posed great challenges to the quality of dissertation reports produced in Nigeria universities most especially as it concerns universities in South East Nigeria. If nothing is done in this direction, a huge portion of the nation's engineering information existing in grey literature may not be discovered and used.

The result is that this valuable resource may be under-utilized to the detriment of engineering research in Nigerian universities. One major hindrance to break this barrier is that not much is studied about grey literature in the country in terms of its availability in the libraries as well as use by the engineering researchers. The issues of lack of grey literature in academic libraries for researchers have created an information gap among the end users thereby limiting the use of grey literature. It has been observed that grey literature presents some inherent problems that have in the past affected its availability, access and use in academic libraries.

The question now is could it be as a result of not acquiring this grey literature in our serial section of our academic libraries or librarians are not aware of those materials refer to grey literature or the students are not aware of usefulness of grey literature to their research. It is in this regard that the study intends to investigate the availability and use of grey literature cited by postgraduate students in universities in south east, Nigeria.

Purpose of the Study

Specifically, aims of the study included:

1. Determine availability of grey literatures in engineering in university libraries in South East Nigeria
2. Determine the extent of use of grey literatures in engineering dissertations in universities in South East Nigeria

Research Questions

The following research questions guided the study:

1. What are the availability of grey literatures in engineering in university libraries in South East Nigeria?
2. What is the extent of use of grey literatures in engineering dissertations in various universities in South East Nigeria?

Research Hypotheses

HO₁: There is no significant difference in the availability of grey literatures in engineering in university libraries in south East, Nigeria.

Scope of the Study

The scope of this study is grey literatures citation usage by Postgraduate Students in Universities in South East, *Nigeria*. It focuses on availability and use. Availability covers only the physical availability of grey literature documents in the libraries. Grey literature types; for the purpose of this study comprises technical reports, theses, dissertations, conference proceedings newsletters, patents and fact sheets in science and technology. It will cover various departments in Faculty of engineering in the University Libraries, South –East, Nigeria.

METHODS

Bibliometric method was adopted for the study. The population of the study is made up of all the dissertations submitted to faculty of engineering in the universities between 2000 and 2019. Dissertations submitted to the universities in south- east from various departments in Faculty of Engineering in the University Libraries were 481 and professional staff that work in various sections in the university libraries were 178 librarians. A total number of 481 dissertations were studied and 75,290 citations were made. Out of the whole citations made, grey literatures cited were 10,094. The sample size for this study was the same as the population size. All the engineering dissertations in the ten universities and all the professional staff in the ten universities were used as sample. Three research questions guided the study and The instrument used for data collection were observation check list, and inventory (document analysis). The hypotheses for this study were tested with inferential statistics using ANOVA.

The engineering dissertations submitted by the postgraduate students between 2000 and 2019 were used for data collection. To achieve this, the researcher photocopied all the references made in the dissertations from the university libraries in South East with the help of two research assistants. For research question 1, data were collected using observation checklist to check the number of on grey literatures available in the university libraries from 2000 to 2019 in South East. For research question 2, data were collected from the references indicating the total number of references made and the total number of grey literature sources. Data obtained were analyzed using descriptive statistics.

Data Analysis and Discussions

Research Question1: What are the availability of grey literatures in engineering in university libraries in South East Nigeria?

Table 1: Availability of grey literatures in engineering in University Libraries in South East Nigeria

S/N	Grey Literature	UNN	UNIZIKI	FUTO	ESUT	IMSU	COOU	MOUA
1	Advertising Leaflets	-	-	-	-	-	-	-
2	Bibliographies	100	62	1,000	25	2	7	2
3	Companies book advert	50	10	250	10	-	-	2
4	Companies Report	-	-	-	-	-	-	-
5	Conference Proceedings	100	100	1,250	157	60	78	20
6	Government policy document Leaflets	10	14	105	2	-	-	-
7	Experts evaluation	100	50	2,070	12	6	10	5
8	Manuscripts	13	30	70	-	-	10	1
9	Official memos	20	10	50	-	-	3	-
10	Pamphlets	-	-	-	-	-	-	-
11	Patent & standard	-	-	-	-	-	-	-
12	Project Dissertations)	200	200	2,050	130	100	120	25
13	Prospectus							
14	Scientific reports	10	30	1,050	23	6	50	2
15	Technical reports	5	20	200	6	1	10	-
16	Yearly reports of joint-stock	-	-	-	-	-	-	-
Grand Total	608	526	8,095	345	175	288	57	

The observation checklist showed that none of the university libraries in south-east has the following types of grey literatures in their collection: advertising leaflets; company report, pamphlets; patent & standard; prospectus and yearly reports of joint-stock. At the University of Nigeria, Nsukka ten types of grey literature out of the seventeen of them checked were available in the university libraries. The available grey literatures were companies book advertisement, bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations) and all of them were six hundred and eight(608) in number.

At the Nnamdi Azikiwe University, Awka only ten types of grey literature cited, were available. They were companies book advertisement; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations) and all of them were five hundred twenty-six(526) in number. At the Federal University of Technology, Owerri ten types of grey literature were available in the university library. They were companies book address,; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations), and all of them were eight thousand and ninety-six (8, 096) in number.

At the Imo State University, Owerri, five types of grey literature were available which they cited in their dissertations such as; bibliographies; conference proceedings; experts evaluation; scientific reports and projects (dissertations) and number were one hundred seventy five (175). At the Enugu State University of Technology, eight types of grey literature available and they were three hundred and forty-five (345). They were Bibliographics, companies book advertisement, conference proceedings, government policy document, expert evaluation, project (dissertations), scientific report and technical report.

In Chukwuemeka Odumegwu Ojukwu University, Uli, eight types of grey literature cited were also available in the university library. They were; bibliographies; conference proceedings; experts evaluation; manuscripts; official memos; scientific reports; technical reports and projects (dissertations), and all of them were two hundred eighty-eight (288) in number. Finally, at the Michael Okpara University of Agricultural, Umudike Abia State eight types of grey literature cited were also available. Such as companies book advertisement; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; scientific reports and projects (dissertations), and all of them are fifty-seven in number.

The findings showed that available grey literature cited in dissertations were companies book address; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations).The total grey literature cited in dissertation of all the seven universities are ten thousand and ninety-four (10, 094). With the exception of advertising leaflets; leaflets; company report pamphlets; patent & standard; prospectus and yearly reports of joint-stock that were not cited in the dissertations and also not available in the university library. Federal University of Technology, Owerri also had the highest number of engineering departments in whole south-east that was why the number of grey literature available in the university library was higher than others.

Research Question 2: what is the extent of use of grey literatures in engineering dissertations in various universities in South East, Nigeria.

Table 2: Extent of use of grey literatures in engineering dissertations in Universities in South East Nigeria.

S/N	Universities	in SE offering in the Universities)	(No Eng. Dissert. Citations Made)	(Total No. of Grey Lit cited)	Percentage Engineering
1	University of Nigeria, Nsukka(UNN), Enugu State	49	6,120	608	9.93%
2	Federal University of Technology Science, Owerri (FUTO) IMO STATE	207	33,050	8,095	24.49%

Table 2: continuation

3	NnamdiAzikiwe University Awka (UNIZIK) ANAMBRA STATE	63	9,207	526	5.15%
4	Michael Okpara University of Agriculture, Umudike, ABIA STATE	11	1,763	57	3.23%
5	ChukwuemekaOdumegwu- Ojukwu University(EOOU) Uli ANAMBRA STATE	45	7,470	288	3.86%
6	Enugu State University of Technology(ESUT), Agbana	76	12,960	345	2.66%
7	Imo State University,(IMSU) Owerri, Imo State	30	4,720	175	3.71%
8	TOTAL	481	75,290	10,094	53.59%

Table 2 showed the extent of use of grey literatures in engineering dissertations in universities in South East, Nigeria. The following grey literature used includes: companies book advertisement; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects dissertations. Based on this table, it was observed that grey literatures were poorly used in various universities. FUTO had the highest usage of grey literature in engineering dissertations with 24.49%. While UNN with 11.57%, UNIZIK 5.15%, COOU 3.86%, and Michael Okpala University, Umudike, 3.35% and the lowest used of grey literature was at ESUT with 2.66%.

Hypothesis 1: There is no significant difference in the availability of grey literature in university libraries in south-east Nigeria.

Table 3 : ANOVA Analysis table on the availability of grey literature in university libraries in south-east Nigeria(a and b).

A.

Source of Variance	Sum of square	DF	Mean square	Cal. F-Value	p-value
Between Groups	4512205.55	4	1128051.38	F = 7.9149	0.00008
Within Groups	5843420.875	41	142522.4604		
Corrected total	10355626.4348	45			

The F-ratio value is 7.9149. The p-value is .00008. The result is significant at $p < .05$.

B.

	UNN	UNIZIK	FUTO	IMSU	ESUT	MOUA	COOU	Total
$\sum X$	608	526	8095	345	175	57	288	10094
Mean	60.8	52.6	809.5	43.125	34.8	7.3	37.25	215.652
$\sum X^2$	103294	52388	12273325	42387	13676	1067	23502	12494896
Std. Dev.	76.8603	57.6584	797.2468	62.6884	43.6486	9.5009	42.0909	479.7135

The F-ratio value is 7.9149. The p-value is .00008. The result is significant at $p < .05$.

Table 3 showed that there is significant difference in the mean of availability of grey literature in university libraries in south East. As the calculated ANOVA-values The F-ratio value is 7.9149. The p-value is .00008. The result is significant at $p < .05$. The null hypothesis was therefore **rejected**. It is thus concluded that universities in South East do differ significantly in their mean of availability of grey literatures in university libraries.

Summary of Findings

The findings of this study showed that out of seventeen (17) types of grey literature generated for the study, only ten types were seen in UNN, UNIZIK and FUTO. Then eight types were seen in COOU, ESUT and MOUA while only five (5)

types were in IMSU. They were companies book advertisement; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations), and the whole grey literatures cited in dissertations were ten thousand and ninety-four (10,094). This study is line with Marsolek, (2018) who found out that several grey literature that were available for research included conference papers and posters, government documents, technical reports, theses and dissertations, and working papers. Grey literature consists of documents of very different types. There are some types of grey literature, such as scientific and technical reports, and also some types which evoke different opinions. Therefore, the findings of this study is relevant, as it has provided further evidence that grey literature are available in universities of south-east for their research. However, the testing of hypothesis showed that there is significant difference in mean of availability of grey literature in engineering in university libraries in South East. Therefore, the hypothesis was rejected. It is concluded that university libraries in the region have the chance of buying new grey literatures in all formats.

The result obtained revealed the extent of use of grey literatures in various universities in South East Nigeria. They were companies book advertisement; bibliographies; conference proceedings; experts evaluation; government policy document; manuscripts; official memos; scientific reports; technical reports and projects (dissertations). It was observed that grey literatures rate of use was low in various universities. The reason may be as result of lack of knowledge about grey literature's importance in research in the universities. This study is in line with Mukhtar, (2009) who found out that grey literature has great impact in research, teaching and learning. It is occasionally the only source of information for specific research questions. Researchers use grey literature as a resource to support their research, as well as to identify funding priorities. Likewise, grantees and prospective grantees look to grey literature to determine what is being funded by whom to help determine the course of their research.

Implications

Some education implications were derived from the results of this study and they include the following:

It has been empirically proved that the seven universities in south east that offered engineering courses acquired and made grey literature available in their university community. This implies that the institutions moved with the objectives of university library which stated the provision of all kinds of information to users for research and teaching. These grey literatures were available through acquisition and materials produced in the university environment. It has been proved that some grey literature were not also available in all the universities in south east. This implies that library management of the institutions has not done well to improve the grey literature accessibility in the university community. The study also revealed that the grey literature was poorly cited in various universities. It was also revealed that most of the grey literatures cited in engineering dissertations were published between 2010 and 2019. The implication is that if grey literature is fully utilized there will not be problem of currency in research.

Conclusion and Recommendations

Based on the findings of the study presented, analyzed and discussed, it was obvious that grey literatures were poorly used in engineering dissertations in universities in South East Nigeria. The number of grey literatures available in the various university libraries was low and this affected use of grey literatures in engineering dissertations. Out of seventeen types of grey literature resources generated for the study only ten types and below were available and used by the various universities studied. The poor usage was attributed to the challenges encountered by professionals in the management and use of grey literatures. Most of the grey literatures cited were published from 2010 – 2019 which was a bit recent. With the above view, grey literature resource is drastically under-utilized in engineering dissertations in universities in South East Nigeria

The recommendations that were proffered with regards to the findings and conclusion drawn from this study were as follows:

- The university library management of both federal and state should look into the collection development and establishment of the grey literature section in the library as a matter of urgency through the process of acquiring grey literature resources like other materials. Through this process grey literature will be available to researchers.
- It was found out that only ten or eight types of grey literature were available in engineering dissertations in universities of south east. Therefore, the researcher suggested that library management of the seven universities in the study should try to create awareness about grey literature advantage in research and policy making in engineering areas. Through this process they will be aware of grey literature in their field that is not common to them

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