

Grey Literatures Availability and Utilization in Faculty of Engineering in South East, Nigeria

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ABSTRACT

The study examined the Grey Literatures Availability and Utilization in Faculty of Engineering 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. 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, Librarians, Engineering and Utilization.

INTRODUCTION

The term, grey literature, came into the professional vocabulary of librarianship about five and half decades ago. Despite this relatively long history, some academic librarians and information professionals are yet to be aware of its existence. Others who at all know about it appear confused over its exact meaning.

This state of confusion of the real meaning of the word, has given way to several varied definitions of grey literature. While a hazy definition of "grey literature" had existed previously, the term is generally understood to have been coined by the researcher Charles P. Auger, who wrote *Use of Reports Literature* in 1975. The literature he referred to consist of intelligence reports and notes on atomic research produced in vast quantities by the Allied Forces during World War II. In a conference held by the British Lending Library Division in 1978, Auger used the term "grey literature" to describe the concept for the first time. His concepts focused upon a "vast body of documents", with "continuing increasing quantity", that were characterized by the "difficulty it presents to the librarian". Auger described the documentation as having great ambiguity between temporary character and durability, and by a growing impact on scientific research. While acknowledging the challenges of reports literature, he recognized that it held a number of advantages "over other means of dissemination, including greater speed, greater flexibility and the opportunity to go into considerable detail if necessary". Auger considered reports a "half-published" communication medium with a "complex interrelationship to scientific journals". In 1989 Auger published the second edition of *The Documentation of the European Communities: A Guide*, which contained the first usage of the term "grey literature" in a published work.

Professional archaeology literature, sometimes called "grey literature", is a quantitatively significant part of the archaeology literature (Hardman, 2010). The term "grey literature" widely used for unpublished or semi-published reports has in archaeology been coloured by these critical comments, although grey literature also has positive connotations (Bahn, 2012). Okoroma (2012) referred to grey literature as "unpopular but precious semi published information materials with very limited circulation which are not usually accessible through the normal commercial book channels such as publishers catalogue and bookshops". Aina (2004: 3) regarded grey literature as "reference sources because they provide information background and current information". The "Luxembourg definition", discussed and approved at the Third International Conference on Grey Literature in 1997, defined grey literature as "that which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers".

In 2004, at the Sixth Conference in New York City, a postscript was added to the definition for purposes of clarification: grey literature is "...not controlled by commercial publishers, i.e where publishing is not the primary activity of the producing body". In librarianship, though the concept is difficult to define, the term grey literature is an agreed collective term that researchers and information professionals can use to discuss this distinct but disparate group of resources. In Farace and Schöpfel(2010) pointed out that existing definitions of grey literature were predominantly economic, and argued that in a changing research environment, with new channels of scientific communication, grey literature needed a new conceptual framework. They proposed the "Prague definition" as follows: Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body. Due to the rapid increase web publishing and access to documents, the focus of grey literature has shifted to quality, intellectual property, curation, and accessibility.

There are different type of grey literature according to groups. However, the list is often broken down into four categories. The first category is made up of publications issued by pressure groups and similar bodies with special interest. From time to time, such organizations have the need to publish quickly, their funds are limited, and there is no time for the necessities of sales or return and trade discounts. In consequence, sales are achieved by direct mail or through specialist outlets. The second category is made up of privately published materials ranging from small volumes of poetry through carefully researched family and local histories into topical stories presented with a particular point of view (Aina, 2000). The third category, sometimes referred to as alternative literature, consists of materials on topics or perspectives unknown or marginalized in the mainstream of publishing and usually absent from library collections. The fourth category, often called ephemera, consists of materials that carry verbal messages and are produced by printing or illustrative processes but not in a standard book, periodical or pamphlet formats. Most items of ephemera are produced for short-term purposes, e.g. bus tickets, timetables, and posters (Aina, 2000).

Grey literature may be of questionable relevance or quality but may still have an impact in dissertation writing especially in the universities (Okoroma, 2011). The importance of grey literature cannot be overemphasised due to vital issues treated by authors and researchers. Despite the variety of grey literature, availability of the various types of this literature for university dissertation most especially in South East Nigeria has been of great concern to producing quality dissertation reports that did take cognizance of all relevant materials for such study. Therefore, this paper seeks to explore grey literatures availability and utilization in Faculty of Engineering in South East, Nigeria.

PURPOSE OF THE STUDY

Specifically, aims of the study include:

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
3. Analysis of the recency of grey literature used 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?
3. What are the recency of grey literature used in engineering dissertations in universities in South East Nigeria?

LITERATURE REVIEW

The terms availability, accessibility and utilization are concepts which complement one another. Together, they portray their inter-relationship in the field of library and information science. The availability, accessibility and utilization of information of grey literature through an effective dissemination network represent a necessary condition for the emergence of a crop of well-informed citizenry (Hamutunwa, 2013). Information must be available, adequate and accessible in order to be presented in a way that is acceptable to facilitate its acceptability, hence utilization. Thus, it is a vital commodity in every environment and its use is largely determined by its availability and accessibility (Osayande, Odaro & Ukpebor, 2012).

However, availability of grey literature source does not necessarily translate to its accessibility, because the source may be available but access to it is prevented for one reason or the other (Shaariful 2012). Accessibility could mean authorization, opportunity, or right to access records or retrieve information from different sources of information such as internet, radio, posters, bulletins, newspapers, journals and libraries and information centres.

Frank (2006) refers to accessibility as a commitment to the value and quality of research carries with it and responsibility to extend the circulation of such work as far as possible and ideally to all who are interested in it and all who might profit by it. Nevertheless, each of these components can be seen from a different perspective. Generally, the prime obligation of any academic library is to make acquisition of a variety of information from various sources to satisfy the diverse needs of their users. On the other hand, there is pressing aim of the library to ensure that the acquired information is accessible and used by its users in a timely and efficient manner to support scholarship and keep its users well-informed and up-to-date in their fields of interests.

The combination of these two processes enhances the value of grey literature information. Availability of grey literature entails its provision and supply at the right quantity and time, while its utilization refers to the practical and adequate use of resources and materials on information identified and acquired by user for the purpose as solving problem (Emasaelu, 2014). Therefore, accurate and credible grey literature and its accessibility in whatever medium and quantity will be meaningless if it does not meet the need of the audience in terms of economic, social, political, cultural, scientific and technological considerations.

According to Feather and Sturges, (2000) Grey literature available are technical and project reports, working papers, discussion papers, technical manuals, information sheets, conference papers, theses, that are produced by government departments and agencies, universities, think tanks, non-government organisations, corporations and professional bodies, and usually lack systematic means of distribution or bibliographic control. Grey literature is extremely important for many disciplines, including science, technology, health, engineering and social sciences, government and public policy arenas, and a range of professional and commercial practices. The aim of the producing bodies is to share key information with relevant parties on 'what works', in the form of technical specifications, project outcomes, changes to policy or legislation, and to do so quickly and easily without the delays and access restrictions of academic journals or book publishing.

Marsolek, (2018) identified several grey literatures that were available for research which 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 typical of grey literature, such as scientific and technical reports, and also some types which evoke different opinions. This latter type, such as DZS documents (documents pertaining to society), standards and patents, can be included in grey literature only because of the specific point of views held in these documents.

Luxembourg (2004) Grey literature available are reports, memoranda, conference proceedings, standards, technical documentation, and government documents, theses, non-commercially published translations, committee reports, working papers and bibliographies. Therefore, grey literature available for researchers include government reports, policy statements and issues papers, conference proceedings, preprints and post-prints of articles, theses and dissertations, research reports, market reports, working papers, geological and geophysical surveys, maps, newsletters and bulletins, fact sheets.

Mason (2012) opined that grey literature is available pre-prints, preliminary progress and advanced reports, technical reports, statistical reports, memoranda, state-of-the art reports and market research reports. sourcebooks, chart books, handbooks, evaluations, consensus reports, fact sheets, briefings, transcripts, testimonies, conference proceedings, summaries, repair manuals, consumer product ratings, tourist guides, and other resources that we usually take with us and consult on a regular basis. Dissertations also make up an important part of grey literature, as well as meeting papers or preprints that are given out before conferences and meetings.

METHODOLOGY

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 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. For research question 3, data were collected from the references indicating the total number of references made and profile of the age 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	1000	25	2	7	2
3	Companies book advert	50	10	250	10	–	–	2
4	Companies Report	–	–	–	–	–	–	–
5	Conference Proceedings	100	100	1250	157	60	78	20
6	Government policy document Leaflets	10	14	105	2	–	–	–

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7	Experts evaluation	100	50	2070	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	2050	130	100	120	25
13	Prospectus	–	–	–	–	–	–	–
14	Scientific reports	10	30	1050	23	6	50	2
15	Technical reports	5	20	200	6	1	10	–
16	Yearly reports of joint-stock	–	–	–	–	–	–	–
Grand Total		608	526	8095	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 Okpala 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.

Universities in SE offering Percentage Engineering	(No Eng. Dissert. in the Universities)	(Total No Citations Made)	No. of Grey Lit cited)
University of Nigeria, Nsukka(UNN), Enugu State 9.93%	49	6120	608
Federal University of Technology Science, Owerri (FUTO) Imo State 24.49%	207	33050	8095
Nnamdi Azikiwe University, Awka (UNIZIK) Anambra State 5.15%	63	9207	526
Michael Okpara University of Agriculture, Umudike, Abia State 3.23%	11	1763	57
Chukwuemeka Odumegwu- Ojukwu University(EOOU) Uli Anambra State 3.86%	45	7,470	288
Enugu State University of Technology (ESUT), Agbana 2.66%	76	12,960	345
Imo State University,(IMSU) Owerri, Imo State 3.71%	30	4,720	175
Total 53.59%	481	75,290	10,094

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%.

Research Question 3: What are the recency of grey literatures used in engineering dissertations in various universities in South East Nigeria?

Table 3: Publication date profile of grey literatures cited in engineering dissertations in various universities in south East Nigeria from 2000 – 2019

Universities in South East Nigeria Engineering courses	No. of Dissert . in the Univ.	Total No. of Citations	No. of Grey Lit. Cited	Published Cited before 2000	2000 - 2009	2010-2019
University of Nigeria, Nsukka(UNN), Enugu State	49	6,120	608	50 (8.22%)	248(40.79%)	310(50.99%)
Federal University of Technology Science, Owerri (FUTO) Imo State	207	33,050	8,095	1,450 (17.91%)	2,646(32.69 %)	3,999.(49.40 %)
Nnamdi Azikiwe University Awka (UNIZIK) Anambra State	63	9,207	526	110(20.91%)	176 (32.49%)	240(45.63%)
Michael Okpara University of Agriculture, Umudike, Abia State	11	1,763	57	10(17.54%)	19(33.33%)	28(49.12%)
Chukwuemeka Odumegwu-Ojukwu University(EOOU) Uli Anambra State	45	7,470	288	70(24.31%)	109(37.85%)	109(37.85%)
Imo State University,(IMSU) Owerri, Imo State	30	4,720	175	70 (40%)	95(54.29%)	10 (5.71%)
Enugu State University of Technology(ESUT)	76	12,960	345	45(13.04%)	190(55.07%)	110(31.85%)
Grand Total	481	75,290	10,094	141.93	289.51	340.57

Table 3 showed profile of the date of publication of grey literatures used engineering dissertations in various universities in South East Nigeria. Based on the table, UNN had the highest frequency number of recent grey literatures with 50.99%, followed by FUTO with 49.40%, Michael Okpala University with 49.12%, UNIZIK with 45.63%, COOU 37.85%, ESUT 31.88% and IMSU with 5.71%. This showed that most of the grey literatures cited were published from 2010 – 2019 which was a bit recent

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.

Materials of greatest relevance include datasets, evaluations, research reports, training materials, working papers, surveys, newsletters, program and issue briefs, and list serves. However, the testing of hypothesis showed that there is no significant difference in use of grey literature in engineering dissertations in universities South East Nigeria. Since the calculated f-ratio is less than the critical f-ratio, it means that universities of South East do not differ significantly in their mean extent use of grey literatures in engineering dissertations. The null hypothesis was accepted.

The result obtained showed the profile of the recency of grey literature materials in various universities in South East Nigeria. This showed that most of the grey literatures used in engineering dissertations in universities were published from 2010 – 2019 which was a bit recent. This study agrees with Deuter (2010) who found out that current grey literatures are information materials that are used or accepted by people at present time. Grey literature is information produced outside of traditional publishing and distribution channels, and can include reports, working papers, newsletters, government documents, speeches, white papers, urban plans, and so on. For that reason, grey literature can be more current than literature in scholarly journals. Current grey literature is current events and thereby contains up to date information which is very important in the field of engineering.

Engineers are important role players in various areas of life, including housing, transport, equipment, machines and tools, health, sports, recreation, food, clothing, and medicine. Scientists are sometimes regarded as people who produce information, with engineers applying their knowledge to produce factors that enable development and modernity for humanity. Relevant data are therefore important to provide information for engineers to execute their activities. Engineering has a long history, with one of the earliest records dating to the days of the Israelites. Therefore, the use grey literature is not new to them (Abiolu, 2019). Currency of grey literature in engineering field is important because authorities in the area always want to know new facts that bring innovation to the society or the world over.

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.
- It was also found out that numerous factors hindered the use of grey literature to the maximum in the engineering dissertations in universities of South east therefore, the researcher suggested that university library management of institutions both federal and state should provide enough funds to acquire grey literature and training of librarians on the management of grey literature.

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