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## Information Needs and Preferred Sources among Engineering Lecturers of Universities in North West Nigeria.

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## **INTRODUCTION**

Information is an important tool used in the realisation of any objective or goal of the library. Information is an important factor in any library because they are needed by users. Every library user needs information of increasing variety and diversity of levels, frequencies, volumes and with ease. Therefore, information need stems from a vague awareness of something missing and as culminating in locating information that contributes to understanding and meaning Library patrons seek information because they need information resources to survive in all sectors of life (Ajiboye and Tella, 2007; and Fatima and Ahmed, 2008).

Information need is a factual situation in which, there exists an inseparable interconnection with “information” and “need” Information needs can therefore be said to be the amount of positive information an individual or group of users need to have for their work, recreation and many others. Information need arises wherever individuals find themselves in a situation requiring knowledge to deal with the situation as they see fit. In other words, lack of information to accomplish a task results in information need which several authors have variously described and explained (Kebede, 2000 & Adeniyi, 2007).

Engineering is a practical representation of science in different ways that benefit the society in any socio-economic development. It involved creativities in using mathematical formulas. Latour (2008) defined engineering as the field or discipline, practice, profession and art that relates to the development, acquisition and application of technical, scientific and mathematical knowledge about the understanding, design, development, invention, innovation and use of materials, machines, structures, systems and processes for specific purposes. The term ‘engineering’ derives from the word

'engineer' used in the 1300s for a person who operated a military engine or machine – such as a catapult or, later, a cannon.

Information sources of engineering lecturers are basically classified into print and non-print materials and these information sources are group into three types depends on the information available from the sources. These sources of information can either be primary, secondary or tertiary sources of information

## **Statement of The Problem**

The importance of information in engineering field cannot be overemphasized because information has become a supportive input for any development activities. It has been observed that having access to right information at a right time can address major obstacles that affect engineers to become up to date in their field of profession. However, in North Western Nigeria, despite the fact that there are academic institutions of learning especially in the field of engineering, little visibility of the engineers and engineering activities is observed.

This situation therefore prompted the researcher to wonder if the libraries could not meet up with the information needs of engineering lecturers in the studied universities or could it be that the sources of information are not adequate or probably the information resources are not well utilized. It is on this ground that the researcher carried out the study on Assessment of information needs and preferred sources among engineering lecturers in universities in North West Nigeria.

## **Objectives of The Study**

The objectives of the study included the following:

1. To identify the information needs of engineering lecturers in universities in north west Nigeria.
2. To examine the preferred sources of information among engineering lecturers in universities in north west Nigeria.
3. To find out the challenges on the provision and use of preferred sources of information in universities in north west Nigeria.

## **Review of Related Literature**

Conceptualising information need is a very difficult task. This is because the needs of individuals usually vary from time to time due to several factors. However, Kebede

(2000) described information need as a piece of information, whether recorded or not, which an individual or a member of a group requires for effective functioning in their daily activities. Information needs can be seen as a set data, which enables the user to make appropriate decisions on any related problem facing him or her at a particular time (Nwagwu and Segiola, 2013). In other words, information is needed because it enables individuals to make a decision that affects their living, just as Kebede (2000) suggested that information represents an ordered reality about the nature of the world people live in.

Today, Man needs and seeks information far more than in previous times due to the complexity of modern life and technology. The complexity of information seeking also brings its own limitations, which are not easily explained. Several researchers in the field of information science have addressed this topic. Nwagwu and Segiola (2013) stressed that information need in modern times is a powerful concept and an integral part of our lives.

Nwagwu and Segiola (2013) examined the information needs, information sources and information seeking behaviours of engineers in breweries in Nigeria. The major information need of the engineers is to acquire more knowledge. The results further show that the knowledge quest of the engineers is not necessarily for academic, research, or product related purposes, but rather about new discoveries in the field and how to use new equipment. The engineers seek less information about their clients, or social and political activities; the nature of their tasks and engagement tends to limit their interaction with their social environment. The Internet is the source used most, preferred, accessed most and considered most relevant by the respondents. The breweries need to recognize and improve the availability and accessibility of the Internet in the workplace; they also need to promote social Web technologies such as

blogs, wikis, podcasts and other social networking services to increase social interaction with colleagues and other persons. These strategies ultimately lead to better job performance, facilitate innovation, and encourage economic growth in the breweries.

Schembri (2007) explained that, the different types of scientific information sources are, any information sources that constitute a permanent repository of scientific or engineering knowledge and a record of progress in scientific enquiry, which according to him can be, referred to as the primary, secondary, tertiary and grey literature.

Most primary literature is published in scholarly journals, but some research is published as monographs, theses or dissertations, conference papers and reports. In the world of science, the contribution of an individual scientist to the advancement of knowledge is usually gauged partly on the number of publications that the scientist has contributed to; especially those published in international peer-reviewed journals with high impact factors (Schembri, 2007). National Science Board (2012) emphasized that primary sources are original materials on which other research studies are based. Primary sources report discovery or share new information; they present first-hand accounts and information relevant to an event. Primary sources present information in its original form, not interpreted or condensed or evaluated by other writers. Examples of primary sources are: eyewitness accounts, journalistic reports, financial reports, government documents, archeological and biological evidence, court records, ephemerals (posters, handbills), literary manuscript and minutes of meetings.

Secondary literature consists of publications that rely on primary sources for information. Here it is not a requirement for the authors to have done the work themselves, since the purpose of the publication is to summarize and synthesize knowledge in a specific area for other scientists who already have an understanding of

the topic; however, the authors of secondary publications would normally have worked and published primary literature in the area they are writing about. The secondary literature includes review journals, monographic books and textbooks, handbooks and manuals. Although normally written in a scientific style, secondary publications are not organised in the same way that primary publications are; however, it is a universal requirement that they are fully referenced and that most of these references are to the primary literature. Scientists use the secondary literature to gain an overview of research areas that are close to or relevant to their own, or to familiarise themselves with existing research in new topics on which they plan to start working (Schembri, 2007).

Most often how a source is used determines whether it is a primary or secondary source, to them, for the purposes of a historical research project, secondary sources are generally scholarly books and articles. Also included in this category would be reference sources such as encyclopedias (also considered tertiary). Other examples of secondary sources are: Bibliographies (also considered tertiary); Biographical works; Commentaries; Criticisms; Dictionaries; Histories; Journal articles (depending on the discipline, these can be primary); Magazine and newspaper articles (this distinction varies by discipline); Monographs, other than fiction and autobiography; Textbooks (also considered tertiary) and Websites (also considered primary) .

Tertiary literature consists of published works that are based on primary or secondary sources and that are aimed at scientists who work in different areas from the subject matter of the publication, or towards an interested but lay audience. Such publications are normally written in a popular rather than a scientific style and while such publications may include a short bibliography, they do not usually include references to the primary literature. Examples of the tertiary literature include science magazines,

newsletters, science articles in newspapers, introductory textbooks and encyclopedias (Schembri, 2007).

Tertiary sources consist of information which is a distillation and collection of primary and secondary sources, generally, tertiary sources are not considered to be acceptable material on which to base academic research (Baran and Davis, 2008). Corley, Kim and Scheufele (2011) stated that, tertiary sources are usually not credited to a particular author. They are intended only to provide an overview of what the topic includes its basic terminology, and often references for further reading. Some reference materials and textbooks are considered tertiary sources when their chief purpose is to list, summarize or simply repackage ideas or other information. Examples of tertiary sources include dictionaries and encyclopedias, Wikipedia and similar user-contributed online 'encyclopedias' and reference materials, as well as various digests (including the Reader's Digest) and schoolbooks Corley, Kim and Scheufele, 2011). In a nutshell, tertiary sources are:

- Works which list primary and secondary resources in a specific subject area
- Works, which index, organize and compile citations to, and show secondary (and sometimes primary) sources can be used.
- Materials in which the information from secondary sources has been "digested" - reformatted and condensed, to put it into a convenient, easy-to-read form. Sources, which are once removed in time from secondary sources.

What and how many of these materials should be bought and provide to the users, and how they are used, are still embarrassing questions for librarians. Although a large number of libraries keep some sort of electronic publications (mainly the formal publications on CD-ROM and online), the usage is quite different from one library to

another. While the hardcopy business process is mature, the rules and regularities of electronic publications in libraries are under development; many business models are on a trial basis. As a part of the effort to improve the usage of electronic publications in public libraries, Behera and Singh (2011) made an inquiry into the current status of formal electronic publications, including e-books and e-journals within the two major library groups: public and university libraries. The authors found out that, the e-book (including both the full-text contents and the hand-held readers) was well publicized in India and that of other sources including ejournals has left behind their development. The e-books experienced a detour of development; some earlier projects of book imaging were trapped in the intellectual property problem. Currently very few commercial providers of ebooks are in the market – even the biggest one can provide only a small portion of the books published every year, while many hardcopy book publishers would rather confine their electronic version service to their own homepages. On the other hand, the sources of information electronically and e-journals have been coming in a comparatively smooth way (Behera and Singh 2011).

The major challenges that we face today in this regard are: Complicated procurement and preservation system. There are a very few reliable suppliers of digital documents in India. The lack of comprehensive and up to- date selection tools for digital documents further adds to the problems of a librarian. Foreign documents and far off markets are other problems in the way of electronic collection development. Even selective Digital archive will be massive. Who is to ensure that governments, organizations or publishers will maintain these archives for centuries in future?

Hardware and software needed to preserve today's documents and use them decades later may not work. The hardware used to gain access to digital information changes

radically and quite frequently. This means that preservation programmes must also involve considerations needed for access of library information in future (Okezie 2015).

### **Methodology**

The Survey research method was adopted for the study. The population of the study consisted of the engineering lecturers in the universities in North Western Nigeria which is 471 as at July 2017. Purposive sampling technique was used to sample the population for the study. There are five (5) universities in North Western, Nigeria where engineering courses are run and these were selected purposively except Nigeria Defence Academy (NDA), because the authorities refused administration of the instrument. Therefore, four Universities were used for the study. These Universities are Ahmadu Bello University, Zaria, Kaduna State; Bayero University Kano; Kano State University of Science and Technology, Wudil, Kano State and Kebbi State University of Science and Technology, Aliero, Kebbi State. The research instrument designed for this study was a self-designed questionnaire.

### **Results and discussions**

A total of four hundred and twenty eight (428) copies of the questionnaire were administered to engineering lecturers in Ahmadu Bello University, Zaria, Bayero University Kano, Kano State University of Science and Technology Wudil, Kano and Kebbi State University of Science and Technology, Aliero, Kebbi State out of which three hundred and forty (340) copies were filled and returned which is 79% response rate. The breakdown of the response rate is shown in Table.

**Table 1 Response Rate**

S/No	Names of University	No of Administered Questionnaire	No of Returned Questionnaire	Percentages (%) of Returned Questionnaire
1	Ahmadu Bello University, Zaria, Kaduna State	188	149	35
2	Bayero University Kano, Kano State	159	124	29
3	Kano State University of Science and Technology, Wudil, Kano State	52	48	11
4	Kebbi State University of Science and Technology, Aliero, Kebbi State	29	19	4
<b>Total</b>		<b>428</b>	<b>340</b>	<b>79</b>

Table 1 reveals that 149(35%) copies of the questionnaire were retrieved from Ahmadu Bello University, Zaria, Kaduna State , 124 (29%) from Bayero University Kano, 48 (11%) from Kano University of Science and Technology Wudil, Kano and 19 (4%) from Kebbi State University of Science and Technology, Aliero, Kebbi State. A total response rate of 79% was obtained.

### Information Needs of Engineering Lecturers

Engineering lecturers in the studied universities were asked to indicate their information needs. Table 3 shows the responses from the respondents.

**Table2: Information Needs of Engineering Lecturers?**

S/N	Information Needs	SA 4	A 3	D 2	SD 1	n	FX	$\bar{v}$	StD
1.	I need information for preparing my lecture notes	282	58	0	0	340	1302	3.83	1.33
2.	I need information for preparing my Seminar presentation	264	76	0	0	340	1284	3.78	1.28
3.	I need information for my research activities	321	19	0	0	340	1341	3.94	1.44
4.	I need information for personal development	295	45	0	0	340	1315	3.87	1.37
5.	I need information for conducting experiment	188	152	0	0	340	1208	3.55	1.05
6.	I need information for journal publications	322	18	0	0	340	1342	3.95	1.45
7.	I need information for preparing for workshop	181	159	0	0	340	1201	3.53	1.03

8.	I need information on the political landscape of the country	58	36	112	134	340	698	2.05	0.45
9.	I need information on the economic development of Nigeria	46	29	142	123	340	678	1.99	0.51
10.	I need information on new scientific equipment	312	28	0	0	340	1332	3.92	1.42
11.	I need information on scheduled local conferences I want to attend	109	72	87	72	340	898	2.64	0.14
12.	I need information on international conferences to attend	133	163	20	24	340	1085	3.19	0.69
13.	I need information on reputable journals to publish my research findings	155	110	48	27	340	1073	3.16	0.66
14.	I need information on funding sources for research	88	62	83	107	340	811	2.39	0.11
15.	I need information on new areas of research in my specialization	115	87	102	36	340	961	2.83	0.33
16.	I need information on research data for my work	52	64	82	142	340	706	2.08	0.42
<b>Weighted Mean</b>								<b>3.17</b>	<b>0.67</b>

Table2 reveals that twelve (12) items have a mean score higher than the criterion mean of 2.50 on a four-point scale. They are; item 1: I need information for preparing my lecture notes( $\bar{X}$ =3.83, StD=1.33) item 2: I need information for preparing my Seminar presentation( $\bar{X}$ =3.78, StD=1.28), item 3: I need information for my research activities( $\bar{X}$ =3.94, StD=1.44), item 4: I need information for personal development( $\bar{X}$ =3.87, StD=1.37), item 5: I need information for conducting experiment( $\bar{X}$ =3.55, StD=1.05), item 6: I need information for journal publications( $\bar{X}$ =3.95, StD=1.45), item 7: I need information for preparing for workshop( $\bar{X}$ =3.63, StD=1.03), item 10: I need information on new scientific equipment( $\bar{X}$ =3.92, StD=1.42), item 11: I need information on scheduled local conferences you want to attend( $\bar{X}$ =2.64, StD=0.14), item 12: I need information on international conferences to attend( $\bar{X}$ =3.19, StD=0.69), item 13: I need information on reputable journals to publish your research findings( $\bar{X}$ =3.16, StD=0.66) and item 15: I need information on new areas of research in your specialization( $\bar{X}$ =2.83, StD=0.33). Four (4) items have a mean score below the criterion mean, these are item 8: I need information on the political landscape of the country( $\bar{X}$

=2.05, StD=0.45), item 9: I need information on the economic development of Nigeria( $\bar{X}$ =1.99, StD=0.51), item 14: I need information on funding sources for research( $\bar{X}$ =2.39, StD=0.11) and item 16: You need information on research data for your work( $\bar{X}$ =2.08, StD=0.42). A sectional mean of 3.17 was obtained.

## Preferred Information Sources among Engineering Lecturers in Universities

### Studied

Engineering lecturers in the studied universities were asked to indicate the information sources they prefer using when searching for information. Table 4 reveals the responses from the respondents.

**Table3: Preferred Information Sources Among Engineering Lecturers**

S/N	Preferred Information Sources	of	SA 4	A 3	D 2	SD 1	n	FX	$\bar{X}$	StD
1.	Patents		41	75	124	100	340	737	2.17	0.33
2.	Engineering standards and codes		114	102	56	68	340	942	2.77	0.27
3.	Journal articles		184	155	1	0	340	1203	3.54	1.04
4.	Theses and dissertations		145	187	6	2	340	1155	3.40	0.90
5.	Social Networking Sites		133	146	40	21	340	1071	3.15	0.65
6.	Blogs		165	95	43	37	340	1068	3.14	0.64
7.	Webinar		43	38	103	156	340	648	1.91	0.59
8.	Proceedings of conference		165	126	29	20	340	1116	3.28	0.78
9.	Meetings		27	39	144	130	340	643	1.89	0.61
10.	Symposia		87	65	128	60	340	859	2.53	0.03
11.	Annual report		52	77	132	79	340	782	2.30	0.20
12.	Internet		224	116	0	0	340	1244	3.66	1.16
13.	Email communication		85	116	74	65	340	901	2.65	0.15
14.	Telephone		128	165	34	13	340	1088	3.20	0.70
15.	Television programmes		26	38	123	153	340	617	1.81	0.69
16.	Audio recordings		38	51	96	155	340	652	1.92	0.58
17.	Professional journals		217	123	0	0	340	1237	3.64	1.14
18.	Journals comparison		142	128	43	27	340	1065	3.13	0.63
19.	Technical reports		197	121	15	7	340	1188	3.49	0.99
20.	Photographs		94	164	55	27	340	1005	2.96	0.46
<b>Weighted Mean</b>									<b>2.83</b>	<b>0.33</b>

Table3 reveals that out of the twenty items examined, fourteen (14) items have a mean score higher than the criterion mean of 2.50 on a four-point scale. They are; item 2: Engineering standards and codes ( $\bar{X}=2.77$ , StD=0.27) item 3: Journal Articles ( $\bar{X}=3.40$ , StD=0.90), item 5 Social Networking Sites ( $\bar{X}=3.15$ , StD=0.65), item 6: Blogs ( $\bar{X}=3.14$ , StD=0.64), item 8: Proceedings of Conferences ( $\bar{X}=3.28$ , StD=0.78), item 10: Symposia ( $\bar{X}=2.65$ , StD=0.15), item 12: Internet ( $\bar{X}=3.66$ , StD=1.16), item 13: Email Communication ( $\bar{X}=2.65$ , StD=0.15), item 14: Telephone ( $\bar{X}=3.20$ , StD=0.70), item 17: Professional Journals ( $\bar{X}=3.64$ , StD=1.14), item 18: Journal Comparison ( $\bar{X}=3.13$ , StD=0.63), item 19: Technical Reports ( $\bar{X}=3.49$ , StD=0.99) and item 20: Photographs ( $\bar{X}=2.96$ , StD=0.46). This reveals that these information sources were mostly used by engineering lecturers in the studied universities while the other six (6) items have a mean score lower than the criterion mean of 2.50 on a four-point scale. They are item 1: Patents ( $\bar{X}=2.17$ , StD=0.33), item 7: Webinars ( $\bar{X}=1.19$ , StD=0.59), item 9: Meetings ( $\bar{X}=1.89$ , StD=0.61) item 11: Annual Reports ( $\bar{X}=2.30$ , StD=0.20) item 15: Television programmes ( $\bar{X}=1.81$ , StD=0.69) and item 16: Audio Recordings ( $\bar{X}=1.92$ , StD=0.58).

Table 4.12 Challenges Faced by the Library Management on Collection Development in Federal Colleges of Agriculture Libraries in Northern Nigeria

**Table4: Challenges of Information Communication**

S/N	Challenges of Information Communication	SA 4	A 3	D 2	SD 1	n	FX	$\bar{X}$	StD
1.	Insufficient funds affect the regular provision and use of preferred information sources	92	72	81	95	340	841	2.47	0.03
2.	Inadequate funding for the provision of preferred information sources.	125	137	34	44	340	1023	3.01	0.51
3.	Low Internet bandwidth to use the preferred information sources	165	139	13	23	340	1126	3.31	0.81

4.	Delay in delivery of hard copy of preferred information sources	51	65	132	92	340	755	2.22	0.28
5.	High cost of printed preferred information sources	136	158	32	14	340	1096	3.22	0.72
6.	Lack of subscription to engineering databases	169	132	23	16	340	1134	3.34	0.84
<b>Weighted Mean</b>								<b>2.93</b>	<b>0.43</b>

Table4 revealed that some items had a mean score higher than the criterion mean of 2.50. They are item 2: Inadequate funding for the provision of preferred information sources ( $\bar{X}$ =3.01, StD = 0.51), item 3: Low Internet bandwidth to use the preferred information sources ( $\bar{X}$ =3.31, StD = 0.81), item 5: High cost of printed preferred information sources ( $\bar{X}$ =3.22, StD = 0.72) and item 6: Lack of subscription to engineering databases ( $\bar{X}$ =3.34,StD = 0.84) indicating they were major challenges of information communication among engineering lecturers. Item 1: Insufficient funds affect the regular provision and use of preferred information sources ( $\bar{X}$ = 2.47, StD = 0.03), Item 4: Delay in delivery of hard copy of preferred information sources ( $\bar{X}$ =2.22, StD = 0.28) were not major challenges of provision and use of preferred sources of information among engineering lecturers in the studied universities.

### **Conclusion**

Based on the findings of the study, it could be concluded that engineering lecturers in North Western Nigeria needed information majority for teaching, research activities and community development. Engineering standards and codes, journal articles, theses and dissertations, blogs, proceedings of conferences, symposia, Internet, email communication, telephone, journal comparisons, technical reports and photographs were preferred sources of information by engineering lecturers in North Western Nigeria.

Inadequate funding for the provision of preferred information sources, Low Internet bandwidth to use the preferred information sources, and High cost of printed preferred information sources and lack of subscription to engineering databases were the challenges facing information provision and used preferred sources of information among others.

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