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TABLE OF CONTENTS

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THE INFLUENCE OF THE WORK PLACE ON THE INFORMATION SEEKING BEHAVIOUR AND INFORMATION UTILIZATION OF NIGERIAN AGRICULTURAL ENGINEERS

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ABSTRACT

Factors which influence the information seeking behaviour and information utilization of different professional groups have been the subject of much investigation. This study examined whether or not there were significant differences in the information seeking behaviour and information utilization of Nigerian agricultural engineers employed in four different work environments, viz tertiary institutions, public sector/ministry, private sector, and research institutes. A stratified random sample of 261 out of the 671 registered agricultural engineers in Nigeria was selected; proportional allocation was used to obtain sample size for each statum. Questionnaires were administered to all groups. Results showed significant differences in the information seeking behaviour of the respondents in respect of their places of work ($F - 20.226$, $df = 3,257$, $p<0.05$). Additional results indicated no significant differences in information utilization of respondents based on their work places. Recommendations pertinent to the work situation of agricultural engineers in Nigeria were suggested.

INTRODUCTION

Information is an important tool used in the realization of any objective or goal set by individuals. It is a valuable resource required in any society; thus acquiring and using information are critical and important activities. Consequently, human beings go out in search of this valuable product. Thus information seeking is a fundamental human process closely related to learning and problem solving (Marchionini, 1995). Many factors initiate the search for information, among these are the individuals' task or place of work. According to Ingression (1992), information seeking processes depend on workers tasks. In the same light, task complexity or difficulty is an important factor that can affect the reason why individuals search for information. Burkett (1992) also contended that information seeking behaviour is significantly influenced by the nature of

the institution in which the user works, the searcher's job, subject and rank or academic training.

Recent studies in information sciences have been concerned with the manner in which information sought is used. Robinson, et al (1995) inquiring on the use of information, found out that differences in the use of information sources and types exist among professionals.

This study focuses on a group of professionals agricultural engineers in Nigeria, who work in different sectors in the country. The objective of the study is mainly to determine the information seeking behaviour and information utilization of agricultural engineers in Nigeria and find out if their information seeking behaviour and utilization differ according to their different places of work. The result of the study should hopefully enable librarians and policy makers know the information sources and types of information they would provide for this group of users.

METHODOLOGY

The study population is made up of all 671 registered agricultural engineers (NIAE 1999 register), in Nigeria. a stratified random sampling technique was used to select agricultural engineers from four strata (tertiary institutions, public sector/ministry, private sector, research institutes) in which the agricultural engineers work. A random sample of 261 agricultural engineers was used and the method of proportional allocation to sample was adopted to obtain the sample size for each stratum.

The method assumed that the sampling fraction is equal to the sampling fraction for each stratum i.e. (f=fh) and fh = nh/N.

This technique was adapted because of the heterogeneous nature of the occupation of the population 43% of agricultural engineers from each stratum were used for the study.

Table 1: Allocation to Samples

Place of Work	Nh	Nh
Universities/Technologist	242	105
Private Section	108	45
Public Sector/Ministry	188	81
Research Institute	69	30
Total	607	261

The study is thus based on the following research questions and hypotheses:

Research Questions

1. What is the information seeking behaviour of agricultural engineers in Nigeria based on their different places of work?
2. What is the information utilization of agricultural engineers based on their different places of work?

Hypotheses

1. There are no significant differences in the information seeking behaviour of agricultural engineers in Nigeria as based on their places of work.
2. There are no significant differences in the information utilization of agricultural engineers in Nigeria as based on their places of work.

Information Seeking Behaviour

The result of the study showed that 35% of the respondents in the public sector (Ministry) do not have libraries in their places of work. As a result they search for information from libraries outside their establishment. About 80% of the engineers in the private sector do not have libraries in their various establishments. However only 6.5% of those in research institutes do not have libraries. All the respondents working in the various tertiary institutions have libraries in their institutions. Like their counter-parts in the Ministries, 71% of those in the private sector search for information from libraries outside their establishment. All the categories, (Ministry, Private and Research Institution) also seek for information from personal collections at home, telephone conversations with colleagues, radio/television and from newspapers.

Table 2 below shows that agricultural engineering textbooks and professional journals are very popular sources of information among all the respondents.

Table 2: A General Pattern of Information Seeking Behaviour of Agricultural Engineers in Nigeria based on their different places of work

Item No	Item Description	Percentage of Response according to place of work			
		1	2	3	4
A	From which of the following sources do you normally search for information?	%	%	%	%
1	Agricultural Engineering Textbooks	97.5	97.8	96.8	97.1
2	Professional Journals	93.8	100	93.5	95.2
3	Abstracts and indexes	37.5	80.0	48.4	65.7
4	Conference papers	85.0	95.6	93.5	84.8
5	Research Publications	85.0	95.6	100	92.4
6	Dissertations and Thesis	56.3	60	83.9	69.5
7	Patents	15	22.2	16.1	5.7
8	Reference Sources	57.5	73.3	67.7	62.9
9	On-Line Public Access Catalogue (OPAC)	8.8	15.6	16.1	9.5
10	CD-Rom Literature Search	3.8	33.3	12.9	6.7
11	The Internet	13.8	31.1	16.1	16.2
12	Others	7.2	2.2	3.2	1.0
B	Which of the following type of information do you search for?				
13	Information concerning your job	66.3	95.6	35.5	30.5
14	Information for research publication	42.5	22.2	83.9	80.0
15	General Information	16.3	46.7	38.7	25.7
16	Academic information (for teaching etc)	12.5	11.1	32.3	79.0
17	Information on how to fabricate machines	17.5	42.2	29.0	15.2
18	Others	2.5	8.9	3.2	1.0

Key: Place of work:

Ministry	=	1
Private	=	2
Research Institutes	=	3
Universities/Tertiary Institutions	=	4

The difference appears mainly with the abstracts and indexes where 80% of those in the private sector and 65.7% of those in the tertiary institutions search for information compared with 37.5% (Ministry) and 48.4% (Research Institutes) respectively. Conference papers and research publications are also, popular sources of information, which cut across all areas despite their different places of work. Dissertations and thesis and reference sources are also notable sources that are indicated as very popular with the engineers especially the on-line sources. The Engineers in the private sector seem to be more familiar with these sources (33.3%), with CD-ROM, and 31.1% with the Internet than the other groups of agricultural engineers.

Though the engineers differ in some of the sources where they seek for information, they all seem to seek for information from among some popular sources like journals, textbooks, etc.

The engineers seem to differ on the type of information they seek for from these sources. Table 2 shows that the engineers in the Ministry, (66.6%) and private sector (95.6%) seek mainly for information concerning their jobs while only 35.5% (Research Institutes) and 30.5% of those in the tertiary institutions seek for information concerning their job. Information for research publication is mainly sought by those in research institutes (83.9%) and 80.5 of those in research institutes. Only 22.2% of those in the Private Sector seek for this information. 79.0% of those in the tertiary institution seek for academic information, compared to 11.1% of those in the private sector. However, 42.2% of the engineers in the private sector seek for information on how to fabricate machines while 15.2% of those in the tertiary institutions seek for this type of information respectively.

All the agricultural engineers mainly obtain their current awareness services from conference seminars and workshops (Table 3) though quite a high percentage of those in the research institutes (64.5%) obtain their awareness services from the library.

Table 3: Distribution of agricultural engineers and current awareness services according to their places of work

Current Awareness Services	1	2	3	4
Information Analysis products	36.3	44.4	64.5	49.5
Through your library	27.5	42.2	64.5	33.3
Correspondence with colleagues	23.8	48.9	22.6	30.5
By scanning yourself	6.3	24.4	00	5.7
Attending meetings, conferences, workshop	72.5	71.1	71	56.2
By personal subscription	18.8	11.1	22.6	10.5

The engineers did vary in the amount of time they spent in the library while reading and consulting scientific journals.

Online search for information is not popular with the respondents. The agricultural engineers in the private sector (71.1%) are more versatile with On-line search than others. An equal percentage, 70% of those in the public sector, and, 71% of the engineers in the research institutes do not search for information by means of the computers. In the same light, 56.2% of those in the tertiary institutions do not carry out information search also by means of the computer.

Table 4 shows that the engineers still preferred using the traditional tools while searching for information irrespective of their places of work. Journals and textbooks play an important role in their search for information, though only 45.7% of the agricultural engineers in the tertiary institutions prefer the use of textbooks compared to their counterparts in the private sector (82.2%).

Table 4: Distribution of agricultural engineers and preference of information sources according to their places of work.

Preference Information Sources	1	2	3	4
CD-ROM Literature Search	8.8%	28.9	16.1	16.2
OPAC (On-Line Public Access Catalogue)	3.8%	4.4	00	3.8
The Internet	11%	35.6	38.7	24.8
Journals	67.5%	62.2	80.6	75.2
Textbooks	71.3%	82.2	71.0	45.7
Reference Sources	23.8%	60.0	32.3	21.0

However, 80.6% of those in the research institutes, and 75.2% in the tertiary institutions prefer the use of journals, while those in the public sector (67.5%) and 62.2% in the private sector prefer the use of journals. In as much as there are differences in percentages, majority of them in all sectors prefer the use of these traditional print materials. It is important to note that those in the private sector, prefer searching for information from reference sources (60%) compared to those in the other sectors. Interestingly very few of the engineers in all the sectors preferred the use of the On-line sources (CD-ROM, OPAC & Internet) while searching for information.

INFORMATION UTILIZATION

The agricultural engineers differed in some respects on the sources and types of information they use. See Table 5 below.

Table 5: Pattern of information utilization of agricultural engineers based on their places of work

A	While performing your task how often do you use the following types of information?	Responses	1 %	2 %	3 %	4 %
1	Information about people, institution and places	Never	45	17	54.8	56.1
		Sometimes	25.0	17	16.1	32.5
		Often	27.5	64.4	29.0	9.5
2	Results of scientific and social research	Never	31.3	24.4	9.7	13.3
		Sometimes	26.3	31.1	54.8	21.9
		Often	38.8	44.4	35.5	13.3
3	Information about procedures	Never	21.3	17.8	9.7	19.0
		Sometimes	17.5	6.7	35.5	19.0
		Often	58.8	75.6	54.8	61.0
4	Information about your field	Never	17.5	8.9	3.2	12.4
		Sometimes	11.3	15.6	38.7	18.1
		Often	70.0	75.6	58.1	69.5
5	Knowledge of what to impact to students	Never	58.8	37.8	41.9	10.5
		Sometimes	22.5	20.0	19.4	19.0
		Often	21.3	22.2	32.3	70.5
6	Information about laws & statutes, administration and	Never	58.8	31.1	77.4	72.4
		Sometimes	22.5	37.8	19.4	16.2
		Often	21.3	31.1	3.2	11.4
7	Information about summary, statistics about population	Never	47.5	26.7	48.4	81.9
		Sometimes	32.5	22.2	25.8	10.5
		Often	16.3	51.5	25.8	7.6
8	Information about persons in Federal and State Government Ministries	Never	35.0	24,4	51.6	68.6
		Sometimes	23.8	35.6	25.8	20.0
		Often	40.0	40.0	22.6	9.5
9	Teachers in institutions	Never	43.8	37.8	25.8	34.3
		Sometimes	27.5	53.3	16.1	32.4
		Often	26.3	8.9	58.1	31.4
10	Persons in Universities and Research institutions	Never	33.8	35.6	19.4	12.4
		Sometimes	20.0	40.0	25.8	31.4
		Often	43.8	24.4	54.8	56.2
11	Persons in private sector organization	Never	47.5	22.2	38.7	66.7
		Sometimes	31.3	24.4	38.7	18.1
		Often	18.8	53.3	22.6	14.3

A	While performing your task how often do you use the following types of information?	Responses	1 %	2 %	3 %	4 %
12	Internal files in your organizations	Never Sometimes Often	27.5 16.3 55.0	17.8 17.8 64.4	25.8 51.6 22.6	67.6 14.3 17.1
13	Government publications (plans, budgets, gazettes, etc.)	Never Sometimes Often	27.5 27.5 43.8	28.9 31.1 40.0	67.7 16.1 16.1	66.7 23.8 8.6
14	Consultancy reports (commissioned by Government	Never Sometimes Often	32.5 32.5 33.8	37.8 22.2 40.0	61.3 25.8 12.9	50.5 27.6 21.0
15	Conference Papers	Never Sometimes Often	3.8 26.3 68.8	24.4 15.6 60.0	9.7 38.7 51.6	6.7 21.0 72.4
16	Textbooks & Library	Never Sometimes Often	10.0 26.3 62.5	20.0 22.2 57.8	6.5 22.6 71.0	6.7 17.1 75.1
17	Information systems,	Never Sometimes Often	50.0 13.8 22.5	37.8 24.4 28.9	58.1 29.0 3.2	59.0 8.6 19.0
18	Journals and Publications	Never Sometimes Often	13.8 31.3 52.5	17.8 20.0 62.2	0.0 29.0 71.0	5.7 16.2 78.1

B	To what extent do you depend on the following documents?	Responses	1 %	2 %	3 %	4 %
1	Full-length original document	Never	27.5	13.3	16.1	43.8
		Sometimes	28.8	48.9	64.5	37.1
		Often	41.3	37.8	19.4	19.0
2	Summary of original document	Never	17.5	13.3	12.9	23.8
		Sometimes	36.3	17.8	58.1	29.5
		Often	45.0	68.9	29.0	45.7
3	Review of original document	Never	21.3	20.0	29.0	39.0
		Sometimes	50.0	55.6	48.4	33.3
		Often	26.3	24.4	22.6	25.7
4	Evaluation document	Never	31.3	24.4	38.7	45.7
		Sometimes	47.5	48.9	29.0	27.6
		Often	18.8	26.7	32.3	24.8
5	Descriptive document	Never	38.8	28.9	32.3	46.7
		Sometimes	31.3	40.0	38.7	31.4
		Often	27.5	28.9	29.0	20.0

For example, the engineers in the Private sector (64.4%) use information about people and institutions more than those in other sectors, while those in tertiary institutions (63.8) use information about results of scientific and social research more often than the other groups.

Information about procedures on how to perform their work are used often by majority of the engineers in all the sectors, the same holds about information about their field, i.e. agricultural engineers in general, up to 70% and more in some cases, (see Table 5).

However, they differed in the use of information on what to impart to students. Seventy percent of those in the tertiary institutions often used this type of information while only 21.3% of those in the public sector use it. Information about laws and statutes, are not popular with any of the group. However, 51.1% of those in the private sector use information about summary statistics and about population as compared to the other sectors, for example, 7.6% of those in the tertiary institution make use of this type of information.

The engineers also differed in some respects in their use of information for persons as 67.6% of those in the tertiary institutions do not make use of internal files in their organization as compared to those in the private sector (64.4%) and (55%) in the public sector who make use of this type of information.

Government publications (plans, budgets, gazettes etc.) are not popular with the engineers in the tertiary institutions (8.6%) and research institutions (16.1%) often make use of them, the same with consultancy reports. However, the majority of the agricultural engineers in all the sectors often use conference papers The same observation is true of journals, publications and textbooks.

Very few of the agricultural engineers in all the sectors make use of the On-line sources. The engineers also differed in the amount of time they spent retrieving and obtaining information from different information sources. A majority of the respondents in the public sector spends less time retrieving information from internal files of their organization as compared with other sectors. A majority of the engineers also spends less time obtaining information from books.

Quite a large percentage of them spend less time obtaining information from computer Dbase and the Internet, but this is more pronounced with those in the private sector. 51.1% of those in the private sector indicated that they spent less time obtaining information from consultancy reports.

A greater percentage of the agricultural engineers in the public sector (41.3%) as compared to the others often made use of full-length original document. Summaries of original documents are more popular with the four groups. The majority of those in the private sector (68.9%) made use of summaries of original documents.

The agricultural engineers also differed in the reasons why they use the library, but all the engineers in the four strata agree that they use the library mainly to keep abreast of new knowledge and to seek for information.

Discussion

The analysis of result shows that the agricultural engineers do differ in the type of information they search for due to their different places of work. This may be due to the different tasks they perform (Ingweson, 1992) or due to the complexity of work of each establishment (Bystrom and Javelin, 1994). Journals are dominant sources of information sought by all the strata. This might be that they provide the respondents with the appropriate information they all need. This supports Subramanyam's (1981) findings that agricultural scientists prefer formal sources like journals because they provide an authentic guide to theoretical models, methodology, analytical, technical, as well as an outlet for the dissemination of research findings. He defined the journal article as the most important bibliographic unit.

The On-line sources (CD-Rom Database, OPAC, Internet) are not popular as facilities for information search among all the groups. It is likely that they do not know how to search for information with them or that they are attached to the traditional print sources. Oppenhelm (1992) found out that most end users do not understand the commands needed to log on, do the search and log out. Williams (1998) found out that few journalists in the U.K. (1 in 5) despite what appears to be considerable and direct benefits to them, seek for information using the Internet. He attributed the reason for this to familiarity and conservative attachment to the traditional sources.

It is apparent that the engineers differed in the use of various sources and types of information in some respects according to their different places of work, although some sources are principally used maximally by all the sectors (journals, textbooks etc). This agrees with Aiyepeku's (1989) finding that policy makers in Nigeria, made use of government documents, in-house memoranda etc. Theses, for instance were the least important. He also ascertained that Federal Civil Servants in Nigeria preferred full-length original documents to summaries of documents. Tiamiyu (1986), ascertained that certain objective characteristics of the source themselves can be used to explain the use and non-use of the source.

The engineers do not differ much in most of the sources and types of information they use. It is also interesting to note that there was no source or type of information that all the categories do not use. The reason for this might be that the respondents could function in more than one sector. For example, an engineer in the private sector could sometimes lecture in the university, the same goes for those in the ministry. Those in the tertiary institutions carry out some consultancy services which is more like those working in the private sector, therefore their use of information cuts across boundaries, as a result, the differences in their use of information is not very pronounced.

The time it takes to obtain information from some of the sources also is related to the rate and extent of use of the sources though in some respects, like the On-line sources, lack of knowledge of use could be the major reason for their not being popular with this group of users. An analysis of variance was carried out on the information seeking behaviour of agricultural engineers in Nigeria, by their place of work. The result of Table 6 showed that there are significant differences in the information seeking behaviour of the respondents in respect of their places of work ($F = 20.226$, $df = 3,257$; $p<0.05$). Therefore hypothesis 1 is rejected.

Table 6: Analysis of variance on information seeking behaviour of respondents by place of work

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main effects	6435.183	3	2145.061	20.226	.000
V5	6435.183	3	2145.061	20.226	.000
Explained	6435.183	3	2145.061	20.226	.000
Residual	27256.020	257	106.055		
Total	33651.203	260	129.582		

Further investigation using Scheff-Post test reveal that significant differences exist mainly between information seeking behaviour of the agricultural engineers working in the industry (Group 1) and those in the private sector (Group 2), between those in the private sector and those in the tertiary institutions, and between those in the private sector and those in the research institutes.

Table 7: Analysis of variance on information utilization of respondents by place of work

Source of Variation	Sum of Squares	DF	Mean Square	F	Signifi-cance of F
Main effects	313.823	3	104.608	1.227	.300
V5	313.823	3	104.608	1.227	.300
Explained	313.823	3	104.608	1.227	.300
Residual	21906.069	257	85.238		
Total	22219.893	260	85.461		

Table 7 shows the analysis of variance on information utilization of agricultural engineers by place of work. The table reveals that there are no significant differences in information utilization of respondents based on their places of work. Therefore the hypothesis is accepted.

Conclusion

It is not surprising that significant differences do exist in the information seeking behaviour of agricultural engineers based on their places of work. Information is normally sought when there are problems to be solved. The problems usually depend on the task to be performed. Since these engineers work in different places, therefore, the goals and objectives and the problems to be solved would be different. Their way and method of seeking information would therefore be different.

According to Ingwerson, 1992, information needs and information process depend on workers' tasks. Such tasks impose information requirements that must be met if they are to be completed (Wesig, 1973). Other factors that could affect the differences in information seeking behaviour even in this context are the personality of the individual and availability of information sources. Garvey (1979) noted that even the scientist's intellectual browsing in his personal search is interactive, in that his style, subjectivity base, etc all play a part in detection, selection, retention and use of information encountered in the search. Kaulthau, (1991) ascertained that the choice of the action depends on the needs, the perceived accessibility and availability of the information channels and sources, and the personal seeking style.

The differences not observed among them in the utilization of information based on their places of work could be attributed to the fact that engineers in most cases use the same types and sources of information to solve their problems. They could seek for different types and sources of information but the available information is often the one used. All the engineers studied almost the same courses using the same textbooks, manuals etc. and they all have been used to journal articles. Therefore they all use the same types of information sources that they are familiar with to solve their problems.

The engineers with libraries in their establishments would use the available information sources in their libraries while those without libraries would conduct an active search for information and eventually find the same type of information. Their information search technique could be different but they do end up using the same type of information and information sources. All the different groups for instance are not skilled in the use of the new information technologies, therefore most of them use the available traditional print sources where they find the type of information they need.

Tiamiyu (1986), ascertained that "certain objective characteristics of the source themselves can be used to explain the use or non-use of the source, namely: the subject content of the source, the structural linguistic format in which the information is presented, as some information sources may be used more often than others because of the brevity with which they provide accurate information". This could thus be the case with the apparent uniformity of sources utilized by the agricultural engineers in Nigeria.

Recommendations

Based on the outcome of this study, the following recommendations are made:

- The agricultural engineers should be provided with adequate libraries in their various places of work. This would help them meet their immediate needs.
- Current information sources should be provided for them especially the sources they prefer searching from and utilizing to meet their various needs.
- The engineers should be trained on how to use the new information technologies by their different establishments as this could help provide them with more current information.
- Funds should be provided by the different establishments to enable the engineers attend different workshops and seminars where the engineers could also obtain current information and could also be trained on the new information technologies.
- The agricultural engineers should attend various user education courses organized by libraries/librarians on how to use various sources of information in the libraries. This could help them while conducting various searches in the library.
- High level current awareness services e.g. SDI (Selective Dissemination of Information) should be carried out by the different libraries where these engineers work to enable them know what type of current sources and information are available in their various libraries.

BIBLIOGRAPHY

Aiyepeku, W. O. (1989). The perception and utilization of information by Policy Makers in Nigeria. Lagos: National Library of Nigeria, 131p.

Burkett, J. (1992). The growth of industries and information services in the U.K. (3rd ed.). London: The Library Association, 263p.

Bystrom, and Jarvelin (1994). Task complexity affects information seeking and use *Information processing and management* Vol. 31 (2) pp. 191-213.

Ingwerson, P. (1984). A cognitive view of three elected On-line search facilities: *On-line Review* (5) 46, 5-492.

Marchionin, Garrey (1995). Information Seeking in Electronic Environments. *Cambridge University Press*, 224p.

Oppenhelm, C. (1992). Designing for the end-user market place in HANCOCK BEAULIEU M.Ed. information system for end-users. Research and development issues London Taylor Graham, p. 52-134. Paper presented at the UNICEF Development Education Seminar (Moscow, September 1982).

Robinson, J. et al (1995). Information usage by biological researchers. *Journal of Information Sciences* 22(1), pp. 47-53.

Tiamiyu, M. A. (1989). Factors underlying the use of information sources in government institutions in Nigeria Ph.D. Thesis University of Western Ontario London.

Kaullthan, C. C. (1991). Inside the search process. Information seeking from the users' perspective. *Journal of the American Society for Information Science.* 42(5), 361-371.

Garvey, E. W. (1979) Communication: The Essence Science: Oxford: Pegarmmon, p 1-5.

Subramamyam, K. (1981). Scientific and technical resources. New York: Mercel Drekke.