Information and Communication Network Among Natural Scientists in Ahmadu Bello University, Zaria.

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Abstract

This study tries to find out the extent of information and communication networks among natural scientists in Ahmadu Bello University, Zaria. Their ways of information sharing, and the extent of their participation in information networking were investigated. Using two (2) research questions, data was collected from 299 pure and applied scientists in five (5) faculties in the university. The data was analysed by descriptive statistics. The findings showed that the natural scientists in the university significantly share information among themselves. Suggestions were made to facilitate the development information networking among the Nigerian scientists.

Introduction

Generally, scientist need information about current research and developmental activities and their socioeconomic implications in their fields of specialization and in peripheral fields. Voigt (1979) remarks that the scientists need information which help them to find and to check through all of the relevant information existing on a given subject to determine the current state of the art in that field or problem.

The concept of communication as opined by Hybels (2001) is any process in which people share information, ideas and feelings. It therefore involves not only the spoken and written word but also anything that adds meaning to a message. Communication process according to Bryson (1990) is made up of various elements: Senders, receivers, messages, channels, noise, feedback and setting. Hence people get involved in communication because they have information, ideas and feelings they want to share with others.

Scientific communication describes both the interconnections among scientists and the papers they write. Each scientist is envisaged as a node from whom lines of communication run, linking him strongly with his peers, with the number of such lines varying from scientists to scientist. Hanson (1971), Observed that the scientist is in constant touch with his colleagues on scientific and technical matters several times a day during a research project, which gave him access to vital information in his area of interest. Through this activity, an informal but elaborate network of scientists for the exchange of information is built and its often referred to as the 'invisible college'.

Networking in the other hand entails the development of formal and informal communication channel between two as among more people and groups to transmit or obtain information. As such, information network as portrayed by Bryson (1990) is a natural coalition of groups whose joint interest, view points and preferences need to be protected. In essence, belonging to the right network could open doors for the acquisition of valuable information.

By and large, scientists, scholars, researchers, etc could engage in due to the reasons:

- to enhance productivity among members
- to facilitate quick and easy information access.
- To promote and strengthen relationships among members.
- To enhance the sharing of ideas, experiences and information.
- To achieve efficiency and up-to-datedness.
- To avoid duplication of efforts especially in terms of research.

In the light of these, scientists are therefore expected to have the following qualities as outlined in Encarta (2004).

- Innate curiosity and perceptiveness insight regarding natural phenomena.
- Have insight into the heart of a problem.
- Should possess technical ingenuity.
- Should be persistent in seeing a research through.
- Should possess physical and mental toughness that is essential to an investigator.

Information is the most important tool for any societal development. This is because of its necessity in solving problems, decision making, planning and adding value in all human endeavours. Very few ideas and projects of any significance are implemented by one person alone. Gamble (2002) opined that if one is able and

willing to communicate with members of his group, he is said to occupy a central position in the group. It could thus be said that it is the group's networks or pattern of communication that determine the communication path open to members and the effectiveness of their interaction. In line with this opinion, Newman (2000) found that scientific communities constitute a small world as a result of the information and communication network they explore. He further observed that laboratory or university department forms a network in science.

The establishment of sustainable information network opens up the horizon of information sharing wider. Garvey (1980) observed that a productive scientist cannot be an isolated scholar. Research ideas and problem development can be primarily influenced by the channels of scientific information exchange. Scientists tend to obtain much of their information from their colleagues formally and informally as observed by Olabisi (2004). In his own study, Newman (2001) found that a number of differences are apparent between fields of science. Researchers in experimental disciplines are found to have larger number of collaboration than those in theoretical disciplines. The concept of networking however, manifest itself in the form of collaboration, cooperation, connection, association, sharing etc. In scientific community, informal communication regarding research findings, research in progress, and research techniques represents one way in which members of scientific area are linked to one another. Group of researchers, scholars, academics and scientists have built up informal, but sometimes elaborate system for the exchange of information through letters, mailing lists, conference schedules and preprints, known as 'invisible college'. Through this, a high proportion of information is shared and disseminated before formal publications are out.

Abalaka (1991) opined that the scientists stand to increase their productivity by intellectual intercourse with their colleagues within and outside their specialized area. It is thus necessary that scientists maintain information and communication networks so as to communicate their research results to one another. This step will reduce unnecessary duplication of scientific efforts as according to Olabisi (1985) the major information source of leading Japanese scientists seems to be through personal acquaintance with colleagues and at meetings, as well as maintaining closer contacts with their peer locally and in abroad. This network facilitates the significant breakthrough and the productive status of the scientists in developed countries.

Inspite of the importance of networking among scientists, it seems the Nigerian scientists are not networking among themselves adequately. Okoli (1985) asserted that many Nigerian scientists strayed into the profession as a result of circumstances beyond their control. Mohammed (2006) has commented on the unfavourable climate in which scientists in Nigeria operate. He mentioned among others, the ineffective dissemination of research results by scientists. Bozimo (2006) quoted the observation made by UNESCO that their productivity has also been on the decline since 1988. Therefore, since information technology enhances productivity and facilitates for greater collaboration, cooperation and networking among people of like minds and interests, this study becomes significant in order to determine the extent of information and communication network among the natural scientists in Ahmadu Bello University, Zaria.

Research Questions

1. How do natural scientists in ABU Zaria normally share information?
2. To what extent do the natural scientists in ABU Zaria participate in information networking for information sharing?

Objectives of the Study

The study seeks to: -

1. Identify the ways natural scientists in ABU Zaria normally share information.
2. Find out the extent to which natural scientists in Ahmadu Bello University, Zaria participate in information networking.

Significance Of The Study

The study is significant, because it reveals the extent of information and communication network among the natural scientists in ABU Zaria. Its findings will lead to the improvement of information networking among the scientists in the university.

Scope of the Study

The scope of the study is limited to the scientists in the following faculties of the university:

i. Faculty of Medicine
ii. Faculty of Veterinary Medicine
iii. Faculty of Agriculture
iv. Faculty of Sciences
v. Faculty of Engineering

Methodology

The survey method was adopted for the study. The population of the study comprises of all the academic scientists in the forty-seven (47) departments in the five (5) faculties identified in ABU Zaria. From the population of 627, a sample size of 329 scientists was used for the study.

Questionnaire and interview were used as instruments for data collection. instruments were administered personally done by the researcher.

Findings and Discussions

All the data collected during the study were processed and analyzed for each of the research question and objectives. Descriptive statistics, such as frequency table, mean and percentages was used for analyzing and discussing the findings of the study.

Information Sharing Among Scientists In A.B.U., Zaria

The researcher provided the respondents with statements on normal ways of sharing information among scientists. They were requested to indicate their levels of agreement with the statements. The data collected in this regard was analyzed and presented in table 1 below.

Table.1: Ways of information sharing among scientists in A.B.U., Zaria

S/N	Statement		Type of response					Mean	SD	Grand mean	Rem.
		Grp	SA (5)	A (4)	U (3)	D (2)	SD (1)				
1	Usually share information with colleagues	1	93	109	4	2	-	4.41	0.58	4.28	A
		2	36	41	10	-	4	4.15	0.94		
2	Get information through personal discussion.	1	35	144	11	14	4	3.92	0.81	3.90	A
		2	17	5	11	4	3	3.88	0.88		
3	Share information at meetings, conferences, seminars and workshops.	1	100	81	11	17	9	4.23	1.00	4.26	A
		2	46	34	3	8	-	4.30	0.90		
4	Informing colleagues before starting research.	1	26	75	34	62	11	3.21	1.55	3.10	A
		2	-	3	29	15	11	2.99	1.03		
5	Informing colleagues on progress of research.	1	24	116	35	31	2	3.62	0.91	3.51	A
		2	4	5	20	7	8	3.41	1.01		
6	Distributing pre-prints to colleagues.	1	22	48	67	55	16	3.02	1.11	3.02	A
		2	12	23	27	13	16	3.02	1.28		
7	Sharing information on request	1	86	89	14	11	8	4.13	1.01		A
		2	39	41	8	-	3	4.24	0.87	4.18	
8	Sharing information with non-professional colleagues.	1	42	93	36	24	13	3.61	1.12	3.59	A
		2	15	31	23	11	3	3.57	1.01		
Mean of means		1						3.76	1.01	3.72	A
		2						3.69	0.99		

Key:

Group 1 : Applied Scientists
Group 2 : Pure Scientists
N_1 : Number in group 1 (208)
N_2 : Number in group 2 (91)
Cut off point : 3.00 (mean of 5-point scale)
A : Agree
D : Disagree

Table 1 above reveals that the pure and applied scientists in A.B.U., Zaria share information with colleagues. This position has the mean score for the pure scientists at 4.24 and the applied scientists at 4.13. Therefore, it can be concluded that they do not hoard information and there is free flow of information among them. These findings are in line with Newman (2000) who remarks that a laboratory or university department forms a network in science.

On sharing information through the invisible college, the pure scientists (x = 4.30) and applied scientists (x =4.23) in the university have indicated doing so. However, this finding is expected because attending workshops, conferences, seminars and meetings are among the activities of the scientists and indeed other scholars in the academia. They share preprints among themselves as revealed in table 1 above. These findings are in line with Hanson (1971) who observed that scientist is in constant touch with his colleagues on scientific and technical matters several times a day during a research project, which gave him access to vital information in his area of interest.

However, the pure and applied scientists in the university under study differ significantly on the issue of informing their colleagues before embarking on research. While many applied scientists (x =3.21) have affirmed to that many of the pure scientists (x = 2.29) indicated the contrary. This finding can be attributed to the type of researches conducted by them. While most of the researches among the applied scientists are practical, those of the pure scientists are mostly theoretical. In his study Newman (2001) found that a number of differences are apparent between the fields of sciences these two (pure and applied). Researches in experimental disciplines are found to have larger number of networks on the average than those in theoretical disciplines.

Based on the above analysis, it could be seen that sharing of information among pure and applied scientists in the university under study is highly accepted. This finding collaborates with Olabisi (2004) who observes that scientists obtain much of their information from their colleagues through formal and informal ways. This explains the reason for the overall mean of the respondents to be 3.72 which is higher than the cut off point of 3.00. This implies that they appreciate sharing information among themselves.

Extent of Participation in Information Networking

The researcher provided eight (8) statements relating to participation in information network by the pure and applied scientists. The respondents were requested to indicate their level of acceptance with the statements. The data collected were analysed and presented in table 2 below.

Table 2 below reveals that pure and applied scientists in A.B.U., Zaria participate in information networking significantly through collaboration in research and joint publication of journal articles. This is revealed by the grand mean of 4.18 and 4.33 respectively. From this finding, it could be assumed that the scientists in the University have recognized the need to participate in a network since very few ideas and projects of any significance are implemented by one person alone. However, the collaboration among the scientists could be among those in the same field. This probably explains the reason for the grand mean on establishing ties with colleagues in the same field to be 4.03 as revealed in table 2 below.

It is also revealed from the analysis in the table above that the pure and applied scientists in the university under study interact with their peers locally (x = 3.72), nationally (x = 3.59) and internationally (x = 3.75). This finding is confirmed by their rejection of the statement on the difficulty in relating with colleagues outside the university (x = 2.75). However, from the foregoing findings, it could be said that the pure and applied scientists in A.B.U., Zaria are not operating in isolation. This position is in line with the findings of Abalaka (1991) that the scientists stand to increase their productivity by intellectual intercourse, particularly with their colleagues within their specialized areas as well as by those outside it. The overall grand mean of 3.71 which is higher than the cut off point of 3.00 explains the significant participation of the pure and applied scientists in the university under study in information networking. In consonance with this finding, Newman (2000) in his study found a number of interesting properties of information network, such that scientific communities seem to constitute a “Small world”. These findings place the scientists in the university at an advantage position as they have the opportunity to get access to vital information elsewhere other than those around them. Hence, they have better opportunities to be productive in their areas of specialisation. Consequently their research works could also be accessed by others through the networks established.

Table 2: Extent of Participation in Information Network

S/N	Statement		Type of response					Mean	SD	Grand mean	Rem.
		Grp	SA (5)	A (4)	U (3)	D (2)	SD (1)				
1	Collaboration in research	1	52	119	25	7	5	3.99	0.85	4.18	A
		2	45	36	10	-	-	4.38	0.68		
2	Joint publication of journal articles.	1	100	78	14	8	8	4.22	1.00	4.33	A
		2	46	42	-	3	-	4.44	0.67		
3	Co-authorship in book publication.	1	44	51	75	19	19	3.39	1.17	3.34	A
		2	17	22	32	10	10	3.29	1.21		
4	Establishing ties with colleagues in the same field.	1	43	106	31	15	13	3.73	1.07	4.03	A
		2	37	48	6	-	-	4.34	0.60		
5	Establishing ties with colleagues in the same university.	1	26	112	40	17	13	3.58	1.02	3.72	A
		2	20	51	12	4	4	3.87	0.96		
6	Closer ties with scientists in Nigeria.	1	33	90	45	28	12	3.50	1.09	3.59	A
		2	19	40	21	7	4	3.69	1.03		
7	Closer ties with colleagues through professional organization.	1	46	90	44	11	17	3.66	1.13	3.75	A
		2	37	25	9	17	3	3.84	1.24		
8	Difficulty to relate with colleagues outside the university.	1	29	52	36	56	35	2.92	1.32	2.75	D
		2	13	8	18	33	19	2.59	1.31		
Mean of means		1						3.62	1.08	3.71	A
		2						3.80	0.96		

Key:

Group 1 : Applied Scientists
Group 2 : Pure Scientists
N_1 : Number in group 1 (208)
N_2 : Number in group 2 (91)
Cut off point : 3.00 (mean of 5-point scale)
A : Agree
D : Disagree

Conclusion

From the analysis of the findings, it could be concluded that the natural scientists in Ahmadu Bello University Zaria appreciate the need for information networking for sharing information. There is high level of participation in information network by the scientists in the University especially among them locally.

Recommendations

In the light of the findings of the study, it is suggested that:-

1. The natural scientists in the university should be encouraged to establish ties with colleagues outside their areas of
2. specialization. This will help them to be highly current on the progress being made by other scientists in other areas.
3. The pure scientists in the university should be encouraged to imbibe the culture of informing their colleagues before embarking on research, just as the applied scientists do. This will give them the opportunity to have suggests on what to do and also reduce incidence of duplication of other people's works.

Reference

Abalaka, G. (1991). Information Needs and Seeking Behaviour of Natural Scientists of Ahmadu Bello University, Zaria. Unpublished M.L.S. Thesis Ahmadu Bello University, Zaria. p.3.

Bozimo, D. O. (2006). Enhancing access to Information in Nigerian Universities: An Inaugural Lecture. Zaria: Ahmadu Bello University. p.15, 59, 45-55.

.

Bryson, J. (1990). Effective Library and Information Centre Management Great Britain: Billing and Sons Ltd. pp. 256-257.

Encarta Encyclopaedia (2004).

Gamble, T. K. (2002). Communication Works. New York. McGraw-Hill Companies.

Garvey, W. and Griffith, B. C. (1980). Scientific Communication: Its Role in the Conduct of Research and Creation of Knowledge. ***In***: Key Papers in Information Science. B. C. Griffith. (ed.).

Hanson, C.W. (1971). Introduction to Science Information Work. London: Aslib. Pp 102 - 117

Mohammed, Z. (2006). Library and Information Science Research in Nigeria. Mimeograph.

Newman, M. E. J. (2000). The Structure of Scientific Collaboration Networks. In www.pnas.org. pp. 1-3

Olabisi, T. O., and Alabi, G. A. (1985): Provision, Accessibility and use of Scientific Literature in Nigerian University: In What Science? F.M.A. Ukoli (ed.) p. 131.

Ukoli, F.M.A. (1985). Profile of the Nigerian scientists: In what science F.M.A. Ukoli (ed.). pp. 293-318.

Voigt, M. J. (1979). Information Needs of Scientists: ***In***: *Encyclopaedia of Library and Information Science*. **26:** 403.

Ziman, John (1980). Teaching and Learning about Science and Society. New York: Cambridge University Press. pp. 39-52