

Perception on E-Publication by Scientists and Science Educators in a Nigerian University

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ABSTRACT

One of the essential activities of academic/research staff (including scientists) in a university is to communicate their findings for publication in scholarly media such as journals and conference proceedings. As a result of the ICT revolution, there has been an increasing shift from the conventional paper publication to electronic publication (e-publication). This research was thus carried out to assess the general perception of scientists and science educators of a typical Nigerian University on the prospects and challenges of using e-publication. The particular university considered is the Federal University of Technology, Minna, Niger State (FUTminna), in North Central Nigeria, where opinions were sampled from academic staff in the university's School of Science and Science Education. The views of the staff were gathered using questionnaires and the analysis was done using some statistical tools such as mean, percentages, frequency tables and charts. The respondents considered the following challenges faced in embracing e-publication, and rated them in the order of importance: erratic power supply, copyright violation, web management, poor verification of manuscripts, access to computers, pass wording information and cost implications. The research showed, among others, that a vast majority of the staff subscribe to e-publication, with preference for e-journals. About half of the respondents are of the opinion that the cost of e-publication is moderate. Also, the vast majority believed that e-publication contained more updated information than print publication.

Keywords: E-publication, Scientists, Science educators, Nigerian University

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I. INTRODUCTION

Academic science researchers publish to establish their claims to discovery of specific methodologies and results. They also publish to gain other form of recognitions (such as promotion and tenure) that require evidence of publication. In addition, they publish in other to have independent certification of the results and to have those certified (refereed) results archived in perpetuity. Furthermore, they publish to communicate with those who may be interested in their works, researchers in related fields, and researchers in less well-connected institutions and students who are just cutting their teeth in research scholarship [1].

If the academic researcher as author is focused in this way, the user of information has a broader horizon. Any source of information, whether a journal article, a newspaper story, a magazine, database, or a primary source document can be important. The easier the access to these sources, the more likely the source will be used. Electronic publishing becomes really significant due to improved access (which implies quicker publication), desktop access, improved search and retrieval tools, and perhaps relatively lower cost. A number of journals have, while retaining their peer review process, established electronic versions or even moved entirely to electronic publication [2, 3].

If publishers were looking only to satisfying the needs of the author (and the journal's editor), electronic publishing would have gone nowhere in the past decade. Paper is a satisfactory medium for documenting results or establishing priority (assuming everyone is on the same level playing field), and is a good archival medium. On the other hand, instead of focusing more on the user (or on the buyer for the user, the library), academic electronic publishing has become indispensable to publishing. For academic publishers that are traditionally oriented towards their editors and authors, this means a complete change in approach.

The digital revolution is not only beneficial to the academic writers, but has also revolutionized the works of artists, photographers and other creative people. There are already thousands of books that have been published in digital format. Publishers have started looking at electronic publishing optimistically as it is playing pivotal role in modern world [1, 4, 5].

Several studies have been conducted on the perception of users of electronic information resources, particularly e-

journals, with respect to functionality, availability, ease of use, problems, prospects and other factors. These studies were conducted on community members of higher institutions in different countries, especially academic staff. These include United Arab Emirates [6, 7], United Kingdom [8, 9], India [10, 11, 12, 13] and Ghana [14, 15]. Other countries include West Indies [16], Turkey [17], Malawi [18], Kenya [19], Malaysia [20] and Nigeria [5,21,22,23,24,25,26,27,28].

In the present paper, the authors carried out an assessment of the general perception of scientists and science educators of a typical Nigerian University of Technology with respect to the prospects and challenges of using electronic publication. The particular university considered is the Federal University of Technology, Minna, Niger State (FUTminna), in North Central Nigeria, where opinions were sampled from academic staff in the university's School of Science and Science Education. The views of the staff were gathered using questionnaires and the analysis was done using some statistical tools such as mean, percentages, frequency tables and charts. The respondents considered the following challenges faced in embracing e-publication, and rated them in the order of importance: erratic power supply, copyright violation, web management, poor verification of manuscripts, access to computers, pass wording information and cost implications. The specific objectives of this paper include:

- (i) To assess the level of awareness of the staff on electronic publications
- (ii) To assess the cost implications of electronic publications from the perception of the academic staff
- (iii) To identify the major challenges from the perspective of the staff militating against the effectiveness of electronic publications in terms of its usage

It has been observed that cost is a significance index in electronic resource publishing [29, 30]. Also, an earlier work focused on the relative performance of the internet network of FUTminna vis-à-vis the network of two other Nigerian federal universities, namely University of Lagos and University of Jos [31]. The connection between e-journals and the Internet is that the existence of e-journals, including the ability to access them is dependent on the Internet. Another work which focused on the Internet is [32] wherein some basic technical factors that are relevant to the provision of internet service in a typical

Nigerian university were identified. The importance of the Internet in modern day research is discussed in [33].

II. METHODOLOGY

The authors employed random sampling technique to eliminate bias and so every staff in the population has equal chance of being selected.

For this research study however, the data instruments used were questionnaire to collect the opinion of the respondents, fifty-two (52) in number, which in this case are the academic staff of the School of Science and Science Education, FUT Minna. The questions in the questionnaire focused on the opinions of respondents on the prospects and challenges of e-publication. There were options among which respondents were asked to pick choices. The questions relate to the following:

- (a) Subscription rate of respondents.
- (b) Subscription frequency of e-publication resources.
- (c) Cost of e-publication.
- (d) Availability of e-publications.
- (e) Accessibility rate.
- (f) Opinion on whether e-publication contain more updated information than print publication.
- (g) Challenges militating against the effectiveness of e-publication.

In particular, six possible challenges were posed to the 52 respondents. These are:

- (i) Web management i.e. technical problems relating to the server slow download time
- (ii) Erratic power supply: This relates to the availability of

constant or regular electric power supply.

- (iii) Access to computers: Easy availability of computers respondents for internet-related usage.
- (iv) Copyright violation i.e. ability to have access to copyright permission.
- (v) Poor verification of manuscripts: This relates to the fact that there is usually minimal control over posting of publications.
- (vi) Password Access i.e. lack of access to password for accessing e-publication.

Taking into consideration that the collected data was discrete, descriptive statistical applications were utilized which include percentages, mean and frequency tables. Pie-chart was utilized to illustrate the relative frequency distribution shown on the tables. The statistical results and subsequent interpretations are discussed subsequently.

III. RESULT

This section presents outcome of the analysis of the distributed questionnaires.

a. Subscription

Table 3.1 shows that 46 out of the 52 respondents, which represent 88.5%, subscribe to electronic publications, while 6 respondents, which represent 11.5%, do not subscribe to electronic publications.

b. E-Publication Resources

Table 3.2 shows that no staff subscribes to CD-ROM publications, 18 out of the 52 respondents, which represents 34.6%, subscribes to Electronic journals only, 10 of the respondents (19.2%) subscribes to Electronic Articles only, 6 of the respondents (11.5%) subscribes to Electronic Books only, while 12 out of the respondents (23.2%) subscribes to Electronic Journals, Articles, Books and CD-ROM publications.

c. Cost implications

Table 3.3 indicates that 19.2% of the respondents assess electronic publications as expensive, 50% which represents half of the respondents think the cost implications are moderate, 3.8% think subscribing to electronic publications is cheap, 15.4% view electronic publications subscription as cost effective, while 11.5% of the respondents didn't give their assessment.

d. Availability of electronic publications

From Table 3.4, 53.8% of the respondents think electronic publications are available overtime for subscription while the remaining 46.2% disagree on its availability for subscription over time.

e. Accessibility Rate

As indicated in Table 3.5, 57.7% think that electronic publications are readily accessible, while 42.3% think they are not readily accessible.

f. Opinion on Whether E-Publication Contain More Updated Information than Print Publication

84.7% of the respondents agree that e-publications contain more updated information than print publications while 11.5 % disagree. 3.8% of the respondents didn't give their view.

g. What are the challenges militating against the effectiveness of electronic publications?

The following values were the rankings of the fifty-two respondents on each of the challenges of using electronic publications, where one (1) is the lowest rank of these challenges and four (4) is the highest rank, as shown in Table 3.1. With respect to this question, mean was used to deduce which of the challenges tends to the highest rank, and which would be considered as major challenges militating against the effectiveness of electronic publications.

Mean score of a challenge =

$$\frac{\text{Sum of rankings of challenges}}{\text{Sum of number of respondents}}$$

i.e. Mean = Sum of scores of respondents divided by the number of respondents

First challenge: Web management
Mean = $140/52 = 2.69$

Second challenge: Erratic power supply
Mean = $156/52 = 3.00$

Third challenge: Access to computers
Mean = $114/52 = 2.19$

Fourth challenge: Copyright Violation
Mean = $154/52=2.96$

Fifth challenge: Poor Verification of Manuscripts
Mean = $134/52 = 2.57$

Sixth challenge: Pass Word Challenge
Mean = $110/52 = 2.11$

IV. DISCUSSION

Based on the calculations in the last section, the average of the various means is 2.58. This implies intuitively that any of the challenges whose mean is less than 2.58 is not considered a major challenge. These include access to computers (with a mean of 2.19) and pass wording information (mean = 2.11). Poor verification of manuscripts is a challenge which may also be considered to be marginally insignificant because its mean (2.57) is almost the same as the average. This can be easily seen if the mean and average of the means are approximated to one decimal place. The remaining challenges, namely, web management, erratic power supply and copyright violation are considered as the basic challenges militating against the effectiveness of electronic publications from the respondents' perspective.

The findings from this study indicated that most of the academic staff are aware of the existence of electronic publications and subscribe to them, although a certain percentage of them do not know about their existence and so not subscribe to them. Also, academic staff subscribe mostly to electronic journals and articles and rarely to electronic books.

It was equally observed from the perspective of the academic staff that electronic publications usually contain more updated information than print publications. The cost implications of assessing these publications are also moderate which makes it easy for an average academic staff to subscribe to them. Also observed was the view that electronic publications remain available overtime for subscription to the users than print publications.

V. CONCLUSION

This paper has examined the prospects and challenges of electronic publications (e-publication) from the perspective of scientists and science educators in a Nigerian University. E-publications are a viable means of transmitting knowledge in this era of information proliferation. They contain more updated information than print publications, and so are readily accessible, especially in the academia. Based on this, e-publications are a better alternative of secondary information source than the print publications. The latter, especially current ones, are not readily available in many institutions in developing nations. Despite the prospects of e-publications, there are challenges that tend to be a clog in the wheel of progress of their usage.

In particular, the findings reported in this paper show that the problem of the erratic power is the most challenging i.e. without constant electricity, accessibility becomes difficult. Closely followed is the problem of web management (technical problems with the server, slow download time etc), and then copyright violation. The issue of poor verification of manuscripts is only marginal as a challenge. Access to computers and the issue of 'passwording information' are not serious intuitive challenges militating against the effectiveness of e-publications.

VI RECOMMENDATIONS AND INFERENCES

- (a) The University library need to subscribe more to electronic publications to compensate for the inadequacies of the library stock, and also to increase accessibility and level of awareness, especially in the academia where these publications are needed in the day to day research work.
- (b) With subscription of libraries to electronic publications, the cost implications of accessing these publications would be reduced drastically. This will reduce paper processing, shelving, re-shelving, binding, risk of damage and losses.
- (c) Academic staff need to explore the alternative offered by electronic publishing with respect to their research papers.
- (d) The internet services available in the university need to be improved and keep running at virtually all times to meet the varied times the lecturers (and other members of the university community) surf the internet. This would reduce traffic congestion and a host of other technical issues [32]. This is because apart from publications on CD-ROMs every other electronic publication requires good internet connectivity.
- (e) Alternative source of power supply need to be provided to make up for the inadequacies of the erratic power supply, which seem to be the major challenge of assessing electronic publications in many developing nations, especially Nigeria.
- (f) A copyright policy review to cover violators of online intellectual properties need to be put in place and strictly adhered to.

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Table 3.1: Subscription Rate of Respondents

Serial number	Items	Frequency	%
1	Yes	46	88.5
2	No	6	11.5
Total		52	100

Table 3.2: E-Publication Resources

Serial number	Item	Frequency	%
1	CD-ROM publications	-	-
2	E-Journals	18	34.6
3	E-Articles	10	19.2
4	E-Books	6	11.5
5	All of the above	12	23.2
6	Not Applicable	6	11.5
Total		52	100

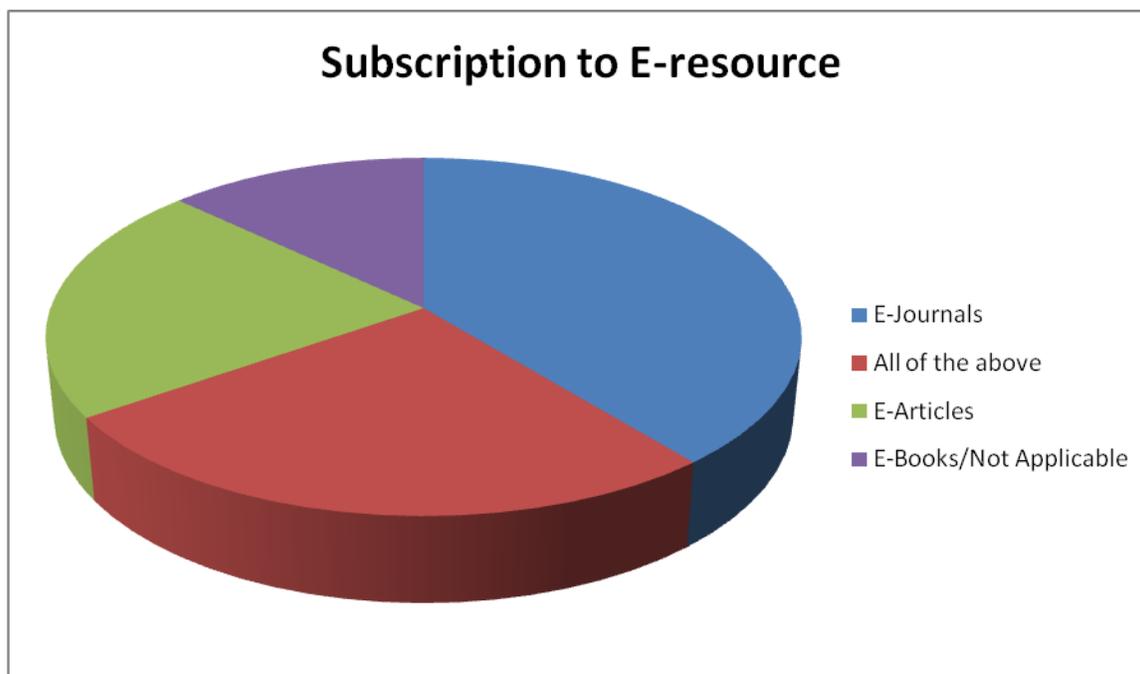


Figure 1: Pie Chart Showing Subscription Frequency for E-Resources

Table 3.3: Cost Implications of E-Publication

Serial number	Item	Frequency	%
1	Expensive	10	19.2
2	Moderate	26	50
3	Cheap	2	3.9
4	Cost effective	8	15.4
5	No Response	6	11.5
Total		52	100

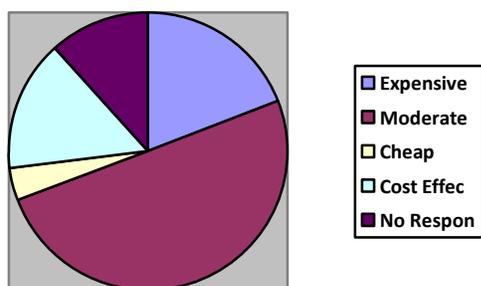


Figure 2: Pie Chart Showing Cost Implications of E-Publication

Table 3.4: Availability of E-Publication for Subscription over Time

Serial number	Item	Frequency	%
1	Yes	28	53.8
2	No	24	46.2
Total		52	100

Table 3.5: Accessibility Rate of E-Publication

Serial number	Item	Frequency	%
1	Yes	30	57.7
2	No	22	42.3
Total		52	100

Table 3.6: Update of E-Publication over Print Publication

Serial number	Item	Frequency	%
1	Yes	44	84.6
2	No	6	11.6
3	No response	2	3.8
Total		52	100

Table 3.7: Challenges of E-Publication and the Responses/Scores of Respondents

Web Management	1	1	2	2	1	1	3	3	2	2	2	2	4	4	2	2	3	3	2	2	3	3	3	3	2	2
	2	4	4	2	2	4	4	4	4	2	2	4	4	2	2	2	2	4	4	4	4	3	3	3	3	2
Erratic Power Supply	4	4	4	4	3	3	2	2	4	4	2	2	3	3	2	2	2	2	2	1	1	4	4	4	4	
	4	4	4	4	1	1	3	3	4	4	3	3	4	4	3	3	3	3	3	2	2	3	3	4	4	
Access To Computers	2	2	3	3	2	2	4	4	3	3	1	1	1	1	1	1	2	2	1	1	3	3	3	3	2	2
	3	3	3	3	3	3	2	2	3	3	2	2	3	3	1	1	2	2	1	1	2	2	3	3	1	1
Copyright Violation	4	4	3	3	4	4	1	1	3	3	2	2	1	1	4	4	2	2	1	1	4	4	4	4	4	4
	1	1	3	3	4	4	3	3	4	4	3	3	4	4	3	3	3	3	3	3	2	2	3	3	4	4
Poor Verification	4	4	2	2	3	4	4	4	2	2	4	4	2	2	3	3	1	1	1	1	2	2	4	4	1	1
	1	1	3	3	2	2	2	2	4	4	4	4	3	3	3	3	2	1	1	4	4	2	3	2	2	2
Pass Word Challenge	1	1	1	1	2	2	3	3	2	3	2	4	4	2	3	3	3	2	1	2	1	1	1	2	2	1
	2	3	4	2	2	2	2	3	1	2	2	2	3	4	2	3	3	3	2	2	2	1	1	1	1	2