

## Evaluating the impact of internet on research in Nigeria

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### ABSTRACT

The benefits accrued from the advent of the Internet especially in developing countries can not be overemphasized. At the click of a button on a desktop, Internet users can have access to vast information that covers almost all areas of human endeavors. This has made Internet the greatest achievement of the century. Research in the past for all levels of Nigerian researchers used to be tedious and done under stress. Most times, there used to be inadequate information that is required to produce qualitative and timely output. This could result in substandard research output. Additionally, oftentimes research persons failed to meet up with set deadlines. These days, researchers have experienced tremendous improvement in access to vast amount of data and information required to produce competitive research result. There is the need to evaluate the depth of the impact of Internet on research, hence a kind of research like this. The research was carried out with the use of questionnaires administered to some higher institutions in Nigeria and the views of various levels of researchers were analyzed based on a number of factors. From the study, confirmation was made of the positive impact of Internet on research and recommendations were made based on the factors identified to be hindering the maximal utilization of the Internet for research in the Nigerian situation.

**Key words:** University, IT, analysis, education

### INTRODUCTION

The internet can be conceived as a rich, multi-layered, complex, ever-changing textual environment. The internet provides several opportunities for the academia. It is a mechanism for information dissemination and a medium for collaborative interaction between individuals and their computers without regard for geographic limitation of space (Okerson, 1991; Singh, 2002). It is a 'live', constantly 'moving', theoretically borderless, potentially infinite space for the production and circulation of information. This global village is a library of fun, a shopping mall, a compendium of information, a health institute of a kind, research institute, an archive, musical studio or a pornographic shop. The internet contains all these and many more. The vast information on the Internet that covers almost all areas of human

endeavors has made internet the greatest achievement of the century (Alese and Owoyemi, 2004). While printed materials have a certain fixity and finitude, texts published via the Internet have a much more fluid character. With texts no longer housed between library or bookshop walls, it becomes impossible to 'pin down' all or even most of the available materials in given subject areas for archival and classification purposes. The internet might thus be described as a 'sea of information', subject to the ebb and flow of various forces (political, corporate, institutional, etc.), creating an ever-shifting shoreline.

The goal of research is to develop knowledge that is beneficial to the society. Research with human participants can take many forms: testing a new medical treatment, interviewing people about their personal habits, studying how people

think and feel, or observing how they live within groups. Research has increased our understanding of ourselves, our relationships with others, and the natural world. Scientific investigation has been particularly important in extending and enhancing the quality of life. For many people, scientific discoveries have eased the suffering caused by disease or disability (Greenwood, 1993; Evans, 1996; Seiden, 2000).

The internet has a great effect on our communities. It enables us to access and share information with the click of a button. It provides the

academic community with items such as lesson plans, topics of research, and a host of other educational ideas from across the world. Students benefit because the Internet provides a resource to supplemental information for any subject. Educators benefit because the internet provides a vast knowledge base to prepare for topics. The internet is used as a broad base of knowledge that contributes to the educational system. Students and teachers benefit from the use of the internet, as well as administrators and others outside of formal education. People are not only learning from the Internet, they are also contributing and sharing

#### Appendix A: Frequencies

**Table 1a: Internet users**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	94	81.7	98.9	98.9
	No	1	.9	1.1	100.0
	Total	95	82.6	100.0	
MissingSystem		20	17.4		
Total		115	100.0		

**Table 1b: Years of experience in internet use**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than a year	2	1.7	2.1	2.1
	1-3years	24	20.9	25.5	27.7
	4-6 years	36	31.3	38.3	66.0
	Above 6 years	32	27.8	34.0	100.0
	Total	94	81.7	100.0	
Missing System		21	18.3		
Total		115	100.0		

**Table 1c: Frequency of use**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	28	24.3	30.8	30.8
	1-3 times weekly	37	32.2	40.7	71.4
	4-6 times weekly	6	5.2	6.6	78.0
	Weekly	12	10.4	13.2	91.2
	Bi-monthly	8	7.0	8.8	100.0
	Total	91	79.1	100.0	
Missing System		24	20.9		
Total		115	100.0		

knowledge through networked communities. The Internet is the advancement of education for all its users. It has also been used to deliver personalized learning as described by Adewale (2007).

The physical library is a building in which

collections of books, tapes, journals, news papers and so on are kept for people to read study or borrow. Libraries have become crammed with millions of books, serials, monographs, and other printed materials. Prices for academics books have also posed difficulties for libraries, students and staff

#### Appendix B: Cross tabulations and significance tests

**Table 2a: Highest Qualification \* Years of experience in internet using cross tabulation**

		Years of experience in internet use				Total
		Less than a year	1-3years	4-6 years	Above 6 years	
Highest Qualification	SSCE	1	9	8	10	28
	NCE/ND	0	0	4	0	4
	BSc/HND	1	6	16	4	27
	MSc	0	6	6	11	23
	PhD	0	1	2	5	8
	OTHERS	0	1	0	2	3
	6*	0	1	0	0	1
Total		2	24	36	32	94

6\* is Postgraduate Diploma

**Table 2b: Career status \* internet using cross tabulation**

		Internet use						Total
		send and receive e-mail	read and/or listen to news	carry out research	others	including research	not including research	
Career Status	Student	11	4	11	16	7	3	52
	Teacher/Lecturer	2	5	7	1	10	5	30
	Others	0	0	1	0	0	0	1
Total		13	9	19	17	8	83	

**Table 2c: Chi-Square tests**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.415	10	.026
Likelihood Ratio	21.880	10	.016
Linear-by-Linear Association	1.450	1	.229
N of Valid Cases	83		

wanting to expand their scholarly collections. By comparison with popular fiction, newspapers and glossy magazines, academic publications, both serials and books, have very small readerships (Thatcher, 1995). Yet the costs associated with publishing, purchasing and storing them, if they are produced in print form, are exceptionally high. These days most libraries can not afford to keep their collections updated.

This paper therefore presents a report on the in-depth study conducted to evaluate the impact

of internet on research based on some factors discovered to be critical to effective research. It is however worthy of note that these factors (although many of them not taken cognizance of) have had some direct or indirect effect on the use of internet for research. A thorough study like this that evaluates the impact of each of these highlighted factors especially in a developing country like Nigeria has not been discovered. Nigeria and its researchers need more enlightenment on the impact of the internet for effective utilization of its use for research. Moreover, the views of the Nigerian researchers

**Table 2d: Test between the means of performance index score of students and lecturers**

		Levene's		t-test for Equality of Means		
		Sig	t	df	Sig. (2-tailed)	Std. Error Difference
Perforindex	Equal variances assumed	.496	.253	93	.801	3.762
	Equal variances not assumed		.247	70.774	.805	3.853

**Table 3.1a: Career status \* Availability of information cross tabulation**

		Excellent	Availability of Information			Total
			V.good	Good	Average	
CareerStatus	Student	23	25	5	1	54
	Teacher/Lecturer	13	12	3	2	30
	Others	1	0	0	0	1
Total		37	37	8	3	85

**Table 3.1b: Highest Qualification \* Availability of Information Cross tabulation**

		Excellent	Availability of Information				Total
			V.good	Good	Average	Poor	
Highest Qualification	SSCE	15	10	3	1	0	29
	NCE/ND	3	0	1	0	0	4
	BSc/HND	10	15	2	0	0	27
	MSc	9	10	2	2	0	23
	PhD	2	4	1	0	1	8
	OTHERS	2	1	0	0	0	3
	6*	0	1	0	0	0	1
Total		41	41	9	3	1	95

would go a long way to assist in making useful recommendations in order to move the country forward educationally.

### Review of related studies

A number of related researches have been carried out. For instance, Longe and Longe (2005) reviewed the impact of internet on pornography in Nigeria and discovered that the internet has actually been abused by a number of users leading to increasing pornographic content on the web. They

recommended the use of some off-the-shelf web filtering products such as SurfControl, WinGuardian Snapshot, ChiBrow and Policy Central or Cyber Sentinel Network to filter unwanted web contents.

Olu (2003) investigated the problems of agricultural research libraries vis-à-vis their effects on the advancement of agricultural research in Nigeria. He proffered solutions in the form of modern electronic information facilities like electronic networking, e-mail and Internet access. A method

**Table 3.2a: Highest Qualification \* Coverage Cross tabulation**

		Coverage				Total
		Excellent	V.good	Good	Average	
Highest Qualification	SSCE	8	10	8	2	28
	NCE/ND	1	3	0	0	4
	BSc/HND	4	15	8	0	27
	MSc	5	9	7	1	22
	PhD	1	3	2	2	8
	OTHERS	2	1	0	0	3
	6*	1	0	0	0	1
Total		22	41	25	5	93

**Table 3.2b: Career Status \* Coverage Cross tabulation**

		Coverage				Total
		Excellent	V.good	Good	Average	
Career Status	Student	13	22	16	2	53
	Teacher/Lecturer	6	14	7	2	29
	Others	1	0	0	0	1
Total		20	36	23	4	83

**Table 3.3a: Career Status \* Accuracy Cross tabulation**

		Accuracy					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	10	22	17	3	1	53
	Teacher/Lecturer	4	15	7	2	1	29
	Others	1	0	0	0	0	1
Total		15	37	24	5	2	83

of working was suggested in which research institutes and universities in Southwestern Nigeria can each selectively develop a database information system on agricultural research, all of which are coordinated through a local area network. He reported that this will facilitate access to information possessed by other such institutions, reduction of the cost of information acquisition, reduction in the

duplication of research efforts and greater productivity by agricultural research scientists.

Ani and Biao (2003) carried out research on the impact of globalization on scientific research in Nigeria. From their study, for which they collected data using a questionnaire survey which was administered to academics in science-based

**Table 3.3b: Highest Qualification \* Accuracy Cross tabulation**

		Accuracy					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	8	8	10	1	1	28
	NCE/ND	0	3	1	0	0	4
	BSc/HND	3	14	8	2	0	27
	MSc	3	11	5	2	1	22
	PhD	2	2	2	2	0	8
	OTHERS	0	3	0	0	0	3
	6*	0	0	1	0	0	1
Total		16	41	27	7	2	93

**Table 3.4a: Highest Qualification \* Currency Cross tabulation**

		Currency					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	10	9	6	1	2	28
	NCE/ND	0	1	1	1	1	4
	BSc/HND	6	14	4	3	0	27
	MSc	7	9	5	1	0	22
	PhD	2	4	1	1	0	8
	OTHERS	2	1	0	0	0	3
	6*	0	0	0	1	0	1
Total		27	38	17	8	3	93

**Table 3.4b: Career Status \* Currency Cross tabulation**

		Currency					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	13	21	12	5	2	53
	Teacher/Lecturer	8	15	4	2	0	29
	Others	1	0	0	0	0	1
Total		22	36	16	7	2	83

disciplines in four Nigerian universities, it was discovered that ease of scientific communication, an increased access to current scientific books/journals and improvements in the quality of research were the main effects of globalization on scientific research in Nigeria. The findings of the study also show that the major factors considered to impede globalization of science in the country were frequent power cuts, a poor maintenance culture of ICT infrastructures/facilities, and an inadequate knowledge/awareness of the potential and capabilities of ICT by Nigerian

scientists. Relevant recommendations based on these findings were made.

### Research methods

A survey was carried out with randomly selected sample from selected higher institutions in Nigeria with the use of questionnaires delivered by hand to the respondents. The questionnaires covered questions on the effects of internet on research and provided a rating scale for the following factors: availability of information, coverage,

**Table 3.5a: Career Status \* Objectivity Cross tabulation**

		Objectivity					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	10	20	15	6	2	53
	Teacher/Lecturer	6	14	8	2	0	30
	Others	1	0	0	0	0	1
Total		17	34	23	8	2	84

**Table 3.5b: Highest Qualification \* Objectivity Cross tabulation**

		Objectivity					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	8	11	6	2	1	28
	NCE/ND	0	3	1	0	0	4
	BSc/HND	7	9	7	3	1	27
	MSc	3	11	7	2	0	23
	PhD	1	5	1	1	0	8
	OTHERS	0	1	1	0	1	3
	6*	0	0	0	1	0	1
Total		19	40	23	9	3	94

**Table 3.6a: Career Status \* Equipment Cross tabulation**

		Equipment					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	11	12	19	7	3	52
	Teacher/Lecturer	2	13	7	1	5	28
	Others	0	1	0	0	0	1
Total		13	26	26	8	8	81

accuracy, cost, time, effectiveness, quick completion of research and easy access to publications. The respondents comprised of students and lecturers. A good knowledge of statistics was used. The collected data were analyzed using qualitative descriptive techniques.

The responses were analyzed with

statistical tools such as likelihood ratio test, chi-square tests and independent samples t-test.

## RESULTS AND DISCUSSION

The questionnaires were collated and statistical analysis were carried on the responses using descriptive analysis; frequencies, cross

**Table 3.6b: Highest Qualification \* Equipment Cross tabulation**

		Effectiveness					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	10	6	7	4	1	28
	NCE/ND	0	1	2	0	0	3
	BSc/HND	3	9	10	3	2	27
	MSc	0	10	5	1	5	21
	PhD	1	2	4	1	0	8
	OTHERS	0	2	0	0	1	3
	6*	0	1	0	0	0	1
Total		14	31	28	9	9	91

**Table 3.7a: Career Status \* Effectiveness Cross tabulation**

		Effectiveness					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	18	18	15	3	0	54
	Teacher/Lecturer	7	12	8	1	1	29
	Others	1	0	0	0	0	1
Total		26	30	23	4	1	84

**Table 3.7b: Highest Qualification \* Effectiveness Cross tabulation**

		Effectiveness					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	14	5	8	2	0	29
	NCE/ND	2	0	2	0	0	4
	BSc/HND	7	13	6	1	0	27
	MSc	4	11	6	0	1	22
	PhD	1	3	1	3	0	8
	OTHERS	1	2	0	0	0	3
	6*	0	1	0	0	0	1
Total		29	35	23	6	1	94



tabulations as well as tests of relationship between some of the variables under study using chi-square, likelihood ratio and correlation analysis.

Of all the questionnaires distributed, about 90% of the respondents returned their filled questionnaires, hence a fair response quota. 56% of the respondents were female, while about 44% were male. This also represents a fair gender distribution. It is also important to note that 81.7% of the respondents were regular users of the internet while 24.3% of these work on daily basis. The

implication of these is that majority of the respondents have a taste of the Internet. This indicates that the results of the analysis of the returned questionnaires are valid.

Awareness of the usefulness of the internet cuts across all levels of education; secondary to tertiary. Table 2a in gives an indication of this. There is however, a little difference between the students and the lecturers, in the use of internet for research purpose as shown by the chi-square and likelihood ratio tests (Table 2c). The direction

**Table 3.8a: Career Status \* Conduciveness Cross tabulation**

		Conduciveness					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	9	20	16	7	1	53
	Teacher/Lecturer	7	12	6	2	2	29
	Others	1	0	0	0	0	1
Total		17	32	22	9	3	83

**Table 3.8b: Highest Qualification \* Conduciveness Cross tabulation**

		Conduciveness					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	8	12	5	2	1	28
	NCE/ND	1	2	0	1	0	4
	BSc/HND	6	9	9	3	0	27
	MSc	5	6	7	3	1	22
	PhD	0	4	1	2	1	8
	OTHERS	0	2	0	1	0	3
	6*	0	0	1	0	0	1
Total		20	35	23	12	3	93

**Table 3.9a: Career Status \* Cost Cross tabulation**

		Cost				Total	
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	8	8	17	19	2	54
	Teacher/Lecturer	3	7	9	8	0	27
	Others	1	0	0	0	0	1
Total		12	15	26	27	2	82

**Table 3.9b: Career Status \* Cost Cross tabulation**

		Excellent	V.good	Cost Good	Average	Poor	Total
Highest Qualification	SSCE	7	6	6	9	1	29
	NCE/ND	0	0	1	3	0	4
	BSc/HND	3	4	11	8	1	27
	MSc	2	5	8	6	0	21
	PhD	0	0	2	4	1	7
	OTHERS	0	1	2	0	0	3
	6*	0	0	0	1	0	1
Total		12	16	30	31	3	92

**Table 3.10a: Career Status \* Time Cross tabulation**

		Excellent	V.good	Time Good	Average	Poor	Total
Career Status	Student	8	15	17	10	3	53
	Teacher/Lecturer	3	10	8	4	1	26
	Others	1	0	0	0	0	1
Total		12	25	25	14	4	80

**Table 3.10b: Career Status \* Time Cross tabulation**

		Excellent	V.good	Time Good	Average	Poor	Total
Highest Qualification	SSCE	6	10	7	4	1	28
	NCE/ND	0	1	2	1	0	4
	BSc/HND	4	5	12	4	1	26
	MSc	2	8	5	5	1	21
	PhD	0	0	4	2	1	7
	OTHERS	0	1	1	0	1	3
	6*	0	0	0	1	0	1
Total		12	25	31	17	5	90

**Table 3.11a: Career Status \* Quick completion of Research Cross tabulation**

		Quick completion of Research					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	11	15	14	9	3	52
	Teacher/Lecturer	4	12	9	3	1	29
	Others	1	0	0	0	0	1
Total		16	27	23	12	4	82

of this difference can be seen in Table 2b in where it is shown that the percentage of the lecturers using the internet for research/learning (56.7%) is higher than that of the students (34.6%). Below are the other results of the analysis of the respondents' responses to questions.

Frequency of use of the internet and its level of versatility

Tables 1a - 1c give the frequency of use of the Internet and the year(s) of experience of its use by the respondents. From the results, the frequency of use is proportional to the year of usage.

**Table 3.11a: Highest Qualification \* Quick completion of Research Cross tabulation**

		Quick completion of Research					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	10	6	5	4	2	27
	NCE/ND	0	3	0	0	1	4
	BSc/HND	3	10	9	5	0	27
	MSc	3	8	6	4	1	22
	PhD	1	2	4	1	0	8
	OTHERS	0	0	3	0	0	3
	6*	0	1	0	0	0	1
Total		17	30	27	14	4	92

**Table 3.12a: Career Status \* Easy access to Publications Cross tabulation**

		Easy access to Publications					Total
		Excellent	V.good	Good	Average	Poor	
Career Status	Student	16	13	11	11	2	53
	Teacher/Lecturer	4	11	5	8	1	29
	Others	1	0	0	0	0	1
Total		21	24	16	19	3	83

**Table 3.12b: Highest Qualification \* Easy access to Publications Cross tabulation**

		Easy access to Publications					Total
		Excellent	V.good	Good	Average	Poor	
Highest Qualification	SSCE	13	5	4	4	2	28
	NCE/ND	1	3	0	0	0	4
	BSc/HND	5	9	6	7	0	27
	MSc	3	7	4	7	1	22
	PhD	1	1	3	2	1	8
	OTHERS	0	0	2	1	0	3
	6*	0	1	0	0	0	1
Total		23	26	19	21	4	93

### Cross tabulation and frequency test

Give the cross tabulation and frequency test of the year(s) of experience categorized according to qualification possessed. The results revealed that years of usage is one of the major determining factor accounting for how versatile a user would be on surfing internet. Table 2c gives the Chi-square Test analysis for the same period under test.

### Performance index analysis

The performance index analysis was carried out for the period in question. The impact of the Internet on Research was evaluated based on some factors. The frequencies in the performance index showed that availability of information is the strongest point of the internet impact, followed by effectiveness, as shown in Tables 3.1a&b and 3.7a&b. This indicates that the advent and the use of the Internet has tremendous impact in providing information for researchers and in making research more effective.

The impact of Internet on research in terms of doing accurate research, getting current information and coverage of acquired information in required areas is fairly high as can be seen from the results (Tables 3.2a&b, 3.3a&b, 3.4a&b).

From the responses of the respondents, the Internet has not contributed too much as regards easy access to publications, quick completion of research, conduciveness and objectivity (Tables 3.5a&b, 3.8a&b, 3.11a&b, 3.12a&b). The fair impact of these factors could be attributed to the fact that there are some other factors that work together with the use of the Internet when research is done, considering these. For instance, many journal require payment or some login code before their publications can be accessed. In spite of enough materials for research, some human factors can cause delay in research. Moreover, laboratory work can not be carried out on the Internet.

Time, Cost and Equipment are generally viewed as poor in the impact the internet has on Research and Education. This is also reflected in

the comments of the respondents. Internet is obviously very important to research and education, but its usefulness is seriously being limited by time, cost and equipment among other factors (Tables 3.6a&b, 3.9a&b, 3.10a&b).

The cross-tabulations in all the tables indicate that the results described above are relatively the same for all levels of Education and Qualifications.

### CONCLUSION

This research has studied the impact of Internet on research by obtaining the views of researchers from some selected Universities and higher institutions in Nigeria. The study revealed that Internet is widely used for research among intellectuals in the Nigerian higher institutions of learning, although it has found its use for research more among lecturers than students. Based on the analysis of the performance indices, the factors contributing most to research with the use of the Internet are availability of information and efficiency. Other factors contribute relatively fairly while cost, time and equipment are the factors that contribute poorly to research with the use of the Internet. This is as a result of exorbitant cost of access to Internet in browsing centres. The length of time it takes downloading files and getting required materials as a result of low bandwidth is also high in most of our browsing centres. From the results and general comments of the respondents, it can be concluded that the Internet has had a relatively great positive impact on research in Nigeria. However, the following recommendations will solve some of the problems affecting the optimal utilization of the Internet for the purpose of research vis-à-vis: a) The use of Internet should be made compulsory. This will reveal more its benefits and importance to the research world. b) There is the need to remove technical impediments such as low bandwidth and lack of power supply to full internet access (This is not unconnected to the negative response of the respondents on the impact of Internet on research with regards to equipment). c) It is also necessary to reduce cost of internet access.

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