Influence of Web 2.0 Technology Skills on Acadmic Staff Productivity in Universities in North-Central Zone of Nigeria

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Abstract:
This study examined the relationship between the possession of Web 2.0 technology skills and the academic productivity of staff in Nigerian Universities in the North central geopolitical zone of Nigeria. The research method adopted for this study is correlation survey design. The population composed of 2810 academic staff from six universities involved in this study. Fourteen (14) universities in the North-Central Geo-political zone of Nigeria were grouped into strata based on ownership (Federal, state and private). Two universities were then chosen from each stratum. This gave a total of six universities. A proportionate random sampling of 15% based on faculties was used to draw the sample from each of the universities. This gave a total of 421 staff which was used as sample for this study. Questionnaire was used as instrument for data collection The research questions were analysed with the use of Pearson Correlation while the null hypothesis was tested with the use of stepwise t-test. The results from the finding revealed that there is significant relationship between web 2.0 technology skills and staff academic productivity. Recommendations were also made especially in the areas of ICT facilities acquisition and training.
Keywords: Web 2.0, technology, skills universities, academic, staff productivity, Nigeria

Introduction:
Technology has brought about changes in the ways we interact, work and live etc, it has also brought unparalleled opportunities to humanity especially in the areas of information acquisition, processing and utilization in teaching, learning and research. This technology comes in various forms, however the dominate features are its ability to bridge time and space, to minimize cost and efforts, as well as the maximization of quality, efficiency and effectiveness, Madu (2005).

One of these technologies is Web 2.0 technology which is playing critical role in the contemporary information environment where individuals are faced with diverse abundant information choices in personal lives, in work places, and in their academic studies. These changes also affect the way the lecturers and students interact in teaching and learning process.

The uncertainty with the rapidly changing nature of these technologies coupled with the expanding quantity of information pose large challenge for the users in particular and the society in general. The mere presence of these technologies will not in itself create skilled users without complementary clusters of abilities necessary to use them effectively.

According to webopaedia (2016) webs 2.0 is the term given to describe a second generation of the world wide web (www) that is focused on the ability for people to collaborate and share information on line. Essentially web 2.0 is about revolutionary new ways of creating, collaborating, editing and showing user generated content online.

According to Maness (2006), the use of web 2.0 technologies and its application to library services will no doubt constitute a meaningful and substantive change in the. history of the academics. This change will make exchange of information[1] more interactive and fully accessible to users.

The history of web 2.0 as we know it today was popularized by Tim O'Reilly and Dale Doughrty at the O'Reilly media web 2.0 conference. However, this term web 2.0 was first mentioned in 1999 by Darcy Di. Nucci. Since then this term has attracted attention in the areas of information use and exchange. It has basically changed the face of the ways information users interact. This magical technologies allow users to create, search, interact, collaborate and allow for communication of contents ranging from music, bookmaking, social networking e.t.c.

With these benefits that accrue from the use of web 2.0 especially in information services provision in

libraries and information centres, it is necessary to determine the skills necessary for their use especially in effective teaching and research and how it correlates with academics productivity. The competencies or skills needed for the use of Web 2.0 technologies have been explained in details by the University of Tennessee (2016) which include:

Basic Knowledge of Computers
- Understand basic computer hardware components and terminology
- Understand the concepts and basic functions of a common computer operating system
- Start up, log on, and shut down a computer system properly
- Use a mouse pointing device and keyboard

Proficiency in Using Productivity Software
- Create documents of various types and save in a desired location.
- Retrieve an existing document from the saved location
- Print a document
- Name, rename, copy and delete files
- Understand and know how to use the following types of software programmes:
- Word processing (example: MS Word, Google Doc, Writer) - Presentation (example: PowerPoint, Impress)
- Spreadsheet (example: Excel, Cale)
- PDF reader (example: Acrobat Reader, Preview)

Electronic Communication Skills
- E-mail, using a common e-mail program (example: MS Outlook, Apple Mail)
- Compose, Send, Reply, Forward messages
- Add attachments to a message
- Retrieve attachment from an e-mail message.
- Copy, paste and print message content
- Organize email folder

Internet Skills
- Set up an internet connection and connect to the internet
- Have a working knowledge of the World Wide Web and its functions, including basic site navigation, searching, installing and upgrading a web browser.
- Use search engines and directories to find information on the web
- Download Files and images from a web page

Moving Files
- Understand the purpose of Secure File Transfer Protocol (SFTP) and Secure Copy Protocol (SCP)
- Log in and connect to a distant server using Secure Shell client (SSII)
- Transfer files by uploading or downloading
- View and change folder/ document security settings
- Copy files from hard disk to storage devices and vice versa

The above competencies/ skills have been summarized by the Open University of England (2016) as the ability to start up and shut down a computer, use mouse and keyboard to move around a computer screen, use the internet to find and navigate around websites and use e-mail to read and send messages.

This study is predicated on a theoretical framework called Technology Acceptance Model (TAM). According to David (1999) this is an information system theory that describes   how users come to accept or reject the use of a technology. The theory argues that users have a choice in the acceptance or rejection of technology depending on how the technology is influenced by two critical factors. The first factor is perceived usefulness (PU) of the technology, this is the degree to which the user believes that using an online database or a technology would enhance his or her academic task or the belief that web application would provide them with access to useful information as well as social interaction.

The second factor that influences users decision to use a technology is what David (2006) called perceived ease of use. The second factor is seen by users as the degree to which the use of technology cannot be cumbersome but with minimal effort. Technologies that require the acquisition of complicated skills may not easily attract users. The author concluded that both factors, perceived usefulness and perceived ease of use, effect peoples' decision to use new technologies therefore contribute to either acceptance or rejection.

In the present study, this theory was used to explain both the usefulness with respect to the skills possessed

by the academics in Nigerian universities and their productivity.

The National Universities Commission has set standards based on some criteria for works published in Nigeria. In all, visibility and impact on the international scholarly scene are very important. These are lacking in Nigerian academics. For instance in the latest University Web ranking, out of the first 100 universities in Africa, only two Nigerian universities were mentioned despite the fact that Nigeria has the highest number of universities in Africa. Omolewa (2008) lamented that many of the professors in Africa are only local professors who are hardly known outside their institutions and are not recognized for the quality of their knowledge or scholarship.

To be acknowledged as an international scholar, an academic must publish internationally. For this to be possible, the academic must have access to wide range of information resources, must be current and know what is going on in his field. Hence the relevance of Web 2.0 technology to academic productivity cannot, be overemphasized. In view of the above therefore, this research sought to find out the relationship between Web 2.0 technology skills and academic productivity in Nigeria Universities.

LITERATURE REVIEW

Conceptually, Manes (2006) defined web 2.0 as the application of interactive, collaborative and multi-media web based technologies to web-based library services and information resources, P4. In his definition of Web 2.0, O'Reilly cited in Tiemo and Edewor (201 1) argued that Web 2.0 is the network as platform, spanning all connected devices. Web 2.0 applications are those that make the most of the intrinsic advantages of that platform. These definitions have been variously used in most of the empirical studies.

In a study by Akporhonor and Endouware (2006), titled challenges of using web 2.0 tools among university Librarians in Niger Delta region of Nigeria. The study used total enumeration and questionnaire' for the collection of data. The research questions were answered using descriptive statistics. The findings revealed that inadequate time, number of library policy and its use were the major challenges facing librarians in the use of web 2.0 tools. Tripathic and Kumar (2010) studied "use of web 2.0 tools by libraries . a reconnaissance of the international landscape[1]'. This study revealed an increase in the use of web 2.0 in the libraries, with the use of tools such as blog, RSS ranking highest while others like wikis e.t.c are coming up.

In another study by Obasola and Mamudu (2015) titled [u] Adoption of Web 2.0 by academic libraries in Nigeria, the authors attempted to ascertain the extent to which academic libraries in Nigeria have adopted web 2.0 for library services. The libraries were categorized into three groups and the adoption of web 2.0 was tested across the groups using analysis of variance. The findings revealed that the adoption of web 2.0 for library services was at its infant stage. Only a few of the libraries have a proper structure for the co-ordination and integration of the tools used in the delivery of information services.

Other studies included those of Raman and Shafique (2011) who argued that the most important problem in the use of web 2.0 is the absence of people learning and training environment and the implementation of the tools in libraries while Hosseini and Hashempour (2012) in their study argued that lack of' knowledge, lack of familiarity with the service, lack of institutional support, lack of appreciation of the values of the tools e.t.c are some of the problems militating against the use of web 2.0 tools.

The summary of these empirical studies brings to the fore the fact that the use of web 2.0 in the world and in Nigeria in particular is still at its infant stage.

Objectives of the studies

The broad objective of the study is the relationship between possession of Web 2.0 technology skills and the academic productivity of staff in Nigerian Universities in North Central Political zone. Specifically the study will:.

1.   Determine the relationship between the possession of basic knowledge of computer and productivity of academic staff in the universities understudy.
2.   Ascertain the relationship between proficiency in using productivity software and academic productivity of staff in the universities understudy.
3.   Determine the relationship between the possession of communication skills and academic productivity of staff in the universities understudy.
4.   Ascertain the relationship between the possession of internet skills and academic productivity of staff in the universities understudy.
5.   Determine the relationship between the ability to move files and academic productivity of staff in the universities understudy.

RESEACH QUESTIONS

The following research questions guided this study

1.   What is the relationship between basic knowledge of computer and academic productivity of staff in the

universities understudy.

2.   What is the relationship between proficiency in the use of productivity software and academic productivity of staff in the universities understudy

3.   What is the relationship between the possession of electronic communication skills and academic productivity of staff in the universities understudy.

4.   What is the relationship between the possession of internet skills and academic productivity of staff in the universities understudy

5.   What is the relationship between the possession of the ability to move files and academic productivity of staff in the universities understudy.

Hypothesis

The only null hypothesis in this study was tested at 0.05 level of significance.

1.   There is no signicant relationship between the possession of Web 2.0 technology skills and the productivity of academic staff.

Methodology

1.   The research method adopted for this study is correlation survey design. This is used to establish the extent of relationship between valuables. The population composed of 2810 academic staff from six universities involved in this study. Fourteen (14) universities in North-Central Geo-Political of Nigeria were grouped into strata based on ownership (Federal, state and private). Two universities were then chosen from each stratum, this gave a total of six universities.

A proportional random sampling of 15% based on faculties was used to draw the sample for each of the six universities.

This gave a total of 421 staff which was used as a sample for this study. Franken and Wallen (1993) have argued that between 10-15% is appropriate for a research of nature.

Alreck and Settle (1995) have postulated that the use of stratification dramatically increase the reliability and the confidence obtain from survey data. Questionnaire was used as instrument for data collection. The instrument elicited what constitute web 2.0 technology skills and academic productively skills. These were then score cumulatively over 100%. The respondent were then grouped based on their performance of very high (VH), high (h), low (1), and very low (VL), A score of below 40% is very low, 41-60% is low 61-80 is high while 81 and above is very high. The research questions were analysed with the use of Pearson Correlation. The choice of Pearson Correlation was because of its ability to establish the extent of relationship between two or more variables.

The Null hypothesis was tested with the use of stepwise t-test to determine the significance of the relationship between Web 2.0 technology skills and the productivity of academic staff.

Table 1

LIST OF UNIVERSITIES IN NORTH CENRAL GEO-POLITICAL ZONES OF NIGERIA

S/N	NAME	STATUS
1.	Al-Hikmah University Ilorin	Private
2.	Benue State University, Makurdi	State
3.	Bingham University, New Karu, Nassarawa	Private
4.	Federal University of Agriculture Markurdi	Federal
5.	Federal University Laffia Nassarawa State	Federal
6.	Federal University Lokoja, Kogi State	Federal
7.	Federal University Technology, Minna	Federal
8.	IBB University, Lapai	State
9.	Kwara State University	State
10.	Kogi State University Ayangba	State
11.	Nassarawa State University, Keffi	State
12.	Salem University, Lokoja	Private
13.	University of Ilorin Ilorin	Federal
14.	University of Jos, Jos	Federal

Source: Academic planning units of various universities (2014)

Table 2
Distribution of sample

University	Total	Sample (15%)
PRIVATE		
Al-Hikman University Ilorin	220	33
Salem University Lokoja	135	20
STATE		
Benue State University, Makurdi	325	49
Nassarawa State University, Keffi	430	64
FEDERAL		
Federal University of Technology Minna	780	117
University of Jos	- 920	138
	2810	**421**

Source: Academic planning units of various universities (2014)

A total of 421 questionnaire were distributed and 277 copies representing a response rate of 65.7 percent was retrieved and used for the analysis. This response rate of 65.7 percent is considered adequate for this research because of the wide spread of respondents.

Research Question one

What is the relationship between the possession of basic knowledge of computer and productivity of the academic staff?

Table 3 Correlation coefficient ® for the relationship between the possession of basic knowledge of computer and academic productivity of staff universities understudy.

		Productivity	knowledge of computer
Productivity	Pearson correlation	1	710
	Sig. (2 tailed)		289
	N	227	227
Basic knowledge computer	Pearson Correlation	.710	1
	Sig. (2tailed)	.289	
	N	227	227

Table 3 shows the correlation coefficient (r) for relationship between the possession of basic knowledge of computer and academic productivity of academic staff in the universities understudy. Result revealed that the coefficient is 0.710 the relationship is positive and very strong. What this really means is that the possession of basic knowledge in computer such basic function of computer operating sptem, start up, log on and shut down a computer system properly, use mouse and key board etc would enhance the productivity of the academics. This result is correlated by a study by university of Tennessee 2016 which explained in details the skills needed for the use of Web 2.0 technologies and it positive effect on academic productivity.

Research question two

To what extent is proficiency in using productivity software and productivity of the academic staff related?

Table 4 Correlation coefficient (r) for the relationship between Proficiency in using productivity software and academic productivity of academic staff in Nigeria universities understudy.

		Productivity	Productivity software
Productivity	Pearson correlation	1	691
	Sig. (2 tailed)		.004
	N	227	227
Productivity Software	Pearson Correlation	.710	1
	Sig. (2tailed)	.289	
	N	227	227

Table 4   shows the correlation coefficient ® relationship between proficiency in using productivity software and academic productivity of academic staff in Nigeria universities. Result revealed that the coefficient is 0.691: the relationship is positive and strong. What this result means is that the ability to create documents and save in various files or locations print document, name, rename, copy, delete file, word process etc can enhance academic productivity.

Research Question Three

What is the relationship between the passion of electronic communication skills and productivity of the academic staff.

Table 5   Correlation coefficient (r) for the relationship between the possession of electronic communication skills and academic productivity of academic staff in Nigeria universities understudy.

		P Productivity	Communication skills
Productivity	Pearson correlation	1	.612
	Sig. (2 tailed)		.489
	N	227	227
Communication Skills	Pearson Correlation	.612	1
	Sig, (2 .tailed)		.489
	N	227	227

Table 5 shows the correlation coefficient (r) for relationship between the possession of electronic communication skills and academic productivity of academic staff in Nigeria universities understudy. Result revealed that the coefficient is 0.612: the relationship is positive and strong.

Research Question Four

To what extent is the Possession of internet skills and academic staff productivity related?

Table 6   Correlation coefficient (r) for the relationship between the possession of internet skills and academic productivity of academic staff in Nigeria universities understudy.

		Productivity	Possession of internet skills
Productivity	Pearson correlation	1	.518
	Sig. (2 tailed)		.106
	N	227	227
Internet Skills	Pearson Correlation	.518	1
	Sig, (2 tailed)	.106	
	N	227	227

Table 6 shows the correlation coefficient (r) for relationship between the possessing of internet skill and academic productivity of academic staff in Nigeria universities. Result revealed that the coefficient is 0.518; the relationship is positive and fairly strong. What this means is that the academics need information for research and for this to be achieved, the need the ability to set up an internet connection and connect to the internet etc.

Research Question five

What is the relationship between the understanding of how to move file skills and productivity of the academic staff?

Table 7   Correlation coefficient (r) for the understanding of how to move files refers and academic productivity of academic staff in Nigeria universities understudy.

		Productivity	Move files
Productivity			
	Pearson correlation	1	.526
	Sig. (2 tailed)		.585
	N	227	227
Move files	Pearson Correlation	.526	1
	Sig, (2 tailed)	.585	
	N	227	227

Table 7 shows the correlation coefficient (r) for relationship between the understanding of how to move filed and academic productively of academic staff in Nigeria universities understudy. Result revealed that the coefficient is 0.526: the relationship is positive and fairly strong. These competencies include being able to transfer files by uploading or downloading, copy file from hard disk to storage devices and vice versa etc and they enhance academic productivity.

Hypothesis 1

There is no significant relationship between Web 2.0 technology competencies/skills and the productivity of academic staff.

Table 8   Step wise t-test for the significant of Correlation coefficient

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig
Productivity	.810	.048	.750	17.08	.000

Table 8   shows that the t-value for the test of significant relationship between Web. 2.0 technology competencies and the productivity of academic staff is 17.028: this t-value is significant at 0.000. however, the t-value is also significant at 0.05, this is because, 0.000 is less that 0.05 (0.000<p>0.05). therefore, the hypothesis is not accepted: hence, there is significant relationship between Web 2.0 technology skills and the productivity of academic staff.

The above hypothesis was tested with the use of stepwise t-test analysis at 0.05 level of significance. It was discovered that a significant relationship exist between Web. 2.0 technology skills and productivity of academic staff. With t-value at 17.028 the test indicated that the variables have a relationship. Therefore, the hypothesis is rejected. The more web 2.0 technology skills an academic staff possesses, the more productive he is most like to be.

Conclusion

This study was undertaken to find out the extent to which possession of Web. 2.0 technology skills correlate with academic productivity among academic staff in Nigerian Universities in the North Central geo-political zone. To carry out this study, five research questions which border on the construct of Web 2.0 technology skills and academic productivity guided the study. Also one null hypothesis was formulated.

Data for this study were collected with the use of questionnaire which elicited information on what constituted Web 2.0 technology skills and academic productivity. The data collected were analysed with the use of Pearson Correlation for the research questions. The null hypothesis was tested with the use of stepwise t-test to determine the significance of the relationship between Web 2.0 technology skills and the productivity of academic staff.

The results from the finds revealed that there is a significant relationship between Web. 2.0 technology skills and staff academic productivity. With t-value at 17.028, the test indicated that the variables have a positive and strong relationship. Therefore the hypothesis is rejected. The possession of Web 2.0 technology skills, enhances academic productivity.

Recommendations

Based on the findings of this study, the following recommendations have been made.

1. It is recommended that the governments in the North Central geo-political zone should show more political will by increasing the financial resources available to the universities in the areas of ICT facilities acquisition.

2. The university authorities should ensure that the Web 2.0 technology skills course are integrated into the school curriculum.

3. It is also recommended that staff should take advantage of the enabling environment to enhance their level of Web 2.0 technologies skills which will have positive effect on their research output.

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