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# Impact of web-based information literacy on research productivity among academics in Nigerian federal Universities

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**Abstract**
These days of web-information literacy, universities in Nigeria lay emphasis on research productivity of academics. This paper is a descriptive survey which verified the extent to which web-based information literacy has enhanced the research productivity of the academics. The study was carried out in four Nigerian universities (two federal and two state universities). Three research questions and three hypotheses guided the study. The sample size was 480 academic staff drawn from the population of 2885. The instrument for data collection was a 24-item questionnaire structured by the researcher. The instrument was face and content validated and its reliability was computed to be 0.82. The data collected were analyzed using mean and standard deviation to answer the research questions and t-test statistics in testing the null hypotheses at 0.05 alpha level. The findings indicated that; WBIL has enabled research productivity of academics in both federal and state universities, lack of funds and dearth of technological equipment were among the administrative constraints while lack of web-based competence and academic overload were among the individual factors that hinder WBIL of academics. Provision of research grants and technological equipment were among the strategies for improvement in the usage of WBIL. Based on the findings, the recommendation among others, was that the university authorities are to provide free access to the internet connectivities to the academic staff for enhancement of research productivity of both federal and state universities in Nigeria.

**Keywords:** productivity, WBIL, hypotheses, UNESCO, academic

## 1. Introduction

The explosion of digital literacy in the global economy has impacted greatly on information and multi-media technology which influences basic competence in the use of digital technology all over the world. Children nowadays who are born in this computer age, who are called digital natives speak the language of computer. Tapscott (2009) [32] affirmed that these children are so accustomed to digital technology that they think that the digital technology is their natural landscape. This has resulted in unexpected growth of information resources that litter all nooks and cranny of our environment. In effect, one would rightly agree with Madu (2005) [17] who concluded that technology has brought about changes in the ways people interact with each other, work and live. It has equally created avenue for humanity to acquire the needed information in processing and utilizing it in teaching, learning and research. Moreso, information could come to an individual in an unfiltered form and it becomes necessary that the receiver should be able to find, evaluate and use the information appropriately. Therefore, it calls for information literacy among the citizenry.

Nevertheless, academics in Nigerian Federal Universities should endeavour to acquire information literacy as the primary objective in achieving an effective research productivity. Information literacy is a set of abilities that enable individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information literacy forms the basis for lifelong learning (Etim and Nissien, 2007) [8]. The digital natives have formed the habit of locating, evaluating and using effectively the needed information through their computers and other related gadgets. Etim and Nssien (2007) [8] agreed that information literacy which is web-based enables learners to master content in all disciplines because it is common to all learning environments. Therefore an information literate academics who are digital immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language (Prensky, 2001) [28]. Olele (2014) [23] in UNESCO (2011) called the new language social skills and collective intelligence. They are web-based information skills which include Blog, Wiki, Podcast, YouTube, Myspace, LinkedIn, Ning, Rich Site Summary (RSS), E-portfolios and Real-time audio and shared screen tools. These web-based information technologies are tools the academics should be very conversant with in order to bridge the gap between the digital natives who receive lectures and the digital immigrants who lecture them. The digital immigrants are those who were born before the web-based information came into existence. They could be called information literate academics. Information Literacy Guide (2008) [12] opined that the literate academics know how to learn because they know how knowledge is organized, how to find information and how to use information in an appropriate manner. Therefore, WBIL are set of mechanisms which focus on the approaches of constructivist theory of learning enhancing collaboration and emphasing the use of knowledge, abilities and all the resources that could be offered by World Wide Web.

Based on the above, web-based information literate academics should be able to do the following to maximize professional efficiency in teaching and learning as in (Madu and Dike, 2012) [18]:

1. Find out the needed information.
2. To access the information in effective and efficient

manner
3. Make critical evaluation of the information source
4. Select the vital information into the knowledge domain
5. Apply the information to solve a specific problem
6. Be aware of the ethical, legal and social consequences involved in the use of the information

These days of web-information literacy, universities lay emphasis on research productivity of academics. Even promotion is based on scholarly competence and productive output. However, academics of universities are now getting more involved in research in various fields to discover new knowledge to help humanity. The Academic Analytics (2008) outlined the index of academic productivity thus:

a. The number of books written
b. The journal publications made
c. The number of grants won
d. The number of publications cited
e. The number of awards won

What then is research? OECD (2002) [20] defined research as a creative work undertaken on a systematic basis to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this knowledge to devise new applications. Contributing to the meaning of research, Kpolovie (2016) cited in Kpolovie and Onoshagbegbe (2017) [14] opined that research is the logical, systematic and objective collection, analysis, synthesis, evaluation and recording of accurate and controlled observations to aid informed generalizations, establishment of principles that will help in describing, explaining, predicting and controlling of natural occurrences to meet the needs of people.

In other words, research or academic productivity could only be measured by various outputs of the academics. This could be in respect of publications, citations or referencing by other writers who want to make some inputs in already existing knowledge in the field of research (Kpolovie, 2017) [14]. Therefore, the impact of web-based information literacy on research productivity among academics in the universities is to provide solutions to man's needs in order to improve the quality of life through the applications of research findings. It means that Academic Staff of Nigeria universities should use their acquired knowledge and expertise in dispersing knowledge applications to solving human challenges.

As knowledge and expertise increase in universities, the individuals who provide the knowledge, expertise and experience equally grow. They receive promotions on their scholarly achievements in various areas of human endeavour like medicine, engineering, arts, education and sciences. They develop spirit of collaboration in task oriented cases and time management. Even, research funding could be attracted to find solutions to deadly diseases like AIDS, Ebola and other related diseases that pose threat to human lives. They could investigate the prior research records as their base for investigations using research assistants and postgraduate supervisions. Research skills and training should be given to different individuals with corresponding incentives that would stimulate them to marginal productivity in their various production outputs. By so doing, the individuals should develop confidence in themselves as they make research plans to achieve responsible research for the benefits of mankind.

On the other hand, institutional factors affect research productivities in universities. Renowned universities in different scientific research productions work tirelessly to produce or discover new equipment, scientific or otherwise to solve man's problems. By so doing, they acquire institutional prestige. They device effective workload policies and practice which when backed with financial motivations and rewards make them highly productive in their research outputs. At the same time, institutions with good leadership qualities and coordination would be in a good position to effect research mentorship through the creation of research centres and doctoral schools for effective manpower supply to the labour market. In view of the above, the institutions should create research culture that would be supported by external financial inputs. The management should provide practical support and research resources for operational efficiency and marginal productivity of the outputs. The institutions should intensify commitment to enhancing total quality management of their outputs. Mapping out sufficient time, the universities should come up with institutional entrepreneurship to offset some financial challenges in their research operations.

Be it as it may, the relevance of research in Nigerian universities is a function of teaching and learning. Most of the academics that lecture the digital natives are digital immigrants who are struggling to learn the new technologies to enable them enhance teaching and learning while teaching the digital natives who speak computer language. It is the academics' ability and dedication that have helped them to teach the digital natives with the Web-Based Information Literacy (WBIL). These web-based facilities which the academics use in teaching include Blog, Wiki, Podcast, YouTube, Myspace, LnkedIn, Ning, Rich Site Summary (RSS), E-portfolios and Real-time audio and share screen tools (Olele, 2014) [23]. The professional academics employ various facts to enable them teach the students effectively. They use web-based facilities which focus on user-generated contents. They use students' engagement tactics where students engage themselves in task oriented activities while the lecturer acts as the moderator and supervisor. Finally, the students are given the opportunity to take ownership and management of their learning. By so doing, the students maximize their learning potentials.

However, there are challenges posed in using WBIL for responsible research productivity. They include:

- Some immigrant academics cannot access WBIL for effective research and teaching.
- Most social network sites could only be viewed with permission (Parkay and Standford, 2010) [27].
- Some young digital natives lack basic skills in evaluating online content and information
- Inadequate technological facilities and usage militate against effective teaching and learning in the universities.
- High maintenance cost of web-based facilities together with time lag in acquiring spare parts for their services pose challenges to academics' effectiveness.
- Digital immigrant academics, who speak an outdated language of chalk and talk/lecture method system, are in the business of teaching a population that speaks an entirely new language that makes it difficult for these digital natives to follow (Prensky, 2001) [28].
- The digital immigrant academics at times do not cope with the speed with which his students operate; they have little patience for lectures, are very instant to hypertext, downloaded music with phones in their pockets, a library

in their laptops together with beamed messages and instant messaging.

These challenges stand out as great impediment for academics to maximize effective teaching and learning functions in the universities. To ameliorate the situation in the effective production of knowledge in the universities, the academics should change their teaching methodology. They have to learn to communicate in the language and style of their students. By so doing the gap that separates the digital natives and the immigrants would be bridged and this would lead to effective research productivity among academics in Nigerian universities.

**Theoretical Support**

Drucker (2001), argued that the most valuable asset of the 21st century institution could be viewed as its knowledge workers and productivity. The institution exists on the principle of improving the worth of its members through activities like solving the problems and improving the economy and well-being of the stakeholders. The academics are knowledge workers who produce quality and quantity of knowledge in time and cost. They have the autonomy as they discharge responsibility. They come up with different innovation into the knowledge workers job. consequently they expand teaching and learning in the universities as they are the custodians of knowledge (Sapru, 2013) [29]. Kpolovie and Onoshagbegbe (2017) [14] in Drucker (2001) affirmed that survival of an institution would depend on their comparative advantage in making the knowledge worker more productive. The knowledge worker (academics) as a factor of production should be mobile. Therefore, for an institution to stop the mobility of academics, (the knowledge worker), the institution must provide incentives and motivation that can attract the knowledge worker to remain with the institution. This is how academic staff in Nigerian universities could be integrated into the knowledge worker productivity theory.

But sad enough, in Nigeria, it is difficult for the nation to advance academically. The owners of universities see and treat academics as costs instead of assets. They deny them adequate pay and benefits which more often than not result in strikes and academic unrests that affect the students adversely.

Another theory of productivity is that of (Gilkey, 2008) [10]. This theory concentrates on the development of an individual researchers into high producer of knowledge. For an individual to become a high producer of knowledge, he or she must possess creative energy, have focus, motivation and aptitude. Gilkey attributes these qualities as ingredients for effective productivity of outputs. In other words, the greater the quality of these attributes in academics in Nigerian universities, the greater the quality of research output. But proper planning must be involved for maximum or optimum output productivity.

**Empirical Review**

Web-based facilities have been incorporated for teaching and learning in universities by academics as a means of expanding knowledge to the students. These technological facilities help to create mutual collaboration among academics and students of an institution. The WBIL integration into the educational system of Nigeria seem not to be very effective because of the gap that exist between the digital natives (students) and the digital immigrants (academic staff). Olele (20014) [23] stressed that in Nigeria, little has been published on the use of web-based facilities in teaching and learning and for continuing professional development in Higher Education Institutes (HEIs). She conducted a research on three higher institutions in Port Harcourt metropolis on the use of web-based facilities in teaching and learning. Her research instrument was questionnaire administered to 450 students and 150 teacher educators.

The findings revealed that student-teacher and teacher educators operate few network accounts and that the student-teachers do not make use of social networks for academic work while teacher-educators do. At the same time it was discovered that male and female teachers use social networks to collaborate with one another and other professionals. Again, the student-teachers do not use web-based materials for academic purposes but teacher-educators do. The findings called for urgent intervention to make web-based facilities a sine qua non in Nigeria universities for maximum productivity.

Another research was conducted by Omotunde and Ajie (2017) [25] on Information Communication Technology Training Needs of Academic Staff in University of Ekiti State, Nigeria. In this research, a descriptive research design was used for the study. The population of the study was 45 lecturers in the Faculty of Social Sciences in Afe Babalola University. They applied random sampling technique in selecting two departments from each faculty of the institution. The sample size was made up of 37 lecturers. The questionnaire used for the survey was administered for data collection. They used the descriptive statistical tools to analyse the data.

It was discovered that majority of the respondents have very little computer skills. They cannot assess information to work on technical computer programmes. The worst was that they were not trained in ICT but they acquired the little skills independently.

The research revealed that more subsequent training on the use of electronic information devices and resources must be expanded to reach lecturers in Nigerian universities. This will go a long way in training academics in web-based information literacy and productivity.

Madu, Idoko, Dirisu and Emerole (2017) [19] made a study on the relationship between the possession of web 2.0 technology skills and academic productivity of staff in Nigerian universities in the North central political zone of Nigeria. The research method used was the correlation survey design with 421 staff as sample for the study. The instrument for data collection was the questionnaire and Pearson Correlation was used for analysis of the research questions. The null hypothesis was tested using stepwise t-test to determine the significance of the relationship between web 2.0 technology skills and the productivity of academics.

The result from the finding made showed that there is a pronounced relationship between web 2.0 technology skills and academic staff productivity. The t-value calculate at 17.028 indicated that the variables have a positive and strong relationship showing that the acquisition of web 2.0 technology skills induces academic productivity.

With relation to the findings made they recommended the following:

- The North central governments of the geo-political zones should increase the financing of the universities to enable them acquire ICT facilities.
- The university authorities should ensure the effective

integration of web 2.0 into the school curriculum.
- The academics should capitalize on the opportunity within the enabling environment to acquire web 2.0 technologies for efficient research output and personal advancement.

However, in furtherance to the investigation on the impact of web-based information literacy on research productivity among academics of universities in Nigeria, Bassey, Akuegwu, Udida and Udey (2007) [6] carried a research on Academic staff research productivity in universities in south-south zone of Nigeria. Their research methodology was ex-post factor design. The population of the study was 3,120 academics with a sample size of 480, 280 males and 200 females selected from 11 universities. They constructed their instrument called "Academic Staff Research Productivity Inventory" (A.S.R.P. I) for data collection using a 30 – item, 4 point likert type questionnaire. Their reliability value measurement ranged from 0.71 to 0.88 which indicated a good measure of reliability. The instrument were administered and data collected were statistically measured with independent t-test and contingency chi-square analyses at 0.05 significant level.

The mean ( $\bar{x}$ ) research productivity showed that males ( $\bar{x}$ = 16.37) performed better than females ( $\bar{x}$ =14.23). The result showed that male academics exhibit more productive output than their female counterparts in journal publications. This points out that male counterparts could spend longer hours in research activities than females as a function of variable factors. Their findings were in line with Ogunyemi (1997, Onokala and Onah (1998) [21, 26] who discovered that male academics are more effective in handling science subjects like mathematics than the females because they are high task oriented as in research activities. This could be attributed to their family roles as mothers in the family setting which reduce their research propensity.

Besides, the conclusion drawn was that male and female academics vary in the degree of their research output. Male academics were seen to be very much involved in research output than the female academics. Their performance and dedication to research productivity have been rated higher than the females. They recommended the following:

a. Equal opportunity should be given to male and female academics to do research work in the universities.
b. Gender and marital status and area of specialization should not be a barrier to research involvement in the universities.
c. Funding the universities for research must be intensified by the government
d. Condusive operational environment should be provided to enhance research actualization of academics.

**Statement of Problem**

Information literacy is expanded in geometric multiplicity all over the globe. The digital natives who are versatile in digital technology seem to have advanced greatly in web-based information more than their lecturers, the digital immigrants who are migrating to digital technology to learn the new computer language in order to teach them. There seems to exist a gap in actualizing an effective research productivity and web-based information literacy among academics in Nigeria universities to handle the challenge. The problem of this study pose as a question is; do the academics in Nigerian universities have the wherewithal in WBIL for research productivity which will subsequently impact on their research output, individual growth, university growth and instructional delivery? Providing answers to the aforementioned question is the crux of this paper.

**Aim and objectives of the study**

In general terms, the study is to ascertain the level to which web-based information literacy (WBIL) has enabled the research productivity of the academic staff of the Nigerian universities. In specific terms, the study intends to:

1. Determine the level to which WBIL has enhanced research productivity of the academic staff in Nigerian universities.
2. Identify the challenges inhibiting the use of WBIL for improved research productivity of the academic staff in Nigeria universities
3. Determine the strategies for improved research productivity based on WBIL of academic staff.

**Research Questions**

Three research questions have guided this study as shown below:

1. To what level does WBIL enhance the research productivity of academic staff in Nigerian universities?
2. What are the challenges inhibiting the use of WBIL for improved research productivity?
3. What are the strategies for improved research productivity based on WBIL of academic staff?

**Research Hypotheses**

1. There is no significance difference in the mean ratings of senior and junior lecturers on the level to which WBIL has enhanced their research productivity.
2. The mean ratings of senior and junior academic staff on the challenges inhibiting the use of WBIL for improved research productivity will not differ significantly.
3. The mean ratings of senior and junior academic staff on the strategies for improved research productivity will not differ significantly.

**Methodology**

The study was conducted in four Nigerian universities (two federal and two states) in the south-south geo-political zones of Nigeria. The federal universities are; University of Port Harcourt (Uniport) and University of Calabar (Unical). On the other hand, the state universities involved are Delta State University (DELSU) and Niger Delta University (NDU), Yenagoa, Bayelsa State.

The target population comprised all the senior and junior lecturers in the four universities identified for the study numbering one thousand, one hundred and seventy-six (1176) senior lecturers in the two federal universities. From the two state universities, the population is; one thousand, two hundred and eight lecturers. It was worth mentioning here that the academic staff in senior cadre are made of professors, associate professors and those in senior lecturer level. Those in the junior academic cadre are those in lecturers I and IIs numbering one thousand, two hundred and eight (1,208) academic staff. Therefore, the population of this study is two thousand, three hundred and eight-four (2384) academic staff.

**Table 1:** Target Population Distribution of Senior and Junior Academic Staff Cadre in Nigeria Universities

| S/N | Name of Federal Universities | Senior Academic Staff | Junior Academic Staff | Total no. of staff |
|---|---|---|---|---|
| 1. | Uniport | 555 | 845 | 1400 |
| 2. | Unical | 621 | 363 | 984 |
| | Total | 1,176 | 1,208 | 2,384 |

**Table 2:** Sum total from both federal and state universities are 2885 academic staff.

| S/N | Name of State Universities | Senior Academic Staff | Junior Academic Staff | Total no. of staff |
|---|---|---|---|---|
| 1. | Delsu | 124 | 152 | 276 |
| 2. | Ndu | 124 | 101 | 225 |
| | Total | 248 | 253 | 501 |

***Source*:** National Universities Commission (NUC) on September, 2016 cited in Kpolovie and Onoshagbegbe (2017) [14].

**Sample and Sampling Technique**

The sampling technique for this study was simple random sampling technique based on academic staff ranks and individual consent. These techniques were used to draw the sample of 240 (120 senior and 120 junior) academic staff from the two federal universities. From the state universities, the two aforementioned techniques were used to draw the sample of 240 (120 senior and 120 junior) academic staff from the two staff universities. Therefore, the sample size for this study from both the federal and state universities is 480 (240 senior and 240 junior) academic staff.

The four universities were selected based on ownership (federal and state).

**Sample distribution of academic staff in Nigeria federal and state universities**

**Table 3**

| S/N | Federal Universities | Senior Academic Staff | Junior Academic Staff | Total |
|---|---|---|---|---|
| 1. | Uniport | 60 | 60 | 120 |
| 2. | Unical | 60 | 60 | 120 |
| | Total | 120 | 120 | 240 |

**Table 4**

| S/N | State Universities | Senior Academic Staff | Junior Academic Staff | Total |
|---|---|---|---|---|
| 1. | DELSU | 60 | 60 | 120 |
| 2. | NDU | 60 | 60 | 120 |
| | Total | 120 | 120 | 240 |

Sum Total = 480 Academic Staff

The instrument for data collection was a 36-item questionnaire titled, "Web-Based Information Literacy and Research Productivity Among Academics in Nigerian Universities (WBILRPAANU)" developed by the researchers. The instrument was structured to elicit information on the items based on modified likert scale weightings of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point which are used for research questions 2 and 3. For research question 1, the weightings are; Very High Level (VHL) = 4 points, High Level (HL), Low Level (LL) and Very Low Level (VLL). For ease of analysis, these options were combined to be used as Agree (A) and Disagree (D), High Level and Low Level.

To get the acceptable mean, the weightings were added thus; 4 + 3 + 2 + 1 = 10/2 = 2.50. Therefore, the acceptable mean is 2.50 or above while the mean score of 2.49 or below was not acceptable.

The instrument was face and content validated by two educational technologists and two experts from the Department of Psychology, Guidance and Counselling in University of Port Harcourt. The instrument was trial-tested on 20 academic staff in University of Uyo (federal) and Rivers State University of Science and Technology, Port Harcourt (state) which are not part of the area of study.

The experts were given the instrument, purpose of the study and research questions. Their corrections were effected in the final draft of the questionnaire. Data collected were used to compute a reliability coefficient of internal consistency of 0.82 using Cronbach Alpha Technique.

**Results**

The results were presented in line with the research questions in tables 5, 6 and 7 while 7 hypotheses were presented in tables 9, 10 and 11.

**Table 5:** Mean Ratings of Nigerian Federal and State Universities Academic Staff on the level to which WBIL has enabled the Research Productivity (RP) of the Academic Staff (AS)

| S/N | Items | Federal AS | | | State AS | | |
|---|---|---|---|---|---|---|---|
| | | $\bar{X}$ | SD | RMKS | $\bar{X}$ | SD | RMKS |
| **1.** | Indicate the level to which WBIL has enabled the research productivity (RP) of the academic staff (AS): | | | | | | |
| 1. | Related materials to the works at hand | 2.71 | 0.84 | HL | 2.62 | 0.91 | A |
| 2. | Exposes credible international journals of publication | 3.01 | 0.61 | HL | 2.83 | 0.77 | A |
| 3. | Helps in finding citations of great researchers of international repute | 2.80 | 1.01 | HL | 2.64 | 0.91 | A |
| 4. | Reveals areas of research in cultural diversities | 2.71 | 0.81 | HL | 2.91 | 0.57 | A |
| 5. | Helps in revealing areas of collaboration among scholars | 2.41 | 0.71 | HL | 2.30 | 0.86 | A |
| 6. | Establishing LinkIn with scholars of like mind | 2.66 | 0.84 | HL | 2.42 | 1.11 | D |
| 7. | Widens one's horizons for expertise knowledge | 3.34 | 0.64 | HL | 2.84 | 0.73 | A |
| 8. | Offers opportunity to move from digital immigrant to digital native | 2.75 | 0.63 | HL | 2.36 | 0.70 | A |
| 9. | Facilitates both international and local publications | 3.29 | 0.73 | HL | 3.11 | 0.90 | A |
| 10. | Promotes academic growth for the benefit of the students and the university | 3.01 | 0.94 | HL | 2.87 | 0.73 | A |
| | Total mean | 2.88 | 0.78 | | 2.71 | 0.89 | A |

In line with the responses to research question one, the result revealed that item 1 had a mean of 2.71 (SD = 0.84) for academic staff of federal universities and 2.62 (SD = 0.91) for those in state universities. Regarding item two mean

values of 3.01 (SD = 0.61) and 2.83 (SD = 0.77) were obtained for federal and state universities' academic staff respectively. Item 3 yield a mean of 2.80 (SD = 1.01) for federal academic staff and 2.64 (SD = 0.91) for those in state universities. For those in federal universities item 4 had a mean of 2.71 (SD = 0.81), while their counterparts in state universities had a mean of 2.91 (SD = 0.57). Regarding item 5, academic staff reported mean rating of 2.41 (SD = 0.71) for those in federal universities and 2.30 (SD = 0.86) for those in state universities. Item 6 showed that mean values of 2.66 (SD = 0.84) and 2.42 (SD = 1.11) for AS in federal and state universities respectively. Mean ratings of 3.34 (SD = 0.34) and 2.84 (SD = 0.73) were gotten for AS in federal and state universities respectively in response to item 7. Regarding item 8, 9, and 10, AS in federal universities reported mean value of 2.75 (SD = 0.63), 3.29 (SD = 0. 73) and 3.01 (SD = 0.93) respectively, while their counterparts in state universities had 2.56 (SD = 0.70), 3.11 (SD = 0.90), 2.87 (SD = 0.73).

From the obtained mean values, it can be seen that with exception of item 5, AS in federal universities agreed to all the items. For those in state universities, the result revealed that all items were agreed to except items 5 and 6. Furthermore, a grand mean of 2.88 (SD = 0.78) was obtained for AS in federal universities and 2.71 (SD = 0.89) for those in state universities. This result therefore indicates that WBIL enhances the research productivity of AS in Nigerian Universities to a higher extent.

**Table 6:** Mean Ratings of Nigerian Federal and State Universities Academic Staff on the Challenges inhibiting WBIL for Improved Productivity

| S/N | Items | Federal AS | | | State AS | | |
|---|---|---|---|---|---|---|---|
| | | $\bar{X}$ | SD | RMKS | $\bar{X}$ | SD | RMKS |
| 2. | Administrative Constraints | | | | | | |
| 1. | Lack of funds | 3.02 | 0.41 | A | 3.51 | 0.58 | A |
| 2. | Poor sponsorship for academic conferences which inspire research articles | 3.10 | 0.72 | A | 3.38 | 0.71 | A |
| 3. | Dearth of technological equipment | 3.09 | 0.52 | A | 3.21 | 0.43 | A |
| 4. | Professional brain drain | 2.80 | 0.81 | A | 3.11 | 0.60 | A |
| 5. | Lack of emphasis on innovation and creativity | 2.73 | 0.61 | A | 2.89 | 0.94 | A |
| | Total Mean | 2.95 | 0.61 | A | 3.22 | 0.65 | A |
| | Individual Factor | | | | | | |
| 1. | Lack of web-based competence | 2.65 | 1.05 | A | 2.56 | 1.07 | A |
| 2. | Lack of interest in internet browsing | 2.81 | 0.75 | A | 2.71 | 0.68 | A |
| 3. | Lack of accessibility to web-based resources | 3.11 | 0.83 | A | 2.94 | 0.80 | A |
| 4. | Inability of an academic for ICT self-development | 2.91 | 0.72 | A | 2.75 | 0.91 | A |
| 5. | Excessive extra curriculum activities | 3.40 | 0.56 | A | 3.17 | 0.61 | A |
| 6. | Academic work overload | 2.68 | 0.71 | A | 2.84 | 0.62 | A |
| | Total mean | 2.93 | 0.77 | | 2.83 | 0.78 | |

From the result shown in table 6, it can be observed that based on the response of academic staff in federal universities on the administrative challenges inhibiting WBIL for improved productivity, mean values of 3.02 (SD = 0.41), 3.10 (SD = 0.72), 3.09 (SD = 0.52), 2.80 (SD = 0.81), 2.73 (SD = 0.61) were obtained for items 1, 2, 4, and 5 respectively. These show that the academic staff in federal universities agreed that the various administrative challenges mentioned were inhibiting WBIL for research productivity. Similar result was obtained for academic staff in state universities as they reported 3.51 (SD = 0.58) for item 1, 3.38 (SD = 0.71) for item 2, 3.21 (SD = 0.43) for item 3, 3.11 (SD = 0.60) for item 4, and 2.89 (SD = 0.94) for item 5. Furthermore the grand mean values of 2.95 and 3.22 obtained for AS in federal and state universities respectively indicated that administrative challenges is a greater problem for AS in state universities than those in federal universities.

Regarding the extent individual factors inhibit WBIL for research productivity, result showed that for items 1, 2, 3, 4, 5 and 6 academic staff in federal universities, reported mean values of 2.65 (SD = 1.05), 2.81 (SD = 0.75), 3.11 (SD = 0.83), 2.75 (SD = 0.91), 3.40 (SD = 0.56) and 2.68 (SD – 0.71) respectively. Similarly, their counterparts in state universities reported for the same items mean values of 2.56 (SD = 1.07), 2.71 (0.68), 2.94 (0.80), 2.75 (SD = 0.91), 3.17 (SD = 0.61) and 2.84 (SD = 0.62) respectively. On the basis of the results reported by the academic staff, it can be observed that all the items were agreed to by the academic staff as individual factors inhibiting the usage of WBIL for research productivity in both federal and state universities. Furthermore, as the grand mean of AS in federal universities ( $\bar{x}$ = 2.93, SD = 0.77) and state universities ( $\bar{x}$ =2.83, SD = 0.78) showed individual factors inhibit the adoption of WBIL in both federal and state universities to a high extent.

**Table 7:** Mean ratings of Nigerian federal and state universities academic staff on the strategies for improved research productivity based on WBIL

| S/N | Items | Federal AS | | | State AS | | |
|---|---|---|---|---|---|---|---|
| | | $\bar{X}$ | SD | RMKS | $\bar{X}$ | SD | RMKS |
| 3. | Strategies for Improved Research Productivity based on WBIL | | | | | | |
| 1. | Self determination to overcome the challenges of WBIL | 3.22 | 0.53 | A | 3.15 | 0.61 | A |
| 2. | Change of negative attitude towards WBIL | 2.94 | 0.62 | A | 2.76 | 0.72 | A |
| 3. | Provision of research grant | 3.61 | 0.61 | A | 3.41 | 0.67 | A |
| 4. | Provision of technological equipment | 2.68 | 0.79 | A | 2.71 | 0.59 | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5. | Accessibility to the university internet | 3.44 | 0.86 | A | 2.94 | 0.91 | A |
| 6. | Dissemination of relevant information for research activities | 2.94 | 0.72 | A | 2.87 | 0.72 | A |
| 7. | Development of research expertise for WBIL | 3.26 | 0.81 | A | 2.69 | 0.85 | A |
| 8. | Academic research discipline that warrants WBIL | 3.61 | 0.51 | A | 3.48 | 0.69 | A |
| | Total Mean | 3.21 | 0.68 | | 3.00 | 0.72 | |

Result as presented in table 7 on possible strategies for improved research productivity based on WBIL showed that AS in federal universities reported for items 1, 2, 3, 4, 5, 6, 7 and 8 mean ratings of 3.22 (SD = 0.53), 2.94 (SD = 0.62), 3.61 (SD = 0.61), 2.68 (SD = 0.79), 2.94 (SD = 0.72), 3.26 (SD = 0.81) and 3.61 (SD = 0.51). For AS in state universities the above items resulted in mean ratings of 3.15 (SD = 0.61), 2.76 (SD = 0.72), 3.41 (SD = 0.67), 2.71 (SD = 0.59), 2.94 (SD = 0.91), 2.87 (SD = 0.72), 2.69 (SD = 0.85) and 3.48 respectively. A grand mean of 3.21 (SD = 0.68) and 3.00 (SD = 0.72). These results indicated both federal and state universities AS agreed that the various strategies can improve research productivity based on WBIL.

**Table 8:** t-test of difference between the mean of Nigerian Federal and State Universities' Academic Staff on the level to which WBIL has enabled research productivity

| Variable | N | Mean | SD | Degree of Freedom | t-cal | t-crit | Significance level | $HO_1$ |
|---|---|---|---|---|---|---|---|---|
| Federal | 240 | 28.80 | 7.80 | 478 | 2.23 | 1.96 | 0.05 | Reject $HO_1$ |
| State | 240 | 27.10 | 8.90 | | | | | |

The result of the t-test revealed that from the mean of federal universities AS ($\overline{X}$ =28.80) and state universities ($\overline{X}$ = 27.10), a t-cal value of 2.23 was obtained which was higher than the t-crit value of 1.960 and 0.05 significant level. This result therefore indicates that WBIL has enabled research productivity of AS in federal universities than state universities. The null hypothesis was therefore rejected.

**Table 9:** t-test of difference between the mean of Nigerian Federal and State Universities' Academic Staff on the challenging inhibiting WBIL for improved productivity

| Variable | N | Mean | SD | Degree of Freedom | t-cal | t-crit | Significance level | $HO_2$ |
|---|---|---|---|---|---|---|---|---|
| Federal | 240 | 28.39 | 7.81 | 478 | 2.31 | 1.96 | 0.05 | Reject $HO_2$ |
| State | 240 | 30.04 | 7.83 | | | | | |

When the mean rating of federal (28.39, SD = 7.81) and state (30.04, SD = 7.83) was subjected to independent samples t-test, a t-cal of 2.31 which was greater than the t-crit of 1.960 at 0.05 significant level and 478 degree of freedom. This result therefore shows that AS in states universities significantly experience higher challenges in using WBIL for research productivity than AS in federal universities. The null hypothesis was therefore rejected

**Table 10:** t-test of difference between the mean of Nigerian Federal and State Universities' Academic Staff on the strategies for improved research productivity

| Variable | N | Mean | SD | Degree of Freedom | t-cal | t-crit | Significance level | $HO_3$ |
|---|---|---|---|---|---|---|---|---|
| Federal | 240 | 25.68 | 5.44 | 478 | 1.40 | 1.96 | 0.05 | Accept |
| State | 240 | 24.96 | 5.76 | | | | | |

As shown from table 10 the mean rating of AS from federal and states universities on the strategies for improved research productivity based on WBIL values of 25.68 (SD = 5.44) and 24.96 (SD = 5.76) respectively were obtained. When these values were subjected to independent samples t-test analysis, a t-cal value of 1.40 was gotten at 0.05 level of significant at 478 degrees of freedom. Since the t-cal value (1.40) was lesser than the t-crit value (1.96), it therefore indicates that AS in federal and state universities do not differ significantly on the strategies for improved research productivity based on WBIL. The null hypothesis was therefore retained.

**Discussion of Findings**

The result of the findings in table I indicated that the Web-based Information Literacy (WBIL) of both the federal and state university academic staff research productivity was greatly improved. Although, it was revealed that the research productivity of those in federal universities was slightly greater with the mean of 2.88 (SD = 0.78) than those in the state universities. The null hypothesis I also revealed that the WBIL really helped the academic staff of the Nigerian universities to improve in their research productivity. The null hypothesis was therefore rejected. This finding is in line with the submission made in Madu and Dike (2012) [17] who opined that there is relationship between the level of information literacy possessed and the level of academic staff productivity. In effect, this means that the more WBIL competencies possessed by the academic staff, the high his academic productivity level is very likely to be. This finding is considered to be very important in that for a staff to be recognized as an international scholar the staff must have been conversant with varieties of web based resources, must be very current and be abreast what information going on in his area of specialization (Omolewa, 2008) [24]. No doubt, it is only the academic staff who is competent in WBIL that has the ability to do so. This finding also supports the position of Okafor (2007) [22] who affirmed that understanding the extent of availability of resources required has the ability to identify the available resources for usage, the places where they are available, how to access them and the extent to individual resource type which in turn will improve research productivity. If the resources are available, the abilities and experience of academic staff of Nigeria universities can translate into increased research productivity.

The findings of this study on the challenges inhibiting WBIL for improved research productivity indicated that administrative challenges are greater problems for academic staff in state universities than those in federal universities. The null hypothesis also showed that the academic staff in state universities significantly experience greater challenges in using WBIL for research productivity than AS in federal universities. This finding also corresponds with the submission made in Alghanim and Alhamali (2011) who found that workload, lack of time, lack of funds for research and being busy with teaching load were the obstacles inhibiting research productivity. Similarly, in the results of the finding in Fawzi and Al-Hattami (2017) [9], their finding revealed that among the academic staff in Bahrain, the challenges limiting the research of academic staff include; workload pressure, lack of time, administrative work pressure, lack of funding, analytical pressure, lack of research

resources, lack of competency in how to conduct research. Based on the responses regarding the extent to which individual factors inhibit WBIL for research productivity, it was discovered that the academic staff in both federal and state universities agreed that individual factors as listed in the items inhibit their usage of WBIL to a high extent. This finding corresponds with the result of the study in Fawzi and Al-Hattami (2017) [9] who asserted that in diverse studies, lack of time has been reported as one of the major individual factor that influence research productivity of an academic. Other research findings that agreed with this finding were those by Angalz (2015, Stafford, 2011, & Williams, 2013) [33]. Other obstacles that were reported to show evidences of individual factors inhabiting individual staff from high research productivity were; cultural barriers as cited in Alzalrant, (2011) lack of interest in conducting research as in Williams, (2013) [33], lack of confidence (Fawzi & Al-Hattami, 2017) [9], lack of competence in surfing for relevant information and lack of academic skills in searching for scholarly materials (Kendagor, Kosgei, Tuitoek & Chelangat, 2012, and Heinrich, Neese, Rogers & Facente, 2004) [13, 11]. Some of these hindrances might have been due to the administrative tasks and heavy academic load the academic staff face in the Nigerian universities. Nevertheless, if issues are taken together and the university authorities provide fund and organize seminars regularly on the need for high research productivity, it is the researcher's belief that there will be greater improvement in the academic staff productivity. This falls in line with the observation made in Shauman (2003) who revealed that; in all areas of specializations, high research productivity is the main focus of the academic success.

This finding is also in line with the submission made in Kpolovie and Onoshaghegbe (2017) [14] who lamented that some factors that could contribute or inhibit research productivity include lack of equipment, funds, modern skills and methods needed to carry out state-of-art research, brain-drain that led to the scarcity of seasoned and lack of senior researchers to mentor junior ones and encumberance of teaching and administrative workload that leaves little or no time for research engagement. Gilkey (2008) [10] general theory of productivity focus is on the individual researcher and how he/she can develop to become a high producer of knowledge, creative energy, focused, stressed that these qualities are very relevant to research productivity. The implication is that the higher the degree of presence of these qualities in the academic staff of Nigerian universities, the greater the academic research output.

The findings of the study on the strategies to improve research productivity based on WBIL revealed that all the respondents in federal and state universities unanimously agreed that all the strategies listed would help to improve research productivity. The null hypothesis test of difference indicated that the academic staff in Nigerian federal and state universities do not differ significantly on the strategies for improved research productivity. The null hypothesis was retained. This finding conforms with the strategy recommended in Madu and Dike (2009) [17] who asserted that the academic staff of Nigerian federal and state universities should take advantage of the enabling environment to enhance their level of information literacy competencies which will have positive effect on their research productivity. This means that every academic staff in the Nigerian universities needs to work very hard so as to be abreast with the global trend in information literacy which in turn will impact on his/her research productivity. The finding also corresponds with the opinion of September (1993) who affirmed that people require some level of information skills to make decisions and cope with life daily demands. This implies that the academics has to make effective usage of WBIL which is imperative for effective academic life productivity.

It goes without argument that enhancement in research productivity of the academics in Nigeria universities is very relevant in making more information that have quality available to students who will later use them to enhance teaching and learning later in universities.

## Conclusion

This study has reinstated the need for the academic staff in Nigerian universities to possess web-based information literacy which will help greatly in their research productivity. Research is concerned with the provision of solutions to man's need and improvement of the quality of life-based on identified problems. Research is an academic activity which takes place in universities or higher education. Research productivity is measured by the outputs of the academics. The universities that spend great time in provision of internet resources and constant electricity are very likely to produce academics who can compete with their colleagues in innovations and creativities. The study is therefore in support that the Nigerian academics both in federal and state universities have to acquire WBIL for improved academic productivity. In the words of Kpolovie and Onoshagbegbe (2017:73) [14] "Nigerian academics may need to join their peers in other parts of the globe who have taken advantage of the open access and other ICT resources to improve tremendously on their research productivity". The students, academic staff themselves, non-academic staff and the universities will stand to benefit when this is achieved.

## Recommendations

**Based on the findings of this study, the under listed recommendations are put forward**

1. The federal and state universities are to ensure that there are internet connectivities in their universities to help their staff to be surfing for information in order to improve greatly in their research productivity.
2. In view of the above fact, the university authorities are to provide free access to the internet connectivities for easy browsing
3. There is need for academic staff of Nigerian universities to be self-discipline for effective WBIL which will improve their research productivity. This fact is stated in Kpolovie (2016) when he noted that research productivity can only be successfully done by a person who is self-disciplined. The features of self-discipline would imply; curiosity, persistence and objectivity. It would again imply that an university academic could wake up early, sleep late, study in various ways and should remain focused on identified problems until the problem is solved.
4. The university authorities should as a matter of urgency be providing grants to the academics who embark on quality research as this will enable their growth academically, the students and the university.
5. No meaningful research activities can go on in any university without steady electricity. Therefore, the

university authorities should ensure that there is steady power supply or ensure provision of automatic generators in case of power failure.

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