

Centrepont Journal (Humanities Edition)

VOL.20, NO.2, pp.1-156

ISSN: 2141-3827

CENTREPOINT JOURNAL

(Humanities Edition)

Published by the
University of Ilorin Library and Publications
Committee

<http://www.unilorin.edu.ng/ejournals/index.php/cp>

Funded by

 **TETfund**
TERTIARY EDUCATION TRUST FUND

Volume 20

No.2

June 2017

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PREDICTIVE FACTORS FOR THE INTENTION TO ADOPT OPEN ACCESS PUBLISHING BY ACADEMIC STAFF IN SELECTED UNIVERSITIES IN NIGERIA

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Abstract

Open Access (OA) publishing promotes access and wide dissemination of scholarly content. The purpose of the current study was to contribute to the limited research base on the adoption of scholarly OA publishing system. This study investigated the predictive factors for the intention to adopt OA publishing by academic staff in selected universities in Nigeria using a modified Unified Theory of Acceptance and Use of Technology (UTAUT). The sample for the study comprised of 337 academic staff from three selected universities. A semi-structured questionnaire was developed and used to collect information from the studied sample. The questionnaire was administered to three hundred and thirty-seven (337) respondents. Data collected were analysed using frequencies, correlation analysis and regression analysis. The findings revealed that awareness, attitude, performance expectancy, Internet self-efficacy and facilitating conditions had significant influences on the intention to adopt OA publishing. However, the findings showed that Internet self-efficacy has negative correlation with the intention to adopt OA publishing. The study provided theoretical contribution by expansion of adapted theory and existing literature on OA. Also, the study provided practical contributions to understanding the predictors of intention to adopt OA publishing by stakeholders (lecturers, librarians and researchers). The significance of the study is to improve adoption of OA publishing and minimise serial crisis in the libraries. The study recommended upgrading of Internet facilities as well as providing adequate funds for maintenance.

Keywords: Intention, Adoption, Open access publishing, University, UTAUT, Nigeria

Introduction

The 21st Century has witnessed a tremendous development in Information and Communication Technologies (ICTs) and their applications in various aspects of life. The explosion of ICTs especially the increase in the application of internet has led to remarkable change in the way many tertiary institutions the world over access and deliver their scholarly content. Specifically, the internet is almost used everywhere leading to significant effects on the availability of information and

scientific references and sources for researchers. One of the prominent phenomenon in this context, is the explosive growth of the volume of scientific content available on the Web in general, and the increasing number of Open Access (OA) journals in particular (Seliaman, Salim & Moawia, 2012). According to Suber (2012), OA literature is digital, online, free to access and free from most copyright and licensing restrictions. There are two strategic approaches to open access: OA journal which can be referred to as Golden route and OA archive simply called OA repository that can be referred to as Green route. The main principle behind OA initiative is to maximize access and wide dissemination of information. OA publishing uses Internet as a platform that aids access and wide dissemination of scholarly content without any barrier but only cost of Internet access. Open access initiative has enormous benefits: it provides access to digital content, also enhances visibility of research findings. However, commercial authors being profit-oriented seek to profit from their work and thus protect it from unauthorized use (Halliday, 2001).

In Nigeria, most works published suffer low global and local visibility. Noah (2016) observed that works published are rarely available when needed without some levels of subscription fees or out rightly buying the articles. Toll access model of commercial publishers constitutes a barrier by denying users of free access to information, especially those users who could not avoid access charges. In the present era of internet, opportunities to access online scholarly materials are bound, however, access charges continue to constitute barrier. Most of academic libraries in tertiary institutions are still battling with difficulties in provision of access to all relevant journals as result of insufficient budgets and high inflationary trend to purchase priced journals (Dulle, 2010; Gbaje, 2010). Academic libraries in tertiary institutions pay significant amounts of money each year for access to academic journals. Due to the rapid increase of scholarly output and inflated journal prices it has become practically difficult even for libraries in rich countries to subscribe to every journal that is required by their patrons. This situation tagged with a syndrome called "serials crisis" which refers to a condition that existed at the end of the 1990s, when there were big increases in price of journals well above inflation (Igwe, Oyewole & Yusuf, 2013). With the emergence of OA publishing that has potentials to provide free access and increase visibility of research findings, the issue of serial crises will be solved at a stroke (Suber, 2012). What is supreme to academic staff is access and wide dissemination of their scholarly works from which they seek no direct financial benefit. As a result, the adoption of open access (OA) publishing is gaining momentum and popularity in tertiary institutions worldwide. Despite the potential of OA publishing, adoption and use of OA publishing in Nigeria remains low (Igwe, 2012; Oluwasemilore, 2013; Bashorun., Priti., Sebina & Kalusopa, 2016). The present scenario calls for urgent attention in order to prevent persistent serial crisis, low access to scholarly content and poor visibility of research findings emanated from African countries and Nigeria in particular. Predictors are variables that are highly related to criterion variable.

Predictive factor in this study refers to variable that has high correlation with the adoption of OA publishing. The assumed predictive factors like awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions are well researched in literature by several authors (Utulu & Bolarinwa, 2009; Gbaje, 2010; Emojorho, Ivwighlegwa & Onoriode, 2012; Obuh, 2013) who reported factors that affected the adoption of OA publishing in universities in Nigeria. Utulu and Bolarinwa (2009) examined Nigerian academics' adoption of OA and reported that the study was necessitated by the need to have the number of scholarly publications in Nigeria increased on the Internet as well as accessible to scholars the world over. Awareness as one of the predictors plays an important role in any new concept and determines the usage of any material unless an individual uses it unknowingly. Dinev and Hu (2005) stressed that awareness raises consciousness and knowledge about a certain technology and its personal and social benefits. This assertion was supported by their study which established awareness as the central determinant that predicts user attitude and behaviour towards technology. Similarly, in the open access environment, awareness has also been acknowledged as a vital factor determining usage of this mode of scholarly communication (Bashorun et al. 2016; Obuh & Bozimo, 2012). A study by Christian (2008) examined why the concept of OA is important to academic and research institutions in Nigeria. The findings showed that that 3% of the 66 respondents at the University of Lagos were aware of the OA concept, 22.7% knew very little about OA and 74% were completely unaware of the OA concept. Gbaje (2010) posited that lack of awareness of OA journals was responsible for low adoption of OA publishing. Similarly, Obuh and Bozimo (2012) examined the awareness and use of OA publications by Library and Information lecturers. The study showed a high level of usage of OA publications by both senior and junior LIS lecturers and that the awareness of OA concepts accounts for the tendency of LIS lecturers in southern Nigeria to use OA publications.

Khalli and Singh (2012:203) defined attitude towards technology as "an individual's overall perception towards use of a system". Attitude is a predictive factor of adoption and use of OA publications, which has a significant influence on behavioural intention to adopt and use OA publication. Attitudinal studies of OA publishing date back to 1991 (Xia, 2010) and there has been little research in OA that systematically investigate the variety and grouping of subjective opinions that the academic community may have. Studies (Khalili & Singh, 2012; Obuh, 2013; Mammo & Ngulube, 2015) have been carried out and revealed individuals' attitudes towards technology-based systems that had a strong effect on intention to adopt and use OA publications. A study by Khalili and Singh (2012) for an example revealed that the attitudes of researchers regarding OA had a significant influence on the acceptance of OA journals. Obuh (2013) established that attitude of academics towards OA publishing is a determinant for the adoption and use of OA publishing. Also, Mammo and Ngulube (2015) investigated academics' use and attitude towards

OA in selected higher learning institutions in Ethiopia. The findings established that 50% of the respondents agreed that OA journals had adequate standard quality and scientific merit. This was a positive attitude towards adoption of OA publishing.

According to Bashorun (2016), academics' perception about their capacity to work effectively while using the internet stands as a predictor in determining patterns of adoption and usage of information. The ability to use the internet by academics is likely to be influenced by their beliefs. Hence, Internet self-efficacy is defined as personal self-assurance of having capability to use Internet as a platform for the adoption of OA publishing. As a result of this influence, Internet self-efficacy beliefs are strong predictor of the level of accomplishment that the individual finally attains in OA publications for scholarly activities. A study by Dulle (2010) reported that Internet self-efficacy is a strong determinant of intention to adopt and use OA publishing. To buttress this finding, Gbaje, (2010) observed that unless researchers demonstrate specific skills to use the Internet in accessing and disseminating research findings, they may not benefit from OA publishing. Performance expectancy (PE) is the degree to which individuals believes that using OA publishing system would improve his task performance (Bashorun, 2016b) PE in this study relates to how individuals believe that OA publishing would assist them in accessing and disseminating scholarly content in their job. Studies (Dulle, 2010, Bashorun, 2016a) reported that PE is one of major determinants of intention to adopt and use OA publishing by academic staff. Dulle (2010) showed that majority (83%) of the respondents strongly agreed that publishing in OA outlets improves accessibility to scholarly literature; 72% agreed that OA outlets increases research impact; and 69.3% strongly agreed that OA enables scholars to publish more quickly. Effort expectancy (EE) is defined as the degree to which a person believes that using OA publishing system would be stress-free to achieve a set target. Dulle (2010) reported that the majority (76.5%) of respondents finding it easy to access scholarly content. Facilitating conditions are referring to factors like fund, training on ICTs and Internet, technical support and regular electricity supply that are essential for successful adoption and use of OA publishing system. Okoye and Ejikeme (2011) accentuated poor infrastructural facilities responsible for the low adoption of OA publishing. Emojorho et al. (2012) emphasized that inadequate facilitating condition was responsible for the low adoption of OA publishing in Nigeria. The findings by Okoye and Ejikeme (2011) and Emojorho et al. (2012) had established that facilitating condition is one of the predictors of adoption and use of OA publishing by academic staff.

Despite the aforementioned studies, a study that covered six continents of the world had established that little research on OA is available in Africa. For example, Frass, Cross, and Gardner, (2013) carried out research on behalf of Taylor and Francis to examine researcher's perception of OA in six continents. The findings showed that Africa is still lagging behind in terms of having adequate access to OA journals. This research finding is an eye-opener for scholars in African countries to

carry out more studies on African countries to ascertain predictive factors of adoption of OA publishing and Africans' stand in OA initiatives. Based on inconclusiveness of preceding findings, it seems that none of the previous studies thoroughly examined predictive factors to adopt OA publishing that could make a difference by encouraging academics to adopt OA publishing. Hence, this study intends to examine the predictors of intention to adopt OA publishing by academic staff in selected universities in Nigeria. The findings of this study will assist and guide policy makers to formulate and implement suggestions that could lead to the improvement in adoption of OA publishing.

State of Adoption of OA Publishing in Nigeria

United Kingdom (UK) government realized that the traditional research communications system was becoming increasingly unsustainable as a result of the economic, technological and social changes (Finch, 2012). The UK Parliament recommended a shift to Open Access (OA) publishing in 2004 and began the transition to OA early (Committee on Science and Technology Tenth Report, 2004). Among the organizations that were the first to embrace OA was Wellcome Trust (the second largest charitable funder of scientific research in the world) that began mandating that all its funded research should be made OA from April 2005 (Finch, 2012). This was possible as a result of facilitating conditions like regular power supply, Internet and OA policy development that promote OA adoption (Finch, 2012).

OA journals are published by publishers located in developed, developing as well as emerging countries. The updated information on open access publishing can be accessed through Directory of Open Access Journals (DOAJ.org) which is the most popular global directory of OA periodicals. As at 2013, 9,721 stable OA journals with ISSN were published regularly in the world. Table 1 revealed the list of top ten OA journal publishing countries as listed in DOAJ. The United States stands first in global ranking with 14.08% global share, Brazil stands second with 9.33% global share and United Kingdom stands third with 6.35% global share. DOAJ also indicates that majority of journals are published from English speaking countries and mostly in English language, and significantly come from United States, United Kingdom, India, Canada and other countries. Countries in Top Ten league together contribute 56.87% in worldwide OA journal publishing. This could be attributed to stable power supply, high Internet connectivity and other facilitating conditions. The BRICS countries (Brazil, Russia, India, China and South Africa) are considered worldwide as emerging economies due to their economic prowess in the process of globalization.

Table 1: Top Ten OA Journal Publishing Countries in DOAJ

Global Rank	Country	Total No. Journals	Percentage (%)
1	United States	1369	14.08
2	Brazil	907	9.33
3	United Kingdom	617	6.35
4	India	593	6.10
5	Spain	494	5.08
6	Egypt	398	4.09
7	Germany	312	3.21
8	Romania	289	2.97
9	Canada	276	2.83
10	Italy	274	2.81
Group Total		5529	56.87

Source: DOAJ.org as on 28th June 2013

Nigeria, with an estimated population of above 191 million and one of the most populous countries in Africa, has 153 universities (National Universities Commission-NUC, 2017). Also, it has 75 polytechnics, 63 colleges of education and 100 research and allied institutions; it hosts the highest number of institutions compared to any country in Africa (Bola, 2013). Despite the large number of higher institutions in Nigeria, visibility of research outputs is poor this might be due to low adoption of OA publishing (Oluwasemilore, 2013; Bashorun et al., 2016). This persistent low adoption of OA publishing could easily be attributed to the insufficient Internet bandwidth, erratic power supply and other facilitating conditions.

According to Internet world stats, the Internet usage in developing countries like Nigeria has recorded growth from 200,000 users in the year 2000 to about 91,598,757 users as of June 2017 (Internet World Stats, 2017). This suggests that the present Internet penetration of Nigerian population is 47.7% of the 191,835,936 (Internet World Stats, 2017). If approximately 47.7% of Nigerian mobile users have access to Internet as it is currently being established, what will be the benefit of increased Internet access without free access to scholarly works? How can the increased access to the Internet benefit the academic staff, if measures are not taken to improve adoption and use of OA publishing in order to ensure that the scientific community has access to quality scholarly works whenever the need arises? Advancement in Internet access and adoption of OA publishing will definitely lead to free access to scholarly information of which Nigerian institutions are contributors.

Igwe (2012) carried out a desk-top research on National Virtual Library of Nigeria (NVLN) in OA Era. He opines that access to information in the library is limited to institutions that can afford and maintain the cost of subscription. This is the economic barrier to information access at the NVLN. Thus, NVLN is yet to adopt OA, despite the fact that they are publicly funded and sustained with taxpayers'

money. Currently, as at 14th of June, 2014, Nigeria was not part of the ten countries that publish the highest portion of OA journals (UNESCO, 2015b). The Directory of Open Access Journals (DOAJ) only indexes 38 OA journals from Nigeria. There might be other OA journals which have failed to be part of DOAJ, or they are rejected from DOAJ because they do not meet the requirements as evident from the decline (from 41 to 38) indexed OA journals. Nigeria took 47th position with other countries that had highest output of OA journals. Most of these acclaimed OA journals are yet to be fully adopted by academic staff. For instance, out of 38 indexed OA journals, 29 of these Nigerian journals charging authors, 3 are charging conditionally and only 6 are free of charge (UNESCO, 2015a). Despite the aforementioned benefits of OA and the trend of the adoption of OA publishing by academic staff in universities in Nigeria remains slow.

Theoretical Consideration

Many technology acceptance studies are aimed at investigating factors influencing acceptance and use of technologies and how to promote usage (Kripanont, 2007). According to Louho, Kallioja and Ojttinen (2006), technology acceptance is about how people adopt and use some technology.

Several theories designed to enhance the understanding of factors affecting acceptance and use of technologies have been documented. These include Technology Acceptance Model (TAM) by Fred Davis (1989); Theory of planned behaviour (TPB) proposed by Ajzen (1991); model of PC utilization developed by Thompson, Higgins and Howel in 1991. In spite of many models of technology acceptance, the Unified Theory of Acceptance and Use of Technology (UTAUT) emerged as the key model of choice and widely used. The UTAUT model continues to gain wider acceptance due to its unified nature. It is imperative to review the UTAUT model because the theory points out variables that are suitable for this study, however, the researchers did not adopt social influence but replaced it with a variable (attitude) that are more relevant to the theoretical concepts used in this study. UTAUT model combines eight technology acceptance models/theories (theory of reasoned action; motivational model; theory of planned behaviour; technology acceptance model; combined TAM and TPB; model of PC utilisation; social cognitive theory and innovation diffusion theory). The Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh, et al., 2003), was the adapted model for this study. Other models have failed except UTAUT to explain the adoption in the context of OA publishing with regard to the essential characteristics of the scholarly communication system at the level of the individual as, opposed to the organization. Also, as earlier mentioned above, that the eight theories fused together and yielded highest explanatory power (70%) for UTAUT model compared to other technological models. Also, UTAUT model has advantages like robustness and expansiveness over the others. Hence, this study considered and used a modified

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UTAUT model as a lens to examine predictive factors for the intention to adopt OA publishing.

Statement of the Problem

The importance of Open Access (OA) initiatives has captured the attention of academia and scholarly communities at large. Academics and other stakeholders can achieve much in OA publishing if they have the skills, knowledge and service mentality to search for the required information in the library and online. OA publishing improves access and wide dissemination of research findings but its adoption and use in Nigeria is low (Oluwasemilore, 2013; Musa, 2016; Bashorun et al, 2016). Consequently, availability and visibility of scholarly works in Nigeria become difficult (Noah, 2016) and serial crisis persists in the library. Hence, this study intends to investigate the predictive factors of intention to adopt OA publishing by academic staff in selected universities in Nigeria.

Objectives of the Study

The main aim of the study is to examine the predictive factors of intention to adopt OA publishing among academic staff in selected universities in Nigeria. The specific objectives are to:

1. identify factors that best predict intention to adopt OA publishing by academic staff in selected universities in Nigeria;
2. determine the extent of inter-correlation among factors of intention to adopt OA publishing and
3. investigate the contribution of predictive factors of intention to adopt OA publishing.

Research Questions

To achieve the specific objectives of the study, the following research questions were developed:

1. Which factors best predict academic's intention to adopt OA publishing?
2. What are the levels of inter-correlations that exist among factors and the intention to adopt OA publishing?
3. What is the contribution of predictive factors of intention to adopt OA publishing?

Methodology

This study adopted a survey research design. Three universities with different ownership status in Nigeria were purposively selected. The university status was determined based on their ownership (Federal, State and Private organization) and year of establishments. The rationale behind purposive selection was based on availability of Internet facilities and years of establishments of the selected universities; being first generation universities in their respective ownership status.

According to Gbaje (2010), Internet is a platform for OA publishing. Federal universities were represented by the University of Ibadan (UI); State universities- Adekunle Ajasin University (AAU), and private universities- Babcock University (BU). The target population comprised of lecturers and librarians that were referred to as academic staff. According to Academic Planning Unit Fact in 2013/2014, there were 2,362 academic staff members in the three selected universities in South-west (University of Ibadan with 1,573; Adekunle Ajasin University 386 and Babcock University with 403).

Out of this target population, a sample size was derived using Yaro Yamane (1969) sample statistical formula.

The statistical formula is expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

Where n = the sample size; N = the total known population of academic staff; e = level of significance (or limit of tolerable error) = 0.05 and 1 = unit (a constant).

$$n = \frac{2,362}{1 + 2,362(0.05)^2}$$

$$n = \frac{2,362}{1 + 2,362 \times 0.0025}$$

$$n = \frac{2,362}{1 + 5.905}$$

$$n = \frac{2,362}{7}$$

$$n = \frac{2,362}{1 + 6}$$

$$n = 337 \text{ (Sample size)}$$

According to Creswell (2014), the use of a formula takes the guesswork out of determining the number of individuals to study. The researcher selected large representative sample size (337), this was good enough to generalize results of the population of the study (Creswell, 2014). The sample size for the three selected universities in South-west, Nigeria is shown in Table 2.

Table2: Sample Size

Selected Universities in Nigeria	Population	Sample Size		Total Sample Size
		Lecturer	Librarian	
University of Ibadan (UI)	1,573	213	11	224
Adekunle Ajasin University (AAU)	386	50	5	55
Babcock University (BU)	403	52	6	58
Total	2,363	315	22	337

Sample Selection Procedure

All participants (lecturers and librarians) in the three selected universities were selected randomly using simple random approach. The eligibility criteria for the

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participants are possession of minimum university degree and at least three years working experience.

Data Collection Instrument

The researchers adapted a validated questionnaire from Venkatesh who investigated technology acceptance factors. One advantage of applying Venkatesh's instrument to OA publishing system was that it was a validated instrument and theory-driven research. Because of the modifications of the questionnaire, the finalized instrument was pre-tested across a number of the faculty members from University of Ilorin that were not participated in the study. The wordings of the questionnaire were modified to fit the research context and background information. Items in the questionnaire were rated on a 4-point Likert-type scale with end points of "4" Strongly Agree and "1" Strongly Disagree; the two midpoints are 3, "Agree" and 2 "Disagree". The questionnaire was divided into sections under ten different headings and harmonized in one single questionnaire that contains: Section A required demographic information of the participants. These include age, sex, work experience, educational qualification, position and discipline; Section A contained items that covered 1-7. Section B contained items on level of OA publishing adoption which covered items 8-17. Section C contained Awareness of OA which covered items 18-25. Section D contained Attitude towards OA (ATOA) and covered items 26-31. Section E elicited information on Internet self-efficacy (ISE) beliefs using generalised self-efficacy scale (GSS) developed by Stanley, Nory, Hopko, Beck, Averill and Swan (2002) and covered items 32-36. Section F contained Effort expectancy (EE) covered items 37- 42; Section G contained performance expectancy (PE) covered items 43-48. Section H contained facilitating conditions (FCs) covered items 49-54 and section I contained behavioural intention to use (BIU) with items 55-57. The last section (Section J) contained open-ended questions with 4 items (58-61). Open-ended questions are designed to permit free response from the respondents. The questionnaire was validated and pretest conducted on a segment of the population which was later exempted from participating in the actual study. A total of 337 copies of the questionnaire were distributed, of which 317 were completed, returned and used for this study. The researchers analysed the raw data generated using the Statistical Package Social Sciences (IBM-SPSS) version 19.0 to perform a statistical analysis. The SPSS package was chosen because it offers a variety of data formats and data analysis program especially regression analysis.

Findings of the Study

The results obtained in the study are hereby presented as follows:

Response Rate

The sample size of the respondents who were selected from the three selected universities that participated in the study is 337. This is 14.3% of 2,362 which is the total population of the lecturers and librarians in the selected universities. The

questionnaire was distributed to 337 respondents, and 317 were completed and returned by respondents, 20 (5.9%) of the academic staff did not respond, giving an overall response rate of 94.1%.

Table 3: Respondents by Position and Gender

University	Lecturers	Librarians	Total Frequency	Gender		Total Frequency
				Male	Female	
UI	195	11	206	138	68	206
AAU	49	5	54	39	15	54
BU	51	6	57	35	22	57
Total	295	22	317	212	105	317

Source: Field Data, 2015

As shown in Table 3, the majority of respondents (206) were from University of Ibadan (UI). 57 from Babcock University (BU) while 54 were from Adekunle Ajasin University (AAU). Also, Table 2 shows that majority (295) were lecturers while 22 were librarians. In addition, majority (212) of the respondents were male and 105 were female. The findings indicate that the majority of academics were male in the three selected universities.

Table 4: Educational Qualification of Respondents

Qualification	Frequency		Total Frequency
	Lecturers	Librarians	
Bachelors	11	8	19
Master	83	12	95
PhD	201	2	203
Total	295	22	317

Source: Field Data, 2015

Table 4 shows that the majority (201) of lecturers had PhD while only 2 librarians had PhD. Also, 83 lecturers and 12 librarians had master degree. Moreover, 203 respondents had PhD degree, 95 had master degree and 19 respondents had bachelor degrees.

Table 5: Years of Work Experience

Work Experience	Frequency	Percentage
1 to 5 years	75	23.7
6 to 10 years	140	44.2
11 to 15 years	83	26.2
16 to 20 years	16	5.0
21 years and above	3	0.9
Total	317	100.0

Field Data Analysis, 2015

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Table 5 shows distribution of academic staff members that 140 (44.2%) of the respondents had 6 to 10 years work experience; 83 (26.2%) had 11 to 15 years; 75 (23.7%) had 1 to 5 years; 16 (5.0%) had 16 to 20 years; while only 3 (0.9%) had 21 years and above. Further analysis revealed that the majority of the respondents within the range of 1 to 10 years work experience had high affinity for the adoption of OA publishing while most of the respondents within the range of 16 years and above had low attraction of OA publishing. Reasons alluded to their low affinity were: slow Internet, erratic power supply and technophobia. The broad implication of the findings suggests that academic staff with less than 10 years work experience had high propensity for the adoption of OA publishing.

Research Question1: Which of the factors best predict academic's intention to adopt OA publishing?

Table6: Relative Contribution of the Factors that Predict Adoption of OA Publishing (N=317)

Variables	Standardized Coefficients		T-value
	Beta. weight	Standard. Error (SE)	
Awareness	0.37	0.057	8.36
Attitude	0.41	0.073	8.77
Performance Expectancy	0.15	0.072	2.88
Effort Expectancy	0.01	0.081	0.08
Internet self- efficacy	-0.11	0.076	-2.56
Facilitating conditions	0.13	0.068	2.51

Significant level at $p < 0.05$

Source: Field Data Analysis, 2015

Table 6 shows that among the variables of the study, attitude had the greatest significant effect on academic staff towards adoption of OA publishing ($B = 0.41$, $T = 8.77$). This is followed by awareness ($B = 0.37$, $T = 8.36$). Other variables are in the following order: performance expectancy ($B = 0.15$, $T = 2.88$), facilitating conditions ($B = 0.13$, $T = 2.51$), effort expectancy ($B = 0.01$, $T = 0.08$) and Internet self-efficacy ($B = -0.11$, $T = -2.56$).

The finding suggests that all the factors (attitude, awareness, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions) are good measure for the intention to adopt OA publishing by academic staff in the

selected universities in Nigeria. However, attitude of academic staff is the best predictor towards intention to adopt OA publishing.

Research Question2: What are the levels of inter-correlations that exist among factors and the intention to adopt OA publishing?

Table 7: Descriptive Statistics and Inter-correlation among the Variables
(N=317)

Variable	Aw	Att.	PE	EE	ISE	FC	AOAP
Awareness(Aw)	1						
Attitude (Att.)	.402*	1					
Performance Expectancy(PE)	.482*	.560*	1				
Effort Expectancy(EE)	.538*	.540*	.673*	1			
Internet Self Efficacy (ISE)	.478*	.459*	.457*	.546*	1		
Facilitating Conditions(FC)	.455*	.567*	.606*	.659*	.437*	1	
AOAP	.612*	.662*	.585*	.545*	.377*	.571*	1
Mean	23.94	16.97	18.88	18.24	15.16	17.92	33.45
S.D	3.47	2.85	3.20	3.12	2.59	3.36	4.47

*AOAP= Adoption of Open Access Publishing. Field Data Analysis, 2015

Source: Field Data Analysis, 2015

Table 7 shows descriptive statistics and inter-correlations among the variables. As indicated in this table, intention towards adoption of OA publishing (the dependent variable) correlated with independent variables: (1) awareness ($r = 0.612$; $P < 0.05$), (2). attitude ($r = 0.662$; $P < 0.05$). (3) Performance expectancy($r = 0.585$; $P < 0.05$), (4) effort expectancy ($r = 0.545$; $P < 0.05$), (5) Internet self-efficacy ($r = 0.377$; $P < 0.05$) and facilitating conditions($r = 0.571$; $P < 0.05$). The result shows that awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions positively correlated at various levels with intention to adopt OA publishing. The findings indicate that various levels of inter-correlations exist among the predictors and the intention to adopt OA publishing.

Question 3: What is the joint contribution of predictive factors to the intention to adopt OA publishing?

Table 8: Multiple Regressions on Prediction of Academic's Intention to Adopt OA Publishing (N=317)

Field Data Analysis, 2015

Table 8 indicates that awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions are significant variables for predicting academic's intention to adopt OA publishing ($F = 72.13$, $df = 7$, $N=317$; $p < 0.000$). This was found to be significant at $p < 0.05$ level. The finding shows that all the factors that predict the intention to adopt OA publishing collectively explained contribution of 62.0% of OA publishing adoption. The result indicates that all predictors (factors) of intention to adopt jointly influenced the adoption of OA publishing.

Discussion of Findings

Multiple R	.788	Analysis of Variance			
R. Square	.620				
Adjusted R. Square	.620				
Standard Error	1.452				
	Df	Sums of Squares	Mean square	F-value	p-value
Regression	7	3924.656	560.665	72.130	.000
Residual	310	2401.836	7.644		
Total	317	6326.492			

It was gathered from the study that academic staff members could be male or female with their educational qualifications of bachelor, master and PhD degrees. This means gender and education level are no barrier to intention to adopt OA publishing. However, years of work experience revealed that academic staff members with 16 years and above had low affinity for OA publishing. This could arise from the fact that facilitating conditions (power supply and Internet) were seen as abnormal. The findings of the study revealed that all the six variables (attitude, awareness, performance expectancy, Internet self-efficacy, facilitating conditions and effort expectancy) are good predictors of intention to adopt OA publishing by academic staff. In addition, all predictors had positive relation with adoption of OA publishing except Internet self-efficacy that had negative relationship with the adoption of OA publishing. This might be due to academic staff with 16 years and above of work experience developed low attraction towards intention to adopt OA publishing. Findings further showed that all the six variables significantly predict academic staff intention to adopt OA publishing with attitude showing the greatest predictive effect. A plethora of related studies clearly indicate this such as (Dulle, 2010; Okoye & Ejikeme, 2011; Emojorho et al., 2012; Obuh, 2013) agreed that effort expectancy,

performance expectancy, Internet self-efficacy, facilitating conditions, awareness and attitude are factors that determine the intention to adopt OA publishing. The findings corroborated earlier studies made by Obuh (2013), Mammo and Ngulube (2015) who reported in their various studies that attitude of academics has strong relationship with intention to adopt OA publishing. This implies that academic staff had perceived positive attitude towards OA publishing and would have intention to adopt and use them in the future. However, majority of academic staff with 16 years and above work experience had negative towards intention to adopt OA. Reasons alluded to their negative attitude were: unstable power supply and slow Internet bandwidth. Also, the findings is in line with the results from Khalili and Singh (2012) that reported the six predictors (Attitude, awareness, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions) as good measures of the intention to adopt OA publishing. Similarly, the present findings supported Dulle and Miniship-Majanja (2011) that showed factors (attitude, awareness, effort expectancy and performance expectancy) as significantly correlated and key determinants for the researchers' behavioural intention to adopt OA publishing and this also lends credibility to the findings of this study. Further, the study revealed that attitude of academic staff towards OA publishing is the best predictor towards intention to adopt OA publishing. This finding corroborated previous study by Lwoga and Questier (2014) that reported attitude (3.359) had the largest odds ratio, and was thus, the best predictor of the dependent variables.

On the correlation, the findings revealed that awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions are positively correlated with intention to adopt OA publishing by academic staff. However, older generation (academic staff members with 16 years and above) were technophobia (not Internet friendly). In addition, the results revealed that all predictors (Attitude, awareness, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions) were jointly contributed 62% to the intention to adopt OA publishing. The findings imply that other predictors could account for 38% contribution to the intention to adopt OA publishing aside from presents researched factors.

Implications of the Study

The implication of this study is in three-fold: theoretical implication is the first. It expands the adapted theory (UTAUT) and existing empirical literature that could be useful for further research on OA publishing. Second is the societal implication: the study improves awareness and intention to adopt OA publishing among the stakeholders seeking information on OA publishing. Thirdly, the empirical findings would provide useful information for policy formulation by government and university managements.

Suggestions for Further Studies

The study is purely based on quantitative analysis of intention to adopt OA publishing and addition of qualitative approach would have made it broader. Future researchers can adopt UTAUT model to test the adoption and use of OA publishing. This is necessary because social influence as part of variables of UTAUT was not relevant and excluded in the present study.

Further studies could also be done by examining the demographic variables that influence the intention to adopt OA publishing by academic staff in universities in six geo-political zones in Nigeria. Doing this, will add more value to the findings and improve generalization of the results to universities in Nigeria and other tertiary institutions with similar background.

Conclusion and Recommendations

The intention to adopt OA publishing system will continue, and indeed could accelerate change in the way access and dissemination of information is accomplished by academic staff. This study examined the predictive factors of intention to adopt OA publishing by academic staff in selected universities in Nigeria. Concisely, the study revealed that awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions are essential factors predicting the intention to adopt OA publishing. By and large, attitude towards OA publishing plays more role than any other factors in terms of determining behavioural intention to adopt OA publishing by academic staff. Also, the study revealed that all predictors contributed only 62%. The finding indicates that there is an opportunity to investigate other factors apart from the factors examined in the present study, in order to record above 62% predictive power of the intention to adopt OA publishing. This might be difficult in Nigeria considering the epileptic power supply, low Internet bandwidth and technophobia attitude of academic staff members with 16 years and above work experience.

Based on the findings of this study, the universities should strengthen the existing ICT facilities by providing regular power supply and upgrading Internet bandwidth as well as providing adequate funds for maintenance. Despite that awareness and attitude recorded high correlation with intention to adopt OA publishing, there is need to improve OA awareness campaign with emphasis on OA benefits. Hence, university library management should organise library week and campus road shows where OA initiatives will be promoted. This will further enhance academic's positive attitude towards adoption of OA publishing.

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