

A Framework for Adoption and Use of Open Access Publishing in Tertiary Institutions in Nigeria : an Empirical Study

Bashorun, M.T.

Ph.D. Candidate

Department of Library and Information Studies

University of Botswana

Abstract

The emergence of Internet has brought transformation in scholarly publishing. Open access (OA) publishing plays a major role in scholarly communication system by facilitating access and improving wide visibility of research outputs. The tertiary education sector in Nigeria is considered as one of the most influential sectors in terms of research that develop the country. In striving towards achieving access without any barriers, a research based institution must embrace OA initiatives that enhance research, teaching and learning process. This study investigates the adoption and use of OA publishing in Nigerian universities among the academic staff, with the concern on the factors influencing their adoption and use of OA publishing in the university system. The study also attempts to build a conceptual framework to the Nigerian case according to the results of regression analysis. A sample of 337 academic staff was selected from the three universities in Southwest Nigeria using random and purposive sampling procedures. A self-administrated survey was conducted on 337 academic staff and total of 317 participants (94.1%) have responded. Also, in-depth interviews were conducted on four members of management staff. A Cronbach alpha analysis of the questionnaire gave a reliability coefficient of 0.81 and the split-half method of test was used. The questionnaire was analyzed using the Statistical Package for Social Sciences (IBM-SPSS) 19.0 version to generate descriptive statistics, Analysis of Variance and Hierarchical Multiple Regression. The results of the analysis contribute a new framework which is considered as a novel framework in this study.

Keywords: Internet; Open access publishing; Scholarly communication; Adoption and Use; University; Nigeria.

Introduction

The emergence and rapidly growth of Internet has changed the various activities in the world. Internet and ICT have become the main platform for dissemination of information. The prime objective of establishment of university is to carry out research, teaching and learning. The research outputs are not well disseminated through traditional mode of publishing. According to Moahi (2009), knowledge is generated in universities and research centres, it is either disseminated in expensive international journals, or gathers dust in the offices (and computers) of the generators, as well as those that have funded or commissioned the research. This gives room for duplication of research after a number of years without knowledge that they have been carried out before. The expensive journals denied information users of the access especially those who could not avoid paying exorbitant price for journals. The need to address this ugly situation calls for the development of OA initiatives with the principle of maximising access to information without any barriers. This is possible with the advent of Internet that serves as platform for OA publishing (Gbaje, 2010) which is being considered as the umbrella for the scholarly communication and Network devices for scholars in the world over.

The main objective of OA initiatives is to improve wide accessibility and promote visibility of research findings without geographical barriers. This serves as an avenue for international collaboration among scholars without constraint. The adoption and use of OA publishing has provided an unprecedented opportunity for improving access and visibility of research around the world (Chan et al., 2011). Therefore, OA publishing needs to become more popular among developing nations which seek research

improvement like advanced countries of the world. In fact, the OA initiative is becoming more admired at an increasing rate as most academics recognize the needs to embrace OA. In the course of promoting OA initiatives,

The University of Ibadan and Ahamdu Bello University sponsored conferences/workshops on OA initiatives to encourage the acceptance and use of OA publishing as a technology based system. For instance, efforts have been made to promote awareness and popularize OA initiatives in Nigeria. The Department of Library and Information Science at Ahamadu Bello University (ABU), Zaria Nigeria in 2008, organized a 2-day workshop in collaboration with Electronic Information for Libraries Network (eIFLNet) and Nigerian University Libraries Consortium (NULIB) on "Open Access Repositories: New Model for Scholarly communication" at ABU (Gbaje, 2010). In the matter of fact, the tertiary education sector in Nigeria plays a critical role in the growth of the research-based economy because the individuals have strong needs and interests in education to develop their knowledge and skills to become competitive and knowledge workers in the global markets. Unfortunately, until now there is a lack of adoption and use of OA publishing among the universities' academic staff in Nigerian tertiary educational institutions (Utulu & Bolarinwa, 2009). Apart from that, the adoption and usage of OA publishing in Nigeria universities for teaching and learning process are still low among the academicians (Gbaje, 2010; Igwe, 2013; Bashorun, 2014), in which they have lack knowledge, skills, motivation, and interests in using OA publishing in facilitating their scholarly works (Okoye & Ejikeme, 2011; Oluwasemilola, 2013). In spite of the various studies that have been carried to examine the factors that influence adoption and use of OA publishing, none of the study examine the relationship among the

variables of study. From the perspective of OA publishing, this study makes an attempt in bridging digital divide between developed and developing countries in the use of OA in their scholarly activities like research, teaching and learning especially in Nigerian university system.

The optimum adoption and using of OA publishing by academic staff in the universities will develop wide access and improve visibility of research findings. Open access initiative creates new mode of scholarly communication that capable of saving cost and minimise serial and permission crises looming the academic library services. This study is motivated by the need to tackle slow adoption and use by academic staff. In addition, to inform lecturers, librarians and other stakeholders about what are the factors that influence academic staff to adopt or reject OA publishing in Nigerian tertiary institutions and encourage faster and more efficient adoption and use. This is a theory building investigation to the factors that are likely to influence the use of OA publishing among staff in the Nigerian tertiary institutions. However, there is little studies (Utulu & Bolainwa, 2009; Gbaje, 2010; Emojorho et al, 2012, Obuh, & Bozimo, 2012; Obuh, 2013) that have been empirically investigated such factors. However, little attentions have been paid in the literature to the adoption and use of OA publishing in the context of developing countries.

Literature Review

There is need to review literature in order to identify the gap and guides against duplication of effort in research. The review also, gives researcher opportunity to relate the current findings with previous studies.

Christian (2008) examined why the concept of OA is important to academic and research institutions in Nigeria. The study observed the awareness level of OA by academics and researchers in universities and research institutions in Nigeria. One hundred questionnaires were administered randomly on selected participants (lecturers and graduate students) in six different faculties and the return rate was 72%. The study reported that 3% of the 66 respondents at the University of Lagos were aware of the OA concept while 22.7% others knew very little about OA. The majority (74%) of the respondents were completely unaware of the OA concept.

Utulu and Bolarinwa (2009) investigated OA initiatives adoption by academics from Universities of Ibadan and Lagos. The convenient sampling method was used to select two universities. Two hundred and fifty questionnaires were distributed to the respondents and 180 out of 189 copies were useable. The finding of the study reported that among 189 respondents, 65% were aware of pre-prints and 60% and 48.3% respectively claimed to know OA journals and post print. In addition, a lack of understanding of the OA concept and the inability to identify appropriate OA journals for publishing were observed as part of the contributory factors for its low adoption.

Okoye and Ejikeme (2011) examined open access and institutional repository in South Eastern Nigeria. Questionnaire administered to 67 academic librarians selected from four participating universities. The population of the study was conveniently selected among two federal universities and two state universities. The findings revealed that 88.8% of the respondents were aware of OA journals and their advantages but only 13.3% have published in OA journals. It can be inferred from the result that librarian's awareness of OA does not suggest an actual adoption of OA.

Khalli and Singh (2012: 203) define attitude towards technology as "an individual's overall perception towards use of a system". Attitude plays a vital role in acceptance of OA publications, which has a significant influence on behavioural intention of OA usage

Wickham (2011) examines academics' attitude to OA and institutional repositories in Repository Survey Project (RSP) and United Kingdom Council of Research Repositories (UKCoRR) initiative. Twenty (20) institutions participated with a total of 1676 respondents using questionnaires. The study revealed that the majority of respondents had positive attitudes toward OA, with 85% of them either strongly agreeing or slightly supporting OA publishing.

Frass et al. (2013) carried out research on behalf of Taylor and Francis to examine researcher's perception of OA in six continents. The study establishes that researchers had good perceptions toward OA and enjoyed adequate access to most of the articles they read. The percentages of respondents recorded from different continents were: in Australia = 42%, Middle East = 41%, US & Canada = 39%, Europe = 35%, Africa = 33% and Latin America = 29%. The findings show 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 studies on African countries to ascertain Africans' stand in OA initiatives. Mammo and Ngulube (2013) investigated academics' use and attitude towards OA in selected higher learning institutions in Ethiopia. They used questionnaires and semi structured interview and seven universities were selected with 768 academics.

The findings establish that 50% of the respondents agreed that OA journals had adequate standard quality and scientific merit. Obuh (2013) examined researcher's attitude towards the use of OA publications in order to determine the position of LIS lecturers in Southern Nigeria. A sample of 141 lecturers from the Departments of Library and Information Science of the fourteen (14) universities in Southern Nigeria was used. He observes that both junior and senior lecturers exhibited positive attitude towards usage of OA publications.

Objective of the Study

The study investigates academic staffs' behaviour pertaining to the adoption and use of OA publishing in

Nigeria universities. The specific objectives are to:

1. Identify factors that influence the adoption and use of OA publishing by academic staff;
2. Establish relationships among the variables of the study;
3. Determine the level of university management support towards the adoption and use of OA publishing by academic staff and
4. Suggest framework that can improve adoption and use of OA publishing.

Hypotheses of the study

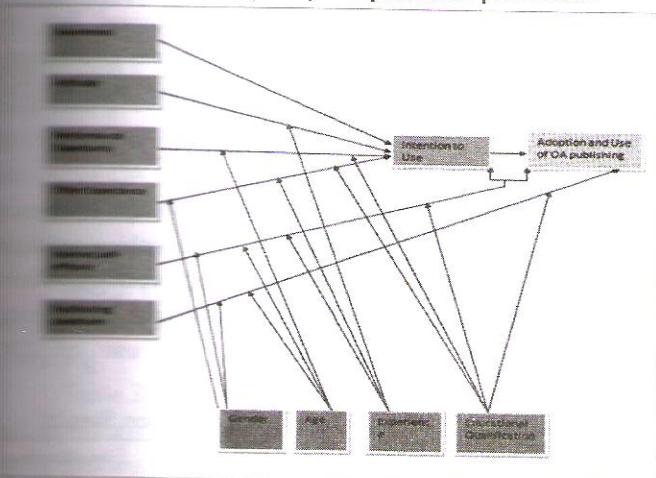
There is a significant relationship between independent variables (awareness of OA publishing, attitude towards OA publishing, performance expectancy, effort expectancy, Internet self-efficacy, facilitating conditions, behavioural intention and adoption and use of OA publishing).

The Conceptual Framework for the Adoption and Use of OA Publishing

According to Jabareen, (2009: 51) a conceptual framework is "a network, or 'a plane,' of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena". The variables for this study were derived from conceptual framework of the study and new variables carefully chose from the literature which has shown (see Figure 1) to be important in explaining the adoption of OA publishing which are amenable to statistical analysis.

Figure 1: The Conceptual Framework for the Adoption and Use of OA Publishing (Modified UTAUT)

Venkatesh et al., (2003). Adapted with permission



Results of the Findings

Objective 1: The objective sought to identify factors that influence the adoption and use of OA publishing by academic staff in selected universities

Table 1 Relative Contribution of the Factors that Determine Adoption and Use of OA Publishing (N=317)

Model	Unstandardized coefficients		Standardized coefficients	t	Significant
	B	Std. Error	Beta		
(Constant)	8.451	1.452		5.821	.000
Awareness of OA Publishing	.473	.057	.367	8.361	.000
Attitude towards OA Publishing	.638	.073	.407	8.774	.000
Performance Expectancy	.208	.072	.149	2.878	.004
Effort Expectancy	.007	.081	.005	.082	.935
Internet self-efficacy	-.196	.076	-.114	-2.564	.011
Facilitating conditions	.169	.068	.127	2.505	.013
Behavioural intentions	-.151	.075	-.070	-2.001	.046
p < 0.05					

Table 1 reveals that each of the independent variables (factors) made significant contributions to the prediction of adoption and use of OA publishing. Effort expectancy made insignificant contribution but has positive relationship with adoption and use of OA publishing. As regards to the magnitude of contribution, attitude towards OA publishing made the most significant contribution (Beta = .407, $t = 8.774, p < 0.05$) to the prediction of adoption and use of OA publishing. This is followed by awareness with value (Beta = .367, $t = 8.361, p < 0.05$). And the next is the performance expectancy that made significant contribution (Beta = .149, $t = 2.878, p < 0.05$). Also, facilitating conditions (Beta = .127, $t = 2.505, p < 0.05$) made significant contribution to the prediction. Moreover, other factors made significant contribution in the following order; Internet self efficacy (Beta = .114, $t = .011, p < 0.05$) and behavioural intention (Beta = -.070, $t = -2.001, p < 0.05$) with negative relationship. This implies that the lower the relationship of both Internet self-efficacy and behavioural intention the better the adoption and use of OA publishing. Effort expectancy (Beta = .005, $t = .082, p > 0.05$) made insignificant contribution to the prediction of adoption and use of OA publishing. Thus, the higher the beta value the greater the influence of the predictor variable on the criterion (adoption and use of OA publishing).

This suggests that all the factors (awareness, attitude, performance expectancy, effort expectancy, Internet self efficacy and facilitating conditions have established relationship with adoption and use of OA publishing. Also, all predictors are good measure for the adoption and use of OA publishing. Hence, it was identified that awareness, attitude, performance expectancy, effort expectancy Internet self-efficacy and facilitating conditions were factors that influenced the adoption and use of OA publishing.

Objective 2: The third objective sought to establish relationships among factors that influence the adoption and

use of OA publishing.

Table 2: Correlation Matrix Showing Relationship among Variables of the Study (N=317)

Variable	Aw	Att.	PE	EE	ISE	FC	BI	AUOAP	G	A	Exp	EQ
Aw	1											
Att.	.402*	1										
PE	.482*	.560*	1									
EE	.538*	.540*	.673*	1								
ISE	.478*	.459*	.457*	.546*	1							
FC	.455*	.567*	.606*	.659*	.437*	1						
BI	-.055	-.025	-.051	-.015	-.042	-.030	1					
AUOAP	.612*	.662*	.585*	.545*	.377*	.571*	-.107	1				
G	-.013	.025	.037	.039	.003	.047	-.084	.080	1			
A	-.022	-.078	.149*	.018	-.113*	-.030	-.027	.060	-.131*	1		
Exp	-.062	-.055	.071	-.045	-.103	-.009	-.074	-.025	-.180*	.569*	1	
EQ	.045	-.085	.041	.004	.098	.016	-.024	.032	-.285*	.438*	.324*	1
Mean	23.94	16.97	18.88	18.24	15.16	17.92	8.39	33.45	1.33	2.60	1.95	2.58
S.D	3.47	2.85	3.20	3.12	2.59	3.36	2.09	4.47	0.47	0.96	0.98	0.60

Table 2, shows that three correlations exist between overall score of adoption and the use of OA publishing and predictors. The data suggests that attitude had the highest correlation ($r = 0.66$) with the adoption and use of OA publishing. This is followed by awareness ($r = 0.61$); performance expectancy ($r = 0.59$); facilitating conditions ($r = 0.57$); effort expectancy ($r = 0.55$); and Internet self-efficacy ($r = 0.38$). These results show that all predictors were positively correlated with adoption and use of OA publishing while behavioural intention ($r = -0.11$) was negatively correlated. A correlation of moderating factors with adoption and use of OA publishing reveals that gender ($r = 0.08$); age ($r = 0.06$); and educational qualification ($r = 0.03$) were positively correlated. Experience ($r = -0.03$) had negative correlation. The negative relationships were found to be weak. The moderators of this study are strong, weak or moderate. The results suggest that all identified factors are associated with adoption and use of OA publishing and they are determinants of the adoption and use of OA publishing.

Objective 3: The third research objective sought to investigate the level of university management support for OA publishing. To meet this objective, the interviews were conducted on university managements of the three selected universities as shown below;

The findings of the study revealed that most respondents did not know, if there is any policy that support OA adoption and use by academics in targeted universities in Southwest Nigeria

One of the respondents supported the findings by stating that:

Lack of OA legal framework is an issue affecting us (academic staff). If the university endeavours to formulate OA policy, it will encourage many academics like ours (lecturers) to increase adoption and use more OA publication as we will do more of OA publishing to show-case our scholarly research findings. However, if the university does not provide the enabling environment, it becomes impossible for many academics..... The university should fulfil their part by playing the role that will enhance OA publishing adoption and use.

One respondent acknowledged the need of OA by expressing:

At the moment, there is no written policy that supports

OA adoption and use by academic staff in my university (University of ...). Beside, a plan is on the pipe-line on OA legal framework and the University Librarians and academic staff from the Faculty of Law have been mandated to be part of the anticipated OA legal framework committee. If the framework has been put into place to support the adoption and use of OA, it would have boosted the morale of academic staff by increasing the adoption and use of OA publishing.

Similarly, another respondent from the third university expressed that:

.....We need an OA policy. The university management needs to introduce policies that would support and assist OA publishing adoption and use in the university community in Nigeria. Academics require some level of support from the Annual Promotion Committee (APC). It seems the lack of a written policy for OA publishing leads to rejection by the promotion committee.

Comments made by university management staff of the three targeted universities suggest that there was no OA policy in any of the targeted universities. These findings affirmed the general comments of respondents in the questionnaire that they did not have any knowledge of the existence of OA policy in their universities. This suggests that perceived fear of rejection by academics staff could have been totally, if universities management could put in place OA publishing policy.

Furthermore, insights from the respondents suggest that university management support to OA publishing adoption and use could be of significant help to academics in universities in Nigeria. In other words, the university management's role with respect to supporting academic staff adoption and use of OA publishing is a key to successful free access of OA publications as well as wide dissemination of research findings. Having OA publishing policy in place will motivate academics and alleviate perceived fear of rejection of OA publication by annual university promotion committee. This will increase adoption and use of OA publishing by academic staff.

Hypothesis

There is no significant relationship between independent variables (awareness of OA publishing, attitude towards OA publishing, performance expectancy, effort expectancy, Internet self-efficacy, facilitating conditions, behavioural intention and adoption and use of OA publishing.

Table 3: Hierarchical Multiple Regression Result

Hypotheses	Variable (Independent)	Statistical Results	Implication
HO ₁	Awareness of OA	B = .37, t = 8.36, p < .05	Significant at p < .05
HO ₂	Attitude towards OA	B = .41, t = 8.77, p < .05	Significant at p < .05

H ₀₁	Performance Expectancy	B= .15, t= 2.88, p <.05	Significant at p <.05
H ₀₂	Effort Expectancy	B =.01, t = 0.08, p<.05	Significant at p <.05
H ₀₃	Internet self-efficacy	B = -.11, t = -2.56,	Significant at p <.05
H ₀₄	Facilitating condition	B=.13, t=2.51, p <.05	Significant at p <.05
H ₀₅	Behavioural intention to use	B= -.07, t = -2.00, p <.05	Significant at p <.05

Dependent Variable: Adoption and use of OA publishing.

Awareness of OA

The knowledge or perception of a situation or fact is paramount in any decision to adopt and use new innovation. OA publishing is a new concept that needs to be known before accepting or using this technology based system. According to the present findings and previous studies (Clinton, 2008; Obuh&Bozimo, 2012), awareness plays a vital role and is a key factor influencing the adoption and use of OA publishing.

H₀₁: There is no significant relationship between awareness of OA publishing and adoption and use of OA publishing.

Table 3 shows that there was a significant relationship between awareness and adoption and use of OA publishing. Hence, the findings suggest that awareness of OA (B =.37, t=2.88, p <.05) can influence the adoption and use of OA publishing.

Attitude

Attitude can be described as a way of thinking or feeling about something either negative or positive feeling. Attitude towards adoption and use of OA publishing plays an essential role. An academic staff that develops positive attitude towards adoption and use of OA publishing will embrace and use it to perform the task. The findings of this study and previous findings (Khali& Singh, 2012; Wickham, 2011) established that attitude is a determinant of adoption and use of OA publishing. Attitude towards OA publishing is a determinant of the adoption and use of OA publishing and has relationships with other variables (factors).

H₀₂: There is no significant relationship between attitude towards OA publishing and adoption and use of OA publishing.

Table 3 shows that attitude (B = .41, t = 8.77, p <.05) had significant relationships with the adoption and use of OA publishing. The result implies that attitude can influence adoption and use of OA publishing.

Performance expectancy

Performance expectancy concerns the degree to which a person believes that using OA publishing system would improve his or her task performance. The current finding was in congruence with previous studies (Al-Qeisi, 2009; Dulle, 2010).

H₀₃: There is no significant relationship between performance expectancy and adoption and use of OA publishing.

Table 3 shows that performance expectancy (B =.15, t=2.88, p <.05) had significant relationship with the adoption and use of OA publishing.

Effort expectancy

Effort expectancy is defined as the degree to which a person believes that using OA publishing system would be easy to achieve a set target. The finding revealed that effort expectancy influence is not significant. Hence, the findings are not opposing with the previous and other similar studies findings (for instance, Louhoet al., 2006; Butler & Richardson, 2008) which report high proportion of the respondents to have significantly expressed less effort expectancy towards the usage of new technologies.

H₀₄: There is no significant relationship between effort expectancy and adoption and use of OA publishing.

Results from Table 3 reveal that effort expectancy (B =.01, t = 0.08, p<.05) had significant relationship with the adoption and use of OA publishing. This suggests that effort expectancy is a factor that can affect adoption and use of OA publishing.

Internet self-efficacy

According to Bandura (1986) efficacy beliefs influence the effect of skills or other self-beliefs on subsequent performance attainment (Bandura, 1997; Schunk, 1991). Internet self efficacy is personal self-assurance of having capability to use Internet to achieve specific task. Gbaje 2010 establishes that Internet is a platform for OA publishing. The present findings support Dulle, (2010) that Internet self-efficacy has significant influence on adoption and use of OA publishing. Additionally, both, the Internet usage skills and self-efficacy have been conceded as the key determinants for effective exploitation of information in the digital environment era (Waldman, 2003; White & Gendall, 2005).

H₀₅: There is no significant relationship between Internet self-efficacy and adoption and use of OA publishing.

Table 3 shows that Internet self-efficacy (B = -.11, t = -2.56, p <.05) had significant relationship with adoption and use of OA publishing. The findings imply that Internet self-efficacy can influence adoption and use of OA publishing.

Facilitating Conditions

According to the findings of the current study and results that derived from the previous studies (Okoye&Ejikeme, 2011) the role of facilitating conditions in adoption and use of OA publishing is very crucial. OA publishing is a new model of scholarly publishing and this fact is true for it. Facilitating conditions are referring to factors like the fund, training on ICTs and Internet, technical support, Internet facilities and regular electricity power that are essential for successful adoption and use of OA

publishing (Christian, 2008; Fatunde, 2008; Nnodim, 2014). Also, the current findings corroborate results from previous studies (Dulleet al., 2010; Zhou et al., 2010) that facilitating conditions have significant influence on adoption and use of OA publishing.

Ho₆: There is no significant relationship between facilitating conditions and adoption and use of OA publishing.

Table 3 reveals that facilitating conditions ($B=.13$, $t=2.51$, $p < .05$) had significant relationship with the adoption and use of OA publishing.

Behavioural Intention

Behaviour Intention is defined as a person's perceived likelihood or subjective probability that he or she will adopt and use OA publishing. Showing only intention to use might not translate to actual usage of OA publishing.

Ho₇: There is no significant relationship between behavioural intention and adoption and use of OA publishing.

Table 3 shows that between behavioural intention ($B=-.07$, $t = -2.00$, $p < .05$) had significant relationships with the adoption and use of OA publishing.

OA Legal Policy

Findings from both questionnaire and interviews revealed that none of the sampled universities in Southwest Nigeria has policy for OA publishing and this has created perceived problem of rejection of OA publications for the promotion and tenure elongation by the constituted University Promotion Committee.

There is need to establish a policy that will promote acceptance and use of OA publishing by the academics.

Objective 4: The third objective sought to develop a suitable framework that can facilitates the adoption and use of OA publishing by academic staff in universities in Nigeria.

This proposed framework brings together several factors of greatest relevance identified in previous literature such as attitude towards OA publishing, awareness, Internet self-efficacy (cognitive). The framework shows the importance and recognition of missing variables on the adoption and use of OA publishing as acknowledged in the literature which is missing from the UTAUT model developed for behavioural adoption and use in general. The proposed framework presents many factors which are considered impact upon the individual's adoption of OA publishing in addition to moderating variables. The purpose of this study is to identify the factors that affect on the adoption of OA publishing at the tertiary institutions in Nigeria.

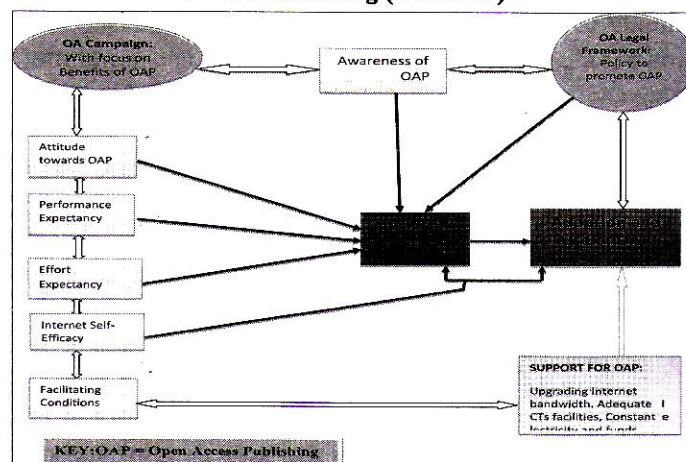
The initial model is framed within the Unified Theory Acceptance and Use Technology (UTAUT) (Venkateshet al., 2003), and enhanced by others such as

The framework is developed based on the findings of the study. The proposed framework for the adoption and

use of OA publishing (FAUOAP) refers to a platform for evaluating, appreciating and enhancing the adoption and use of OA publishing by academic staff in universities in Nigeria. The researcher translated the various factors into indices and measurable indicators in order to show the complex phenomenon that affects the adoption and use of OA publishing in university settings.

The methodology of creating the proposed framework of the current study was based on the analysis of the perceptions of the respondents (academic staff) in the selected universities and complemented with previous research findings. Firstly, the researcher took the first step to understand the concept of awareness, attitude, Internet self-efficacy, performance expectancy, effort expectancy and facilitating conditions in Nigerian universities. The study also, ascertained the relationships among the independent variables with the adoption and use of OA publishing (dependent variable) using the modified UTAUT model as a lens. In the context of this concept, the study researched the major factors that influence the adoption and use of OA publishing. The second step taken by the researcher was to study and understand the problems and choose the instruments for data collections such as semi-structured questionnaire and structured interview. The third step taken was to analyse and relate the issues that emanated from this study with previous research findings. In the last stage, the researcher proposed a framework that tackles the slow adoption and use of OA publishing by academic staff. This framework may apply to other tertiary institutions within Nigeria and beyond with similar background. The proposed framework is presented in Figure 2:

Figure 2: Proposed Framework for the Adoption and Use of OA Publishing (FAUOAP)



The proposed framework maps the identified factors that have been understood to influence the adoption and use of OA publishing by academics in universities in Southwest Nigeria. Figure 2 is a visual expression of the content emanating from the empirical findings of the present study which is built on the unified theory (UTAUT) and previous

studies. The conceptual framework described in Figure 1 exhibits "what" needs to be done in order to achieve successful adoption and use of OA publishing by academic staff in Nigeria. However, it does not explain "how" these activities can be achieved. By combining "what" and "how" a robust practice framework for the successful adoption and use of OA publishing by academic staff can be achieved. The "how" part of the framework can be resulting from research findings and literature. The empirical data that emerged provide OA knowledge that exposes the need for OA policy formulation, which later transforms to practice.

Explanation of the Proposed Framework

The presentation of FAUOAP in a diagrammatic form is chosen in order to share knowledge on how the adoption and use of OA publishing in universities in Nigeria and in other countries can be improved. FAUOAP proceeds through the main factors to yield outcomes (adoption and use of OA publishing).

The proposed conceptual framework in Figure 2 examined the interactions between independent variables (awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions), OA policy and dependent variable (adoption and use of OA publishing). Specifically, the model analyzed the key variable connections as shown in Figure 2 and provided a useful viewpoint for examining variables that influenced the adoption and use of OA publishing by academic staff.

The proposed framework illustrates how independent variables (i.e., awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy, facilitating conditions and OA policy) interact with the behavioural intention at the centre, which serves as mediating variable and influences the adoption and use of OA publishing. With the exception of facilitating conditions, behavioural intention mediates the involvement of all independent variables that influence adoption and use of OA publishing by academics. This proposed framework (see Figure 2), will assist the researcher to figure out how the interactions between independent variables influenced the level of the adoption and use of OA publishing by academic staff. These are explained in this framework as independent variables, namely; OA policy, awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions. The OA policy stands as a key factors to be recognised in the developmental stage of the adoption and use of OA publishing by academic staff.

These variables are theoretically associated with the adoption and use of OA publishing. The independent variables are explained as predictors that influenced adoption and use of OA publishing (dependent variable). Furthermore, these variables are multi-dimensional and interact with each other. These interactions can play a significant role in decisions of academic staff either to use or reject OA publishing.

The support for OA publishing will influence

facilitating conditions and this in turn influences Internet self-efficacy because the development of self-efficacy depends on Internet facilities with high Internet bandwidth. This will in turn interact with effort expectancy as a result of self-confidence in ability to use Internet with less difficulty. This chain of interactions influence and induce academic to embrace the OA system because of its benefits to aid job performance (performance expectancy) for the set target. The performance expectancy in turn influences the ability to achieve the set target with little effort (effort expectancy) and impact on the development of the right (positive) attitude by academic staff. This will attract OA campaign which leads to OA awareness. Later, influence the formulation of OA policy. Further, OA policy triggers and enhances the adoption and use of OA publishing by academic staff.

Also, academic staff that benefits from the adoption and use of OA publishing inevitably influences university management to formulate an OA policy that promotes awareness of OA. This in turn drives the need to intensify more efforts in OA campaign with focus on its benefits that can inform development of positive attitude towards OA by academic staff. This chain of interactions influences performance expectancy of academic staff having realized the benefits of OA to enhance performance on the set target. Further interactions attract academics to use OA, since it requires little effort (effort expectancy) to deliver the set target. Further, this in turn encourages academic staff to develop Internet self-efficacy through an enlivened environment (facilitating conditions) that support OA publishing. These chains of interactions inform more support for OA that finally lead to the adoption and use of OA publishing. Additionally, each independent variable (OA policy, awareness, attitude, performance expectancy, effort expectancy, Internet self-efficacy) have direct influence on intention to use OA publishing as indicated by the arrow and intention to use has direct influence on the actual use of OA publishing. Finally, following each step thoroughly will lead to successful adoption and use of OA publishing (outcome) as shown in Figure 2.

Justification for the Framework

This section presents the justification and the key tenets that guide the proposed framework.

In Figure 2, the integration shown is considered as a logical linkage of important selected variables that could be used to explore and appreciate the adoption and use of OA publishing in universities in Nigeria. These include: awareness of OA, attitude towards OA, performance expectancy, effort expectancy, Internet self-efficacy and facilitating conditions.

On the basis of the empirical findings and literature review, the new framework is justified because:

1. There was no clear understanding of the combination of variables like awareness of OA, attitude towards OA and Internet self-efficacy towards the adoption and use of OA publishing by academic staff in universities in

Nigeria;

2. The adoption and use of OA publishing by academics in most universities witness a high consumption of OA publications but low patronage of OA publishing outlets;
3. There is persistence of serial and permission crises in academic libraries;
4. There was no clear significant level of the adoption and use of OA publishing by academic staff and
5. There was no OA legal framework (OA policy) to encourage academics in the adoption and use of OA publishing in universities in Nigeria.

In summary, the research framework was built on the current findings and conceptual framework adapted from the UTAUT model. This framework was informed by the new empirical data that emerged from the study. The OA knowledge utilization triggers policy formulation in order to ensure that OA knowledge gain is translated into practice. In fact, this framework serves as a platform for evaluating, appreciating and enhancing the adoption and use of OA publishing by academics in Nigeria and its applicability can extend beyond Nigeria. However, it is to be noted that this proposed framework is still at infancy and can be evaluated in future research.

Recommendations

Based on the findings, the following recommendations were made:

OA Awareness:

It is recommended that the universities should increase OA awareness by assigning reference librarian or scholarly communication officer in the library to provide access to OA publications. Also, Library should organise OA monthly awareness program.

Adequate facilities:

In addition, management of universities should provide adequate facilities like provision of sufficient fund, regular power supply and upgrading Internet bandwidth. Also, provide regular ICTs and Internet searching training for academic staff.

OA publishing policy:

The universities management should formulate OA publishing policy that will alleviate academic staff fear of rejection of OA publication for promotion and tenure elongation. This can be achieved by university by ensuring that OA peer reviewed publications are given equal treatment like printed journals or toll-accessed journals.

Conclusion

The understanding of behavioural adoption and use of OA publishing is considered to be important to lecturers, librarians and other stakeholders especially in the field of scholarly communication. Any system that aims to improve access to knowledge for developing countries must take into account the OA publishing. The simplest and most reliable

approach to ensure that knowledge is available where and when it is needed is to avoid access barriers altogether through a universal open access model. This study contributes to theory expansion and increase empirical data on adoption and use of OA publishing. The findings of the present study also contribute to theoretical modelling by adapting the IS adoption and use theory (UTAUT) in relation to a new application area that could give new insights into the theory. In addition, the proposed framework improves a successful adoption and use of OA publishing that are supported by new technologies by deepening the knowledge about factors which inhibit or facilitate the adoption and use of OA publishing among academic staff in Nigeria and beyond. The proposed research framework inform the formulation of OA policy by the policy makers especially universities management that intend to enhance the adoption and usage of OA publishing in scholarly community in Nigeria.

Reference

1. Al-Qeisi, K.I. (2009). Analyzing the use of UTAUT model in explaining an online behaviour: Internet banking adoption. Unpublished PhD thesis, Brunel University. Available: <http://bura.brunel.ac.uk/bitstream/2438/1/kholoudThesis.pdf> (Accessed 24 April 2013).
2. Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.
3. Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.
4. Bashorun, M.T. (2014). Awareness and attitude of academic staff towards adoption of open access, publishing in University of Ilorin Nigeria. Proceeding of the 2nd Open Access National Conference 6th -7th November, 2014, Game City Gaborone, Botswana.
5. Butler, J., & Richardson, K. (2008). The perceived ease of use of iBrainz technology in property law and taxation law. Studies in Learning, Evaluation Innovation and Development, 5(1): 81-98. Available: <http://sleid.cqu.edu.au> (Accessed 5th May 2013).
6. Christian, G.M. (2008). Issues and challenges to the development of open access institutional repositories in academic and research institutions in Nigeria. A paper prepared for the International Development Research Centre (IDRC). Available: <http://idlbnrc.idrc.ca/dspace/handle/123456789/36986/1/127792.pdf> (Accessed 12 June 2012).
7. Budapest Open Access Initiative. BOAI. (2002). Available: <http://www.soros.org/openaccess/read.shtml>. (Accessed 15th June 2013).
8. Dulle, F. W., Minishi-Majanja, M.K., & Cloete, L.M. (2010). Factors influencing the adoption of open access scholarly communication in Tanzanian public universities. World Library and Information Congress: 76th IFLA General Conference and Assembly 10-15 August 2010, Gothenburg, Sweden. Available: <http://www.ifla.org/en/ifla76> (Accessed 17th December 2012).
9. Emojorho, D., Iwighregweta, O., & Onoriode, K. O. (2012). Awareness of open access scholarly publication among lecturers in university of Benin, Benin City, Edo State, Nigeria. Journal of Research in Education and Society, 3(1), 1-11.
10. Fatunde, T. (2008). Nigeria: Poor electricity supply hits ICT growth. University World News (African Edition). Available:

- <http://www.universityworldnews.com/article.php?story=20080424153055598> (Accessed 24th May 2012).
11. Fraz, W.C., Cross, J. and Gardner, V. (2013). Open access survey: exploring the views of Taylor & Francis and Routledge authors. Available from: <http://www.tandf.co.uk/journals/pdf/open-access-survey-march2013.pdf> (accessed 14 April 2014).
 12. Gbaje, E.S. (2010). Open access journal publishing in Ahmadu Bello University Zaria, Nigeria. Paper presented at the 76th General Conference and Assembly of the International Federation of Library Associations and Institutions (IFLA), 10-15th August, 2010, Gothenburg, Sweden, 1-12.
 13. Igwe, K.N. (2012). National virtual library of Nigeria in the open access era. 22 (3). A Center for Electronic Governance, Indian Management. Available: <http://www.iimahd.ernet.in/egov/fip/hov2012/igwe.ht> (Accessed 24th December, 2014).
 14. Johnson, Y. (2009). Building a conceptual framework: Philosophy, definitions, and procedure. *International Journal of Qualitative Methods*, 8(4):49-62.
 15. Louhevaara, R., Kallioja, M., & Oittinen, P. (2006). Factors affecting the use of hybrid media applications. *Graphic Arts in Finland*, 35(3): 11-21.
 16. Mammo, Y., & Ngulube, P. (2013). Academics' use and attitude towards open access in selected higher learning institutions of Ethiopia. *Information Development*. DOI: 10.1177/0266666913500977.
 17. Mushi, K.H. (2009). Institutional Repository: towards harnessing knowledge for African development in 1st international conference on African Digital Libraries and Archives (ICADLA-1), 1-3 July 2009, Addis Ababa, Ethiopia.
 18. Nwodin, O. (2014). Power generation drops by 1,000MW to 2513MW to <http://www.punchng.com/news/power-generation-drops-by-1000mw-to-2513mw/> (Accessed 22nd October 2014).
 19. Obuh, A.O. (2013). Attitude towards the use of open access scholarly publications: The Position of LIS lecturers in Southern Nigeria. *The Social Sciences*, 8(2), 153-159.
 20. Obuh, A.O. & Bozimo, D.O. (2012). Awareness and use of open access scholarly LIS 60 Lecturers in Southern Nigeria. Available: <http://InformationR.net/ir/92/paper170.html> (Accessed 17th December 2012).
 21. Okoye, M., & Ejikeme, A. (2011). Open access, institutional repositories and scholarly publishing: The role of librarians in Southeast Nigeria. *Library Philosophy and Practice*. Available: <http://unllib.unl.edu/LPP/okoye-ejikeme.htm>. (Accessed 15th May 2012).
 22. Oluwasemilore, I. A. (2013). Issues and challenges in the development of open access publishing and scholarly communication in Nigeria. Available: http://digitalscholarship.unlv.edu/aaas_pacific_conf/2013/june17/1/ (Accessed 17th March, 2014).
 23. Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26, 207-231.
 24. Utulu, S. C., & Bolarinwa, O. (2009). Open access initiatives adoption by Nigerian academics. *Library Review*, 58 (9), 660-669.
 25. Venkatesh, V., Morris, M. Davis, G.B., & Davis, F.D. (2003). User acceptance of information technology: towards a unified view. *MIS Quarterly*, 27(3), 425-478.
 26. Waldman, M. (2003). Freshmen's use of library electronic resources and self-efficacy. *Information Research*, 8 (2). Available: <http://informationr.net/ir/8-2/paper150.html> (Accessed 9th June 2013).
 27. White, B., & Gendall, R. (2005). Barriers to the use of digital information by university researchers. Available: <http://eprints.rclis.org/6536/> (Accessed 19th June 2014).
 28. Wickham, J. (2011). Unlocking attitudes to open access—survey results. <http://rspproject.wordpress.com/2011/12/02/unlocking-attitudes-to-open-access-survey-results/> (Accessed 23 March 2013).
 29. Zhou, T., Lu, Y.B. & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behaviour*, 26 (4): 760-767.