Determinants of Electronic Book Adoption in Nigeria

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ABSTRACT

The study examined the adoption of electronic books (e-books) among undergraduate students in Kwara State, Nigeria using the unified theory of technology acceptance and use model (UTAUT), with a view to understanding the factors that lead to its adoption. The population consisted of 300 undergraduate students from federal, state and private universities in Kwara State, Nigeria. Results showed that usage of electronic books in scholarly databases, procured by the library, was relatively low, with more than 50 per cent of respondents claiming to have used e-books only once. Students in federal and state universities showed preference for e-books while private university students showed preference for paper books. In examining the intention to adopt e-books, using the UTAUT model, results showed that performance expectancy, effort expectancy, social influence and facilitating conditions were major determinants of e-book adoption, while gender played a moderating role. Performance expectancy and effort expectance significantly influenced male students, while effort expectancy, social influence, facilitating conditions influenced female students significantly. It is paramount for university administrators to encourage the adoption of electronic books by promoting a lecturer-student model and improving the user interface to encourage the use of these resources.

Keywords: Determinants; E-books; UTAUT model; Adoption of E-books; University; Nigeria.

1. INTRODUCTION

With academic institutions becoming a major driver of electronic book adoption, information technology has changed the reading culture by the replacement of printed books with electronic books across the world[1-3]. United States, United Kingdom and Australia have witnessed an increase in the adoption of e-books with United States dominating the e-book market by 13 per cent[4]. However, in Africa, while the adoption of e-books is relatively low due to several challenges, e-books are considered to have great potential in the African continent[5-6]. Studies in Nigeria have shown mixed results in the adoption of electronic books by students[7-9], and it becomes pertinent to find out factors that lead to the adoption of e-books by university students. Studies have also shown that though e-books offer benefits of convenience, portability and ease of access, students do not find e-books engaging, and majority of them only switch to e-books when rewards are attached b[10]. In recent years, Africa has witnessed a proliferation of smartphones with mobile internet users reaching 103 million in Nigeria alone. However, there is a low adoption of e-books as reported by several studies in Nigeria.

This study therefore, among others, attempts to investigate the level of e-book adoption and factors responsible for the level of such adoption in Kwara State, located within the North Central geopolitical zone of Nigeria, comprising one federal university, one state university and four private universities. Landmark University, a private university, based on its ranking among other private universities, as well as University of Ilorin and Kwara State University, being the only Federal and State Universities respectively in Kwara state were selected for this study.

2. STATEMENT OF PROBLEM

The adoption of mobile technologies for educational purposes holds a great potential in e-book adoption. Studies show that though Nigeria has witnessed a proliferation of smartphones, yet the adoption of electronic books is relatively low in Nigeria. Also, the present generation of students, being considered as generation Y, are more inclined to the use of technologies, yet preference for electronic books is still relatively low in Nigeria. There is a need to understand factors that lead to the adoption of electronic books among undergraduate students in Nigerian Universities. This study contributes to understanding the adoption of electronic books using the unified theory of acceptance and use of technology model (UTAUT).

3. OBJECTIVES OF STUDY

The main objective of this study is to investigate variables that lead to the adoption of e-books in Universities in Kwara State Nigeria. Specific objectives include:
- Ascertain the awareness of e-books in Kwara State

- Analyse comparatively the use of e-books between federal, state and private universities in Kwara State, Nigeria
- Examine variables that lead to the adoption of e-books in Nigeria using the UTAUT model
- Examine the role of gender in moderating the adoption of e-books in Nigeria

4. LITERATURE REVIEW

Research on e-book adoption worldwide has shown mixed opinions in its adoption[11-13]. While some studies consider e-books at infancy, others consider adoption rates as high. This difference is majorly due to the environment under study and given consideration to the factor is paramount. In Nigeria, Tella[8] studied the adoption of electronic books by library students from some selected universities in Nigeria; findings showed that students have a good perception of electronic books with high levels of satisfaction. Similarly, Nwagwu[7] examined the diffusion of electronic books among postgraduate students and found out that students search for e-books on general search engines rather than through databases procured by the universities through the libraries. Suggestions were made on the need to create policies that encourage the use of electronic books in libraries. These policies can be established by creating a lecturer-centered e-book adoption policy for students as pioneered by cortex. Owajeme[14] selected twelve computerised university libraries in south west, Nigeria to examine the adoption of electronic books. He found out that students were familiar to reading on screen and suggested the procurement of more electronic books for students. However, in Minna, Nigeria[15-16], studies showed that students showed preference for general search engines than scholarly databases which prompted the adoption of e-book management software to manage e-books obtained from the use of general search engines. However, this is the first study in Nigeria to use a technology acceptance model to ascertain variables that influence the adoption of electronic books in Nigeria.

4.1 Theoretical Framework

Several studies[17-18] have examined the adoption of technologies in information system research using various models of which the most prominent models include the Technology Acceptance Model, Innovation Diffusion Theory and the Unified Theory of Acceptance and Use of Technology. The UTAUT model combines elements of existing models and explains more than 70 per cent variance in behavioural intention to adopt a technology. The model states that four constructs independently determine intention to adopt a technology and these variables are moderated by gender, age and experience.

Performance expectancy is the degree a student believes using electronic books will improve academic performance and enhance the learning process, while effort expectancy as defined in this study is the degree a student believes the adoption of e-books will be free of effort. Social influence is the influence of peers, colleagues and the media on the intention to adopt electronic book, while facilitating conditions are external variables that propel students to adopt e-books.

Research by Hsu[19], et al. on electronic book adoption using the Technology Acceptance Model has shown that performance expectancy, effort expectancy, social influence and facilitating conditions influence the adoption of e-books. However, these findings differed from Yoo and Roh[13] study in which effort expectancy did not influence intention to adopt electronic books. In South Africa, Madaku's 10 studies on the determinants for the adoption of electronic books showed that performance expectancy, effort expectancy and facilitating conditions influence intention to adopt e-books. However, gender did not have moderating effects on variables in determining the intention to adopt. This finding differed from existing studies where gender played a role in moderating adoption of technologies[17-18]. Therefore, this study proposes the following hypothesis:

H1: Performance expectancy significantly influences undergraduate students' intention to adopt electronic books in Nigeria

H2: Effort expectancy significantly influences undergraduate students' intention to adopt e-books in Nigeria

H3: Social influence significantly influences intention to adopt e-books by undergraduate students in Nigeria

H4: Facilitating conditions influences intention to adopt e-books by undergraduate students in Nigeria

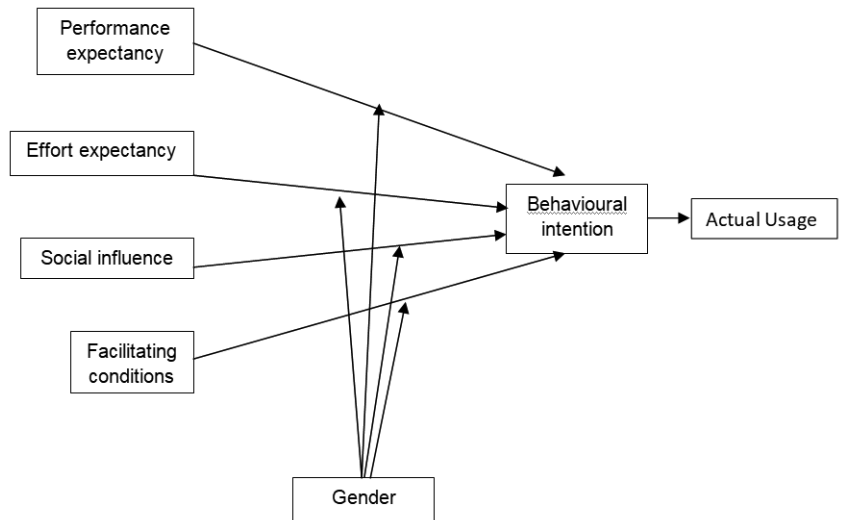H5: Gender plays a moderating role on intention to adopt e-books in Nigeria

Figure 1. The unified theory of acceptance and use of technology (UTAUT) model.

5. METHODOLOGY

The research adopted a survey technique using close ended questionnaire adopted from the UTAUT model. The population consists of undergraduate students in universities in Nigeria. Federal, state and private universities were represented in the study, and undergraduates were drawn from these universities in Kwara State. 100 questionnaires were distributed to Federal, State and Private Universities in Kwara State based on a

random sampling technique of which two hundred and sixty-five were completed and returned. The questionnaire was checked for reliability using the Cronbach alpha reliability test. It was further analysed using frequency distribution, regression analysis and cross tabulations.

5.1 Data Analysis and Interpretation

Results of the demographic characteristics of respondents are presented in Table 1. It showed that majority (61.1 %) were females while 38.9 per cent were males. Private, State and Federal Universities in Kwara State were fully represented in the study, Landmark University comprised 37.7 per cent, while University of Ilorin and Kwara State University were 32.8 per cent and 29.4 per cent respectively. Most of the respondents were first year students (33.6 %), followed by third year students (29.1 %), fourth year students 100 (17.7 %) and second year students (14.7 %).

Table 1. Demographic data on e-book adoption in Kwara state

Variables	Measurement	Frequency	Percentage
Gender	Male	103	38.9
	Female	162	61.1
University	Landmark University (Private)	100	37.7
	University of Ilorin (Federal)	87	32.8
	Kwara State University (State)	78	29.4
Level of Study	First Year Students	89	33.6
	Second Year Students	39	14.7
	Third Year Students	77	29.1
	Fourth Year Students	47	17.7
	Fifth Year Students	13	4.9

Table 2. Awareness of electronic books

University	Yes	No
Landmark University (Private)	99	1
University of Ilorin (Federal)	86	0
Kwara State University (State)	78	0

Table 3. Usage of E-books

University	Once	Never	Often
Landmark University (Private)	33	17	49
University of Ilorin (Federal)	53	5	28
Kwara State University (State)	54	1	21

5.2 Awareness and Usage of Electronic Books

Results from Tables 2 and 3, indicated that the awareness of Electronic books was high with 99 per cent of respondents showing full awareness of electronic books. However, the usage of electronic books is still relatively low with 52 per cent of the students surveyed admitting that they had used electronic books only once. Only 8.6 per cent of respondents had never used electronic books and 36.9 per cent of respondents use electronic books often. Similarly, results showed the highest usage of electronic books in private universities with 49 respondents while in federal and state universities only 28 and 21 respondents respectively used electronic books often.

5.3 Perception of Electronic Books on Academic Success

Results on students' perception on the role of e-books in academic success presented in Table 4 showed that more than 50 per cent of respondents in private, federal and state universities believed electronic books were a great enabler of academic success. However, in accessing preference for e-books over paper books, results in Table 5 revealed that more than 50 per cent of respondents from private universities showed preference for paper books over electronic books. This differed from federal and state universities where 67 (77 %) and 55 (70 %) of the respondents showed preference for electronic books over paper books. In accessing the ease at which generation Y students read from the computer screen, results in Table 6 showed that more than 50 per cent in all categories of universities read books via the computer screen with ease.

Table 4. Students' perception about ebooks for the academic success

Perception Variable	University	SA	A	U	SD	D
E-books important for academic success	Landmark University	43	50	0	2	5
	University of Ilorin	30	51	0	1	5
	Kwara State University	25	50	0	1	2

Note: SA=strongly agree; A=agree; U=undecided; SD=strongly disagree; D=disagree

Table 5. Student's preference to ebooks over paper books

Perception variable	University	SA	A	U	SD	D
Prefer E-books to paper books	Landmark university	18	27	3	30	22
	University of Ilorin	33	34	0	7	13
	Kwara state university	28	27	2	9	12

Note: SA=strongly agree; A=agree; U=undecided; SD=strongly disagree; D=disagree

Table 6. Pleasure of reading from computer screen

Perception Variable	University	SA	A	U	SD	D
Enjoy Reading from Computer Screen	Landmark University	33	45	3	6	13
	University of Ilorin	22	40	0	12	13
	Kwara State University	21	40	1	9	7

Note: SA=strongly agree; A=agree; U=undecided; SD=strongly disagree; D=disagree

Table 7. ANOVA

Model	Sum of squares	df	Mean square	F	Significance
Regression	644.430	4	161.198	40.439	0.000
Residual	1035.819	260	3.984		
Total	1680.249	264			

Table 8. Model summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.619	0.384	0.374	1.99598

Table 9. Coefficient table on variables that influence adoption of electronic books

Model	Unstandardised coefficients B	Std error	Standardised coefficient Beta	t	Significance
Constant	0.649	0.584		1.185	0.237
Performance Expectancy	0.210	0.062	0.175	3.371	0.001
Effort Expectancy	0.279	0.054	0.301	5.138	0.000
Social Influence	0.139	0.055	0.155	2.525	0.012
Facilitating Conditions	0.184	0.055	0.204	3.354	0.001

5.4 Testing of Hypotheses

The study adopted the Unified theory of Technology Acceptance and Use Model in ascertaining variables that lead to the adoption of Electronic books by undergraduate students in Kwara State, Nigeria. This framework was tested using multiple regression analysis. This was done to ascertain the factors that influenced the adoption of electronic books by students in Nigeria. Standard error was calculated using the SPSS software.

In analysis, questions from the hypothesis results showed that performance expectancy, effort expectancy, social influence and facilitating conditions are major determinants of intention to adopt electronic books.

The results of hypothesis from Table 9 are listed as follows.

Ho: Performance expectancy significantly influences undergraduate students' intention to adopt electronic books in Nigeria
Results showed that there is a significant relationship (**Beta=0.175; p=0.001**) between performance expectancy and intention to adopt electronic books by university students. The hypothesis is therefore accepted.

Ho: Effort expectancy significantly influences undergraduate students' intention to adopt e-books in Nigeria
Results showed that there is a significant relationship (**Beta=-0.301; p=0.000**) between effort expectancy and intention to adopt electronic books by students. The hypothesis is therefore accepted.

Ho: Social influence significantly influences intention to adopt e-books by undergraduate students in Nigeria
Results showed that there is a significant relationship (**Beta=0.155; p=0.012**) between social influence and intention to adopt electronic books by undergraduate students. The hypothesis is therefore accepted.

Ho: Facilitating conditions influence intention to adopt e-books by undergraduate students in Nigeria
Results show that there is a significant relationship (**Beta=0.204; p=0.001**) between facilitating conditions and intention to adopt electronic books by undergraduate students. The hypothesis is accepted.

Predictors (Constant), Facilitating Conditions, Economic Issues, Perceived Usefulness, Perceived Ease of Use, Social Influence

5.5 Role of Gender in Moderating the Adoption of Electronic Books

Results from Table 10, showed that gender played a significant role in moderating the adoption of electronic books. Results showed that while male students were more concerned about the Performance Expectancy and Effort Expectancy, Female Students showed more concern on Effort expectancy, Social Influence and Facilitating Conditions.

Table 10. Gender moderating the adoption of electronic books

Construct	Significance (Male)	Significance (Female)
Performance Expectancy	**0.003**	0.145
Effort Expectancy	**0.003**	**0.000**
Social Influence	0.172	**0.022**
Facilitating Conditions	0.086	**0.002**

6. CONCLUSIONS

The study showed variables that influence intention to adopt electronic books in universities in Kwara State. Private, state and federal universities were considered in this study. Results showed that though awareness of electronic books is high among undergraduate students, usage is still relatively low, with more than 50 per cent of respondents admitting that they had used electronic books only once. Though students considered electronic books important for academic success, students from private universities still showed preference for paper books. However, this result differed from federal and state universities' undergraduate students where students showed preference for electronic books. The study further examined intention to use electronic books using the UTAUT model, and results showed that performance expectancy, effort expectancy, social influence and facilitating conditions significantly influenced intention to adopt electronic books with gender playing a moderating role. Results showed male students considered the value of e-books in their academic experience and the ease of use while female students were more inclined towards ease of use, social influence and facilitating conditions. These findings corroborate findings by Venkatesh[17].

7. RECOMMENDATIONS

In order to increase the usage of electronic books, administrators of universities in developing countries should consider creating policies that enable the usage of electronic books by promoting a lecturer-student model. Similarly, the design of the User interface of electronic books should be user friendly in order to encourage students' acceptance and invariably adoption of electronic books.

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