

Predictors of the utilization of digital library services among women patrons in Bayelsa State, Nigeria: The moderating role of marital status

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Abstract

Background: Libraries of the 21st century have responded to the changes in technology by incorporating digital components into the range of services they deliver to their patrons. Consequently, there is increased interest among researchers in assessing different aspect of library use related to digital services. Nonetheless, empirical evidence is yet to examine predictors of digital library utilization, especially among women. The moderating role of marital status is also yet to receive significant attention vis-à-vis the use of digital library services.

Objective: To examine the predictors of utilization of digital library services among women as well as the moderating role of marital status.

Methodology: The researcher made use of descriptive survey research design to achieve the objective of this study. The sample size was made up of 470 women-library patrons. The study was conducted in Bayelsa, South-South Nigeria. The researcher combined both descriptive and inferential statistics to analyze the data for the study while results were presented in tables.

Results: It was found that the predictors of digital library utilization are: perceived usefulness, perceived ease of use attitude towards digital library services, and behaviour intention. Additionally, the analysis showed that single women scored higher ($M=3.4$, $SD=.56$) than married women ($M=1.9$; $SD=.78$) regarding frequency of use of digital library services. The digital library services examined were: e-journals, databases, online request forms, email reference, and online public access catalogue.

Unique contribution: This study has provided evidence that will serve as a guide for library professionals to segment their patrons and deliver digital library services to them.

Conclusion: Marital status plays an essential role in moderating the utilization of digital library services among women.

Key recommendation: Further studies are recommended to compare how marital status of men and women differ in their utilization of digital library services.

Keywords: digital library services; marital status; patrons; women

Introduction

The 21st century is largely defined by digital services. Digital technologies now play essential roles regarding how people spend their time. Consequently, individuals, groups, or corporate bodies that desire to make impact to the society pay close attention to digital technologies and how people are using them in their daily activities. Kari (2019) corroborates that we are now in an era where digital technologies have become indispensable devices. For example, digital technologies have been found useful in the education sector, health, security, commerce, agriculture, education, among others. Libraries are among the facets of society where digital technologies have been found beneficial. According to Lippincott (2010), libraries of the 21st century have little or no choice, but to deliver content to their patrons through modern devices that they (the

users) regard suitable to them. The implication of the submission of Lippincott is that libraries of the contemporary society need to consider digital technologies as important changes that have affected how users think of libraries. Bridges *et al.*, (2010) corroborate that the time is due for libraries to completely harness the potentials of new technologies to see how they can be used to improve on service delivery.

Libraries have also responded to the changes occasioned by improvements in technology and the changing needs of library users. For example, libraries of the current millennium now have electronic segments where users can have access to learning resources. Mtega and Bernard (2014) corroborates that libraries have acquired and included digital services as part of their services to the general public. Ward (2010) notes that libraries now incorporate digital services into their services and support e-learning. A key element of digital technology services in libraries is the question of utilization. No matter how interesting and useful libraries services are, if they are not used by patrons, then the essence of incorporating them into libraries will be defeated. Sichel (1997) affirms that poor utilization of installed systems had been identified as significant factors underlying the “productivity paradox” surrounding lackluster returns from organizational investments in information technology. This means that research on predictors of the use of digital services in libraries is needed so as to provide fresh insights that will guide libraries in their efforts to deliver services to their patrons. Examining women is particularly important because research (Akintan, 2013; Agbalajobi, 2010; Asogwa, 2017; Hamidon, 2015; Ifezue, 2010) point to the fact that women significantly differ from men in their thinking, behaviour, communication, preference, among other aspects of human endeavours. The implication is that the predictors of the utilization of digital library services for women are worth investigating. This information is needed to guide libraries on how to deliver their services to women population. Additionally, even among women, those who are married are likely to behave differently from those who are not. This assumption is supported by evidence in literature because studies (Nadler & Kufahl, 2014; Jan & Akhtar, 2008) have shown that the decision making between married and unmarried women significantly differ. Despite this, literature is yet to significantly pay attention to the moderating role of marital status on predictors of the utilization of digital services among women. This study filled this gap by using a sample in Bayelsa State, South-South Nigeria.

Objective and study relevance

The aim of this study was to determine the predictors of the utilization of digital library services among women patrons in Bayelsa State, Nigeria. The researcher also sought to determine the moderating role of marital status of the respondents who took part in the study. This study was considered important because of three reasons. First, libraries of the 21st century are not the same as those of the previous ones. Technologies are now playing important roles. Therefore, information is needed to understand predictors of the utilization of digital services incorporated in libraries. In the second place, women and men are not the same regarding their use of technologies and even decision making. Hence, there is need to specifically focus on women so that libraries will be guided on how to deliver services to women. In the third place, the marital status of women is a deciding factor on their decision making process. This makes it imperative to test the

moderating role of marital status of women on their use of digital services. It is based on these three reasons that the current study was conducted.

Theoretical frame work and hypotheses development

The theoretical framework that was used in this study was Technology Acceptance Model (TAM). TAM is attributed to the study of Fred D. Davis, Jr. (1986, 1989) who suggested the model after he conducted a doctoral study at Massachusetts Institute of Technology on December 20, 1985. According to Davies, the TAM was meant to be useful in two broad ways. First, the model made better our understanding of user acceptance processes by providing new theoretical insights concerning the successful design and implementation of information systems. In the second place, TAM provides the theoretical basis for a practical "user acceptance testing" methodology that would assist system designers and implementers to assess suggested new systems before such systems are eventually put to use. The theory has four basic constructs that are combined to explain the utilization of new technologies. These are: perceived ease of use (PEOU), perceived usefulness (PU), attitude towards the technology, as well as behavioural intention to use. Perceived ease of use defines how easy or difficult a user thinks it is for him or her to make use of new technologies. Perceived usefulness defines how beneficial a user thinks that new technologies are to him or her. On the other hand, attitude towards a technology defines the disposition that a person has concerning new technologies. Finally, behaviour intention defines what a person has in mind before making use of new technologies. Within the context of the current study, the new technology being examined are digital services incorporated in libraries. Wanf *et al.*, (2011) made use of TAM to investigate online community participation and reported that perceived usefulness (PU) outweighs perceived ease of use (PEOU) in explaining actual utilization of new technologies. Based on TAM, the researcher hypothesized:

H1: Perceived ease of use and perceived usefulness will significantly predict attitude to digital library services among women patrons in Bayelsa State.

H2: Attitude towards digital technologies and behaviour intention will significantly predict actual use of digital library services among women patrons in Bayelsa State.

H3: Marital status will significantly moderate the frequency of use of digital library services among women patrons in Bayelsa State.

Methodology

In order to execute this study, the researcher adopted the survey research design. In most cases, the choice of a research design is determined by how effective it will assist a researcher to achieve the objective of the study. Therefore, in this study, the researcher made use of descriptive survey because it is capable of allowing a researcher to collect data with a view to describing and explaining a phenomenon. Through a descriptive survey research approach, the researcher was able to describe and explain the predictors of the utilization of digital services in libraries among library patrons. The researcher carried out the study in Bayelsa State, South-South Nigeria. A total of 470 women made up the sample size for the study. To ascertain the adequacy of the sample size, the researcher carried out a priori power analysis. In doing so, the researcher made use of the G*power programme (Faul *et al.*, 2007) and then set the parameters with power $(1 - \beta)$ at

0.90, 0.30 effect size f , and $\alpha = .05$. The result point to the fact that a sample size of 470 was sufficient to determine effect at 0.05 level of significance. The respondents in this study were sampled using respondent-driven sampling (RDS) chain referrals (Johnston *et al.*, 2008). By its very nature, RDS starts by sampling initial respondents typically known as “seeds.” The ‘seeds’ are required to have the characteristics which a researcher is looking for. For this study, the seeds were women library users. To sample the seeds, announcements about the study were posted on social media platforms such as Facebook, Twitter, and WhatsApp. The eligibility for selecting the seeds include: Such persons must be from Bayelsa State; such persons must be library users; and such persons must be a woman and aware of digital services used in libraries. After the initial seeds were selected, they were required to suggest other persons. The process continued until the required sample with the needed attributes was selected. The instrument which was used to collect data for the study was the questionnaire. The researcher made use of the questionnaire to collect data for the study because it has the ability to generate data in large scale. The researchers also provided some introductory questions on the questionnaire that were meant to determine the eligibility of the sample. These questions were: What is your gender? The options were ‘Male’ and ‘Female’. The second question was: Are you from Bayelsa State? The options were ‘Yes’ and ‘No’. The third question was: Are you a library user? The options were ‘Yes’ and ‘No’. Only respondents who clicked ‘Female’ and also answered ‘Yes’ to all the questions proceeded to respond to the survey. Those who indicated ‘No’ were unable to proceed with the survey. The questionnaire had two segments. The first segment collected the demographics information of the respondents while the second segment collected information on the study hypotheses. The response format for the questionnaire was a combination of multiple choice and likert scale. The questionnaire had a total of 19 items. Data for the study were collected within one month. Three experts from library and information science, Kogi State University, validated the questionnaire. It was during this time that the initial 23 items were reduced to 19. The researcher made use of test retest approach to determine the reliability of the instrument. The interval for the test retest was two weeks while a total of 30 persons took part in the pilot study. The analysis from the reliability yielded a correlation coefficient of .82. This means that the instrument was reliable. This is because any reliability of above 75% is regarded as excellent. In the analysis of data for the study, the researcher made use of multiple regression analysis as well as hierarchical multiple regression. The hypotheses were tested at 0.05 level of significance. All analyses were done with the use of Statistical Package for Social Science (SPSS) version 22. The results were presented in tables.

Results

The researcher was able to get the required sample of 470 respondents. This means that there was a 100% response rate for the study. Also, 52% of the respondents were single while 48% were married. The mean age of the sample was 25 years. The result of the study is further presented in tables in accordance with the study hypotheses:

H1: Perceived ease of use and perceived usefulness will significantly predict attitude to digital library services among women patrons in Bayelsa State.

The aim of the above hypothesis was to test if the attitude that women have concerning digital library services is predicted by their perception regarding how easy it is for them

to use such services as well as how beneficial they perceive such services. The researcher first did a descriptive analysis of the digital library services that are being utilized by the respondents. The result of the analysis is presented in table one below:

Table 1: Mean and standard deviation of digital library services being used

S/N	Items	Mean	SD	Remark
1	Online request forms	2.6	.98	Agreed
2	Databases	3.0	.99	Agreed
3	e-journals	3.5	.76	Agreed
4	Email reference	2.8	.56	Agreed
5	Online public access catalogue	2.7	.87	Agreed

In table 1 above, the researcher did a descriptive analysis of the digital library services that are utilized by the respondents. It was found that all the five services presented were accepted as the services which the respondents use. Comparatively, e-journals (M=3.5; SD=.76) had the highest mean score while online request forms had the least score (M=2.6; SD, .98). Overall, all the items had mean scores of more than 2.5 which was the baseline for accepting or rejecting items.

Table 2: Regression analysis of perceived ease of use and perceived usefulness as predictors of attitude to digital library services among women patrons

Devices	Constant	β value	R square	F. value	P. value
Perceived ease of use	4.017	.602	.514	13.402	.001
Perceived usefulness		.890			.001

In table 2 above, the researcher sought to determine if perceived ease of use and perceived usefulness predict attitude towards digital library services. The result of the multiple regression analysis showed that both perceived ease of use and perceived usefulness significantly predict attitude towards digital library services among the women who took part in the study ($p < .05$). Further analysis was done to determine which of the variables contributed most in predicting attitude towards digital library services. The outcome showed that perceived usefulness ($\beta = .890$) contributes most in predicting attitude towards digital library services among women. Based on the result of this study, the first assumption was supported. The researcher then took another step by exploring if attitude towards digital library services and behaviour intention predict actual use of digital library services. This can be seen in hypothesis two below:

H2: Attitude towards digital technologies and behaviour intention will significantly predict actual use of digital library services among women patrons in Bayelsa State.

Table 3: Regression analysis of attitude towards digital technologies and behaviour intention will significantly predict actual use of digital library services among women patrons

Items	Constant	β value	R square	F. value	P. value
Attitude	4.211	.605	.532	11.421	.001
Behaviour intention		.897			.001

In table 3 above, the researcher conducted a multiple regression analysis to test the predicting role of attitude towards digital library services and behaviour intention on actual use of such services. The result of the analysis showed R.Square= .532 meaning that there was 53.2% chance that attitude and behaviour intention significantly predict the use of digital library features. Additionally, the result of the study showed that both variables significantly predict ($p < .005$) actual use. Further analysis showed that behaviour intention predicted use most ($\beta = .897$), an indication that it contributes more than attitude. Based on the result of this study, the second assumption was also supported. The researcher also tested the moderating role of marital status and the result was presented in table three.

H3: Marital status will significantly moderate the frequency of use of digital library services among women patrons in Bayelsa state.

Table 4: Hierarchical Regression analysis of the moderating effect of marital status on the use of digital library features

Behaviour	R Square	R Square change	F.	F change	P. value
Model 1	.037	.037	2,451	2,398	.001
Model 2	.561	.507	8,861	13,170	.001

We conducted a hierarchical multiple regression analysis to determine the moderating role of marital status on the use of digital library services among the sample examined. Consequently, the researcher first entered data on the use of digital library services and this accounted for 37% of the variance in usage of library services as a result of digital services. At step 2, the total variance explained by the model as a whole was 56% $F(2,398) = 13,170, p < 0.001$. Therefore, we conclude that marital status significantly moderate the use of digital library services. This outcome supports the third assumption of the study and the researcher concludes with 95% confidence that marital status moderates the use of digital library services. The researcher then took another step to examine which (between single and married women) make use of digital library services most. This analysis was done with the use of descriptive statistics. The mean scores of the use of digital library services between married women and single women is presented below:

Table 5: Use of digital library services between married women and single women

Behaviour	Mean	SD	Df	Sig
Single	3.4	.56		
Married	1.9	.78	14	0.02

In the table 5 above, we carried out an analysis to determine which (between single and married women) make use of digital library services the most. The result of the analysis showed that single women scored higher (M=3.4, SD=.56) than married women (M=1.9; SD=.78). The result of the p-value also showed that both groups significantly differed. The implication of this result is that single women utilize digital library services than their counterparts who are married.

Discussion of findings

In this study, the researcher examined the predictors of use of digital library services among women. The study also tested the moderating effect of marital status. The researcher made use of variables from technology acceptance model to drive the study. Therefore, three hypotheses were tested. In the first hypothesis, it was assumed that perceived ease of use and perceived usefulness will significantly predict attitude to digital library services among women patrons in Bayelsa State. This assumption was supported because it was found that both variables are predictors of attitude towards use of digital library service among women patrons. The implication of this result is that efforts aimed at encouraging women to develop positive attitude towards digital library services must also highlight the benefits of such services as well as its ease of utilization to the target public.

In the second assumption, the researcher hypothesized that attitude towards digital technologies and behaviour intention will significantly predict actual use of digital library services among women patrons in Bayelsa State. This assumption was also supported because both variables were found to be predictors of actual use of digital library services among library patrons. This result implies that efforts aimed at persuading patrons to utilize digital library services entails making efforts to also influence their attitude. This is because attitude plays an essential role in predicting actual use of digital library services.

In the final hypothesis, the researcher tested the moderating effect of marital status on frequency of use of digital library services among women patrons in Bayelsa State. The result showed that single women scored higher regarding frequency of use of digital library services than their counterparts who are married. This result makes a case for the need to segment women based on their marital status when planning and implementing campaigns on the use of digital library services.

The result of this study has implications on literature, theory, and practice. Regarding literature, the results have extended previous studies (Lippincott, 2010; Kari, 2019) on the utilization of digital library services. These studies do not examine women even though evidence in literature (Akintan, 2013; Agbalajobi, 2010; Asogwa, 2017; Hamidon, 2015; Ifezue, 2010) point to the fact that married women and single women differ significantly in their decision making process. Apart from this, the marital status of

library users has rarely been considered in previous literature despite the fact that evidence in literature (Nadler & Kufahl 2014; Jan, & Akhtar, 2008) show a significant link between marital status and behaviour of women. Therefore, the current study has extended argument in literature regarding the use of digital library services. Also, the current study has made a theoretical contribution by testing variables from technology acceptance model. This information will be beneficial to other researchers in library and information science who may be interested in understanding the adoption and use of new technologies in libraries. Finally, this study has implications on library management because it has provided evidence that may be useful to library professionals on how they can encourage women to make use of digital library services.

Conclusion/ recommendations

The conclusion of the current study is that variables from technology acceptance model significantly predict the utilization of digital library services among women library patrons. These variables are perceived ease of use, perceived usefulness, attitude to digital library services, as well as behaviour intention. Additionally, it is the conclusion of the current study that marital status plays a role in determining the use of digital library services with single women utilizing library services than their married counterparts. Based on the result of the current study, the researcher makes three broad recommendations. First, it is recommended that libraries should segment their patrons according to gender so that they will be able to effectively deliver services to them. It is also recommended that library professionals should take into account the marital status of their patrons when delivering digital services to them. Finally, further studies are recommended to compare how marital status of men and women differ in their utilization of digital library services.

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