

Individual Characteristics as Predictors of Motivation to Use Digital Library among Polytechnic Student in Ondo State, Nigeria

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Abstract

Digital libraries offer a lot of advantages for students and this explains why many tertiary institutions including polytechnics in Nigeria have invested in creating various digital libraries. However, many of the libraries often experienced low patronage as students are more inclined to use other source of digital information. In line with this, the study examines the influence of individual characteristics on the motivation to use digital library among polytechnic student in Ondo State, Nigeria. The study adopted the descriptive survey research with the population including 13,407 students from two government owned polytechnic in Ondo State. Multistage sampling procedure was followed to select 375 students as sample. A structured questionnaire was used for data collection. The data was analyzed using both inferential and descriptive statistics. The results show that individual characteristics ($\text{Adj. } R^2 = 0.244$, $p < 0.05$) has significant but weak influence on the motivation to use digital library among polytechnic student in Ondo State. The study concluded that the adoption and use of digital libraries underscores the importance of user satisfaction and engagement. It was therefore recommended that polytechnic libraries should provide comprehensive training on how to effectively use digital libraries.

Keywords: Digital Libraries, Information Services, Perceived usefulness, Perceived ease of use, Polytechnics.

Introduction

Digital library offer access to a vast collection of digital resources, including e-books, e-journals, research papers, multimedia content, and more. This provides users with a wider range of resources to choose from compared to traditional libraries. Digital library are accessible from anywhere and at any time, as long as the user has an internet connection. Rafique, et al. (2020) averred that this makes it convenient for users to access information from the comfort of their own homes, without having to physically visit a library. Furthermore, digital library often have advanced search functions that enable users to find specific information quickly and easily. This saves time and makes it easier for users to locate relevant resources. Different scholars have attempted to identify factors predicting the use of digital technologies (Omotayo and Haliru 2020; Okuonghae and Tunmibi, 2023).

Individual characteristics in the context of motivation to use digital library refers to the personal attributes and traits of polytechnic students that can influence their interaction with digital library. These individual characteristics, according to Omotayo and Haliru (2020), include cognitive factors, computer self-efficacy, and attitudes of polytechnic students towards technology. All of these are measures of individual characteristics that can influence the use of digital library among polytechnic students. The investigation on the influence of individual variances on the utilization of information systems has been a longtime subject of inquiry within the field of information systems. The existing body of research on cognitive aspects investigates the potential influence of individual cognitive style on the effectiveness and efficiency of utilizing information systems.

Despite the significant amount of finances dedicated to the construction and management of digital library in Nigerian academic libraries, a review of existing literature indicates a limited amount of study conducted on the motivation to use digital libraries by students in Nigerian polytechnics. Hence, this study examined the influence of technology factors on the motivation to use digital library by polytechnic students in Ondo state, Nigeria.

The objectives of the study are to: identify the level of motivation to use digital library among polytechnic student in Ondo State, Nigeria; identify the individual characteristics related to the motivation to use digital library among polytechnic student in Ondo State, Nigeria; and examine the influence of individual characteristics on motivation to use digital library among polytechnic student in Ondo State, Nigeria. The study will be guided by the hypothesis below:

H₀₁: There will be no significant influence of individual characteristics on motivation to use digital library among polytechnic student in Ondo State, Nigeria.

Literature Review

In India, Mubeen, Soroya and Mahmood (2021) examined the perceptions of undergraduate students towards the digital library of the Cochin University of Science and Technology (CUSAT), India, with a view to determine the sources consulted and the general pattern of information gathering by the students. The study adopted a descriptive survey design and data was collected using a questionnaire administered to 225 respondents randomly selected from seven branches of engineering faculty in the CUSAT. Findings revealed that almost all students used the digital library for learning. They frequently accessed the digital library for getting previous examination question papers, syllabi and other materials pertaining to their studies, and were satisfied with the digital library features and functionalities available. The students recommended the addition of more documents related to their courses and useful links to the digital library so the technology could provide the best fit with their tasks.

Similarly, Soltani-Nejad, et. al., (2020) studied users' acceptance and use of digital library system in 16 institutions in Africa, Asia, and Central/Latin America. The study examined the factors that influenced people's adoption and use of a digital library system and tested the applicability of the Technology Acceptance Model (TAM) in the context of developing countries. The study also identified similarities and differences in the significance predictors of the digital library acceptance across countries and continents. Data was collected from 1082 respondents. The path analysis results reveal that perceived ease of use of the library system had a significant impact on perceived usefulness which led to behavioural intention to use it. Hence, perceived ease of use and perceived usefulness were identified as factors that could influence use of digital library by the study. The study concludes that some other factors that affect perceived ease of use and usefulness of digital library need to be considered in the process of designing, implementing and operating digital library systems. This could help decrease the mismatch between system design and users' realities, and further facilitate the successful adoption of digital library systems in developing countries.

Arif and Kanwal (2009) from Pakistan investigated the acceptance and importance of digital library among female students at International Islamic University, Islamabad, Pakistan. The study also highlighted the problems female students confronted in completing their research

work because of limited access to digital library in the university. Data was collected from 315 female students. Findings reveal that the students were unable to meet their information needs as digital library access was limited and the quality and quantity of their research were affected due to the restriction of digital resources. Lack of information literary programs, Information Technology (IT) training workshops, availability of IT literate staff and electricity failure were identified as the main barriers to having access to digital library, and also admitted that digital library accessibility was indispensable to the completion of their research studies.

Methodology

Descriptive survey research design was adopted for the study. The population for this study consists of 13,407 students from two government owned polytechnics in Ondo State namely: Rufus Giwa Polytechnic, Owo and Federal Polytechnic, Ile-Oluji. These two institutions were selected because they have various digital libraries accessible online. The breakdown of the population is provided in Table 1.

Table 1: Population Distribution

Polytechnics	Population
Rufus Giwa Polytechnic, Owo	3,400
Federal Polytechnic, Ile-Oluji	10,107
Total	13,407

Sources: Registrars' Offices

The sample size for the study is 375 polytechnic students. This is gotten from the sample size table developed by Krejcie and Morgan (1970). The appropriate sample size for the current study is 375. Having determined the sample size, proportionate sampling technique was used to select from each institution to ensure that the sample drawn is proportionate to the population of each institution.

The reliability of the instrument was tested through a pilot study using thirty (30) students from the Federal Polytechnic, Ede which is not a part of the study. The questionnaire was analysed and data obtained was subjected to Cronbach's alpha reliability test to establish the internal consistency of the items. The results of the test are presented below.

Table 2: Reliability Test

Variables	Cronbach's Alpha Coefficient
Motivation to Use Digital Library scale	0.721
Individual Characteristics Scale	0.814

Results and Discussion

Research Question 1: What is the level of motivation to use digital library among polytechnic student in Ondo State, Nigeria?

Table 3: Level of Motivation to Use Digital Library among Polytechnic Student in Ondo State, Nigeria?

Statement	SA	A	D	SD	Mean
Perceived Ease of Use					
I typically find interacting with the digital library easy.	101 (32.2%)	147 (47.5%)	51 (15.8%)	14 (4.5%)	3.07
Getting any desired information from the digital library is easy for me.	136 (41.1%)	108 (35.1%)	23 (10.4%)	42 (13.4%)	3.04
I have no difficulty understanding my interactions with the digital library.	35 (11.4%)	221 (71.8%)	34 (10.9%)	9 (5.9%)	2.89
I rarely make errors when using the digital library.	72 (35.6%)	88 (43.6%)	31 (15.3%)	17 (5.5%)	3.19
Overall, I consider the digital library to be user-friendly.	31 (9.9%)	157 (50.0%)	97 (30.2%)	31 (9.9%)	2.60
Weighted Mean					2.96
Perceived Usefulness					
Using digital libraries enhances my effectiveness in academic work.	97 (30.2%)	159 (50.5%)	44 (14.4%)	16 (5.0%)	3.06
The quality of my academic work improves when I use digital libraries.	38 (18.8%)	57 (28.2%)	56 (27.7%)	51 (25.2%)	2.59
Resources from digital libraries enable me to complete academic tasks more efficiently.	62 (19.8%)	113 (36.1%)	119 (38.6%)	17 (5.4%)	2.70
Using digital libraries make it	119	117	59	16	3.10

easier to do my academic work	(38.6%)	(38.1%)	18.3%)	(5.0%)	
Overall, I find the digital library useful in my academic tasks	101 (34.7%)	152 (47.0%)	51 (15.8%)	9 (2.5%)	3.14
Weighted Mean					2.92
Aggregate Mean 2.94					2.94

Table 3 presents the analysis of the level of motivation to use digital libraries among polytechnic students in Ondo State Nigeria. Level of motivation to use digital libraries in this study was examined under two subheadings; "Perceived Ease of Use" and "Perceived Usefulness," each aiming to examine the students' opinion about the digital library and their expectations in using it.

Overall, the aggregate mean level of motivation to use digital libraries is 2.94, signifying an overall moderately level of motivation to use digital libraries among polytechnic students in Ondo State, Nigeria. While the data reflects a generally positive feeling, the presence of varying perceptions and experiences among students underscores the importance of understanding individual challenges and needs. This analysis emphasizes the need for tailored improvements and enhancements to optimize the digital library's effectiveness and accessibility for the diverse student population.

Table 4: Individual Characteristics Related to Motivation to Use Digital Library among Polytechnic Student in Ondo State, Nigeria

Cognitive factors	VHE	HE	LE	VLE	Mean
I usually understand the tasks and activities involved in using a digital library for my academic work	158 (50.5%)	84 (26.7%)	55 (17.3%)	18 (5.4%)	3.22
I am proactive in seeking out relevant academic resources and information using digital library tools	77 (24.8%)	115 (38.1%)	99 (32.2%)	16 (5.0%)	2.83
I am familiar with the tasks and assignments that require the use of digital library resources	101 (32.7%)	139 (45.0%)	63 (19.8%)	9 (2.5%)	3.08
Weighted Mean					3.04
Computer Self-Efficacy:	VHE	HE	LE	VLE	Mean
I am confident in my ability to use computers and digital devices effectively for academic purposes	39 (19.3%)	105 (52.0%)	48 (23.8%)	10 (5.0%)	2.86

I feel comfortable using digital technologies and navigating online platforms for research and learning	67 (33.2%)	75 (37.1%)	34 (16.8%)	26 (12.9%)	2.91
I believe that using the digital library system will be easy and straightforward for me	164 (51.5%)	101 (33.2%)	41 (12.9%)	9 (2.5%)	3.34
I have experience in using computers and digital tools for academic purposes	79 (25.7%)	182 (58.4%)	43 (13.4%)	9 (2.5%)	3.07
Weighted Mean					3.05
Attitude Towards Technology	VHE	HE	LE	VLE	Mean
I enjoy trying out new technologies or digital tools in my academic tasks?	122 (38.6%)	141 (44.6%)	35 (10.9%)	37 (5.9%)	3.16
I am willing to adjust my work habits and routines to accommodate the use of digital library resources?	64 (19.8%)	114 (36.1%)	117 (38.6%)	18 (5.4%)	2.70
I can easily adapt to changes in technology and incorporate new tools into my academic workflow	143 (45.5%)	88 (28.2%)	41 (12.9%)	43 (13.4%)	3.06
Weighted Mean					2.97
Aggregate Mean					3.02

Table 5 offers a detailed analysis of the individual characteristics related to the motivation of polytechnic students in Ondo State, Nigeria, when it comes to using digital libraries. Individual traits are assessed across three dimensions which are cognitive factors, computer self-efficacy, and attitude towards technology.

The aggregate mean across all categories is 3.02. This indicates that, on average, students exhibit moderately positive individual characteristics related to their motivation to use digital libraries. This highlights the importance of recognizing and leveraging these individual traits and experiences to further encourage student engagement with digital library resources, while also identifying areas where additional support and encouragement may be necessary.

Presentation of Hypotheses

Table 5 (a –c) Influence of Individual Characteristics on Motivation to Use Digital Library among Polytechnic Student in Ondo State, Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.498 ^a	.248	.244	.42223
Predictors: (Constant), Individual Characteristics				

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.730	1	11.730	65.795	.000 ^b
	Residual	35.656	312	.178		
	Total	47.386	313			

a. Dependent Variable: Motivation to Use DL

b. Predictors: (Constant), Individual Characteristics

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.446	.184		7.849	.000
	Individual Characteristics	.490	.060	.498	8.111	.000

a. Dependent Variable: Individual Characteristics

Table 5a-c presents the results of the simple regression analysis for the influence of individual characteristics on the motivation to use digital library among polytechnic student in Ondo State, Nigeria. From the results in Table 4.5a, individual characteristics has a significant but weak influence on the motivation to use digital library among polytechnic student in Ondo State, Nigeria. (Adj. $R^2 = 0.244$, $p < 0.05$). The coefficient of determination (Adj. R^2) of 0.244 also shows that individual characteristics explains only 24.4% of the motivation to use digital library among polytechnic student in Ondo State, Nigeria.

Table 6b presents the results of ANOVA (overall model significance) of regression test which revealed that individual characteristics has a significant influence on the motivation to use digital library among polytechnic student in Ondo State, Nigeria. This can be explained by the F-value (65.795) and low p-value (0.000) which is statistically significant at 95% confidence interval. Hence, the result posited that individual characteristics of the respondents has a significant but

weak influence on the motivation to use digital library among polytechnic student in Ondo State, Nigeria

In addition, the results of regression coefficients in Table 6c, revealed that at 95% confidence level, that is a unit change in individual characteristics led to a 0.490 increase in the motivation to use digital library among polytechnic student in Ondo State, Nigeria, when all other factors are held constant. On the strength of this result ($\text{Adj. } R^2 = 0.244$, $F(1, 200) = 65.795$, $p = 0.000$), the null hypothesis one (H_{01}) which states that there will be no significant influence of individual characteristics on motivation to use digital library among polytechnic student in Ondo State, Nigeria is rejected.

Discussion of Findings

The study's finding of an overall moderate level of motivation to use digital libraries among polytechnic students in Ondo State, Nigeria, represents a crucial insight into the state of digital library utilization in this academic context. This finding indicates that, on average, students demonstrate a certain degree of motivation to engage with digital libraries, although it falls within the moderate range. This level of motivation suggests that there is room for improvement and that the factors influencing student motivation in this particular setting merit further examination and enhancement.

The findings of the study align with the study of AlQudah, Al-Emran, and Shaalan (2021) on the principles of user-centered design and continuous improvement in digital library services. This approach emphasizes the need to adapt digital library services to better meet user needs and expectations. The moderate level of motivation suggests that student expectations and needs should be further understood and addressed to create a more motivating digital library experience. It means that students may be comparing the digital library to the internet which could be comparatively easier to use than digital libraries. The implication therefore is to further simplify the use of digital libraries so that users can obtain quality information with comparably less effort.

The study's finding shows an overall moderate level of motivation to use digital libraries among polytechnic students in Ondo State, Nigeria, it underscores the importance of ongoing research and development to enhance student motivation and engagement with digital library resources. It is crucial to explore the specific factors affecting motivation and tailor digital library services to better align with the expectations and needs of students. This finding provides a foundation for

further investigation and improvement in digital library services to better serve the educational needs of polytechnic students in Ondo State.

The second research question is on the individual characteristics as related to motivation to use digital library of the respondents. The study found that, on average, students exhibited moderately positive individual characteristics related to their motivation to use digital libraries represents a significant insight into the educational landscape. This observation suggests that students generally possess a reasonably positive disposition towards the use of digital library resources in their academic pursuits. It also means that individual characteristics are more amenable to using the digital library if given the proper motivation. This finding aligns with numerous studies that have explored the factors influencing students' motivation to engage with digital libraries.

Iqbal and Rafiq (2023) emphasized the importance of identifying individual factors for using digital libraries. Their research confirmed that a positive attitude and willingness towards digital library usage are crucial for effective educational outcomes. The moderately positive individual characteristics found in this current study reinforce the notion that understanding and enhancing these motivating factors can contribute to more effective and engaging digital library experiences. It means that once students have positive orientation toward exploring new avenues, are willing to use technology and can easily learn new skills, they can be more easily convinced to use digital libraries.

The test of the hypothesis revealed that individual characteristics of polytechnic students in Ondo State have a significance influence on their motivation to use digital libraries. This finding suggests that students who learn easily, have positive computer self-efficacy and are open to exploring new technology are more likely than others to make use of digital libraries. This finding resonates with Bello, Morenikeji Modinat and Ajoviyon, Bokoh MA (2021).

A group of scholars studied users' acceptance and use of digital library system in 16 institutions in Africa, Asia, and Central/Latin America. This study examined the factors that influenced people's adoption and use of a digital library system and tested the applicability of the Technology Acceptance Model (TAM) in the context of developing countries. This study also identified similarities and differences in the significance predictors of the digital library acceptance across countries and continents. The path analysis results reveal that perceived ease of use of the library system had a significant impact on perceived usefulness which led to

behavioural intention to use it. Hence, perceived ease of use and perceived usefulness were identified as factors that could influence use of digital library by the study.

Conclusion

This study delved into the motivation of polytechnic students in Ondo State, Nigeria, to use digital libraries, exploring individual characteristics. The findings reveal a nuanced picture of the current state of digital library utilization among these students. Overall, the level of motivation is moderate, indicating room for improvement. Students display moderate positive individual characteristics related to digital libraries. This underscores the need to enhance functionality and user-centered aspects of digital libraries.

Based on the findings and conclusion reached in this study, the following recommendations are considered relevant.

1. It is important for polytechnic libraries to provide comprehensive training on how to effectively use digital libraries.
2. In order to also improve the individual factors, it is important to emphasize perceived usefulness of digital libraries. Polytechnic libraries should promote the perceived usefulness of digital libraries by highlighting their role in enhancing students' academic work and the quality of their assignments. Emphasize how digital libraries contribute to efficient completion of academic tasks.
3. In view of the importance of individual factors on the motivation to use digital libraries, polytechnic libraries should prioritize user-centered design principles in the development and enhancement of digital library services. They should also continuously seek feedback from students to understand their needs and preferences.

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