

Individual and Organizational Characteristics as Predictors of Mobile Technologies Adoption by Library Personnel in Public Colleges of Education in South-West, Nigeria

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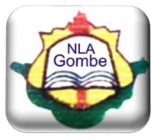
Abstract

The use of mobile technology has gained the attention of librarians because it enhances and promotes dynamic library service delivery. Unfortunately, library personnel in colleges of education are reluctant to adopt mobile technology for day to day operations which has resulted to low level of mobile technology adoption. Mobile technology adoption may be attributed to some factors or predictors including characteristics of the individual potential adopter and the characteristics of the organization where the potential adopter is. This study adopted the survey research design. The population of the study consisted of 234 library personnel in public colleges of education libraries, South-West Nigeria. All 234 library personnel participated in the study by total enumeration. A self-structured and validated questionnaire was used for data collection. Data were analysed using descriptive and inferential statistics. Findings showed that individual characteristics had no significant influence on mobile technology adoption $R^2 = 0.00$ $t(-0.20)$ $p > 0.05$, $\beta = -.01$) while there was a significant positive influence of organisational characteristics on mobile technology adoption $R^2 = 0.10$, $t(4.752)$, $p < 0.05$ $\beta = 0.31$). The study concluded that organisational characteristics contribute to mobile technology adoption of library personnel in public colleges of education in South-West, Nigeria. It was therefore recommended that library administrators should put in place policies and strategies to promote mobile technology adoption for library services; dedicating more funds for mobile technology infrastructure such as internet, computing devices and modem, automate all library functions; and developing local capacity to manage mobile technology

Keywords: Individual characteristics, Library personnel, Mobile technologies, Mobile technology adoption, Organisational characteristics.

Background to the study

Academic libraries are repositories of organized collections of educative information resources (print and non-print) manned by library personnel which form an integral part of tertiary institutions. They are also known for providing resources to meet the information needs of scholars and students in an academic environment. Lund and Agbaji (2018) state that librarians who operate in the academic library play a significant role in providing necessary information; resources and services, to ensure that the needs, expectations, and aspirations of library users are satisfied. Omotayo and Otunla (2018) state that the pursuit of enhancing the provision of information resources, librarians in colleges of education are gradually adopting mobile technologies to provide improved service delivery such as notification service, mobile website, catalogues, database service, E-resources service, user-instruction services, reference service, and library virtual tour service. These services are capable of expediting the process of information dissemination to library users and also provide them with adequate competencies for operating in the fast-evolving technological sphere.



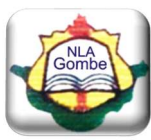
Bakkabulindi (2014) in his work titled “A call for Return to Rogers’ Innovation Diffusion Theory”, identified three categories of predictors that relates to the adoption of innovation, namely the characteristics of the individual potential adopter, the characteristics of the organization where the potential adopter is and how the adopter perceives the innovation. These categories of predictors are regarded as individual, organizational, and innovation characteristics. As pointed out by Iyanda (2016) there are several possible factors that determine the adoption of mobile technologies in a developing country like Nigeria, these factors include: infrastructure, lack of national policy on mobile technology development, stable power supply problems, a vast number of unskilled individuals in the use of mobile technologies, the cost of integrating mobile technologies, inadequate training and innovation building processes for mobile technology adoption. Cecere, Corrocher, and Battaglia (2016) observed that a policy and national framework to address individual and Organisational characteristics is readily required to explain the diffusion of mobile technologies in developing countries. This study is based on the individual and organizational Characteristics as predictors of mobile technologies adoption by librarians.

Review of Literature

Accordingly, Soyemi, Olorunba, and Okafor (2015) regarded mobile technologies as devices that are capable of being hand-held, carried, or moved easily. They are devices that can be used ‘on the go’. Examples of mobile technologies include smartphones and tablets. Mobile technologies are enabled with web browsers, email, cameras, Wi-Fi, Bluetooth, and audio/video players to download, access, and share information contents in various formats, such as document and multimedia. Mobile technology has become an essential part of daily life and has affected the mode of information dissemination since its rapid evolution in the late 1990s.

Since the integration of digital technologies in the academic library, they have transformed the academic library into a hub of knowledge and provided basic conditions for effective learning. Hence, mobile technologies which serve as miniaturized forms of ICTs further provide a massive number of new improvements for the academic library (Oyelude, 2018). Tekale and Dalve (2019) posit that, with their feature of mobility and ubiquity, mobile technologies are capable of providing personalized means of information acquisition for librarians and library users, with features that aid E-learning, M-learning, and Virtual Learning Environment (VLE). Thus, librarians are required to acquire knowledge relevant to adopting mobile technology in their various operations in the academic library. Jentzsch (2012) opined that mobile technology usage could be regarded as one of the key revolutions in academic institutions globally. Other authors believed that mobile technology is a useful tool for socio-development, Carmody (2010) believed that mobile technology could also serve as a tool for service delivery in an academic library. He argued that mobile technology is embedded in existing academic relations of support, resource extraction, and information dissemination and it could also be a tool to reconfigure and reconstitute the identified user's need in the library.

Sife, Klondo, and Lyimo-Macha (2010) also pointed out that, although mobile phones seem to have the potential for improving library services, the precise mode and the extent to which mobile technologies contribute to library development remain largely unexplored. Carmody (2012) believed that the claim about the transformational developmental impacts of mobile technology adoption in academic libraries is yet to be fully explored. Most studies on mobile technology adoption focused on the question of potential users’ initial decision to adopt or not to adopt, individual characteristics, and organizational factors (Kim & Crowston, 2011

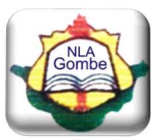


and Roger, 2003). Prior studies on technology adoption enunciated the differences in user perceptions between the initial adoption and the continued usage (Hong, Thong, & Tam, 2006). While there is extensive research on faculty reluctance to adopt technology in many higher educational institutions, there is limited literature relating individual and organizational characteristics to mobile technology adoption by library personnel. Research has shown that using mobile technology can increase access to learning resources for library users and offer better communication among library personnel and users because the adoption of mobile technology varies significantly from organization to organization and person to person, identifying factors related to mobile technology adoption is critical to the academic library. Understanding these factors may aid in increasing levels of mobile technology adoption in academic library, assist in determining appropriate professional development interventions, and can contribute to the limited body of knowledge related to mobile technology adoption in academic library.

Rogers (2003) defined individual characteristics in terms of the level of training and demographic variables such as age, gender, and income level of an individual with regards to the adoption of an innovation. Jaidee and Beaumont (2003) stated that individual characteristics significantly influence the choices, preferences, and views of individuals on the adoption of technology. Thus, individual characteristics are the variables that define the adoption of innovation by individuals in a particular setting (Bakkabulindi, 2011). These variables are the level of training of relevance to the innovation the person has received; how old the person is; the gender and the income level of the person. The older a person becomes, the less that person will be attracted to adopt innovations. In terms of gender, males are usually more apt to use innovations than females. The wealthier a person becomes, the more able that person will be to acquire and hence to adopt innovations (Bakkabulindi, 2011).

Ali and Arshad (2016) define organizational characteristics as the support and attributes of a particular organization concerning the adoption of an innovation. Riley and Hunt (2015) stated that several kinds of the literature suggest that organizational characteristics have a major part to play in the adoption of an innovation. The adoption of mobile technologies by the library as an 'organization' significantly influences how librarians will perceive mobile technologies. According to Rogers (2003), organizational readiness for change, organizational culture towards innovation, organizational size, and organizational change management style are the main factors of organizational characteristics that are likely to influence the adoption of innovations.

Mobile technology adoption in developing countries has been addressed by a vast number of scholars and has been summarized by Jentzsch (2018) where he identified several factors that hinder mobile technology growth in developing countries (third world countries). These include infrastructure, business, environmental factors, and cultural factors. Mobile technologies in Africa generally depend on how useful it is perceived especially considering its usage, ease, and availability for economic and educational purposes (Frimpong, Asare & Otoo-Arthur, 2016). In Nigeria, according to Oluwaseye (2016), the adoption of mobile technologies by librarians is extremely important because the application and importance of mobile technologies include access to a vast number of information contents, facilitation of information retrieval by library users, creation of a ubiquitous library environment for library users and enlightenment of library users in the adequate use of mobile technology for scholarly activities. The importance of mobile technologies would prove to be very instrumental for libraries in general in terms of making critical decisions, such as what information retrieval mode should be employed and how best to disseminate information to



various library users rapidly. The decision-making process that is driven by mobile technologies will further enable librarians to enhance their mode of operation and provide quality services to library users. The adoption of mobile technologies will further enable the academic library to become a hub of knowledge for its parent institution and the immediate community. Therefore, this study sought to investigate individual, organizational, and innovation characteristics as predictors of mobile technologies adoption by librarians in colleges of education in South-West, Nigeria.

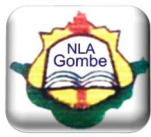
Statement of the Problem

There are increasing discussions on the use and importance of mobile technology for service provision in academic libraries. Mobile technology's role is to enhance the delivery of services, which in turn has the potential to transform service provision to library users. Despite the significant use of mobile technology by library users and the push by institutions to incorporate technology, library personnel are reluctant to adopt mobile technology for day-to-day operation (Oyelude, 2018). The study carried out by Olayiwola and Alimi (2015) on mobile technology adoption in Colleges of Education in Nigeria revealed only 32.1% use mobile technology in their operation. Yamaguchi (2018) attributed reluctance of mobile technology adoption to inadequate support from organization, including organizational readiness for change, culture, size and change management. While there is extensive research on faculty reluctance to adopt technology in many higher educational institutions, there is limited literature relating individual and organization characteristics to mobile technology adoption by library personnel. Research has shown that using mobile technology can increase access to learning resources for library users and offer better communication among library personnel and users. Because the adoption of mobile technology varies significantly from organization to organization and person to person, identifying factors related to mobile technology adoption is critical to the academic library. Understanding these factors may aid in increasing levels of mobile technology adoption in academic library, assist in determining appropriate professional development interventions, and can contribute to the limited body of knowledge related to mobile technology adoption in academic library. It is against this background that this study investigates individual, organizational and innovations characteristics as predictors of mobile technology adoption by library personnel in Public Colleges of Education in South-West, Nigeria.

Objective of the Study

The main objective of this study is to determine the influence of individual and organizational characteristics on mobile technology adoption by library personnel in public colleges of education, South-West, Nigeria. The specific objectives are to:

1. identify the types of mobile technologies adopted by library personnel in public colleges of education in South West, Nigeria;
2. find out the extent to which library personnel in public colleges of education adopt mobile technology;
3. find out the individual characteristics of library personnel in public colleges of education in South-West, Nigeria;
4. identify the organizational characteristics of library personnel in public colleges of education in South-West, Nigeria;
5. identify factors that inhibit adoption of mobile technologies by library personnel in public colleges of education in South West, Nigeria;
6. determine the influence of individual characteristics on mobile technology adoption by library personnel in public colleges of education in South-West, Nigeria;



7. determine the influence of organizational characteristics on mobile technology adoption by library personnel in public colleges of education in South-West, Nigeria.

Research Questions

Based on the specific objectives, this study tries to address the following main research questions:

1. what are the types of mobile technologies adopted by library personnel in public colleges of education in South West, Nigeria;
2. to what extent are mobile technologies adopted among library personnel in public colleges of education?
3. what are the individual characteristics of library personnel in public colleges of education in South-West, Nigeria?
4. what are the organizational characteristics prevalent in public colleges of education libraries in South-West, Nigeria?
5. what are the factors that inhibit the adoption of mobile technologies by library personnel in public colleges of education in South-West, Nigeria?

Research Hypotheses

The following null hypothesis has been formulated for the study:

- H₁ Individual characteristics have no significant influence on mobile technology adoption by library personnel in public colleges of education in South-West, Nigeria.
- H₂ Organizational characteristics have no significant influence on mobile technology adoption by library personnel in public colleges of education in South-West, Nigeria.

Methodology

This study adopted the survey research design. The population of the study consisted of 234 library personnel in public colleges of education libraries, South-West Nigeria. All 234 library personnel participated in the study by total enumeration. A self-structured and validated questionnaire was used for data collection. All variables had Cronbach's Alpha coefficient ranged from 0.60 – 0.94. A response rate of 88.9% were achieved. Data were analysed using descriptive and inferential statistics.

Results and Discussion of Findings

Research Question 1: What are the types of mobile technologies adopted by library personnel in colleges of education in South West, Nigeria?

Figure 1- Types of Mobile Technologies adopted by library personnel

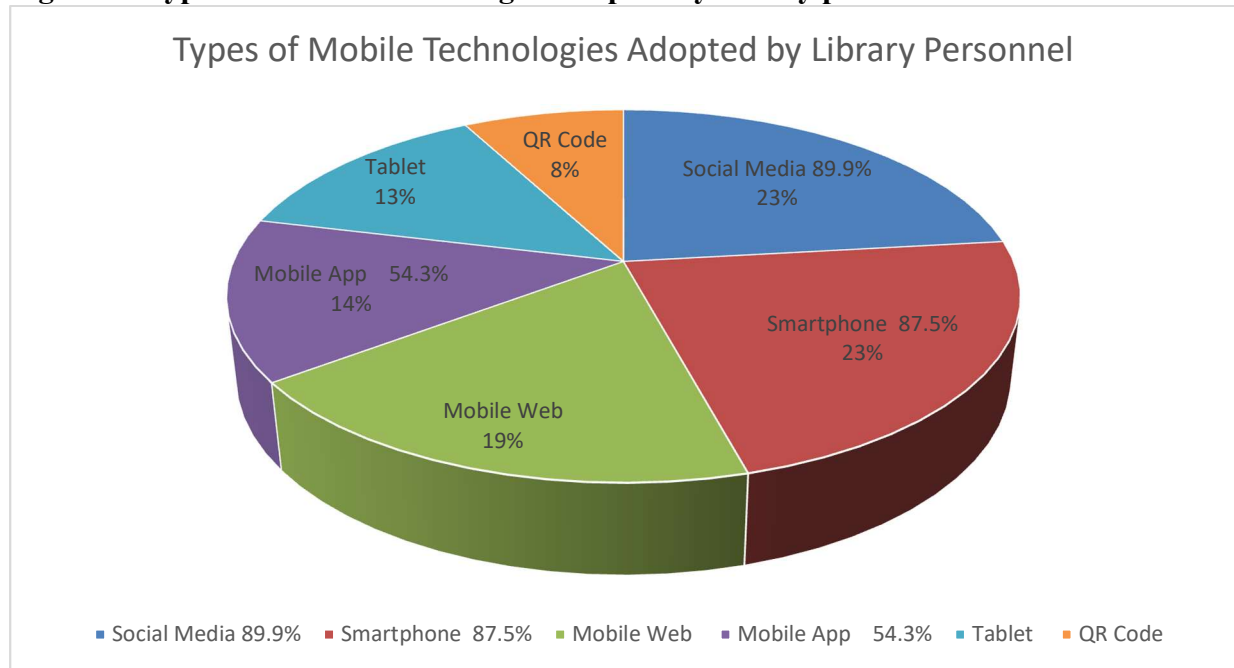
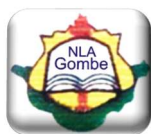


Figure 1 revealed that a significant number of library personnel in Public colleges of education in South West, Nigeria identified social media (89.9%) and smartphone (87.5) as the most adopted mobile technologies. While only half of the respondents adopted mobile apps (54.3%) and tablets (51.9%). On the hand other, QR code technology, regardless of being core to library services was least adopted (30.3%) among library personnel in Public colleges of education in South West, Nigeria.

Research Question 2: To what extent are mobile technologies adopted by library personnel in public colleges of education in South West, Nigeria? This research question sought to know the extent to which mobile technologies are adopted by library personnel in public colleges of education in South West, Nigeria.

Table1: Extent of mobile technology adoption

Items	To a Very Low Extent		To a Low Extent		To Some Extent		To a High Extent		To a Very High Extent		Mean \bar{x}
	N	%	N	%	N	%	N	%	N	&	
Social Media											
Social media is adopted to create awareness for the library on various online platforms	8	3.8	8	3.8	45	21.6	79	38.0	68	32.7	3.92
Social media is adopted to inform library users about new additions to the collections of the library	10	4.8	13	6.3	45	21.6	63	30.3	77	37.0	3.88
Social media is adopted to respond to inquiries of library users	10	4.8	13	6.3	51	24.5	76	36.5	58	27.9	3.76
Group mean= 3.85											
Smartphone											
Smartphone is adopted to source for information on the internet	1	0.5	10	4.8	56	26.9	75	36.1	66	31.7	3.94
Smartphone is adopted to contact library users about notice alert and events in the library	4	1.9	15	7.2	63	30.3	71	34.1	55	26.4	3.76

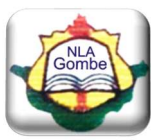


Smartphone is adopted to share document and with users	7	3.4	20	9.6	58	27.9	71	34.1	52	25.0	3.68
Group mean= 3.79											
Mobile Website											
Mobile website is adopted to enable the downloading of information materials by library users	12	5.8	26	12.5	47	22.6	82	39.4	41	19.7	3.55
Mobile website is adopted to upload and post event happening in the library	14	6.7	31	14.9	44	21.2	72	34.6	47	22.6	3.51
Mobile website is adopted to assist library users with services delivery	12	5.8	34	16.3	42	20.2	82	39.4	38	18.3	3.48
Group mean= 3.51											
Tablet											
Tablet is adopted for provision of access to E-resources	26	12.5	30	14.4	53	25.5	63	30.3	36	17.3	3.25
Tablet is adopted for giving new library users orientation program about the library environment	30	14.4	40	19.2	51	24.5	58	27.9	29	13.9	3.08
Tablet is adopted for streaming of video on the internet for users	32	15.4	39	18.8	55	26.4	56	26.9	26	12.5	3.02
Group mean= 3.12											
Mobile Application (App)											
Mobile app is adopted to create an interactive and collaborative platform for library users	47	22.6	26	12.5	54	26.0	56	26.9	25	12.0	2.93
Mobile app is adopted to provide library users with quick access to E-resources services	50	24.0	27	13.0	45	21.6	63	30.3	23	11.1	2.91
Mobile app is adopted to enable library users with self-services such as, reference services, information retrieval services and orientation services	51	24.5	27	13.0	53	25.5	49	23.6	28	13.5	2.88
Group mean= 2.91											
Quick Response Code (QR Code) Technology											
QR Code is adopted to encode relevant information about the library on the web	77	37.0	47	22.60	30	14.4	28	13.5	26	12.5	2.42
QR code is adopted to promote digital collections in the library	78	37.5	47	22.60	25	12.0	35	16.8	23	11.1	2.41
QR Code is adopted to notice library users about space reservations in the library environment	81	38.9	48	23.08	28	13.5	31	14.9	20	9.6	2.33
Group mean= 2.39											
N= 208, Grand mean= 3.26											

Source: Field Survey 2020

Note: Criterion mean response range; To a very low extent ($1 < \bar{x} \leq 1.9$), To a low extent ($1.5 < \bar{x} \leq 2.9$), To some extent ($2.5 < \bar{x} \leq 3.9$), To a high extent ($3.5 < \bar{x} \leq 4.9$), To a very high extent ($4.9 < \bar{x} \leq 5.0$).

From table 1 social media (3.85) and smartphone (3.79) were adopted to a high extent for library operations by library personnel in Public Colleges of Education in South West, Nigeria. Whereas, it was also divulged that both mobile web (3.51) and tablet (3.12) had



moderate extent of adoption for library operations. Although, mobile apps (2.91%) and QR code technology (2.39) offered expedient services to library operations, they had low extent of adoption for library operations by library personnel in Public Colleges of Education in South West, Nigeria.

Research question 3: What are the individual characteristics of library personnel in colleges of education libraries in South-West, Nigeria? This research question is aimed at investigating the individual characteristics of library personnel, such as, age, gender, academic level, income level and level of mobile technology skill.

Table 2 Individual Characteristics of Library Personnel

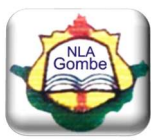
Characteristics	Category	Frequency (N=208)	Percentage %
Gender	Male	136	65.4
	Female	72	34.6
Age	20-29	4	1.9
	30-39	69	33.2
	40-49	78	37.5
	50-59	55	26.4
	60 and above	2	1.0
	Academic level	PhD	12
MLS		98	47.1
BLS		57	27.4
HND		7	3.4
OND		34	16.3
Income level Monthly	Below ₦70,000	6	2.9
	₦ 70,000 - ₦ 150,000	80	38.5
	₦ 150,000 - ₦ 200,000	51	24.5
	₦ 200,000 - ₦ 250,000	29	13.9
	₦ 250,000 - ₦ 300,000	28	13.5
	Above ₦ 350,000	14	6.7
Level of mobile technology skill	No skill	6	2.9
	Novice	30	14.4
	Advance	126	60.6
	Expert	46	22.1

N= 208

Source: Field Survey 2020

Data in Table 2 showed the individual characteristics of library personnel. Reporting on the individual characteristics of library personnel in Public Colleges of Education in South-West, Nigeria, The table revealed that a significant percentage of respondents were male (65.4), while there was a limited number of female respondents (34.6). This implies that there is a prevalence of male library personnel in Public Colleges of Education in South-West Nigeria. With regards to age, it was revealed that majority of the respondents were of the age bracket of 40-49years (37.5), while there was also a number of library personnel who were of the age gap of 30-39years (33.2). The average age of library personnel in Public Colleges of Education in South-West, Nigeria is 50-59years (26.4), whereas the lowest age bracket is the 60years and above (1.0). This further implies that majority of library personnel in Public Colleges of Education in South-West, Nigeria are capable of adopting mobile technology in their operations regardless of their age.

As regards the academic level of respondents, data presented in Table 2 divulged that majority of the library personnel has postgraduate degrees (52.9). Notably, about 16% of the respondents has OND. This implies that there was a high number of library personnel with



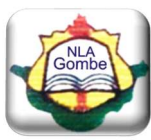
postgraduate degrees in Public Colleges of Education, South-West, Nigeria, thus this suggests their ability to fully acknowledge role of mobile technology in library operations, due to their academics exposures and knowledge in the academic sphere. Regarding the data presented on monthly income level of library personnel, majority of library personnel falls within ₦70,000 - ₦150,000 (38.5%) and ₦150,000 - ₦200,000 51(24.5). The average income level of the respondents was ₦200,000-₦250,000 (13.9), whereas the percentage of library who collected ₦300,000 and above (6.7) was the lowest. This implies that some of the library personnel in Public Colleges of Education in South-West. Nigeria had sustainable income level. However, there should be room for improvement, as the adoption of mobile technologies necessitates several forms of financial responsibilities.

Lastly, with regards to level of mobile technology skill of library personnel in Public Colleges of Education in South-West. Nigeria, data from the table revealed that a significant percentage of respondents were advanced (60.6) in terms of mobile technology usage. Library personnel who are experts (22.1) in mobile technology skills were average in number. While respondents who possessed no skill (2.9) are the lowest. This further implies that, a significant percentage of library personnel in Public Colleges of Education in South-West. Nigeria are proficient (advanced) in terms of mobile technology usage this could be as a result of prevalence of mobile technology in all spheres of life.

Research question 4: What are the organizational characteristics prevalent in colleges of education libraries in South-West, Nigeria? This research question was aimed at investigating the organizational characteristics of libraries in Public Colleges of Education in South-West. Nigeria.

Table 3: Organizational characteristics

Organisational characteristics of Library Personnel	Strongly Disagree		Disagree		Agree		Strongly Agree		Mean
	N	%	N	%	N	%	N	%	
A) Organisational Readiness for Change									
1. My library is always willing to embrace innovative ideas	0	0.0%	0	0.0%	136	65.4%	72	34.6%	3.35
2. My library encourages staff professional development on technology	0	0.0%	1	.5%	130	62.5%	77	37.0%	3.37
3. My library is favorably disposed to librarians adopting mobile technology.	3	1.4%	6	2.9%	145	69.7%	54	26.0%	3.20
4. My library acknowledges the developments in terms of mobile technology	0	0.0%	3	1.4%	138	66.3%	67	32.2%	3.31
5 In my library resources are provided to facilitate the adoption of mobile technology	2	1.0%	9	4.3%	144	69.2%	53	25.5%	3.19
Group mean= 3.28									
B) Organisational Culture Towards Innovation									
1. My library value aligns with the adoption of mobile technology	0	0.0%	3	1.4%	157	75.5%	48	23.1%	3.22
2. My library encourages seminars on the relevance of mobile technology adoption by librarians	2	1.0%	5	2.4%	148	71.2%	53	25.5%	3.21
3. My library provides an atmosphere for the adequate adoption of mobile technology	0	0.0%	11	5.3%	129	62.6%	66	32.0%	3.27
4. My library perceives the adoption of	0	0.0%	12	5.8%	143	68.8%	53	25.5%	3.20



mobile technology to be expedient									
5. My library regulations permit the adoption of mobile technology	3	1.4%	5	2.4%	157	75.5%	43	20.7%	3.15
Group mean= 3.21									
C) Organisational Change Management Style									
1. My library perceives the adoption of mobile technology to be beneficial	4	1.9%	6	2.9%	120	57.7%	78	37.5%	3.31
2. My library constantly makes adjustments to the organizations' regulations to enable the adoption of mobile technology	6	2.9%	17	8.2%	134	64.4%	51	24.5%	3.11
3. My library encourages the adoption of mobile technology	2	1.0%	4	1.9%	137	65.9%	65	31.3%	3.27
4. My library provides resources that support the adoption of mobile technology	6	2.9%	13	6.3%	141	67.8%	48	23.1%	3.11
5. My library complies to recommendations of employees on the adoption of mobile technology	6	2.9%	9	4.3%	153	73.6%	40	19.2%	3.09
Group mean=3.18									
D) Organisational Size									
1. My library has enough human resources to support mobile technology adoption	18	8.7%	79	38.0%	90	43.3%	21	10.1%	2.55
2. My library has enough financial resources to support mobile technology adoption	21	10.1%	96	46.2%	72	34.6%	19	9.1%	2.43
3. My library has enough infrastructure to support mobile technology adoption	17	8.2%	91	43.8%	86	41.3%	14	6.7%	2.47
4. My library has enough organisational support for mobile technology adoption	19	9.1%	79	38.0%	88	42.3%	22	10.6%	2.54
5. My library has enough policies to support mobile technology adoption	27	13.0%	74	35.6%	84	40.4%	23	11.1%	2.50
Group mean=2.49									

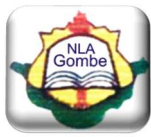
N= 208

Source: Field Survey 2020

The information in the table below was graded: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, Strongly Disagree (D) = 1

Data presented in Table 3 shows the result on organizational characteristics of libraries in Public Colleges of Education in South West Nigeria. From the data presented it was revealed that many of the respondents agreed that their libraries possessed organizational readiness for change (mean=3.28). Whereas, even though, organizational size played a significant role in innovation adoption, libraries in Public Colleges of Education in South-West, Nigeria showed low level of organizational size (2.49).

The results in Table 3 using the indicators in the study revealed that; as regard organizational readiness for change the group mean was 3.28. This implies that the libraries encourage staff professional development on technology, they are willing to embrace innovative ideas and are favorably disposed to librarians adopting mobile technology. As regard organizational culture towards innovation for change, the group mean was 3.21. This implies that the libraries provide conducive atmosphere for the adequate adoption of mobile technology, their values align with the adoption of mobile technology and their regulations permit the adoption of mobile technology. Regarding organizational management style, the group mean was 3.18. This implies that the library perceives the adoption of mobile technology to be beneficial,



provides resources that support the adoption of mobile technology and complies to recommendations of employees on the adoption of mobile technology. While for organizational size, the group mean was 2.49. This implies that although the libraries have enough human resources and organizational support for mobile technology adoption, they do not have enough infrastructure and financial support for mobile technology adoption.

Research question 5: What are the factors that inhibits the adoption of mobile technologies adoption among library personnel in colleges of education libraries in South-West, Nigeria? This research question was centered on considering the factors that inhibit the adoption of mobile technology adoption by library personnel in Public Colleges of Education South West, Nigeria.

Table 4: Factors that inhibit adoption of mobile technology

Items	Strongly Disagree		Disagree		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%
	Insufficient training prevents the adoption of mobile technology.	4	1.9%	14	6.7%	104	50.0%	86
Unavailable technological infrastructure prevents the adoption of mobile technology.	13	6.3%	10	4.8%	102	49.0%	83	39.9%
Poor network is a challenge to mobile technology adoption.	13	6.3%	4	1.9%	113	54.3%	78	37.5%
Epileptic power supply affects the adoption of mobile technology.	4	1.9%	11	5.3%	120	57.7%	73	35.1%
Poor accessibility prevents the adoption of mobile technology.	10	4.8%	10	4.8%	116	55.8%	72	34.6%
Inadequate knowledge proves to be a challenge in the adoption of mobile technology.	9	4.3%	14	6.7%	113	54.3%	72	34.6%

N= 208

Source: Field Survey 2020

Regarding the factors that inhibit the adoption of mobile technology by library personnel in Public Colleges of Education South-West, Nigeria, it was revealed that both insufficient training (41.3%) and unavailable technological infrastructure (39.9%) significantly inhibited the adoption of mobile technology by library personnel in Public Colleges of Education South West, Nigeria. While poor accessibility (34.6%) and inadequate knowledge (34.6%) had low impact on the inhibition of mobile technology adoption by library personnel in Public Colleges of Education South West, Nigeria.

Results of hypotheses testing

Hypothesis 1: Individual characteristics have no significant influence on mobile technology adoption by library personnel in colleges of education in South-West, Nigeria.

In order to determine the influence of Individual characteristics on mobile technology adoption by library personnel in colleges of education to South-West, Nigeria, linear regression was used. The statistical data is presented in Table 5

Table 5: Summary of regression analysis showing the influence of Individual characteristics on mobile technology adoption by library personnel in colleges of education in South-West Nigeria.

Model Predictor	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	Beta		
(Constant)	60.227	7.524		8.005	
Individual Characteristics	-.113	.563	-.014	-.200	.842

a. Dependent Variable: Mobile Technology Adoption

Source: Field Survey 2020

$R = .014^a$, $R^2 = .000$, Adjusted $R^2 = -0.005$, $F(1, 206) = 0.04$

The result in Table 5 showed that no significant regression was found ($F(1, 206) = 0.04$), p-value (.842); the independent variable (individual characteristics) does not have significant influence on mobile technology adoption by library personnel in colleges of education in South-West Nigeria. The result also revealed a coefficient of determination $R^2 = .000$ which implies a 0% contribution by individual characteristics to any variance that may have occurred in mobile technology adoption. Therefore, any variance that occurred in the dependent variable (mobile technology adoption) can only be explained by other variables not included in this model. The implication the result $F(1, 206) = 0.04$, p-value = .894 > .05, $R^2 = .000$ is that, individual characteristics of the library personnel as used in this study cannot influence their adoption of mobile technology. Surprisingly this result contradicts earlier assumptions where it has been found that individual's characteristics has significant effect on mobile technology adoption (Schiffman & Kanuk, 2014; Cosgrave & Kosturski, 2016; & Anand, 2017). This could be attributed to the prevalent of mobile technology in all aspects of life. Hence, the null hypothesis 1 was accepted.

Hypothesis 2: Organizational characteristics have no significant influence on mobile technology adoption by library personnel in colleges of education to South-West, Nigeria.

In order to determine the influence of organizational characteristics on mobile technology adoption by library personnel in colleges of education to South-West, Nigeria, linear regression was used. The statistical data is presented in Table 6.

Table 6: Summary of regression analysis showing the influence of organisational characteristics on mobile technology adoption by library personnel in colleges of education in South-West Nigeria.

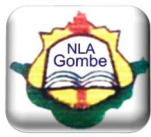
Model Predictor	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	Beta		
(Constant)	18.315	8.565		2.138	.
1 Organistional Characteristics	.664	.140	.314	4.752	.000

a. Dependent Variable: Mobile Technology Adoption

Source: Field Survey 2020

$R = .314^a$, $R^2 = 0.099$, Adjusted $R^2 = 0.094$, $F(1, 206) = 22.586$

The result in table 6 showed a significant regression ($F(1, 206) = 22.586$, $p < 0.05$, $R^2 = .099$ and a positive slope (Beta = .314) was found. Thus, organizational characteristics had a significant positive influence on mobile technology adoption by library personnel in colleges of education in South-West, Nigeria. The table revealed a coefficient of determination $R^2 =$



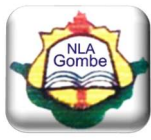
.099 which implies that 9.9% of the variation that occurred in mobile technology adoption was influenced by organizational characteristics, while the remaining 90.1% of variation in mobile technology adoption can only be explained by variables not included in this model. The implication is that, the independent variable “organizational characteristics” as used in this study can positively and significantly influence the adoption of mobile technology by library personnel, such that an improvement in organizational characteristics will result in an improvement in mobile technology adoption. Therefore, the null hypothesis 2 was rejected.

Discussion of the findings

Regarding mobile technology adoption by library personnel, findings showed that most of the library personnel in colleges of education in South-West, Nigeria, have adopted mobile technologies such as: social media, smartphones as well as mobile website. This is in line with the findings of Carmody (2010) and corroborated by Jentzsch (2012) which established that mobile technology usage could be regarded as one of the key revolution in academic library globally. They jointly believed that mobile technology is a useful tool for socio-development, they also believed that mobile technology could also serve as a tool for service delivery in academic library. Jentzsch (2012) argued that mobile technology is embedded in existing academic relations of support, resource extraction, and information dissemination and it could also be a tool to reconfigure and reconstitute the identified users need in the library.

In respect of individual characteristics of library personnel, findings on gender showed that most of the library personnel were male and are between the ages of 40-49 years, and most of them were degree holders. The majority monthly income level were between ₦70,000-₦200,000 and their mobile technology skills is at the expert and advance stage. Findings on gender agreed with the result of research carried out by Saito and Yamamoto (2018) which revealed that the married females’ inability to partake in the innovation building process was due to family and household reasons. Thus, this further proves that gender significantly influences the adoption of mobile technologies. The finding on age is buttressed by a study carried out by Zaharah, Hazim and Jubril (2018) which revealed from the demographic information based on the age range of library participants, age significantly influences the adoption of mobile technology by librarians. This was corroborated by Kelentriç and Helland (2019) and Bejalwar (2018), where it was also revealed from the demographic information that younger library participants were inclined to adopt mobile technologies in their operations. Findings on training and academic level is a reflection of findings from a study by Ahmed, Ali and Muhammad (2017) which explored the macroscopic and microscopic influencers affecting attitude and intention to adopt social media for library services. From this study it deduced that library participants who had prior training/knowledge on the utilization of social media were eager to make use of their mobile devices to access the social media account of the library.

Findings on organizational characteristics revealed that colleges of education libraries in this study were characterized as having an “organisational readiness for change”, that is, the libraries encourage staff professional development on technology, are willing to embrace innovative ideas and are favorably disposed to librarians adopting mobile technology. Finding on organisational readiness for change was corroborated by a study carried out by Bakkabulindi (2012) on how organizational characteristics relate with use of Knowledge Management System. The study revealed that both students and librarians are not making use of ICTs, due to reasons pertaining to their organisational readiness for change. The study



reveals the significance of organizational readiness for change in predicting the adoption of an innovation.

Conclusion and Recommendation

Mobile technology seems to have the potential for improving library services, the precise mode and the extent to which mobile technologies contribute to library development remain largely unexplored. Individual characteristics were defined in terms of the level of training and demographic variables such as age, gender and income level of an individual with regards to the adoption of an innovation. From the study, organizational characteristics are the support and attributes of a particular organization with regards to the adoption of an innovation. Organizational readiness for change, organizational culture towards innovation, organizational size and organizational change management style are the main factors of organizational characteristics that are likely to influence the adoption of innovations.

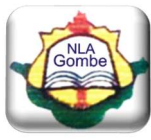
In view of the findings of the study, the following recommendations are hereby made:

1. Management of public colleges of education libraries should put in place strategies and policies such as institutionalizing mobile technology usage in library services; creating awareness within the college communities to embrace the adoption of mobile technology adoption.
2. Since mobile technology adoption will lead to improved service quality and user's satisfaction, in terms of its innovation attributes, management of public colleges of education libraries should invest in the provision of necessary infrastructure such as internet bandwidth, network facilities, and power supply to support mobile technology adoption.
3. Insufficient training was a hindering factor to mobile technology adoption; hence, training of library personnel on the use of mobile technologies and other ICTs could be a regular activity in the library.
4. Management of public colleges of education libraries should engage as a matter of policy library personnel with requisite background and experience in mobile technology so as to promote mobile technology adoption.

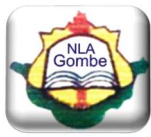
Mobile technology adoption facilitates information retrieval, hence, mobile technology should be leverage to complement other traditional means of information retrieval in the library.

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