

Mobile technology adoption by librarians in colleges of education in South-West, Nigeria

¹Awoyemi, R. A and ²Soyemi, O. D., *PhD*

¹College Library, Adeyemi College of Education, Ondo, Nigeria

²Department of Information Resources Management, Babcock University, Ilisan-Remo, Ogun State, Nigeria

¹E-mail: akinawoyemi@yahoo.co.uk

Abstract

This study investigated the adoption of mobile technology by librarians in colleges of education in Southwest, Nigeria with regards to their demographic characteristics. The study adopted a survey approach. The population consisted of librarians from academic libraries in colleges of education in Southwest, Nigeria. One college of education was selected from each six states in Southwest, Nigeria. Thus, restricting the sample size to six colleges of education in Southwest, Nigeria. In the six colleges of education 42 librarians (7 librarians from each of the colleges of education) were selected using stratified random technique. The questionnaire was entitled: "Individual Characteristics and Mobile Technology Adoption Questionnaire (ICMTAQ" and was sent out to the emails of selected librarians. Findings from this study revealed that a significant percentage of librarians in colleges of education in Southwest, Nigeria were open to the adoption of mobile technologies. However, a number of inconsistencies were discovered with regards to librarians' individual characteristics.

Keywords: Mobile technology, mobile technology adoption, demographic characteristics, librarians, colleges of education, South-West, Nigeria

Introduction

The outbreak of the Covid-19 Pandemic has brought about a confined society, in which a number of restrictions are being put in place, and a significant number of sectors and institutions are being closed down. According to Holmes and Gardner (2020), the decision to temporarily close down institutions was prompted on the basis that large crowds of persons pose as a severe risk to safeguarding public health during the Covid-19 pandemic. In the situation where an institution such as the academic library is inaccessible, librarians are required to consider other innovative means of meeting the immediate information needs of library users at the comfort of their home. Thus, prompting the need for mobile technology adoption. In the pursuit of maintaining the process of information and service delivery to library users (in the confined society) librarians are required to adopt the use of

mobile technology. Kapondera and Ngalande (2017) defined 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/iPads. Mobile technologies are enabled with web browsers, email, cameras, Wi-Fi, Bluetooth and audio/video players. In general, mobile technologies are devices that can be used for communication, information sharing and storage, social networking and entertainment. However, the adoption of an innovation such as mobile technology is usually based on a number of key variables, one of which is individual characteristics. According to Rogers (2003), individual characteristics are regarded as a potential predictor of innovation adoption because they deal with lifestyle factors and measurement of both educational and

demographic viability of individuals. The individual characteristics influences the behaviors, attitudes, trends, tastes and lifestyles of individuals. They also influence social privileges and levels of financial independence. Jaidee and Beaumont (2003) posit that the different class segments of the society such as upper class, middle class and lower class can be attributed to the individual characteristics. Thus, the individual characteristics are the variables that define the quality of life in a society. Rogers (2003) posit that 'training, age, gender and income level' serve as the main factors of individual characteristics that are likely to influence the adoption of innovations by 'change agents'. Change agents are regarded as individuals who are capable of influencing clients' innovation-decisions, and they majorly include: librarians, teachers, consultants and public health workers.

Objective of the study

The main objective of this study is to determine the influence of individual characteristics on mobile technology adoption by librarians in colleges of education in Southwest, Nigeria. The specific objectives are to:

1. investigate the demographic characteristics of librarians in colleges of education in Southwest, Nigeria;
2. investigate the acceptance of mobile technologies by librarians in colleges of education in Southwest, Nigeria;
3. identify the most preferred type of mobile technology by librarians in colleges of education in Southwest, Nigeria.

Literature review

On the basis that this study is focused on the adoption of an innovation such as mobile

technology, there is need to review past literatures on the adoption of innovations. Therefore, Roger's Diffusion of Innovation Theory will serve as vital basis of literature for this study.

Diffusion of innovation theory

Diffusion of Innovation Theory (DOI) proposed by Rogers in 1958 after his doctoral studies in the diffusion of agricultural innovations (Rogers, 1957) at Iowa State University, US, is officially termed the "Paradigm of Innovation Decision Process" (Rogers, 2003). It is also variously known as the Classical Innovation Theory (Hung et al., 2010) and the Diffusion of Innovations (Kelleher and Sweetser, 2012). According to Rogers (2003), DOI relates innovation diffusion and/ or adoption to three categories of correlates, 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.

With regards to individual characteristics which serves as a potential predictor of innovation adoption, Roger (2003) stated that an individuals' propensity to adopt or use any innovation, depends on the individual characteristics of that person. Such individual adopter characteristics include the extent to which that person interacts with the change agents of relevance to the innovation in question; the level of training of relevance to the innovation the person has received; how cosmopolitan (i.e. urban influenced or non-conservative) the person is; how old the person is; the gender and the income level of the person. If the person interacts much with the change agents of relevance to the innovation in question, then that person will have a high propensity to adopt the innovation. If the person has a high level of training of

relevance to the innovation, then that person will have a high propensity to adopt the innovation. If the person is cosmopolitan, then that person will have a high propensity to use the innovation. The older a person becomes, the less that person will be attracted to adopt innovations. In terms of the gender, the males are usually more apt to use innovations than the females. The wealthier a person becomes, the abler that person will be to acquire and hence to adopt innovations.

Training is regarded as a factor of individual characteristics that influences mobile technology adoption. Mobile technology adoption requires training for effective application. Hong, Hao, Kumar, Ramendran and Kadiresan (2012) define training as the systematic acquisition and development of knowledge, skills and attitudes required by employees to adequately perform assigned tasks to boost their performance on the job. Thus, training in a work situation is concerned with extending and developing employees' capabilities and enabling them to perform better in their jobs, and be more ready for changes (Salleh, Yaakub and Dzulkifli, 2011). The librarians' professional development is a key factor to the effective integration of mobile technologies in their operations in the library. Hence, whether beginner or experienced, mobile technology-related training programs has the ability of developing librarians' competencies in mobile technology use, influencing librarians' attitude towards mobile technologies and assisting librarians to recognize how mobile technologies are significant in meeting the information needs of users. Several recent researchers have established training to be a predictor of innovations adoption.

Another factor of individual characteristics that influences mobile

technology adoption is age. Schiffman and Kanuk (2014) observed that the age of librarians is likely to influence the process of mobile technology adoption. Age is the period of time an individual has lived. This essentially influences an individuals' behavior or attitude towards innovation as a result of the experiences he/she has gathered over the years. A librarian who is already old and acquainted with the traditional mode of operating in the library over a long span might find it difficult to adopt the use of mobile technologies. While a librarian who grows up among technology-oriented individuals and constantly embraces the use of different types of technologies in the process of operating in the library would find it very easy to adopt the use of mobile technologies. Age is probable to increase the willingness of librarians to make use mobile technologies. Thus, this suggest that older librarians are prone to decline the use of mobile technologies while younger librarians are usually more open and willing to adopt the use of mobile technologies.

Gender is also another factor of individual characteristics that influences mobile technology adoption. According to Ssali, Ahikire and Madanda (2007), gender is the socially constructed differences and distinctions between men and women. Gender differs from sex in that it is not biologically determined. Gender distinctions include the different attributes, statuses, roles, responsibilities, and potentialities as well as their access to and the control over resources and benefits. Bellion and Milo (2016) summarized the attitudes expressed by various scholars about technology in general and mobile technologies in particular as being a male-dominated discipline, emphasizing that, the dominant cultural understanding of technology is as a masculine activity, therefore women have often chosen not to engage in it.

Conventionally, anything that tends to be difficult to perform is considered to be reserved for the males. Therefore, right from the onset females have been psychologically programmed to stay away from science subjects which is the core of technological innovations.

Besides training, age and gender another factor of individual characteristics that influences mobile technology adoption is income level. Anand (2017) defined income level as the particular estimation of the annual/monthly salary of an individual. Considering the cost of acquisition and maintenance of mobile technologies a number of librarians might feel reluctant to adopt its usage. More so, Santos and Esposito-Betan (2018) discovered a positive significant correlation between income level of librarians and mobile technology adoption, and that there was a significant difference between mobile technology usage of low and high income groups. Some mobile technologies are quite costly and seem not to take a substantial position in the librarians' scale of preference, particularly in Nigeria, hence the low level of adoption.

Methods

For the purpose of this study, the population wcomprised of librarians from colleges of education in Southwest, Nigeria. The multi-stage sampling technique was adopted in the selection of samples for the study. One college of education was selected from each six states in Southwest, Nigeria. Thus, restricting the sample size to six colleges of education in Southwest, Nigeria. In the six colleges of education 42 librarians (7 librarians from each of the colleges of education) were selected using stratified random technique. Sections and designations (for example digital/system, cataloguing, circulating, reference, acquisition, etc.) in the academic libraries

were used as strata. One structured questionnaire was employed in this survey and it was titled: Individual Characteristics and Mobile Technology Adoption Questionnaire (ICMTAQ). The questionnaire consisted of 16 item questions. The questionnaire was pretested for face validity among some librarians in Emmanuel Alayande College of Education, Oyo.

The research adopted survey approach, a method in which the questionnaire was sent out to librarians through their emails between the months of May 2020 and June 2020. A reminder message was sent each week during this period to achieve good response. Google form was used to design the questionnaire and the link sent out while the response was collected by Google in an Excel sheet format. The response was later downloaded into excel sheet for analysis and Excel package was used for the analysis and presentation. Table and chart were used in the presentation of results to make it clearer.

Results

The results are presented in line with the research ojectives.

Objective 1: investigate the demographic characteristics that predict the adoption of mobile technology by librarians in colleges of education in Southwest, Nigeria.

With regards to this objective, respondents were asked to indicate their gender, age, income level and level of mobile technology training. Table 1 presents the individual characteristics of librarians. Table 1 reveals the demographic characteristics of librarians in colleges of education in Southwest, Nigeria. With regards to gender, male respondents constituted 29 (69.1%) of respondents, while female respondents constituted 13 (30.9%) of respondents. This

implies that there is a preponderance of male to female librarians.

With regards to age, a majority of respondents within the age range of 40-49 were 15 (35.7%), followed by 30-39 who were 13 (30.9%), also followed by 20-29 who were 6 (14.2%), followed by 50-59 who were 5 (11.9%), then followed by 60 and above who were 3 (7.2%). This implies that majority of the respondents are young adults, hence various literatures have revealed that young adults are more active users of mobile technology as compared to the older age people (Bellion and Milo, 2016)

With regards to income level, respondents who earn ₦100,000-200,000 were 24 (57.1%), followed by those who earn below ₦100,000 who were 9 (21.4%), also followed by those who earn ₦200,000-₦300,000 who were 6 (14.2%), then followed by those who earn ₦300,000 and above who were 3 (7.1%). This implies that a significant percentage of respondent's income level is ₦100,000-₦200,000. Based on past literatures (Rogers, 2003) it is

attested that individuals at a higher and average income level tend to adopt mobile technology as compared to those at a lower income level.

With regards to level of mobile technology training, respondents who are proficient were 22 (52.3%), followed by those who are neutral who were 13 (30.9%), then followed by those are novice who were 7 (16.6%). This implies that majority of the respondents are proficient enough to adopt mobile technology. This assertion is in agreement with a study conducted by Kapondera and Ngalande, (2017) which revealed that the proficiency in mobile technology is believed to increase librarians' ability to obtain, process and analyze information contents.

Objective 2: Investigate the acceptance of mobile technologies by librarians in colleges of education in Southwest, Nigeria. With regards to this objective, respondents were required to provide suitable answers to a number of questions.

Table 2 presents data on the acceptance of mobile technologies by librarians.

Table 1. Demographic characteristics of the respondents

Demographic Characteristics		Freq. (n=42)	Percentage
Gender	Male	29	69.1
	Female	13	30.9
	Total	42	100
Age (in years)	40-49	15	35.7
	30-39	13	30.9
	20-29	6	14.2
	50-59	5	11.9
	60 and above	3	7.2
	Total	42	100
Income level	₦100,000-₦200,000	24	57.1
	Below-₦100,000	9	21.4
	₦200,000-₦300,000	6	14.2
	₦300,000 and above	3	7.1
	Total	42	100
Level of Training	Proficient	22	52.3%
	Neutral	13	30.9%

Novice	7	16.6%
Total	42	100%

Table 2: Acceptance of mobile technologies by librarians

S/N	Items	Agree		Disagree	
		N	%	N	%
1	I perceive that my operations are capable of being enhanced with the adoption of mobile technology	28	66.7	14	33.3
2	I perceive that the adoption of mobile technology will provide me with up-to-date information in my area(s) of interest	25	59.5	17	40.5
3	I perceive that the adoption of mobile technology will enable me to operate effectively from the comfort of my home	26	61.9	16	38.1
4	I perceive that the adoption of mobile technology will acquaint me with library users and their immediate information needs	25	59.5	17	40.5
5	I convince my colleagues to adopt mobile technology in their various operation	24	57.2	18	42.8
6	I actively participate in innovation building programs and trainings	23	54.7	19	45.3
7	I perceive that the adoption of mobile technology will enable me to collaborate with other librarians around the world	26	61.9	16	38.1
8	My individual preferences align with the adoption of mobile technology	27	64.2	15	35.8
9	I perceive that the adoption of mobile technology will enable me to effectively function as an information professional in the 21st century	28	66.7	14	33.3
10	I am fascinated with the extent to which mobile technologies enhances my operations	27	64.2	15	35.8

N = 42

Table 2 reveals the acceptance of mobile technologies by librarians, with regards to its usefulness and compatibility with their operations in the library. The result from the table indicates that 28 (66.7%) of the respondents agreed that their operations are capable of being enhanced by the adoption of mobile technologies, while 14 (33.3%) disagreed. 25 (59.5%) of the respondents

agreed that the adoption of mobile technology will provide them with up-to-date information in their area(s) of interest, while 17 (40.5%) disagreed. Also, 26 (61.9%) of the respondents agreed that the adoption of mobile technology will enable them to operate effectively from the comfort of their home, while 16 (38.1%) disagreed. Again, 25 (59.5%) agreed that the adoption

of mobile technology will acquaint them with library users and their immediate information needs, while 17 (40.5%) disagreed. In summary, a significant number of respondents expressed positive attitudes towards the acceptance of mobile technologies.

Objective 3: identify the most preferred type of mobile technology by librarians in colleges of education in Southwest, Nigeria. With regards to this objective, respondents were asked to select their most preferred type of mobile technology. Table 3 presents data on the most preferred type of mobile technology by librarians

Table 3. Most preferred mobile technology by the librarians

Mobile technology	Preferred	
	N	%
Smartphones	30	71.5
Tablets (iPads)	12	28.5
	N = 42	

Table 3 reveals the most preferred mobile technology by librarians, with regards to their specific individual characteristics. The result from the table reveals that 30 (71.5%) of the respondents preferred smartphones, while 13 (28.5%) of the remaining respondents preferred tablets (iPads). In an earlier study by Guleria (2015) on factors and features of usability which determined people’s preference for smartphone, it was discovered that ease of use as well as speed of processing were dominant factors which made the respondents to build preference for the technology closely followed by technological needs and applications. It is possible that these were what motivated the respondents in this study to prefer smartphones to tablets.

Conclusion

The academic library has experienced a number of transformations due to various developments in terms of ICTs in the 21st century. These developments in ICTs have led to the emergence of mobile technologies which serve as miniaturized forms of ICTs.

Mobile technologies are capable of providing personalized means of information acquisition which enables librarians and library users to engage in the process of information sharing and receiving outside the library premises. The use of mobile technologies is not restricted by differences in geographical location, thus it serves as a major opportunity for librarians to meet the immediate information of library users at the comfort of their home. Therefore, notwithstanding their demographic characteristics, librarians are required to adopt mobile technologies in order to maintain the process of effective service delivery to library users.

Based on the findings of this study, recommendations are made:

1. Librarians are required to be well trained in the mobile technological sphere by attending and participating in innovation building programs and trainings;
2. Although, the older librarians are already accustomed to the tradition system of operating in

the library, they are obligated to adopt the gradual application of mobile technologies in the course of their service delivery;

3. Females librarians should endeavor to adopt mobile technology in their process of service delivery as it is experiential in utilization;
4. The government should endeavor to re-evaluate the salaries of librarians;
5. Librarians are required to aim at emphasizing and capturing the potentials and opportunities available to enable users access their information materials without experiencing strains;
6. The authorities and policy makers should establish substantial policies on the effective adoption of mobile technologies and must also fund projects that are related to technological adoption in the library;
7. The library administrators should endeavor to hire professional trainers who are capable of educating librarians in terms of sophisticated technological processes;
8. Further research can be carried out on the adoption of mobile technology by librarians with regards to other variables such as organizational and innovation characteristics.

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