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Use of Smartphone for Access to Digital Information Resources and Services by University Academics: A Survey of Faculty Members of Modibbo Adama University, Yola, Nigeria

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Abstract

The study investigates the use of Smartphone for Digital Information Resources and Services Access by University Academics: A Survey of Faculty Members of Modibbo Adama University, Yola Nigeria. The study was guided by six objectives, six research questions and three hypothesises were tested at 0.05 level of significance. The study adopted survey research method. Questionnaire was used as the method of data collection. The population for this study is 648 academics. The study adopted simple random sampling techniques. The collected data was analysed by inferential statistics, and hypothesis was tested at 0.05 level of significance, the study among others revealed that 16.250% mostly used Android phones types of smartphone device mostly used by academics in accessing information resources and services. It revealed that respondents agreed to the items raised on the reasons for using various applications of smartphones by the academics to access information resources and services. It was also revealed that the respondents agreed to the items raised on the challenges faced by academics in accessing information resources and services. The study concludes among others that most of the academics used android phone in accessing the information and digital services also satisfied to the extent with the services. The study recommends among others that the library management should strive and make all information resources and services digitalized in order to make them accessible through digital devices, and management should provide internet with enough bandwidth to curtail the challenges faced by the academics in accessing information resources and services

Key Words: Smartphone, Digital Information Resources, Services, Access, University Academics

Introduction

Mobile phone technology such as smartphones are replacing personal computers as the technology of choice for many users all over the world librarians included. Smartphone has become one of the most pervasive gadgets of the 21st century. Equally, information and communication technology (ICT) has positively impacted teaching and learning process. This is not unconnected with its flexibility, speed, convenience, time saving, globalization, and portability among it numerous advantages in information access and use for teaching and learning. Smartphones are generally used for e-accessing, downloading, storage, communicating, teaching, and reading purposes. As observed by Natluri and Gaddam (2016), that mobile technology has come up with libraries in hand trend. With the use of smartphones, access to digital information resources and services for teaching and learning is easily and efficiently achieved. These includes but not limited to the access of e-books, databases, text/SMS, digital reference services, virtual libraries, OPAC, quick response, online poling, online engagement systems, data analytics, pre/post lecture quizzes. In the last decade smartphone adoption has grown exponentially to emerge as an integral part of libraries and information centres towards access of information in a digital way (Alfawareh & Jusoh 2014).

A smartphones are hand held device generally known as hand set or phone. Dresselhaul and Shrode (2012) defined smartphone devices as essentially any device that someone uses to communicate and access information resources. There are different types of devices available in today's global society ranging from smartphones, PDAs, camera phones, to multimedia phones and touchscreens, with some relationship existing among them. Through the adoption and use of smartphones, library services worldwide have changed and transformed. The features and services can be used to accomplish some library tasks and carry out related digital library services. Libraries of all sizes and types are embracing online virtual collections and digital information resources, though most libraries will continue to offer both print and electronic collections in near future. New purchases and acquisition of books, journals, magazines, and abstracting and indexing services, among others, are heavily weighted towards online services and access using smartphones

Therefore, mobile library service is such a specialized and personalized information services that it can be achieved using the wireless technologies made available to all

categories of researchers academics included. These services among others are renewal notifications which could be sent to alert users that e-books are almost due or overdue and Mobile websites offer free SMS to mobile phone services on the Internet. (Umesh, 2020)

Academic libraries and their services have also been influenced by several recent transformations and improvements, such as automation, digital and virtual libraries, Web 2.0, Library 2.0, and Library 3.0 (Intelligent Libraries and Apo mediation). They are all web applications that have been developed to help enhance digital access to information, delivery of library services and interaction with users. (Ajayi's, Tella, Olawuyi & Olamude 2021) According to some findings, the Alliance for Affordable Internet (A4AI) states that only about 44 per cent of Nigerians have access to smartphones. The report also disclosed that 58.2 per cent of Nigerians living in urban areas have smartphones, while only 29.5 per cent of those living in rural areas have the device. (Adeptun, 2022). At this turning point in technological development, librarians most adopt the use of smartphone not only to access digital information but to provide quality electronic reference services to researchers

Digital information with the widespread proliferation of computers, networks, and networked information today, access to information is (or can be) relatively easy, inexpensive, widespread, and democratic. Consequently, libraries have begun adjusting to the new conditions caused by the growth of popularity of online information resources to meet goals of their parent institutions universities. The increased use of digital information resources has become common in the higher education in Croatia. (Vran, 2013) Compared to traditional printed information resources that have been used for research and teaching at universities around the world for centuries, digital information resources are more convenient to access, easy to search, and downloadable.(Wu, 2012) However, digital information resources are still not universally available and accessible as their use can be sometimes very expensive.

University libraries are still very important as they cater to the varied information needs of students, faculty members and research scholars by facilitating access to information resources including the online access information resources, they secure relevant information resources and arrange them, and, finally, they supply specialised services to the users. (Odeh, 2012) However, these efforts of libraries might be insufficient as the quantity of digital information resources on the internet increases and as faculty members in the academic

community continue seeking material for research and education on the internet more than in libraries

Therefore, faculty members of a particular institution typically refer to the group of individuals who are employed by that institution as instructors, professors, or teachers. These individuals are typically responsible for teaching courses, conducting research, and providing academic guidance and support to students. Faculty members can have different roles and responsibilities depending on the type of institution they work for. For example, faculty members at universities typically have a combination of teaching, research, and service responsibilities. They may be responsible for designing and delivering courses, conducting original research in their field of expertise, and providing service to the institution and the wider community through activities such as serving on committees or engaging in outreach programs

Statement of the problem

Smartphone is a communication tool whose ability is getting closer to the use of notebook. Although now the most popular activities performed on smartphones is accessing social media and other academic activities. With paradigm shift, information resources are now accessed via smartphone, but there are some factors inhibits usage of these smartphones which includes; Screen size: Accessibility: Some digital information resources may not be optimized for accessibility, making it difficult for users with certain disabilities to access the content, The small size of smartphone screens can make it difficult to view certain types of digital content, such as lengthy articles or complex data visualizations, Limited storage: Smartphones have limited storage capacity, which can make it difficult to store large files or download large amounts of data. This can be a particular challenge for users who rely on their smartphones for work or education, Connectivity issues: Access to digital information resources is heavily dependent on connectivity, and smartphone users may experience difficulties accessing content if they are in an area with poor signal strength or no WiFi access

Another challenges facing educators today is how to utilize smartphone technology as a medium of education and knowledge sharing, whether formal or non-formal. The goal is to facilitate and expand the reach of education for those who cannot afford, not paying for professional teachers, unable to attend favourite places, disaster-stricken areas and remote provincial towns. These are just a few of the potential problems that users may encounter

when accessing digital information resources using a smartphone. However, many of these challenges can be mitigated through careful planning and preparation, such as selecting appropriate apps and optimizing settings for battery life and data usage

Based on the preliminary investigation conducted by the researchers, it revealed that most of the academics exhibit inadequate skills to navigate through the vast amount of information resources and other e-services using smartphone. This could be as a result of lack of technical know-how by some of the academics. It's against this background that the researchers investigate use of smartphones for access to digital information resources and services by university academics of a faculty members of Modibbo Adama University, Yola.

Objectives of the Study

The objective of the study is to investigate how academics used smartphone to access digital information resources and services. It will also serve as an avenue to understand the level of smartphone use by university academics members of Modibbo Adama University, Yola Nigeria. Specifically the objectives of the study are to:

1. Find out the types of smartphones devices mostly used by the academics in accessing information resources and services
2. Know the reasons for using various applications of smartphones by the academics to access information resources and services
3. Identify the web resources and services being accessed through the use of smartphones by the academics
4. Determine the extent use of smartphones for accessing to digital information resources and services
5. Determine the level of satisfaction in the use of smartphones for accessing information resources and services
6. Know the challenges faced by the academic libraries in accessing information through the use of smartphones.

Research questions

The following questions are formulated to guide the study

1. What are the types of smartphones devices mostly used by the academics in accessing information resources and services?
2. What are the reasons for using various applications of smartphones by the academics to access information resources and services?

3. What are the web resources and services being accessed through the use of smartphones by the academics?
4. What is the extent use of smartphones for accessing to information resources and services?
5. What is the level of satisfaction in the use of smartphones for accessing information resources and services?
6. What are the challenges faced by the academics in accessing information resources and services through the use of smartphones?

Hypothesis

The following hypotheses were formulated:

1. H_{01} There is no significant difference in the extent use of smartphones for accessing digital information resources and services among the Academics
2. H_{02} There is no significant difference on the level of satisfaction with the use of smartphones for accessing digital information resources and services among the Academics

Review of Related Literature

Related literature were reviewed based on the objectives of the study

Types of smartphones devices mostly used by the academics in accessing information resources and services

There are many different types of smartphones used for sending, receiving and accessing information including the iPhone, Blackberry, Windows phones, Android, and Amazon's Fire Phone (Fortune, 2014). There is no doubt that the current generation is surrounded and immersed by technologies such as laptops, tablets, smartphones, and hand-held devices of every size and shape for sharing information (Boren, 2014). Therefore, with the advent of these smartphones academics have change the way they access digital information resources for their research and their day to day activities in universities. Various authors has conducted research on use of smartphone and their types

In a study conducted by Tella and Olawuyi (2021) on undergraduate's use of smartphones for accessing library materials and services in selected academic libraries in South West Nigeria. A survey approach was adopted that focused on undergraduate students as the target population four research questions were developed and answered. the findings

revealed that and Android phones is the type of smartphones used by undergraduate students smartphones for accessing library materials and services, virtual materials, reference materials , database, maps and atlas are the basic categories of library materials undergraduates access through smartphones. Reference service is the most accessible service by undergraduate students through their smartphones followed by circulation service and the online public access catalogue. Use of smartphones to access library materials enables quick access to information, offer solution to problems and enable immediate and timely submission of assignments. Undergraduates prefer using a smartphone for accessing library materials and services because it saves time compare to visiting the library and it is stress free and allow quick access to materials and services. The findings also demonstrated that gender, and age and year/level of study significantly influenced the used of smartphones for accessing library material and services by undergraduate students. The problems associated with accessing library materials and services through smartphones are expensive, phone subscription, network and internet issues, the high cost of smartphones and phones distract student from studies

In a similar study conducted by Sambo, Lawal, and Helen (2021) the study aims at establishing the use of smartphones for information seeking by undergraduate students in a Nigerian Specialised University. A descriptive survey design was adopted. Five objectives and five research questions were formulated to guide the study. A stratified random sampling technique was used to select one thousand four hundred and three (1,403) respondents across the two colleges for the study whereas 84% were retrieved. The data collected were analysed using descriptive statistical tools such as frequency, percentage and means. The outcome of the study revealed that apple iOS topped the highest types of smart phone used for information seeking by undergraduate students follow by Google android, blackberry, open WebOS, MeeGo, window phone, Symbian and others. The result also, discovered that factors affecting the use of smart phones for information seeking by undergraduate students include poor battery, high rate of theft on campus, lack of technical experts on repairs when faulty within campus, high cost of data subscription/ Internet access, phone crashes, fragility, poor usage skills, unstable power supply for regular charging, among others. The paper recommended that undergraduates students at all levels should be encouraged to use smartphones for academic works and regular training should be conducted for undergraduate’s students on how to maximize access to information using their smart phones.

The reasons for using various applications of smartphones by the academics to access to information resources and services

Smartphones are used for different academic purposes for example E-books (both text and audio) provided by the some publishers are access through mobile phones. Library offers a variety of databases and digital resources such as eBooks, e-journals, web databases, papers, audio books, streaming music, movies, pictures and articles which has been subscribed by the library that can be used on mobile. These type of information can either be downloaded from the library's websites to users own mobile device. A large collection of audio books are available for download, both free and subscription-based, and also can be switched to smartphones devices. (Umesh 2020)

Mansour (2016) investigated the usage patterns and ownership of smartphone apps among students at the Department of Library and Information Science (DLIS) at South Valley University (SVU), Egypt. The survey instrument was a self-administrated questionnaire with a response rate of 82. 7 % (441/553) the study revealed that students who used smartphones agreed that smartphone apps allow for easy dissemination of information resources and provide much information services. However, many students agreed that smartphone apps are time-consuming, intimidating, addictive, violate privacy, require high language and technical skills, and are harmful and frustrating. A considerable percentage of the students confirmed that they trust some apps such as Whatsapp, email, YouTube, Facebook, Flickr, Twitter and viber the most used app identified are Facebook, email, Twitter, Whatsapp, YouTube, and Viber.

In a related study by Rung, Warnke, and Mattheos (2014), that investigates the use of Smartphones for Learning Purposes by Australian Dental Students. The findings of the study showed that most of the respondents had intermediate Smartphone skills and used smartphones for a number of learning activities. Only (32.3%) had specific educational applications installed, (63.7%) used smartphones to access to social media and found it valuable for their education ($P<.05$).

Similarly, Noor, et-al (2013), conducted study on importance of smart phones usage among Malaysian undergraduates. The study find out that The most popular features on the smartphone that the respondents‟ used were mostly to send and receive text messages (97.9%), take pictures (97.1%), play music (96.1%), setting the alarm (95.8%), referring to

the calendar (94.5%), recording videos (92.5%), play games (91.9%), and exchanging pictures via Bluetooth (91.7%).

Web Resources and Services Being Accessed Through The Use Of Smartphones by the Academics

Today‟s smartphones have a lot of options and capabilities than ever before. Mobile phone are used by academics for surfing the Web, reading books, watching television, listening to music, and interacting with friends. Smartphones has become one of the foremost interfaces to access and share information resources (Savitha, Somashekhara, & Dange, 2017). The traditional library services are now changing to mobile library information services. It is very challenging task to provide the necessary information to users at the right time. Use of mobile phone has made information access very convenient and timely to users. "There is the shift from „d-learning‟ (distance learning) to „e-learning‟ and now from „e-learning‟ to „m-learning‟ (mobile learning) will be the next big wave, which will reform education in all over the world (Vishwakarma, 2013)

Libraries provide access to different information resources on Web and databases. By using smartphones users can search various database and get information. OPAC (online public access catalogue), integrated search, and original document search are some of these services. WorldCat Mobile application allows users to search and find books and other materials available in their local libraries through a web application they can access from smart phone. (Umesh, 2020)

In a study conducted by Alson and Misagal (2016), on smart phones usage among college students revealed that Smartphone's are used to search information on Google, Bing and Yahoo, get school announcements, to get news and weather updates. It is least used in getting Sports updates. Catharine (2013), carried out a study on educational use of smart phone technology: A survey of mobile phone application use by undergraduate university students revealed that student demand for information from search engines, online encyclopaedias, and libraries. Purcell *et-al* (2012), carried out a study on how teens do research in the digital world. The findings of this study revealed that 94% of the respondents demand for information using Google Web or other online search engine, 75% Wikipedia or other online encyclopaedia, 52% YouTube or other social media sites, 18% electronic textbooks

Level of satisfaction in the use of smartphones for accessing information resources and services

Toperesu et-al. (2019) conducted a study on the Impacts and Satisfaction of Using Smartphones for Learning in a University Context. The study looks at the positive and negative impacts smartphone use has on a student's learning experience and whether this leads to an overall satisfaction with mobile learning. Six hypotheses were formulated for the study. Quantitative data was collected through an online survey that was distributed via e-mail to a student body at one South African university. With over 400 responses, it was found evidence for some, but not all hypothesized positive and negative impacts. The findings discovered that there was strong support for how these impacts contribute to overall satisfaction of using a smartphone for learning, explaining more than 60% of the variance. It was also found that the overall positive satisfaction leads to differentiated, continued uses of the smartphone.

A study conducted by Tella (2019) on empirical analysis of undergraduates' satisfaction with access to the University Library Websites. The study adopted survey research approach, the study used questionnaire as method for data collection, and questionnaires were distributed to a sample of 54 final-years Library and Information Science undergraduate students selected from two Library schools in two different universities. Five research questions were answered and the results demonstrated that respondents are satisfied with the University Library Website, particularly the output (contents) followed by the accuracy of information on the Websites; respondents were mostly satisfied with the layout and design, and ease of navigation while mostly dissatisfied with the aesthetic interface. Undergraduates visit their University Library Websites because they find it interesting relating with the librarians on social media (Facebook, Twitter, Linkdl), accessed e-resources, and information related to their disciplines. University Library Website is useful as it provides help line, information/news that is enlighten and educating, for downloading material and for having frequently asked questions. Respondents most likely want to see being added to the Websites Information on scholarship, grants and sponsorship locally and internationally, resources, and referrals specific to relevant situations. The study recommended improvement of the aesthetic interface of the University Library Websites to increase the level of satisfaction of the undergraduates with the Websites.

Another study conducted by Ramadiania et-al (2017) on User Satisfaction Model for e-Learning Using Smartphone. This study aims to explore and make user satisfaction model

for e-learning using smartphone applications in Mulawarman University. The purpose of the research is to make user satisfaction model for e-learning using smartphone, and to produce and to recommend e-learning content for research and e-learning. The research method used Path Diagram, Structural Equation Model, Lisrel and Manova Analysis. Total of respondent are 178 students which are consist of 83 females and 95 males. The statistical value in the model of e-learning user satisfaction has a highly significant correlation values and strong construction between variables, which is evidenced by the size of the construct reliability values above 0.70 and the value of its variance extracted 0.50. it was recommended that the model can be considered in developing an e-learning application in the future.

Challenges faced by the academics in accessing information resources and services through the use of smartphones

Some experts working towards advancement of technology and digital transformation in Nigeria disclosed that 60 per cent of Nigerians do not have access to smartphones or digital devices. According to them, the situation, which has been compounded by limited Internet penetration, means that more than half of the population, mostly children in rural areas and vulnerable groups, are without access to technology or the Internet. (Punch, 2023)

The study of Joy, Uzezi and Emmanuel (2017), on use and impact of smart phones by Medical Students for Laboratory/ Educational Purposes at Ambrose Alli University, Ekpoma, Edo State revealed that that majority of the respondents indicated lack of technical experts on repairs when faulty within campus, operational difficulties/ poor usage skills, high cost of data subscription/ internet access from service provider and fragility (easily damaged). Others are: Insecurity of usage due to high rate of theft on campus, irregular/ unstable power supply for regular charging of battery on campus and distraction from unnecessary use of social media when studying were the other barriers facing the use of smart phones in medical education.

Cawley (2015) affirm that there are seven common smart phone issues that get in the way of enjoying smartphone usage. The report detailed three particular categories' that show when these issues typically occur: battery-related, speed-related, and storage space-related. He further listed some of the problems with smart phones to include but not limited to: overheating, too much trash, slow online speeds, not enough space, phone crashes, slow response time and finally, not enough standby time. Gladen (2018) conducted study on the influence of smartphone the significant problems associated with accessing the library and its

services through smartphones are high subscription costs, network and internet issues, the expensive nature of smartphones in terms of cost, and the fact that they prone to distract students

Another study conducted by Elder (2013), the study explored college students self-reported cell phone usage and beliefs and investigated the effect on student learning. In his findings, of the study reported that 85% of university faculty and students both said cell phones were distracting and 45% noticed that vibrating phones in the classrooms were problematic. Boruff and Stories (2014), affirmed that a poor usage skill is another serious barrier militating against the effective use of smart phones for medical education.

Methodology

The study adopted survey research design method. Questionnaire was used as the method of data collection which was designed to cover the stated objectives of the study. The target population for this study is 645 academics in MAU, Yola. Simple random sampling technique was adopted for the study that is 320 were selected and used for the analysis. Data collected from academics was analysed by inferential statistics using Statistical Packages for Social Sciences (SPSS) frequency, tables and graphs were used to interpret the data collected, and hypothesis was tested at 0.05 level of significance using ANOVA

Results Data Analysis

Research question 1: What are the types of smartphones devices mostly used by the academics in accessing information resources and services?

Table 1: Frequency and percentage on the types of smartphones devices mostly used by the academics in accessing information resources and services (*n=320)*

S/N	Types of smartphone	Freq.	%
1	Android phone	52	16.250
2	IPhone	46	14.375
3	Windows phone	50	15.625
4	Blackberry	32	10.00
5	Apple IOS	76	23.75
6	Java	55	17.1875
7	Symbian	9	2.8125

Result reported in Table 1 shows the frequency and percentage on the types of smartphone device mostly used by academics in accessing information resources and services. The result shows that 16.250% mostly used Android phones, 14.375% mostly used iPhone, 15.625% mostly used windows phone, 10.00% mostly used Blackberry, 23.75% mostly used Apple

IOS, and 17.1875% mostly used Java phones while 2.8125 mostly used Symbian phones in accessing information resources and services.

Research question 2: What are the reasons for using various applications of smartphones by the academics to access information resources and services?

Table 2: Mean and standard deviation on the reasons for using various applications of smartphones by the academics to access information resources and services (*n=320*)

S/No.	Statements	Mean	SD	Remark
1	I use various applications of smartphones for digital information access because it is easy	3.21	.53	Agreed
2	I use various applications of smartphones for digital information access because it saves time	3.00	.56	Agreed
3	I use various applications of smartphones for digital information access because its more convenient	2.61	.56	Agreed
4	I use various applications of smartphones for digital information access because it is more reliable	1.08	1.09	Disagreed
5	I use various applications of smartphones for digital information access because it is stressful	2.11	.67	Disagreed
6	I use various applications of smartphones for digital information access because it is appealing	3.21	.72	Agreed
7	I use various applications of smartphones for digital information access because it can be used 24/7	2.51	.55	Agreed
8	I use various applications of smartphones for digital information access because it is more efficient than other modern access	4.21	.58	Agreed
	Grand mean	**2.74**		**Agreed**

Table 2 reports the mean and standard deviation on the reasons for using various applications of smartphones by the academics to access information resources and services. The respondents agreed to six items and disagreed with two items. On the whole, the grand mean for their response was 2.74. This means that the respondents agreed to the items raised on the reasons for using various applications of smartphones by the academics to access information resources and services. The standard deviation results showed homogeneity in the respondent's ratings.

Research question 3: What are the web resources and services being accessed through the use of smartphones by the academics?

Table 3: Mean and standard deviation on the web resources and services being accessed through the use of smartphones by the academics (*n-320*)

S/No.	Question statements	Mean	SD	Remarks
1	What type of digital information resources and services do you access with the use of smartphone device?	3.11	.63	Most digital information
2	What type of digital information resource and services do you access with the use of smartphone	3.11	.63	Most digital information

	device?			

Data in Table 3 shows the mean and standard deviation on the web resources and services being accessed through smartphones by the academics. The mean response for the items was 3.11. The standard deviation score stood at .63.

Research question 4: What is the extent use of smartphones for accessing to information resources and services?

Table 4: Mean and standard deviation on the extent use of smartphones for accessing to information resources and services (*n-320*)

S/No.	Question statements	Mean	SD	Remark
1	How frequent do you use smartphone devices in accessing digital information resources?	4.02	.65	Very frequent
2	What is the extent of your use of smartphone devices in accessing digital information resources and services?	3.02	.98	High extent
	Grand mean	**3.52**		**Very frequent and high extent**

Table 4 reports the mean and standard deviation on the extent use of smartphones for accessing to information resources and services. The respondents rated item 1 very frequent and rated item two high extents. On the whole, the grand mean for their response was 3.52. This means that the respondents rated very frequent and high extent to the items raised on the extent of use of smartphones for accessing information resources and services. The standard deviation results showed heterogeneity in the respondent's ratings.

Research question 5: What is the level of satisfaction in the use of smartphones for accessing information resources and services?

Table 5: Mean and standard deviation on the level of satisfaction in the use of smartphones for accessing information resources and services

S/No.	Question statements	Mean	SD	Remarks
1	To what extent are you satisfied with the use of smartphones devices to access digital information resources and services?	4.10	.92	Very satisfied

Table 5 reveals the mean and standard deviation on the level of satisfaction in the use of smartphones for accessing information resources and services. The respondents rated the item as very satisfied with a mean score of 4.10. The standard deviation score was .92.

Research question 6: What are the challenges faced by the academics in accessing information resources and services through the use of smartphones?

Table 6: Mean and standard deviation on the challenges faced by the academics in accessing information resources and services

S/No.	Statements on challenges faced	Mean	SD	Remark
1	Lack of Internet connectivity	2.51	1.03	Agreed
2	Slow Internet connectivity	2.58	.96	Agreed
3	slow response time	3.01	.72	Agreed
4	Cost of Internet	1.11	1.11	Disagreed
5	Compatibility	3.62	.68	Agreed
6	Technophobia	2.11	.82	Disagreed
7	Privacy issues	4.01	.65	Agreed
8	affordability of new devices	3.11	.74	Agreed
9	Inadequate skills to navigate	2.72	.82	Agreed
10	High cost of smartphones devices	3.02	.81	Agreed
	Grand mean	**2.78**		**Agreed**

Table 6 reports the mean and standard deviation on the challenges faced by the academic in accessing information resources and services. The respondents rated agreed to item eight items and disagreed to two items. On the whole, the grand mean for their response was 2.78. This implies that, the respondents agreed to the items raised on the challenges faced by academics in accessing information resources and services. The standard deviation results showed homogeneity in the respondents.

The null hypotheses for this study is tested at 0.05level of significance

Hypothesis 1

There is no significant difference in the extent use of smartphones for accessing digital information resources and services among the Academics.

Data analysis relating to this hypothesis is presented in Table 7

Table 7 ANOVA summary of respondents on the difference in the extent use of smartphones for accessing digital information resources and services among the Academics

Sources of variation	Sum of Squares	df	Mean Square	F	Sig. value	p-value	Decision
Between Groups	5.324	2	2.662	.668	.515	0.05	Not significant
Within Groups	410.299	103	3.983				
Total	415.623	105					

The results presented in Table 7 reveals the ANOVA summary of respondents on the difference in the extent use of smartphones for accessing digital information resources and

services among the Academics. From the analysis, the significant value is greater than the p-value (F= 0.668, df= 2;103, 0.515>0.05), hence the null hypotheses is not rejected. This implies that the respondents do not differ significantly in the extent use of smartphones for accessing digital information resources and services among the Academics.

Hypothesis 2

There is no significant difference on the level of satisfaction with the use of smartphones for accessing digital information resources and services among the Academics

Result relating to hypotheses 2 is presented in Table4 8

Table 8: ANOVA summary of respondents on the level of satisfaction with the use of smartphones for accessing digital information resources and services among the Academics

Sources of variation	Sum of Squares	Df	Mean Square	F	Sig. value	p-value	Decision
Between Groups	4.530	2	2.265	.451	.638	0.05	Not significant
Within Groups	517.093	103	5.020				
Total	521.623	105					

The results presented in Table 8 reveals the ANOVA summary of respondents on the level of satisfaction with the use of smartphones for accessing digital information resources and services among the Academics. From the analysis, the significant value is greater than the p-value (F= 0.638, df= 2;103, 0.638>0.05), hence the null hypotheses is not rejected. This implies that the respondents do not differ significantly on their rating on the level of satisfaction with the use of smartphones for accessing digital information resources and services among the Academics.

Summary of Findings

The study summarised the following based on the findings:

1. The result shows that 16.250% mostly used Android phones types of smartphone device mostly used by academics in accessing information resources and services.

2. The results revealed grand mean for their response was 2.74 the respondents agreed to the items raised on the reasons for using various applications of smartphones by the academics to access information resources and services.
3. The result shows that the respondents mean response for the items was 3.11 the type of digital information resources and services accessed with the use of smartphone device
4. The study revealed the grand mean for response was 3.52. This means that the respondents rated very high extent to the items raised on the extent of use of smartphones for accessing information resources and services
5. The respondents rated the item as very satisfied with a mean score of 4.10. on the level of satisfaction in the use of smartphones for accessing information resources and services
6. The study revealed the grand mean for their response was 2.78. This implies that, the respondents agreed to the items raised on the challenges faced by academics in accessing information resources and services.
7. The respondents do not differ significantly in the extent use of smartphones for accessing digital information resources and services among the Academics.
8. The respondents do not differ significantly on their rating of the level of satisfaction with the use of smartphones for accessing digital information resources and services among the Academics.

Discussion of findings:

The study was discussed based on the findings of the study

The result shows that 16.250% mostly used Android phones types of smartphone device mostly used by academics in accessing information resources and services. This study agrees with the study of Tella and Olawuyi (2021) their Findings revealed that an android is the type of smartphone used by undergraduate for and accessing materials and services.

The results revealed grand mean for their response was 2.74 the respondents agreed to the items raised on the reasons for using various applications of smartphones by the academics to access information resources and services. Tella and Olawuyi (2021) their findings revealed that visual materials, reference materials, database, maps and atlas are the basic categories of library materials undergraduates access through smartphones.

The result shows that the respondents mean response for the items was 3.11. The type of digital information resources and services accessed with the use of smartphone device. This study is partially agree to study of Tella and Olawuyi (2021) The findings revealed that reference service is the most accessible service by undergraduate students through their smartphones followed by circulation service and the Online Public Access Catalogue.(OPAC).

The study revealed the grand mean for response was 3.52. This means that the respondents rated very high extent to the items raised on the extent of use of smartphones for accessing information resources and services. The study agrees with the study of Peter and Ebere (2018) the findings revealed that most undergraduate students are using their smartphones to the extent of engaging with fellow students and lecturers.

The respondents rated the item as very satisfied with a mean score of 4.10 on the level of satisfaction in the use of smartphones for accessing information resources and services. This study agrees to study of B-Abee Toperesu, Belle and Turpin, (2019) on Impacts and Satisfaction of Using Smartphones for Learning in a University Context. The study revealed that there was strong overall satisfaction of using a smartphone for learning, explaining more than 60% of the variance. It was revealed that the overall positive satisfaction leads to differentiated, continued uses of the smartphone

The study revealed the grand mean for their response was 2.78. This implies that, the respondents agreed to the items raised on the challenges faced by academics in accessing information resources and services. This study is in line with the study of Atanda, Mohammed and Kikiri (2021) the result discovered that factors affecting the use of smart phones for information seeking by undergraduate students include poor battery, high rate of theft on campus, lack of technical experts on repairs when faulty within campus, high cost of data subscription/ Internet access, phone crashes, fragility, poor usage skills, unstable power supply for regular charging, among others.

Conclusion

The study concludes the following:

The study concludes that mostly android phones are the types of smartphone device mostly used by academics in accessing information resources and services. The study also concludes that grand mean for their response was 2.74 the respondents agreed to the items

raised on the reasons for using various applications of smartphones by the academics to access information resources and services. The study concluded the study revealed the grand mean for response was 3.52. This means that the respondents rated very frequent and high extent to the items raised on the extent of use of smartphones for accessing information resources and services. The study revealed that the respondents rated the item as very satisfied with a mean score of 4.10 on the level of satisfaction in the use of smartphones for accessing information resources and service. Finally, the study concludes the grand mean for their response was 2.78. This implies that, the respondents agreed to the items raised on the challenges faced by academics in accessing information resources and services.

Recommendation

The study recommends the followings:

1. The library management should strive and make all the information resources and services digitalized in order to make them accessible through digital devices using other smartphones
2. The University library should embarked on E-services and provide facilities that will accommodate researcher's information needs/ interest in such a way that it will be more efficient, accessible and more convenient for use
3. There is a need for the university library to make digital information resources and services available to enhance accessibility with the use of smartphone device
4. The management of the library should facilitate their e-resources and services to an extent that it will be accessible through digital devices such as smartphones.
5. The university library should improve on their services in order to be accessible with maximum satisfaction in the use of smartphones for accessing information resources and services.
6. The management should provide internet with enough bandwidth to curtail the challenges faced by the academics in accessing information resources and services

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