

ADOPTION AND USABILITY OF MOBILE LEARNING DEVICES AND POSTGRADUATES' UTILISATION OF LIBRARY BASED ELECTRONIC RESOURCES IN NIGERIA

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ABSTRACT

The study investigated the adoption and usability of mobile learning devices as correlates of postgraduates' utilization of library-based electronic resources in private universities in Southwestern Nigeria. A descriptive survey research design of the correlational type was used. A purposive sampling procedure was adopted to select nine private universities that were approved to run postgraduate programs by the National Universities Commission as of 2016. All the Ph.D. students were enumerated, while a proportionate to size sampling technique was used to select 622 Master degree students in the commonly available faculties/schools. The study revealed that acceptance, adoption and usability of mobile learning devices influenced utilisation of library electronic resources among the sampled postgraduate students in private universities in southwestern Nigeria.

Keywords: Adoption, Usability, Utilization, Mobile Learning Devices, Electronic Resources

1.0 INTRODUCTION

Most of the traditional library materials previously generated and transmitted manually or semi-electronically such as theses, dissertations, newspapers, magazines, manuscripts, monographs, treaties, audiovisual materials, reports, and recordings on videotapes, cassettes, diskettes, magnetic disks, microforms have now been fully automated to produce educational software/electronic contents which are essential for access and utilization of educational resources in the various educational institutions. This phenomenon brought about the concept of electronic resources in the library. The situation in Nigeria is not so different as modern library materials in the form of e-books, e-journals, websites, multimedia, CD-ROM/DVD databases, data files, OPAC, e-theses/ dissertations, and e-databases such as EBSCOHOST, SCIENCE DIRECT, OARE, BIOONE, JSTOR, HINARI, and AGORA can be found in the various academic libraries. In most of the Nigerian private universities especially, information resources in the form of e-books, e-journals, CD-ROM databases, MP3, OPAC, internet, videotapes/games, and other formats of educational electronic resources are sometimes available for the use of postgraduates, even when it is believed they are not well utilized. It is however unfortunate that the poor utilization or underutilization of such resources would be tantamount to wastage of scarce information resources.

Undoubtedly, university-owned educational electronic resources are seen to be available for the use of postgraduates and researchers in private universities in Nigeria, most especially in

the Southwestern geopolitical zone, even though availability does not simply translate to accessibility or utilization. The resources may be available but not well utilized. This assertion was corroborated by systems librarians in all selected private universities for this study during preliminary investigations.

It is worthy to note that possession of mobile learning devices by university postgraduates in Nigeria is commonplace. From all observable trends, almost all postgraduates of most Nigerian universities can afford these devices. However, how much Nigerian university postgraduates use these devices for academic or research purposes vis-à-vis the use of the available library-based electronic resources and services in the current Nigerian context is the major concern of this research. All things being equal, adoption and proper use of mobile learning devices could facilitate remote access to and utilization of library electronic resources by postgraduate users.

A mobile learning device is any handheld electronic device that is capable of storing and retrieving information generally needed by scholars. Mobile learning or M-learning refers to any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies (O'Malley, Vavoula, Glew, Taylor and Sharples, 2005). There is no doubt that mobile learning device patronage is skyrocketing in every sphere of life including education, research, and scholarly activities in a country like Nigeria.

Mobile learning devices, in many ways, encourage users to attempt a variety of learning activities, including searching for knowledge, accessing library catalogs, completing assignments, participating in discussion groups, and accessing informational contents online through their handsets or handheld devices. In other words, the mobile phone has become an essential part of everyday modern life. In reality, the mobile phone, to most users, is not a tool for making just phone calls or sending text messages, but rather, a 'lifeline or an electronic mainstay' to the global network and an instrument for smoothly operating and coordinating everyday human activities (Halder, Halder, and Guha, 2015). Herrington, Herrington, Mantei, Olney, and Ferry, (2009) observed that modern mobile gadgets can be employed to assist learners to access web-based contents, remix them, share them, collaborate with others and create media-enhanced content for academic and scholarly activities within the global community. This is probably part of the reasons for the popularity or wide acceptance of mobile learning devices among postgraduates in southwestern Nigeria.

In a study on graduate students' utilization of mobile technologies for learning in selected universities in Nigeria conducted by Ogunlade, Ojoye, and Ogunlade (2013), it was discovered that 68.46% of respondents had access to the internet through the cellular networks on their mobile phones. This attests to the fact that even though it may not be widespread, many Nigerian students use mobile devices for browsing and surfing the internet. The growing adoption of these mobile phones among Nigerian university students can, without any doubt, potentially transform the entire learning process. The needs and expectations of society are changing so rapidly that the quality of higher education and learner experiences would need to be sustained at a more desirable level, where postgraduates can be motivated to access information and learn in their own convenient ways. This is still far from the reality in the Nigerian experience. The growing mobile-dependent trend can

greatly enhance flexibility, which is a major indicator of the adoption of mobile learning devices, in higher education no doubt.

Other indicators of adoption of mobile learning devices in this study apart from flexibility include compatibility, affordability, sociability, and liability among others. It appears that many students perceive using mobile learning devices to interact socially or search for information as fun. Others consider them very easy to use and always use them for collaborative work. In spite of the fact that mobile learning devices are generally not considered as good word processors, students still seem to prefer using them for sourcing and managing academic and some library-related information. The mobile device platform appears to present an opportunity for postgraduates to gather timely information, process and analyse issues, share such concerns and communicate same with relative ease.

Another important variable in this study is the usability of mobile learning devices, which refers to the usefulness or 'usableness' of mobile learning devices. Usability is defined as the capability of a product to be understood, learned, operated, and be attractive to users when used to achieve certain goals with effectiveness and efficiency in specific environments (Bevan, 1995; Hornbæk and Lai-Choong, 2007; International Organization for Standardization, 2002). The usability of a product is normally demonstrated through its interfaces or intercommunicating facilities, as is commonly found in the case of mobile learning devices often employed by young adult learners in reading and learning. Postgraduate student users seem to prefer mobile learning devices that can perform such tasks as note-taking, reading and texting messages, and browsing the internet. Nielsen (1994) conceptualized usability as a good and usable user interface, which provides the basis for all possible usability testing. He proposed several usability guidelines such as user-friendliness, ease of navigation, learning ability, integration of functions, consistency, and simplicity of design as guidance for designers. These features are what higher education students seem to expect in mobile learning devices regardless of the model. This is probably because they find such mobile devices suitable for learning and sourcing information anytime, anywhere. Given a conducive learning environment, postgraduate students could easily leverage better usability functions and physical characteristics of mobile learning devices on improved utilization of library electronic resources. Hence, the reason to carry out an investigation of the correlation between postgraduates' adoption of mobile learning devices, the usability of such devices, and utilization of electronic resources in the academic libraries.

2.0 STATEMENT OF THE PROBLEM

From all observable trends and studies available in southwestern Nigeria at the time of this study, library-based electronic resources seemed to be underutilized by postgraduate students. This may result in wastage or neglect of reliable university electronic information resources. Wastage of these hard-earned resources must be avoided by all means. Furthermore, due to the increase in and heterogeneity of the postgraduate population in private universities, it may be difficult for private institutions to provide sufficient library-licensed electronic resources to meet the need of every postgraduate student at any fixed location. This may frustrate genuine attempts by students to use the resources unless such resources are remotely and adequately accessible.

OBJECTIVES

The objectives of the study are to:

1. Examine the level of adoption of mobile learning devices among postgraduates in private universities in Southwestern Nigeria.
2. Find out the level of usability of mobile learning devices among postgraduates in private universities in Southwestern Nigeria.
3. Identify the types of electronic information resources commonly used among postgraduates in private universities in Southwestern Nigeria.

RESEARCH QUESTIONS

1. What is the level of adoption of mobile learning devices among postgraduates in private universities in Southwestern Nigeria?
2. What is the level of usability of mobile learning devices among postgraduates in private universities in Southwestern Nigeria?
3. What types of electronic information resources are commonly used among postgraduates in private universities in Southwestern Nigeria?

Hypothesis

H0 1: There is no significant relationship between the adoption of mobile learning devices and utilization of electronic information resources among postgraduates in private universities in Southwestern Nigeria.

H0 2: There is no significant relationship between the usability of mobile learning devices and the utilization of electronic information resources by postgraduates in private universities in Southwestern Nigeria.

METHODOLOGY

Research design

A survey research design of the correlation type was adopted. This design was adjudged the best in studying behavior whereby the researcher would be able to investigate the frequency of occurrences, the distribution, and the relationships among the variety of variables in the study.

The population of the study

The target population for the study comprised the entire 1534 Master's and Doctor of Philosophy (Ph.D) degrees students in all the 9 private universities accredited to run postgraduate programmes in southwestern Nigeria (see appendix 11). The National Universities Commission (N.U.C.) accredited 9 private universities to run postgraduate studies in southwestern Nigeria as at 2016. The nine universities are (1) AfeBabalola University (2) Babcock University (3) Bowen University (4) Caleb University (5) Covenant University (6) Joseph Ayo Babalola (7) Lead University (8) Pan Atlantic University and (9)

Redeemer's University (see table 3.1). The study population included students from faculties of science, social / management science and humanities/arts from all selected private universities with a total population of 1534 students. These disciplines constitute the core subject areas common to all private universities in the Southwest and the majority of postgraduates are spread across these major disciplines.

Sampling techniques and Sample

The multi-stage sampling procedure will be adopted in selecting the sample for this study. At the first stage, all the 9 accredited universities in southwestern Nigeria were considered for the study. At the second stage, purposive selection of faculties commonly available in all the 9 private universities was adopted for the study. At the third stage, total enumeration technique was adopted to select all the Ph.D. students in the 9 N.U.C. accredited private universities to run post graduate programmes in southwestern Nigeria while 60% of Master's students was selected. It was appropriate to include all Ph.D. students because students in that category were expected to use more information for intensive research and they are relatively fewer in number compared to Master's degree students in the selected universities.

Sixty percent of Master's students was considered appropriate, for proper handling of the results. Students in the common faculties across the institutions namely: Arts/Humanities, Science and Social/Management Sciences were selected. The sample population for this study was therefore 134 Ph.D. and 840 Master's degree students totalling 974 respondents (see Table 1). Hence, this sample is large enough for a wider generalization of the findings. Table 1 contains the distribution of selected universities, total student population by faculty and sample population for the study.

Table 1 Sample of Postgraduates in the Selected Universities

Faculty/School/College	Population		Sample Size 100% Ph.D	Sample Size 60% Master's
AfeBabalola University				
	Master's	Ph.D		
Social and Management Sciences	100	0	0	60
Sciences	35	0	0	21
Sub-Total	135	0	0	81
Babcock University				
Education and Humanities	46	5	5	28
Management Sciences	440	43	43	264
Science and Technology	22	4	4	13
Social Sciences	131	9	9	79
Sub-Total	639	61	61	384
Bowen University				
Science and Science Education	10	2	2	6
Social and Management Sciences	38	17	17	23
Sub-Total	48	19	19	29
Caleb University				

Social and Management Sciences	78	0	0	47
Environmental Sciences	70	0	0	42
Sub-Total	148	0	0	89
Covenant University				
Business and Social Sciences	48	9	9	29
Engineering	9	1	1	5
Leadership Development Studies	9	4	4	5
Science and Technology	39	8	8	23
Sub-Total	105	22	22	62
Josheph Ayo Babalola University				
Humanities	6	0	0	4
Management Sciences	23	0	0	14
Social Science	7	0	0	4
Natural Sciences	4	0	0	2
Sub-Total	40	0	0	24
Lead City University				
Education	9	0	0	5
Social Management Science	103	0	0	62
Science	4	0	0	2
Sub-Total	116	0	0	69
Pan Atlantic University				
Media and Communication	83	8	8	50
Sub-Total	83	8	8	50
Redeemer's University				
Humanities	2	4	4	1
Management Sciences	68	5	5	41
Natural and Basic Medical Science	16	15	15	10
Sub-Total	86	24	24	52
TOTAL	1400	134	134	840
TOTAL NO Of RESPONDENTS	974 Respondents			

Source: Preliminary investigation from the field by the researcher, (2016)

Analyses and Discussions

Table 2 Demographic profile of Postgraduates in private universities in Southwestern Nigeria

s/n	Variables	Value labels	Frequency	Percentage
1	Institution	Babcock University	343	44.9
		Caleb University	80	10.5
		AfeBabalola University	76	9.9
		Lead City University	60	7.9

		Covenant University	59	7.7
		Redeemer's University	50	6.5
		Pan Atlantic University	45	5.9
		Bowen University	29	3.8
		Joseph Ayo Babalola University	22	2.9
		Total	764	100.0
2	Gender	Male	400	52.4
		Female	364	47.6
		Total	764	100.0
3	Age	25-30 years	295	38.6
		20-24 years	287	37.6
		31-35 years	111	14.5
		36 years and above	42	5.5
		Below 20 years	29	3.8
		Total	764	100.0
	Variable		\bar{x}	Std Deviation
	Age		26.17	4.397
4	Level	Masters	622	81.4
		Ph.D.	142	18.6
		Total	764	100.0

Table 2 shows the distribution of demographic characteristics of the respondents in the selected private universities in Southwest Nigeria used for the study. The Table clearly shows that the majority of respondents were from Babcock university (44.9%). Male respondents (52.4%) outnumbered females students (47.6%). This therefore implies that there are more male students than female in the selected private universities in Southwest Nigeria. The study level of respondents as shown in the table above indicates that Master's students are more (81.4%) than the Ph.D. students (18.6%). Majority of postgraduates were aged 25-30 years (38.6%), while the mean age of respondents 4.397.

Research question 1: What is the level of adoption of mobile learning devices among postgraduates in private universities in southwestern Nigeria?

Table 3 Level of adoption of mobile learning devices among postgraduates in private universities in southwestern Nigeria

s/n	Variables	SD	D	A	SA	<i>x</i>	S.D
1	Tiny keypad	80 10.5%	133 17.4%	229 30.0%	322 42.1%	3.04	1.01
2	Slower speed	87 11.4%	165 21.6%	221 28.9%	291 38.1%	2.94	1.02
3	Short battery life	80 10.5%	137 17.9%	314 41.1%	233 30.5%	2.92	.95
4	Small screens	82 10.7%	197 25.8%	343 44.9%	142 18.6%	2.71	.89
5	Difficulty in performing certain operations	149 19.5%	241 31.5%	205 26.8%	169 22.1%	2.52	1.04
Weighted Mean = 2.83							
	Compatibility						
6	Using mobile learning devices is completely compatible with my current situation as a research student	58 7.6%	85 11.1%	323 42.3%	298 39.0%	3.13	.89
7	Using mobile learning devices fits well with the way I source for information	77 10.1%	129 16.9%	257 33.6%	301 39.4%	3.02	.98
8	Use of mobile learning devices supports my reading habit	138 18.1%	226 29.6%	192 25.1%	208 27.2%	2.96	.99
9	Use of mobile learning devices fits my personal style	88 11.5%	136 17.8%	268 35.1%	274 35.9%	2.87	.99
10	Use of mobile learning devices does not suit my study life at all	106	102	365	191	2.84	.96

		13.9%	13.4%	47.8%	25.0%		
11	Use of mobile learning devices is not compatible with my academic work	138 18.1%	226 29.6%	192 25.1%	208 27.2%	2.62	1.07
Weighted Mean = 2.91							
	Sociability						
12	Use of mobile learning devices raises my self-esteem and self confidence	54 7.1%	165 21.6%	349 45.7%	196 25.7%	2.90	.86
13	Use of mobile learning devices enhances informal academic discussions	74 9.7%	178 23.3%	355 46.5%	157 20.5%	2.78	.88
14	Use of mobile learning devices permits me to interact well socially	98 12.8%	207 27.1%	259 33.9%	200 26.2%	2.73	.99
15	I have to use mobile learning devices because everybody around me including lecturers expect me to use them	92 12.0%	196 25.7%	332 43.5%	144 18.8%	2.69	.91
16	Use of mobile learning devices does not allow informal conversations, which I enjoy, with fellow students	75 9.8%	250 32.7%	313 41.0%	126 16.5%	2.64	.87
17	Use of mobile learning devices does not allow me to interact very well with my colleagues	109 14.3%	253 33.1%	278 36.4%	124 16.2%	2.55	.93
Weighted Mean = 2.72							
	Affordability						
18	In would like to have any wireless handheld device if I can afford it	53 6.9%	154 20.2%	364 47.6%	193 25.3%	2.91	.85
19	I have the resources to use mobile learning devices	142 18.6%	238 31.2%	248 32.5%	136 17.8%	2.49	.99
20	I do not mind the cost of using mobile learning devices once I get what I need from them	166 21.7%	218 28.5%	260 34.0%	120 15.7%	2.44	1.00

21	I find the cost of using information on mobile learning devices cheaper than other sources	185 24.2%	227 29.7%	221 28.9%	131 17.1%	2.39	1.03
22	When I consider the cost of finding academic information on mobile learning devices, I go for other sources like the library instead	204 26.7%	256 33.5%	184 24.1%	120 15.7%	2.29	1.03
23	I love sourcing information on mobile learning devices but usually I cannot afford the cost	205 26.8%	265 34.7%	167 21.9%	127 16.6%	2.28	1.04
Weighted Mean = 2.47							
Triability							
24	With the use of mobile learning devices I can satisfactorily try out various sources of academic information	48 6.3%	160 20.9%	351 45.9%	205 26.8%	2.93	.85
25	I do not find it easy to test run various applications on mobile learning devices	63 8.2%	150 19.6%	401 52.5%	150 19.6%	2.84	.83
26	With the use of mobile learning devices I can confidently try out various means of searching for information	81 10.6%	243 31.8%	266 24.8%	174 22.8%	2.70	.94
27	With the use of mobile learning devices I am able to experiment with searching for research information	70 9.2%	271 35.5%	264 34.6%	159 20.8%	2.67	.91
28	I never enjoy trying out new educational applications on mobile learning devices	114 14.9%	190 24.9%	345 45.2%	115 15.1%	2.60	.92
29	Use of mobile learning devices gives me great opportunity to try various educational applications	148 19.4%	229 30.0%	215 28.1%	172 22.5%	2.54	1.04
Weighted Mean = 2.71							

Table 3 presents the result of the analysis of the level of adoption of mobile learning devices possessed by postgraduates in private Universities in Southwestern Nigeria. This was considered fewer than four key indicators which are compatibility, sociability, affordability, and liability.

A four-point Likert scale classified into strongly agree, agree, disagree, and strongly disagree was used to elicit information on indicators of the level of adoption of mobile learning devices among postgraduates. Findings revealed that in rank order, compatibility of mobile learning devices ranked highest, ($\bar{x}=2.91$) followed by sociability. ($\bar{x}=2.72$). Affordability ($\bar{x}=2.47$) ranked lowest. Thus, the compatibility indicator had the highest weighted mean, followed by sociability, while affordability ranked lowest. In rank order, 'Using mobile learning devices is completely compatible with my current situation as a research student' ($\bar{x}=3.13$) ranked highest by mean score, followed by 'Using mobile learning devices fits well with the way I source for information' ($\bar{x}=3.02$) while 'I love sourcing information on mobile learning devices but usually I cannot afford the cost' ($\bar{x}=2.28$) ranked lowest. It can be deduced therefore that postgraduates of Nigerian private universities have a high level of adoption of mobile learning devices.

Research question 2: What is the level of usability of mobile learning devices among postgraduates in private universities in southwestern Nigeria?

Table 4 Level of usability of mobile learning devices among postgraduates in private universities in southwestern Nigeria

s/n	Usability of mobile learning devices	SD	D	A	SA	\bar{x}	S.D
	Flexibility						
1	Mobile learning devices' use supports independent and collaborative learning experiences	61 8.0%	104 13.6%	424 55.5%	175 22.9%	2.93	.83
2	The use of mobile devices can increase flexibility of resources like D2L, slides, YouTube videos etc.	65 8.5%	184 24.1%	279 36.5%	236 30.9%	2.90	.94
3	Mobile learning resources support flexible device electronic resources needed for research	77 10.1%	181 23.7%	312 40.8%	194 25.4%	2.82	.93
4	Mobile learning devices are flexible enough for me to perform multiple tasks together anywhere	112 14.7%	235 30.8%	263 34.4%	154 20.2%	2.60	.97
5	With mobile learning devices I can visit several learn the same time	138 18.1%	275 36.0%	188 24.6%	163 21.3%	2.49	1.02
6	Use of mobile learning devices cannot enhance access to electronic resources	132 17.3%	316 41.4%	205 26.8%	111 14.5%	2.39	.94

Weighted Mean = 2.69							
Usefulness							
7	Using mobile learning devices enables me to perform learning tasks more quickly	60 7.9%	140 18.3%	338 44.2%	226 29.6%	2.96	.89
8	Using mobile learning devices helps me to access relevant information all the time	70 9.2%	241 31.5%	276 36.1%	177 23.2%	2.73	.92
9	The use of mobile learning devices does not allow me to do research and imaginative work	126 16.5%	152 19.9%	311 40.7%	175 22.9%	2.70	1.00
10	Using mobile learning devices enhances my effectiveness in carrying out my academic work	183 24.0%	182 23.8%	218 28.5%	181 23.7%	2.52	1.10
11	With mobile learning devices I usually cannot access relevant academic information as in a library	128 16.8%	262 34.3%	252 33.0%	122 16.0%	2.48	.95
12	Using mobile learning devices saves me a lot of more time than using other sources of information	216 28.3%	192 25.1%	210 27.5%	146 19.1%	2.37	1.09
Weighted Mean = 2.63							
Learnability							
13	I can use the mobile learning device to search for any type of information I need	112 14.7%	151 19.8%	324 42.4%	177 23.2%	2.74	.97
14	I understand the features of my mobile learning devices very well and can use them for sourcing information	133 17.4%	179 23.4%	265 34.7%	187 24.5%	2.66	1.03
15	I always need an experienced person around anytime I use mobile learning devices	201 26.3%	158 20.7%	273 35.7%	132 17.3%	2.44	1.06

16	I do not need the assistance of others to access information on mobile learning devices	245 32.1%	190 24.9%	190 24.9%	139 18.2%	2.29	1.10
17	Learning to operate mobile learning devices could be difficult	251 32.9%	181 23.7%	239 31.3%	93 12.2%	2.23	1.04
18	It is difficult to understand how to find electronic information sources on mobile learning devices	282 36.9%	231 30.2%	153 20.0%	98 12.8%	2.09	1.04
Weighted Mean = 2.41							
	Ease of use						
19	It is easy to get mobile learning devices to do research in my field of study	79 10.3%	131 17.1%	307 40.2%	247 32.3%	2.95	.95
20	It is easy to read books and digital contents on mobile learning devices	145 19.0%	148 19.4%	315 41.2%	156 20.4%	2.63	1.01
21	Using mobile learning devices for academic information does not require a lot of mental effort	144 18.8%	166 21.7%	340 44.5%	144 14.9%	2.55	.96
22	Using mobile learning devices makes it easy for me to access library and educational materials	173 22.6%	189 24.7%	237 31.0%	165 21.6%	2.52	1.07
23	I do not find it easy to do research on mobile learning devices	178 23.3%	265 34.7%	216 28.3%	105 13.7%	2.32	.98
24	Searching for electronic information on mobile learning devices is easier than searching for similar information in the library	244 31.9%	184 24.1%	198 25.9%	138 18.1%	2.30	1.10
25	Mobile learning devices are very easy to use for accessing information	242 31.7%	211 27.6%	177 23.2%	134 17.5%	2.27	1.09

	Weighted Mean = 2.51
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Table 4 presents the result of analysis of the level of usability of mobile learning devices possessed by postgraduates in private Universities in Southwestern Nigeria. This was considered under four key indicators which are flexibility, usefulness, learnability, and ease of use.

A four- point likert scale classified into strongly agree, agree, disagree and strongly disagree was used to elicit information on indicators of the level of usability of mobile learning devices among postgraduates. In rank order, findings revealed that flexibility of mobile learning devices ranked highest, (=2.69). This was closely followed by usefulness (=2.63). Learnability (=2.41) ranked lowest. Thus, flexibility indicator had the highest weighted mean, followed by usefulness, while learnability ranked lowest. In rank order, 'Using mobile learning devices enables me to perform learning tasks more quickly' (=2.96) ranked highest by mean score, followed by 'Mobile learning devices' use supports independent and collaborative learning experiences' (=2.93) while 'It is difficult to understand how to find electronic information sources on mobile learning devices' (=2.09) ranked lowest. It can be deduced therefore that postgraduates of Nigerian private universities have a high level of usability of mobile learning devices.

Research question 3: What types of library electronic information resources are commonly used among postgraduates in private universities in southwestern Nigeria?

Table 5 Types of library electronic information resources commonly utilised among postgraduates in private universities in southwestern Nigeria

s/n	Types	Never	Monthly	Weekly	Daily	\bar{x}	S.D
1	Electronic theses / Dissertation	70 9.2%	172 22.5%	254 33.2%	268 35.1%	2.94	.97
2	Online Encyclopedias	111 14.5%	125 16.4%	256 33.5%	272 35.6%	2.90	1.05
3	Online picture/ photographs	95 12.4%	136 17.8%	304 39.8%	229 30.0%	2.87	.98
4	Internet facilities	111 14.5%	218 28.5%	193 25.3%	242 31.7%	2.74	1.06
5	Online Newspapers	115 15.1%	177 23.2%	277 36.3%	195 25.5%	2.72	1.01

6	E-journals	115 15.1%	174 22.8%	346 45.3%	129 16.9%	2.64	.93
7	E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc.	130 17.0%	174 22.8%	310 40.6%	150 19.6%	2.63	.98
8	Reference materials	133 17.4%	164 21.5%	328 42.9%	139 18.2%	2.62	.97
9	Online Calendars	140 18.3%	250 32.7%	214 28.0%	160 20.9%	2.52	1.02
10	E-books	174 22.8%	194 25.4%	241 31.5%	155 20.3%	2.49	1.05
11	Multimedia	262 34.3%	177 23.2%	169 22.1%	156 20.5%	2.29	1.14
12	CD-ROM/DVD Databases	274 35.9%	208 27.2%	192 25.1%	90 11.8%	2.13	1.03
13	Online Year books	305 39.9%	178 23.3%	171 22.4%	110 14.4%	2.11	1.09
Weighted Mean = 2.59							

Table 5 presents the result of the analysis of the types of electronic information resources commonly utilized by postgraduates in private Universities in Southwestern Nigeria.

In rank order, findings revealed that Electronic theses / Dissertation (=2.94) has the highest mean score. CD-ROM/DVD Databases (=2.13) and Online Yearbooks (=2.11) have the lowest mean scores respectively. Rating of the responses on the types of electronic information resources commonly utilized by postgraduates in private Universities in southwestern Nigeria is as shown in the table above indicates that

Electronic theses / Dissertation (=2.94)) ranked highest by the mean score rating and was followed by Online Encyclopedias (=2.90), Online picture/ photographs (=2.87), Internet facilities (=2.74), Online Newspapers (=2.72), E-journals (=2.64), E-databases related to

my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, etc. (= 2.63), Reference materials (=2.62), Online Calendars (=2.52), E-books (=2.49), Multimedia (=2.29), CD-ROM/DVD Databases (=2.13), Online Year books (=2.11) respectively.

The inference drawn from the above result is that Electronic theses / Dissertation, Online, Encyclopedias, Online picture/ photographs, Internet facilities, Online Newspapers, E-journals, E-databases related to my course e.g. Science Direct, EBSCOHOST, OARE, OPAC, JSTOR, BIOONE, HINARI, et cetera and Reference materials were the common types of library electronic information resources utilized by postgraduates in the study.

Testing of hypotheses

Hypothesis 1: There is no significant relationship between the adoption of mobile learning devices and the utilization of electronic/digital resources by postgraduates in private universities in Southwestern Nigeria. In testing the hypothesis, data collected were subjected to Pearson's Product Moment Correlation. Table 6 presents the results.

Table 6: PPMC showing the relationship between adoption of mobile learning devices and utilization of electronic/digital resources among postgraduates in private universities

Variable	Mean	Std. Dev.	N	R	p-value	Remark
Utilisation of electronic/digital resources	92.0798	17.6776	764	.282*	.000	Sig.
Adoption of mobile learning devices	82.6270	11.4156				

* Sig at 0.05 level

Table 6 reveals that there was a positive significant relationship between adoption of mobile learning devices and utilization of electronic/digital resources among Postgraduates in private universities in Southwestern Nigeria ($r = .28$, $N = 764$, $p (.000) < .05$). Hence, the adoption of mobile learning devices had a positive influence on the utilization of library electronic resources by postgraduates in private universities in Southwestern Nigeria. Hence, the hypothesis was rejected.

Hypothesis 2: There is no significant relationship between usability of mobile learning devices and utilization of library electronic resources by postgraduates in private universities in Southwestern Nigeria. Data collected were subjected to Pearson's Product Moment Correlation to test the hypothesis. In Table 7, results are shown.

Table 7: PPMC showing the relationship between usability of mobile learning devices and utilization of electronic/digital resources among postgraduates in private universities

Variable	Mean	Std. Dev.	N	R	p-value	Remark
Utilisation of electronic/data resources.	92.0798	17.6776	764	.403**	.000	Sig.
Usability of mobile learning devices	63.8783	14.4179				

* Sig at 0.05 levels

Table 7 shows that there was a positive significant relationship between usability of mobile learning devices and utilization of electronic data/information sources by postgraduates in private universities in southwestern Nigeria ($r = .40$, $N = 764$, $p (.000) < .05$). Thus, the usability of mobile learning devices had a positive influence on the utilization of electronic data/information sources by postgraduates in private universities in southwestern Nigeria. This hypothesis was, therefore, rejected.

DISCUSSION OF THE FINDINGS

The discussion of the findings was based on the research questions answered and hypotheses tested in the study.

Demographic profile of the respondents

In this study, the total population of the study was to cover all the nine selected private universities in southwestern Nigeria with 974 postgraduate respondents. Hence, 974 copies of the questionnaire were distributed out of which 764 were retrieved, giving a response rate of 78.43%

The majority of the respondents 295 were between 25 and 30 years (38.6%), followed by the 20-24 years age range representing 287 (37.6%). Male students were more 400 (52.4%) and female 364 (47.6%). Overall, master students were more than 622 (81.4%) while Ph.D. students totaled 142 (18.6%)

Level of adoption of mobile learning devices by postgraduates in private universities in southwestern Nigeria

As revealed by this study, respondents possessed a high level of adoption of mobile learning devices across the selected universities. It was revealed that compatibility and sociability indicators had ranked highest. This implies that compatibility and sociability were major

factors that influenced the level of adoption of mobile learning devices by postgraduates in private universities in southwestern Nigeria. Furthermore, findings also showed that the postgraduates had the tendency to adopt mobile learning devices that are compatible with their social and academic needs. This is further expressed in the different ways postgraduates employed their mobile devices. This affirms the finding of Said (2015) that cell phones are progressively being utilized for a scholarship at all levels. Clearly, technological advancements have been evolving so quickly that scientists have not had satisfactory time to see how learners see cell phones for academic activities just as how they might suspect these gadgets can best be utilised for learning. It is apparent in this investigation that most of the respondents had the tendency to adopt mobile learning devices as indicated by such indices as 'using mobile learning devices is completely compatible with my current situation as a research student', 'use of mobile learning devices raises my self-esteem and self-confidence' and 'with the use mobile learning devices I can satisfactorily try out various sources of academic information. This further validated the result of a study conducted on postgraduate students in Malaysia by Said (2015) which revealed that a greater part of postgraduates utilized their cell phones, for example, workstations, cell phones, and tablets for recording assignments, looking in the web for study, getting to the college's LMS, understanding books and scholastic papers, and speaking with partners on informal communities. However, a small percentage of respondents indicated that 'when I consider the cost of finding academic information on mobile learning devices, I go for other sources like the library instead'. This indicated that even the cost of using mobile learning devices for accessing information was not a problem for postgraduates in this study. This negates the concept of a price value in the Unified Theory of Acceptance and Use of Technology 2.

Level of usability of mobile learning devices by postgraduates in private universities in southwestern Nigeria

Findings revealed that the usability of mobile learning devices was rated high by the respondents. Flexibility and usefulness indices topped the usability scale of this study as revealed in the analysis. This showed that postgraduates preferred flexible sources of information such as smartphones, phablets, and tablets. Respondents strongly agreed that "Mobile learning devices' use supports independent collaborative learning experiences" and "The use of mobile devices can increase the flexibility of resources like D2L(Desire to Learn Software), slides, YouTube and videos. This means that mobile learning devices users believe that those devices have most of the features that can meet their expectations for using them. All these borders on needs gratification with multiplier effects on postgraduates' adoption of mobile learning devices. This corroborates the uses and gratifications theory as used in this research. The majority of respondents also agreed that "Using mobile learning devices saves me a lot more time than using other sources of information" This implies that in spite of the challenges of mobile learning device usability, respondents were still satisfied with sourcing information on those devices because they considered them time-saving and convenient.

7.0 CONCLUSION

The results of the study revealed that respondents indicated a high level of acceptance of mobile learning devices and those devices have been adopted by postgraduates in private

universities in southwestern Nigeria. This is in agreement with Ahmed and Kabir (2018) that there is a high degree of acceptance of mobile learning devices among students of a reputed private university in Bangladesh.

The results showed that the level of usability of mobile learning devices among postgraduates in the selected universities is high. This had indirectly influenced postgraduates' use of mobile learning devices for sourcing information.

It is obvious that a large percentage of respondents agreed that the mobility and flexibility qualities of mobile learning devices contribute to the accessibility of academic-related information

8.0 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proffered:

1. University libraries must ensure mobile compatible and mobile-friendly electronic information resources for the use of library clients, most especially postgraduates.
2. Private university administrators must ensure the availability of mobile deliverable electronic information resources in private universities across the southwest.
3. University administration should provide adequate funding for university libraries to procure current materials and state-of-the-art equipment.
4. Academic librarians should intensify efforts in creating the awareness of latest resources and services which are newly available in the university libraries.
5. Owners of private universities should adopt emerging technologies to ensure standard university libraries where modern technologies can be employed in service delivery.

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