

An Investigation With Reference to the Place of Computers and Utilisation of Online Library Services by Distance Learners at the University of Nairobi, Kenya

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Abstract:

The purpose of this study was to investigate the influence of demographic and institutional factors on the utilisation of online library services by distance learners at the University of Nairobi. Specifically, the study aimed at achieving one objective: viz. investigate the influence of adequacy of computers on Utilisation of Online Library Services by Distance learners at the University of Nairobi. The study was anchored on the positivist research paradigm. Descriptive survey and correlation research designs were adopted for this study. Data were collected using self-administered questionnaires and interview schedules. The target population consisted of 1671 learners in the School of Open and Distance Learning and 14 librarians found in the University of Nairobi namely Kikuyu Campus, Chiromo Campus and the main library Campus (The Jomo Kenyatta Memorial Library). The sample size was 312 respondents. A pre-test study was conducted using 31 learners and 1 librarian. This constituted 10% of the study sample. The researcher tested for the inter-item reliability of the instruments using Cronbach's Alpha and results ranged from 52.5%-95.8% for learners' questionnaires while that of librarians recorded 69.8%. Data analysis were done using frequency counts, the mean and standard deviation while hypothesis was tested using multiple linear regression analysis; One Way Analysis of Variance (ANOVA) was at 0.05 level of significance. The finding indicated that there is a significant relationship between internet connectivity and Utilization of online library services at the University of Nairobi. The results showed a coefficient of correlation $r = 0.309$, which suggests a positive relationship between variables; $R^2 = 0.137$, which implies a positive linear correlation. The significance of change also referred to as the p -value is $p = 0.019$. This value is pegged on the study putting the limit of 0.5 or 95 percent degree of the confidence interval. Since p -value $0.019 < 0.05$, the investigator rejected the null hypothesis and accepted the alternative that there was a significant relationship between Internet connectivity and utilisation of online library services at the University of Nairobi. The study recommends that all distance learners irrespective of their gender and age should be enlightened to use online library services provided by the University of Nairobi. In order to create awareness, there is a need to engage distance learners in activities that give practice and require them to demonstrate their competence in evaluating the quality of information they use. The outcome of this study may act as a basis for policy formulation for both the University of Nairobi and the government of Kenya regarding Distance Learning Programmes. Further research may be carried out to ensure that these demographic and institutional factors are tested in other study samples found in other public universities in Kenya.

Keywords: Internet connectivity, Institutional Factors, Distance Students, Utilization, Online Library Services

INTRODUCTION

Distance learning has gained popularity in the recent times among universities in the world. This is due to the fact that universities are able to control the number of learners enrolling for the regular programmes (Farahani, 2003). Effective implementation of distance learning programme calls for utilisation of library resources and services, audio-visual media and application of information communication technology (Naidu, 2006). These resources and services are important because they can be used to communicate to learners in distance locations and at the same time enhancing effective coordination of sessions with groups or individual learners. Similarly, learners have the opportunity of getting information from print media and online library services while out of session (Naidu, 2006). This is to ensure that distant learners are adequately equipped with the right course content and examination techniques. Distance learners are called upon to make maximum utilisation of study centres to enable them to read and search for information online (Sacchanand, 2002).

The library is thus the focal point of any centre of learning because it facilitates reading, inquiry and independent study by providing relevant support services and resources for teaching and learning (Candela, Athanasopoulos, Castelli, El Raheb, Innocenti, Ioannidis & Katifori, 2011). The library usually contains information services in different forms such as print media, electronic media, and the Internet hence these services are important in supporting distance learning programmes. Most researchers in distance learning point out that the digital library is an important component of distance learning programmes (Caspers, Fritts & Gover, 2001).

In a related study by Ganiyu (2013) on influence of demographic factors on use of online library resources by undergraduate students in two private universities in Nigeria, the findings indicated that University learners patronise their university libraries to search and retrieve relevant and up-to-date information in electronic or online format for effective teaching, learning and research purposes. The study further describes university library patrons as; undergraduate learners, postgraduate learners, researchers, information professionals, staff and other users from outside the university who intend to use the university library. Distance learners are expected to read further beyond class instructions to collect and retrieve information for classwork, assignments, seminars term papers, dissertations, theses and projects, and this information could be retrieved from online library resources (Ganiyu, 2013).

Online library services have emerged as an important component of the research process for distance learners (Owusu-Ansah & Bubuama, 2015). This is because once the learners have conducted basic research such as consulting lecturers or checking at references in their reading lists they turn to online literature to initiate their research process. Notably, online library resources and e-resources have become areas of interest in higher education. As a result of this development, university libraries worldwide have embraced the regular application of Internet resources, search engines and use of e-mail services as part of their normal communication process (Kindilchie & Sammarine, 2008; Owusu-Ansah & Bubuama, 2015).

The use of the online database is usually faster than searching for the information in the print format more so when looking for the information in the archives. Online library services are more direct especially when one wishes to apply combinations of words to search for several files at ago, a task that can be achieved more easily than when using printed materials (Candela, et al., 2011). Online resources can also be downloaded, printed and search outcomes saved for future reference and at the same time flexible and can be updated more often than printed tools. Distance learners have the opportunity of accessing online library services from their distant locations away from the university library through the dial-up access (Dadzie, 2005; Candela, et al., 2011; Owusu Ansah&Bubuam,2015).

The other advantages of employing online library resources and services consist of; regular accessibility to online resources, the users have got the opportunity of operating from any location, availability of information in one place, numerous resources can be provided and finally, it creates room for easy access to information (Candela, et al., 2011; Owusu-Ansah & Bubuama, 2015). Learners' usage of online library services is informed by the fact that these services enhance the quality of the research work by enabling them to take less time in doing research while taking more time in the writing of their research papers. An online library service also increases learner's ability to obtain more services, a diversity of services, and more current and up-to-date services (Mwatela, 2013).

The advent of online technology has made it possible for universities to come up with different ways of restructuring their collections and information services in order to embrace the new developments. In responding to the new developments, university libraries have adopted the use of online information services, Information and Communication Technology (ICT) to meet the various demands of library users. Distance learners in spite

of their demographic characteristics such as age, gender and religion are encouraged to explore the use of online library resources and services in order to supplement their academic activities (Islam, 2011; Ganiyu, 2013; Nkamnebe, Udem, & Nkamnebe, 2014; Owusu-Ansah & Bubuama, 2015).

Globally, people are increasingly facing higher competition than ever before. Different from any other times in human history, this global competition is intensively knowledge based. CT in education has made significant progress in China over the last two decades in the higher education process and is highly applied in distance based education by the executing agencies, targeting learners and goals to be achieved. The ability of computer technologies to change university teaching and learning is becoming an acceptable norm by education technologists (Finger, 2007; Candela, et al., 2011).

The application of ICT in education is becoming a major contemplation as developing countries concentrate on improving the quality of education. In Africa, for example, Aiona (2008) conducted a study in four main institutions offering distance learning programmes namely, the Open University of Tanzania (OUT), University of Nairobi (UoN), University of South Africa (UNISA) as well as the University of Botswana (UoB). The purpose of the study was to find out the availability of library and information support services for distance learners in those institutions. The findings revealed that there were no library support services in the said universities except for UNISA, which had embraced the most current information technology in providing services to distance learners; thus, library collection could be readily accessed through the Internet (Aiona, 2008).

A little earlier, Kavulya (2004) examined library services provision for distance learning among selected universities in Kenya, including Kenyatta University (KU), Africa Virtual University (AVU) as well as the United States International University – Africa (USIU-A), all based in Nairobi, Kenya. The findings revealed that the learning, as well as information services available in the institutions' libraries, were inadequate and limited; thus, could not be accessed easily by distance learners. However, at AVU, the use of modern technology had taken root since both the catalogue and digital library were available on the Internet to all learners and other library users. Notably, AVU provided a digital library in the form of e-journals-books and above all, online archives. On its part, USIU-A had also made available its 6,000 electronic journals with full text on the Internet to its users (Kavulya, 2004).

Demographics and institutional factors usually offer important clues as to what factors promote distance learners' utilisation of online library services. For example, Islam (2011) conducted research on effects of demographic factors on e-learning effectiveness in Malaysian institutions of higher learning and found that learners' gender and level of education are key elements of e-learning programmes in education. The findings further revealed that learners with broad educational backgrounds had wider knowledge on application of technology and its merits in realising excellent academic achievement because this category of learners are equipped with the latest technological innovations and are up to date with computer usage and applications. Similarly, learners ought to be more computer literate in order to enhance the exploration of the Internet and update their level of understanding in information through e-learning (Islam, 2011).

Similarly, Okiki and Asina (2011) assessed factors influencing use of electronic information sources among postgraduate learners in six Nigerian universities, including University of Ibadan, University of Lagos, Onabisi Onabanjo University, gun State; Federal University of Technology, Akure University of Agriculture and Lagos State University, the findings showed a positive correlation between utilisation of electronic information and the key concepts, which included learners' background characteristics and institutional factors (Okiki & Asina, 2011).

Various studies have examined the influence of institutional factors on the utilisation of online library and information sources among learners in institutions of higher learning, including distance learners. For instance,

Alisona, Kiyingib, and Baziraake (2012) reported a significant correlation between the utilisation of medical e-resources and poor Internet connectivity; while Owusu-Ansah & Bubuama (2015) identified slow access to Internet facilities as a key institutional factor constraining the utilisation of online library services by distance learners at the University of Ghana. Other institutional factors influencing utilisation of online library services include inadequate number of functional computers in relation to the number of learners (Alisona, et al., 2012); as well as inadequacy of ICT infrastructural facilities included shortage of computers, lack of affordable online access by learners, as well as absence of in-depth ICT skills and information searching skills among library staff (Watts & Ibegbulam, 2006). The utilisation of online information sources is also affected by frequent power outages, inadequate assistance by library staff, lack of user support systems, as well as lack of subscriptions to some databases (Molefi, 2008; Alisona, et al., 2012).

In Kenya, the ICT Sector Policy Guidelines notes that “inadequate implementation of ICT policies, regulatory intensions to support rapid development, deployment of ICT infrastructure, limited support for research and inadequate support to ICT support are some of the key challenges facing ICT in Kenya” (the Republic of Kenya, 2013). Still, in Kenya, a study conducted by Githinji(2014) on factors influencing University of Nairobi Master of Education degree learners’ access and utilisation of ICT facilities, reported a low utilisation of scholarly electronic publications among postgraduate learners, particularly due to inadequate awareness about the availability of e-resources.

Despite enormous efforts made by various institutions to place information and communication as a key component of university teaching and learning, it emerges that both learners and faculty members are unable to make use of online resources and services. While this is usually attributed to the diversity of operational deficits on the part of learners, faculty, and universities, Githinji (2014) underscores the need for more research aimed at unearthing underlying factors that contribute to this kind scenario in Kenyan institutions of higher learning. It was in this context that the current study was an attempt to critically analyse the influence of demographic and institutional factors on utilisation of online library services by learners enrolled in the distance learning programme of the University of Nairobi.

1.2 Statement of the problem

Distance learners just like on-campus learners are entitled to information in all formats other than paper or print media (Nyambogo, Ongondo, and Ongus, 2004).The study further reiterates that despite this position, some distance learners lack exposure to computers while others possess poor attitude towards Information Communication Technology. The records and statistics available at the University of Nairobi library reference section at the time of conducting this study indicated that only about 22% of distance learners had visited the online library sites while the majority of the 78% relied on print based materials in the other library section (JKML,2015).This could probably explain complaints raised by lecturers, that during the presentation of their term papers and assignments, majority of distance learners do not use electronic resources to support their academic work despite the fact that the University of Nairobi library subscribes to a number of these services (Githinji,2014).

The University of Nairobi established an infrastructural ICT Centre in March 2002 which was tasked with the responsibility of offering quality and cost effective Communication Technology that meet the changing learning, teaching and research and management requirements of the University. Currently, the registration of courses and selection of degrees, journals, and books as well us abstracts from the University are all online (Lumbano, 2004, Githinji, 2014). Despite this positive move, the University is faced with serious challenges that range from ; lack of online courses, some basic facilities like computers are lacking in the Extra-Mural centres and still, some of the staff and learners who are supposed to use to use ICT and online library services have limited knowledge of accessing these facilities and services.

This implies that about the 3,406 learners who were enrolled in the School of Open and Distance Learning during the April Intake for the 2013/2014 academic year were disadvantaged in accessing ICT facilities and online library services provided by the University thus hampering their effective utilisation of these services for learning purposes (Mwatela, 2013). Demographic and Institutional factors are often critical in giving clues as to what factors constitute to learners failure to embrace the use of ICT infrastructure and online library services (Mwatela, 2013, Githinji, 2014). It is in this context that this study set out to investigate the influence of demographic and institutional factors on the utilisation of online library services at the University of Nairobi.

Adequacy of computers and utilisation of online library services

In a study carried out by Alison, Kinyingi & Baziraake (2012) on factors affecting utilisation of electronic health information resources in universities in Uganda. The findings revealed that there is a significant correlation between utilisation of medical e-resources with the number of computers. Notably, in all the three institutions involved in the study, the inadequacy of computers was a universal challenge and constraint to the utilisation of medical e-resources. Whereas the previous study was carried out among the students enrolled in health sciences in various universities in Uganda, the present study was done among the students enrolled in the open and distance learning programme at the University of Nairobi in Kenya. This was the prevailing gap in knowledge that the current study filled.

Alison et.al (2012) further noted that, during the academic year 2009/10, Makerere University College of Health Sciences admitted 800 graduate students but the computer laboratory had only 16 computers. Even though the library provided wireless Internet connection, very few learners had personal laptops. Hence, limited numbers of computers available for use, especially by students have an influence on the usage of the e-resources. Notable, inadequacy of computers caused congestion at information search points, which in turn, resulted in delayed completion of academic assignments.

In a related study by Watts and Ibeghulam (2006) on access to electronic healthcare information resources in developing countries, experiences from the medical library, college of medicine University of Nigeria, the findings reported that utilisation of online library services by learners was influenced by the inadequacy of ICT infrastructural facilities, including computers. Whereas the previous study was conducted in the medicine college of Nigeria, the present study was done in the open and distance learning of the University of Nairobi.

Chimah and Nwokocha (2013) carried out a study on an empirical study of motivation, challenges, and strategies in the use of electronic information resources by the postgraduate library users in southeast Nigeria Federal Universities. The results showed that utilisation of electronic information resources by postgraduate library users in Southeast Nigerian federal universities was constrained by the inadequacy of computers and Internet facilities in their libraries. While the previous study was done in Nigeria, the present study was done in Kenya hence the gap in knowledge that this study bridged. While several studies have been done on the utilisation of digital information services by students, this area has not been adequately studied in Kenya and more significantly among the distance learning students. It was therefore against this background that the present study set out to investigate the influence of adequacy of computers on the utilization of online library services by distance learners at the University of Nairobi, Kenya.

METHODOLOGY

The research paradigm employed in this study is the positivist approach. Positivism emerged as a paradigm in the 19th Century with Auguste Comte's rejection of metaphysics and assertion that only scientific knowledge can reveal the truth about reality. The positivist paradigm asserts that real events can be observed empirically and explained with logical analysis. The study adopted a descriptive survey design. Orodho (2003) defines a descriptive survey as a method of collecting information by interviewing or administering a questionnaire to sample of individuals.

The study targeted learners enrolled for Bachelor of Education Arts (B.Ed. Arts) and Bachelor of Education Science (B.Ed. Science), in the School of Open and Distance Learning (ODL) of the University of Nairobi.

Learners who were in their third year of study during the April intake of 2013/2014 academic year were selected for the study. This group level was chosen owing to the length of time they had taken at the University thus would provide the relevant and necessary information required by the researcher. Records from the two programmes indicated that B.Ed. Arts had a total of 1,578 learners out of which 848 were males and 730 were females. The programme of B.Ed. Science had 93 learners, which included 58 males and 35 females.

Table. 1: Population of third year learners (April intake 2013/2014) and librarians

Category	Male	Female	Total
B.Ed. (Arts)	848	730	1578
B.Ed. (Science)	58	35	93
Librarians	09	05	14
Total	915	770	1685

The sample size for this study was determined by using the formula, which was developed and advanced by Krejcie and Morgan (1970), as cited in Isaac and Michael (1981).

$$S = \frac{\chi^2 NP (1 - P)}{d^2 (N - 1) + \chi^2 P (1 - P)}$$

Table.2: A sample size of third year learners (April intake 2013/2014) and librarians

Category	Male	Female	Total
B.Ed. Arts	121	103	224
B.Ed. Science	47	27	74
Librarians	09	05	14
Total	177	135	312

Source: ODL (2014)

The researcher used two sets of questionnaires to collect data from the respondents. One set of questionnaire was developed for learners while another set of questionnaire was developed for librarians. The researcher gave preference to use of questionnaire because it eliminates bias on the side of the researcher and the respondents while the interview schedule was used to corroborate responses received from questionnaires (Kombo & Tromp, 2006).

Face validity, according to Kalai (2009) refers to the subjective judgment that the test appears to cover the relevant content. It also refers to the subjective judgment of assessors about what the instrument appears to be measured on the face value. The researcher applied expert judgment to arrive at the face value of the instruments. Finally, in order to determine the validity of the whole document, a Kaiser Meyer Olkin (KMO) formula test of validity was applied. A KMO test of validity provided a figure of 0.806. This implied that the sampled data was highly valid since the threshold is normally 0.5. The researcher applied expert knowledge in selecting essential questions to be included in the interview schedule.

The reliability of the full instrument was obtained using Cronbach’s Alpha coefficient. This refers to a measure of internal consistency of set items in a group. It is thus considered to be a measure of skilled reliability of an instrument. Cronbach’s Alpha Coefficient was used to measure the inter-item reliability of the questionnaires. Each item of the questionnaire, measuring the same characteristics was treated as a mini instrument on its own. The questionnaire for learners was divided into seven sections and inter-item reliability was done for each section of the questionnaire. The result is shown in Table 3.

Table 3.3: Inter-item reliability test

Questionnaire section	Cronbach's Alpha	Percentage	F	No. of items
B	0.523	52.3	35.609	7
C	0.749	74.9	15.809	7
D	0.865	86.5	1.080	7
E	0.958	95.8	2.960	7
F	0.923	92.3	17.923	7
G	0.938	93.8	8.836	7
H	0.830	83.0	16.568	7

The results from Table 3 shows that Cronbach's Alpha for section B of the instrument was 0.523 (52.3 %) with an F-value of 35.609 out of the seven (7) items. In section C of the instrument, Cronbach's Alpha was 0.749 (74.9%) while the F value was 15.809 out of the seven (7) items. Section D of the instrument recorded a Cronbach's Alpha of 0.865 (86.5 %) while the F value was 1.080 out of the seven (7) items. Section E of the instruments registered a Cronbach's Alpha of 0.958 (95.8 %) and an F value of 2.960 for the seven (7) items. Section F of the instrument indicated that the Cronbach's Alpha was 0.923 (92.3%) while the F value was 17.923 for the seven (7) items. Section G of the instruments recorded a Cronbach's Alpha of 0.938 (93.8%) while the F value was 8.836 out of the seven items. Finally, section H of the instruments recorded Cronbach's Alpha of 0.830 (83.0%) and F value of 16.568 out of the seven (7) items.

The general impression of the above results is that the inter-item reliability was over 50 percent for all the sections for the entire learners' questionnaire instrument. Similarly, the inter-item reliability test was inducted for the questionnaire for the librarians. The result indicated a Cronbach's Alpha of 0.698(69.8%) while the F-value was 16.915 out of the (7) items.

Authority to conduct research was obtained from the National Commission for Science, Technology, and Innovation (NACOSTI) before setting out for data collection. The researcher also reported to the Director of Open, Distance, and eLearning (ODEL) Campus for clearance. The researcher obtained permission from the Dean, ODL to conduct research. Simple random sampling was used to gather information from respondents. In this regard, the researcher used pieces of papers written "Yes" for the number of learners required for the study sample and "No" for the remaining portion. These papers were thoroughly mixed and shuffled in a container for learners to pick to ensure that each learner had an equal chance of being selected.

First, questionnaires were personally administered to learners and librarians. Direct contacts with respondents provided the researcher with an opportunity to interact and instruct the respondents on how to complete the questionnaires and assure them of the confidentiality of their responses. Personal involvement was an important factor in motivating the participants to respond more readily than if the questionnaires had been mailed to them. An opening note was addressed to all the respondents to confirm this commitment.

RESULTS AND DISCUSSIONS

Adequacy of computers and utilisation of online library services

The objective of this study focused on determining the extent to which adequacy of computers influenced utilisation of online library services at the University of Nairobi. In this regard, respondents were requested to indicate their perceptions regarding the extent to which adequacy of computers influenced utilisation of online library services at the institution. Again, the 7 test statements about the adequacy of computers, which are contained in the data collection instrument, were scored on a five level rating scale, including; not at all, less

extent, not sure, great extent and to a very great extent. In view of this, respondents were obligated to express their perceptions regarding each of the items by selecting only one response. The scores ranged in a continuum from 7 to 35 indicating the lowest and the highest usage of online library service respectively. The results are presented in the following sub-sections.

Adequacy of computers and utilisation of online digital repository

The study aimed at determining the influence adequacy of computers on the utilisation of an online digital repository. This was accomplished by asking respondents to indicate their perceptions regarding the extent to which the adequacy computers at the library influenced utilisation of online digital repository. The results are displayed in Table 4.

Table 4: Adequacy of computers and the utilization of online digital repository

Adequacy of computers influence my usage digital repository	Frequency (f)	Percentage %	Cumulative percent
Not at all	70	27.0	27.0
Less extent	73	28.2	55.2
Not sure	66	25.5	80.7
great extent	27	10.4	91.1
Very great extent	23	8.9	100.0
Total	259	100.0	
Mean	2.46		

The data in Table 4 indicate that 70 (27.0%) and 73 (28.2%) respondents scored in for not at all and less extent, respectively. This was followed by 66 (25.5%) respondents who were not sure. Contrastingly, 23 (8.9%) respondents scored for the very great extent, while 27 (10.4%) respondents scored to a great extent. Cumulative results further show that most respondents, 143 (55.2%) did not support the statement, which implies that that adequacy of computers had less influence on utilisation of online digital repository. The analysis obtained a mean score of 2.46

Adequacy of computers and utilisation of online newspapers

The study examined perceptions of the adequacy of computers in relation to the utilisation of online newspapers. This was achieved by requesting respondents to indicate their views regarding the extent to which adequacy of computers in the library influenced utilisation of online newspapers. The resultant data is presented in Table 5.

Table 5: Adequacy of computers and the utilization of online newspapers

Adequacy of computers influence my usage of online newspapers	Frequency (f)	Percentage %	Cumulative percent
Not at all	50	19.3	19.3
Less extent	85	32.8	52.1
Not sure	67	25.9	78.0
Great extent	36	13.9	91.9
Very great extent	21	8.1	100.0
Total	259	100.0	

The results presented in Table 5 show that 50 (19.3%) respondents scored for not at all; 85 (32.8%) respondents scored for less extent, while those who were not sure were 67 (25.9%) respondents. On the other side of the scale, 36 (13.9%) and 21 (8.1%) respondents score for a great extent and a very great extent, respectively. Cumulatively, the results further show that a majority, 135 (52.1%), of the respondents were against the view that adequacy of computers influenced utilisation of online newspapers. The results imply that the influence of perceived adequacy of computers on the utilisation of online newspapers was less. The analysis obtained a mean score of 2.74.

Adequacy of computers and utilisation of online public access catalogue

The study investigated the influence of perceived adequacy of computers on the utilisation of OPAC. In response to this investigation, respondents were asked to indicate the extent to which adequacy of computers in the library influenced utilisation of OPAC. Table 6 presents the results.

Table 6: Adequacy of computers and the utilization of online public access catalogue

As a result of the adequacy of computers being able to use online public access catalogue	Frequency (f)	Percentage %	Cumulative percent
Not at all	69	26.6	26.6
A Less extent	42	16.2	42.9
Not sure	46	17.8	60.6
A great extent	44	17.0	77.6
Very great extent	58	22.4	100.0
Total	259	100.0	
Mean	2.86		

As shown in Table 6, the results indicates that 69 (26.6%) and 42 (16.2%) respondents did not support the view that adequacy of computers influenced utilisation of OPAC. Contrastingly, 44 (17.0%) and 58 (22.4%) affirmed the view; while 46 (17.8%) were not sure. The results suggest that there was a marginal variation between those who upheld and those who opposed the view adequacy of computers influenced utilisation of OPAC. Consequently, perceived adequacy of computers influenced utilisation of OPAC.

Adequacy of computers and utilisation of online electronic books

The study further explored the influence of perceived adequacy of computers on the utilisation of online electronic books. In order to accomplish this task, respondents were asked to indicate the extent to which adequacy of computers influenced utilisation of online electronic books. The results are summarised in Table 7.

Table 7: Adequacy of computers and the utilization of online electronic books

As a result of the adequacy of computers able to use online electronic books	Frequency (f)	Percentage %	Cumulative percent
Not at all	57	22.0	22.0
Less extent	88	34.0	56.0
Not sure	50	19.3	75.3
Great extent	26	10.0	85.3
Very great extent	38	14.7	100.0
Total	259	100.0	

Mean 2.57

The results in Table 7 show that 57 (22.0%) and 88 (34.0%) respondents scored in the, not at all and less extent level, respectively; while 26 (10.0%) and 38 (14.7%) respondents scored in the great extent and very great extent, respectively. Those who were not sure were 50 (19.3%). Besides, cumulative results show that most respondents, 145 (56.0%) respondents did not support the view that adequacy of computers influenced utilisation of online electronic books, as compared to 64 (24.7%) respondents who expressed contrary views. The implication of this finding is that there was less influence of adequacy of computers on the utilisation of online electronic books among the distance learning standards at the institution.

Adequacy of computers and utilisation of online electronic journals

The study focused on establishing the influence of perceived adequacy of computers on the utilisation of online electronic journals. In this regard, respondents were requested to indicate their views regarding the extent to which adequacy of computers influenced utilisation of online electronic journals. The results are presented in Table 8.

Table 8: Adequacy of computers and the utilization of online electronic journals

As a result of the adequacy of computers being able to use online electronic journals	Frequency (f)	Percentage %	Cumulative percent
Not at all	68	26.3	26.3
Less extent	60	23.2	49.4
Not sure	58	22.4	71.8
Great extent	34	13.1	84.9
Very great extent	39	15.1	100.0
Total	259	100.0	
Mean	2.66		

The results presented in Table 8 show that 68 (26.3%) and 60 (23.2%) respondents scored in the not at all and fewer extent levels, respectively. Contrastingly, 34 (13.1%) and 39 (15.1%) respondents scored for a great extent and very great extent, respectively; while 58 (22.4%) respondents were not sure. Again, cumulative results about one-half of the respondents, 128 (49.4%), failed to agree with the view that adequacy of computers influenced utilisation of online electronic journals. Contrastingly, up 73 (28.2%) respondents affirmed the view. This implies that the influence of perceived adequacy of computers on the utilisation of online electronic journals was marginal. The analysis obtained a mean score of 2.66.

Adequacy of computers and utilisation of the online database

The study further examined the influence of perceived adequacy of computers on the utilisation of the online database. This was accomplished by requesting respondents to indicate their views regarding the extent to which adequacy of computers influenced utilisation of online database; the results of which are presented in Table 9.

Table 9: Adequacy of computers and the utilization of the online database

As a result of the adequacy of computers being able to use the online electronic database	Frequency (f)	Percentage %	Cumulative percent
Not at all	72	27.8	27.8
Less extent	62	23.9	51.7
Not sure	65	25.1	76.8
Great extent	37	14.3	91.1
Very great extent	23	8.9	100.0
Total	259	100.0	
Mean	2.49		

Table 9 shows that 72 (27.8%) and 62 (23.9%) respondents scored in the level of not at all and less extent, respectively. On the other side of the scale, 37 (14.3%) and 23 (8.9%) respondents scored in the great extent and very great extent levels, respectively; while 65 (25.1%) said they were not sure. Cumulatively, the results show that about one-half of the respondents, 134 (51.7%), failed to affirm the statement; which in turn, suggests that the influence of perceived adequacy of computers on the utilisation of online database was marginal. The analysis yielded a mean score of 2.49.

Adequacy of computers and utilisation of online research papers

The study sought to investigate the influence of perceived adequacy of computers on the utilisation of online research papers. In this regard, respondents were requested to indicate their views regarding the extent to which adequacy of computers influenced utilisation of online research papers. The results are presented in Table 10

Table 4.90: Adequacy of computers and the utilization of online research papers

As a result of the adequacy of computers being able to use online research papers	Frequency (f)	Percentage %	Cumulative percent
Not at all	82	31.7	31.7
Less extent	46	17.8	49.4
Not sure	67	25.9	75.3
Great extent	25	9.7	84.9
Very great extent	39	15.1	100.0
Total	259	100.0	
Mean	2.51		

The results presented in Table 10 shows that 82 (31.7%) and 46 (17.8%) respondents scored for not at all and fewer extent levels, respectively. Contrastingly, 25 (9.7%) and 39 (15.1%) respondents scored in the great extent and very great extent, respectively; while 67 (25.9%) respondents indicated that they were not sure. Based on this, cumulative results show that about one-half of respondents, 128 (49.4%), did not support the view that adequacy of computers influenced utilisation of online research papers; while 64 (24.7%) respondents supported the view. The results imply that the adequacy of computers had less influence on the utilisation of online research papers. Besides, the analysis obtained a computed mean of 2.51.

4.10.2.8 Mean scores on the adequacy of computers and utilisation of online library services

Further analysis focused on mean scores associated with the influence of perceived adequacy of computers on the utilisation of online library services. In this regard, scores of means on different online library services were computed and compared. Besides, the mean of means was also calculated to provide the basis for making meaningful conclusions. Any online library service that scored above the mean of means was considered high while those that scored below the mean of means were treated as low. Table 11 summarises the results.

Table 11: Mean scores on the adequacy of computers and the utilization of online library services

Level library source	Mean	Std. dev.
Online digital repository	2.46	1.214
Online newspapers	2.74	1.461
Online public access (OPAC)	2.86	1.382
Electronic books	2.57	1.419
Electronic journals	2.66	1.453
Online database	2.49	1.476
Online research papers	2.51	1.521
Total Mean	18.29	
Base Mean	2.61	

Table 11 shows that OPAC scored the highest mean of 2.86, followed by, online newspapers at 2.74, as well as online electronic journals and online electronic books at a mean of 2.66 and 2.57, respectively. On the other hand, online database scored a mean of 2.49, while online database and digital repository registered means of 2.49 and 2.46, respectively. Comparing the mean scores with the mean of means which was 2.61, it was possible to conclude that OPAC (2.86), online electronic newspapers (2.74) and online electronic journals (2.66) were highly influenced by the adequacy of computers. The services whose mean score fell below that mean of means included online electronic books (2.57), online research papers (2.51), online database (2.49), and online digital repository (2.46). It is also evident to conclude that OPAC is the service that recorded the highest influence from the adequacy of computers.

The relationship between perceived adequacy of computers and utilisation of online library services (as measured by mean score) was also analysed using multiple linear regression analysis. The null hypothesis stated as follows:

8. H₀ There was no significant relationship between perceived adequacy of computers and utilisation of online library services at the University of Nairobi.

The results are summarised in Table 12

Table 4.92: Regression analysis on the adequacy of computers and the utilization of online library services

Model	r	R ²	Adj. R ²	Std error of estimate	R square change	F change	df1	df2	Sig. change
1	0.237	0.258	0.246	1.225	0.258	1.357	10	12	0.033

The results in Table 12 show that the analysis obtained a coefficient correlation $r = 0.237$, which is a weaker positive relationship between independent and dependent variable. Besides, the R^2 is the coefficient of the determination, which is $R^2 = 0.258$ implying that there was a small positive linear correlation. The significance of change also referred to as p -value is $p=0.033$. The value is pegged on the study limit at 0.5 or 95 percent degree of the the confidence interval. Since p -value $0.033 < 0.05$, the null hypothesis was rejected and the the

conclusion made that there was a significant relationship between adequacy of computers and utilisation of online library services at the University of Nairobi. This outcome agrees with perceptions expressed by the librarians who also indicated a strong relationship between adequacy of computers and use of online library services.

The results of this study further confirm those reported by Alisona, et al., (2012), who established a significant correlation between utilisation of medical e-resources with the number of computers at the Makerere University College of Health Sciences. The results of this study also match with those reported by Chimah and Nwokocha (2013) in their study which focused on Southeast Nigerian federal universities. The authors reported that utilisation of online information among postgraduate students was constrained by the inadequacy of computers and Internet facilities in their libraries.

The analysis also involved the computation of variance using the ANOVA technique, with a view to testing how the regression model statistically significantly predicts the outcome variable (the significant relationship between the dependent and independent variable). The ANOVA results are presented in Table 13.

Table 13: Analysis of Variance

Model	Sum of square	df	Mean square	f	sig
Regression	12.758	10	1.278	2.857	0.033
Residual	220.984	148	1.496		
Total	233.739	158			

The results in Table 4.93 show that the analysis obtained a computed F statistic of is 2.857, meaning 28.57 percent of model fits the linear line; hence, has been explained; thus the model fits interpretation.

CONCLUSIONS

From the results of this objective, the study concluded that adequacy of computers significantly relates to the utilisation of online library services by distance learning students at the University of Nairobi. Notably, adequacy of functional computers makes utilisation of digital library services easier, less stressful and timesaving. Access to computers in digital libraries is a key factor that determines the utilisation of services by distance learners, according to the study conducted by Chimah and Nwokocha (2013). Where computers are adequate learners get ample time to practice and improve their computing, as well as information searching skills, which in turn, helps them overcome fears, anxiety and negative attitudes associated with digital library services. In view of this, ensuring that each learner is able to access a functional computer at the library remains one of the most important undertakings for any institution of higher learning committed to improving utilisation of online library services.

RECOMMENDATION

The University of Nairobi management should provide adequate functional computers at the digital library to reduce congestion, and for the convenience of learners. This should involve a proper maintenance programme and replacement of obsolete and non-functional equipment lying at the University Library.

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