ICT Integration and Performance of Libraries in Public Universities in Nairobi City County, Kenya

Leah Mary Wangari K[1], Joshua Tumuti[2]

[1]Kenyatta University, Department of Management Science, Nairobi, Kenya
E- mail: *leahmary[at]gmail.com*

[2]Department of Management Science, Kenyatta University, Nairobi, Kenya

Abstract: *Mwangi (2018) observed that Jomo Kenyatta Memorial Library (University of Nairobi) users indicated poor collection development, limited access to information and poor service delivery as major challenges they are facing. The user needs have also changed and users are demanding for quick and easy access of information without necessarily going physically to the library. This raises the need for libraries to change the way they provide access to information for their users. The libraries have started integrating ICT in their functions as a way to solve the above mentioned challenge. A link between ICT integration and performance was discussed in the empirical literature. The study empirically assessed e - resources, social networks, information management systems, networking and how they have affected performance of Post Modern Library (Kenyatta University) and Jomo Kenyatta Memorial Library (University of Nairobi). The study employed Resorce Based View Theory. Descriptive cross sectional research design was adopted for the study. The target population was made up of 74 professional library staff from both libraries. Primary data was collected through semi structured questionnaires. Data analysis was based on descriptive and multiple regression analysis. The study concluded that ICT integration in both Post Modern Library and Jomo Kenyatta Memorial Library had enhanced their performance. The study recommended for academic libraries to embrace networking and through resource sharing they could enlarge their collection.*

Keywords: Performance, ICT integration, e - resources, social network, information management system, networking

1. Introduction

Academic libraries are libraries attached to higher education institutions. Duffin (2019) states that academic libraries in higher institutions of education are meant to support the study of students and the research of faculty and to also support the curriculum. Academic libraries in this century especially in USA continue to vary as far as their users are concerned. Some of the libraries serve people who are not associated with the parent institution. Some libraries allow members of the public reading and borrowing privileges at a fee. Alumni and students of other cooperating local universities also get consideration for borrowing privileges. It is possible to find an academic library holding official government document repositories making it possible for the library to be open to the public. However, for some libraries, access is restricted to students, faculty and staff.

In Kenya most if not all academic libraries restrict their access only to people affiliated with the parent institution. According to (Kendeli, 2015) he observed that Jomo Kenyatta Memorial library (UoN) users were students and faculty from the institution. Kendeli further gave a statistical data citing the average number of users for the library. He observed that the library serves students whose number continues to increase annually as an average of 60, 000 students is enrolled. Kenyatta University Post Modern Library also serves students and staff affiliated with the institution. In 2010 the library projected to serve a student population of 300, 000. We can hence conclude that academic libraries main users are university students.

Academic libraries are very keen to meet their user's needs. Looking at the traditional ages, most users visited the library to aid in research. According to (Bakakutty & Majeed, 2005) to get information meant users going physically to the library, relying heavily on the librarians and spending a lot of time just finding the piece of information needed. Now we are in the 21st century. It's a century where the library users are millennial or what we refer to as generation Y. They are people who come at age in an era of Information. Millennial are very fond of the use of Information Technology and social media. Robert (2015) says that in the 21st century user information and access needs have also changed. He observes that users in this century are people who are more interested in current information. Users are also demanding to access information in the quickest, easiest way without necessarily visiting the library physically. Robert observes that meeting these needs has become a very huge challenge to the libraries in the 21st century. Adekele (2010) suggests that if libraries are to stay relevant to their users in the 21st century, moving from a manual driven environment to an ICT driven environment is paramount.

As the world is growing technologically, so are the library operations in various locations. Academic libraries have hence started integrating ICT in their functions with an aim of meeting the user information and access needs. In United States, most if not all academic libraries have integrated ICT into their services. Infact public universities in America have in the 21st decade increased internet access as well as availability of ICT. This move has helped academic libraries satisfy the information needs of their users which continue to change as technology advances. Over the last two decades, University of Oxford, the University of Michigan at Ann Arbor, Stanford University, and the New York Public Library have worked with Google to digitize over 15millons of their collection. This has expedited information access for the users.

ICT integration in Africa has increased over the last decade. Cholla and Enakrire (2017) indicated that academic

universities in Nigeria and South Africa are integrating ICT in knowledge management. They went ahead to observe that libraries especially in Nigeria are faced with some challenges especially with the internet as the connection is slow. Acanit (2016) studied the status of ICT in academic libraries based in central Uganda. According to her, academic libraries have put in place basic ICT infrastructure with an objective of making it possible to access networking, web–based and internet services. However, Acanit raised a concern as to whether libraries were using ICT infrastructure to effectively serve their users' needs or was this infrastructure just for show in libraries. Going by the above findings, academic libraries have to ensure that they put up the right technology which will enable them fulfill the information needs of their users.

In Kenya, academic libraries have also started integrating ICT in their functions. Odongo (2011) stated that the 21st century has seen academic libraries adopt a trend of provision of ICT facilities including computer section, internet ports and online public access catalogue (OPAC) section among others. E - resources have widely been integrated in most academic libraries in Kenya. (Gathoni et al, 2011) noted that there was proof that academic libraries in Kenya were now not fully relying only on print media but also electronic resources. They further stated use of e - resources in collection development citing University of Nairobi library. Makori, (2009) also indicated that academic libraries like KUPML and United States International University library have started integrating social networking in their functions. Makori observed that the most common platforms libraries have adopted are Facebook, twitter and blogs. Academic libraries should take advantage of social media to make themselves available 24/7 to their users.

Organizations globally whether in the commercial or non - commercial category, are usually concerned with high quality of product and services. As a result, many organizations are constantly in the process of creating strategies to improve the quality of products and services they provide. Performance measurement is a strategy that has been used over the years by organizations as a platform for providing feedback and improving decision making. Performance measurement becomes a key strategy in any organization seeing decision making cuts across all levels of management: strategic, mid - level management and operational control. Libraries, as non - commercial institutions, are also concerned on the quality of product and services. According to (Poll & Boekhorst, 2007) performance measurement has been used for a long time in the libraries and has been described in the journals, books, handbooks, and International Standard Organization (ISO) standards in the Western world.

Performance of libraries is measured against key performance indicators (KPIs). User satisfaction is a major KPI for library performance according to (Karim, 2018). For user satisfaction to be achieved in the 21st century, both the information and access needs have to be achieved by libraries. Libraries have to understand that their users are more inclined to virtual services. This means the libraries have to adopt mechanisms to match these user needs. Information need is achieved based on a library collection.

The library has to understand that in the 21st century users are diverse. This brings us to the fact that libraries have not only to consider historical information resources but also current information. Access user needs refers to the necessity of users getting information in the fastest, easiest way possible and also in various formats. Access user needs reflects on users accessing information without physically visiting the library.

2. Literature Review

Resource Based View (RBV) theory laid a foundation for this study. This theory was formalized in 1991 by Barney. The theory holds that organizations can gain competitive advantage in a dynamic environment. According to Barney, (RBV) holds that an organization or a company can survive in a competitive environment by developing resources that are out of the ordinary, of great worth and are also unique.

Barney (1991) grouped organizational resources into three categories. Organizational human resource which covers the people who work in an organization and also the department that is in charge of the employees' matters in an organization. There is an also organizational capital resource which constitutes of a firm's finances. Lastly there is the organizational physical resource which covers the assets in an organization. They could range from: a building, raw materials, plant equipment and physical technology. The notation is if a firm can have a competitive edge if the above mentioned resources are well utilized. Academic libraries are non - profit making organizations. However, they are striving to remain relevant to the new generation of users in the 21st century. Resource Based Theory guided the study in understanding how academic libraries can use ICT as a resource to enhance their performance.

Olabode (2016) carried out a study on impact of electronic resources use on academic performance of undergraduates in Nigeria. The study was conducted through the survey method. Data was via questionnaires and thereafter collected and analyzed using Statistical Package for Social Science (SPSS) and presented in tables and figures. From the data collected, Olabode came to a conclusion that use of electronic resources positively impacted the academic performance of students. Olabode's research sought to discover how e - resources influenced academic performance of students while the current study focused on assessing the impact of e - resources on library performance.

Ntaka (2017) studied the use of social media sites by university library staff to facilitate undergraduate students. The researcher looked at Facebook as the aspect of social network and sought to find out the relationship between Facebook and how it is used by library staff to facilitate undergraduate students. In her study, qualitative research design was applied and data collected via interviews. This study concluded that library staff was satisfied with use of Facebook as an informational and communication tool to cover user information needs. This study focused on Facebook alone as the social network used by library staff to facilitate library users. Social media covers a wider scope. There are other platforms like twitter which are very popular. The current study looked into Facebook and other

social media platforms and how they affect library performance. The current study employed questionnaires as a way of collecting data as compared to this study where interviews were done to collect data.

Omeluzor (2020) carried out a study with the aim of assessing how Integrated Library System was used in academic libraries amongst universities in Nigeria. He focused on the adoption, performance, achievements and shortcomings of the ILS. The research design employed in this study was descriptive survey design. Omeluzor collected data using questionnaires. From the data analyzed it was determined that uptake of ILS in the various libraries was high. Omeluzor concluded that much had been achieved in the libraries as a result of using ILS. He concluded that libraries were now effectively and efficiently delivering their services to their users aided by the use of ILS. This study focused on determining the adoption rate and how ILS performed in libraries across Nigerian Universities. The current study assessed how performance of libraries within Nairobi city - county was influenced by ILS.

Kalbande (2016) investigated networking and resource sharing in the agricultural college libraries in Maharashtra with an aim to identify the attitude of librarians towards library networking and resource sharing. In his study he used survey as the research method. Data was analyzed using SPSS software as well as other statistical tools. Kalbande concluded that there was a positive attitude towards resource sharing within agricultural colleges' libraries in Maharashtra. He further concluded that resource sharing among these colleges helped the users get adequate information by accessing variety information materials as access was not limited to a user's specific library. This study focused on the librarian attitude towards library networking and resource sharing while the current study aimed at determining the effects of resource sharing on performance of libraries.

3. Methodology

The study took on a descriptive research design in order to achieve the objectives. The research embraced cross sectional descriptive structure. Colorafi and Evan (2016) stated that descriptive research design focused on accurately describing a situation by answering the what, where, when and how questions therefore enabling a subject not to be influenced in any way. This design saw to it that data collected was vital in scrutinizing events thus giving relevant conclusions and recommendations.

For this study, the target population was library staff from both Post Modern Library and Jomo Kenyatta Memorial Library. Purposeful simple random sampling was adopted for this study. This sampling designprovided for the researcher to select certain staff from the library but who of the library staff picked is completely random hence avoiding biasness. Purposeful simple random sampling was effective as it focused on Library professional staffs that are in charge of providing various services in the library. Data was collected using semi - structured questionnaires.

4. Findings and Discussions

Data analysis was done so as to draw out useful information from data collected during the research, restructure it to make it more viable for decision making. It is from the analyzed data that the researcher came up with conclusions and recommendations about the study. For this study, descriptive analysis revolving around frequency distributions, percentages, means and standard deviations was used to analyze the responses which hence provided for inferential analysis. Multiple regression model was used to express library performance as a function of ICT integration as shown below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:
Y = Library Performance
X_1 = E - resources
X_2 = Social Network
X_3 = Information Management System
X_4 = Networking
$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression Coefficients
ε = Error term

Descriptive Results
To determine how the two libraries were performing when ICT was integrated in their functions, the respondents were asked to indicate how strongly they agreed or disagreed with the following statements concerning the performance of the libraries on a Likert scale. The findings were as sown below:

Table 1: ICT Integration and Performance

Statements on Performance	Mean	Std. Dev
The library has a well - organized and updated collection that meets the user information needs	4.45	0.86
Library makes the information easily accessible from the library or remotely	4.67	0.77
Information is stored in different formats that are user friendly	4.46	0.7
The library is accessible to users all the time	4.36	1.01
The library creates awareness of new collections, events to their users	4.4	0.99
The library offers access to a vast collection covering different subjects	4.52	0.79

Source: field data 2021

There was a significant agreement that libraries had a well - organized and up to date collection that met the user information needs as indicated by mean of 4.45. They further indicated that the libraries had stored information in various formats that were user friendly and that this information was easily accessible from either the library or remotely as indicated by mean of 4.46, 4.67 respectively. There was a significant agreement on the library being available always making information readily available for the users as illustrated by a mean of 4.36. Respondents further agreed that the libraries provided a vast collection covering different subjects to the users and that the library through current awareness informed their users about new materials or events taking place within the library as illustrated by a mean of 4.52 and 4.40 respectively. The aggregate mean was 4.49. This indicated that the respondents agreed that the performance of the library was high given the integration of ICT in their functionality.

These results were in line with those of Ayodele (2015) that integration of ICT into library functions has enhanced information access and improved how libraries offer services to their users.

Regression Analysis

Model Summary
Multiple regression was adopted to establish the level of influence ICT integration variables had on the performance of the library. The findings are indicated in the sub sections below:

Table 2: Model Summary

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.899[a]	.808	.775	.30021

Source: field data, 2021

From the outcome above, it has been indicated that the independent variables in this case networking, information management system, E - resources and social network influenced library performance (dependent) variable by 77.5% which is represented by an R square value of 0.775. This concluded that among the changes that occurred in the performance of the Post Modern Library and Jomo Kenyatta Memorial Library, 77.5% were brought about by the integration of ICT. This is in line with Ayodele (2015) who indicated that for the academic libraries to meet the user needs of the 21st century, they will have to integrate ICT in their functions.

ANOVA Results
ANOVA findings for regression model were suitable for use and performance was statistically significant as illustrated in the table below:

Table 3: ANOVA

ANOVA[a]						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18.740	4	4.685	23.243	.000[b]
	Residual	12.073	62	.195		
	Total	30.813	66			
Source: field data.2021						

From table 3 above, the independent variables (networking, information management system, E - resources and social networks) were statistically significant over library performance which was the dependent variable based on the p value which was at =0.000, a lower value than the set mark of 0.05. This was supported by Kongetal (2015) who stated that a p value that was less than 0.05 was statistically significant. This further revealed this model was effectively outlined making the influence of the independent variable not a coincidence.

5. Conclusions

The study concluded that the performance of both Post Modern Library (Kenyatta University) and Jomo Kenyatta memorial Library (University of Nairobi) greatly improved.

The library was able to provide for the users adequate and current information. The library staff was able to manage their collection and with the help of information management system, they could be able to tell the information gaps in their collection. With ICT integration the users were able to access the information they required as fast as possible and they could actually access the information remotely.

6. Recommendations

For the library to be able to perform well, it should be in a position to meet the 21st century users' needs. The researcher hence recommends for the library to integrate ICT to their functions so as to fulfill the users information needs which revolve around having an adequate up to date collection and access needs which involve users accessing information in the quickest way possible and remotely. The researcher advocated for libraries to endorse resource sharing more as this would be one way to enable that users are able to access a wide scope of information in an easy and quick manner.

References

[1] Arif, M. & Mahmood, K. (2010). The changing roles of librarians in the digital world: adoption of web 2.0 technologies in Pakistani libraries. World library and information congress: 76th IFLA general conference and assembly, Gothenburg, Sweden, 10 - 15 August 2010.

[2] Arora, J. (2009). "Information and Communication Technology in Academic Libraries" Bridging the Digital Divide.

[3] Chiraz Karamti (2016) Measuring the Impact of ICTs on Academic Performance: Evidence from Higher Education in Tunisia, Journal of Research on Technology in Education, 48: 4, 322 - 33

[4] Creswell, J. W. (2013). Qualitative Inquiry & Research Design: Choosing among five approaches, 3rd ed, Sage Publications Inc.

[5] Keralapura, M. (2009). "Technology and customer expectation in academic libraries: a special reference to technical/management libraries in Karnataka" The International Information and Library Review, 41 (3), 184 - 195