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Use of E-Books by Undergraduate Students in Public Universities in Kenya

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INTRODUCTION

The management of e-books by public university libraries in Kenya has a similar pattern as most subscribe to INASP through the Kenya Library and Information Services Consortium (KLISC). Individual university libraries can also procure e-books outside the confines of the consortium. E-resources have been acquired by university libraries through the Kenya Library and Information Services Consortium since 2003 (INASP/KLISC 2011).

This study was undertaken to find out how e-books are accessed and used by undergraduate students with the ultimate aim of enhancing their use. This study covered undergraduate students in their third year of study from diverse programs in four public universities namely: Egerton University, Jomo Kenyatta University of Science and Technology, Moi University and University of Nairobi. E-books have been viewed as a convenient solution to information access challenges especially for undergraduate students owing to the fact that these can be used on a virtual environment with most being accessible to multiple users at the same time, any time of the day, requiring minimum storage space, and are popular for the independent users.

STATEMENT OF THE PROBLEM

Despite the foregoing advantages, research has shown that e-books are highly underutilized especially by the undergraduate students (Gakibayo et al. 2013; Kwadzo 2015; Omeluzor et al. 2016). Hence this research was concerned by the low use of e-books to-date. Low use may be partly attributed to the fact that e-books are a recent invention and are yet to be as commonplace as print books and the fact that undergraduate students are novices who needed assistance in identifying relevant resources. The undergraduate students' expertise and ability to discern, gauge, dissect, understand, distinguish and select competently the resources they should use is at its formative stages. Their mastery on evaluation of respective academic information to use is quite low hence they need for support and guidance in the selection of the basic information resources.

The study endeavoured to find the relationships between variables that contribute to access and use of e-books by undergraduate students by allowing them, as the majority of university library users, to audit the relevance, accessibility, sufficiency and convenience of e-books availed to

them as well as to identify the factors that influence their use of e-books. Knowledge on the factors that influenced use or non-use of e-books by undergraduate students is important for librarians as this would inform on future management of e-books for this category of users.

OBJECTIVES

The main objective of the study was to establish the factors that affect the use and non-use of e-books by undergraduate students.

RESEARCH QUESTIONS

The above objective was answered through the research question on ‘What factors influence the use of e-books in the library?’

ASSUMPTIONS

The assumptions of the study were that:

1. Undergraduate students have a preference for e-books in comparison to print arising from the observed obsession with ICT gadgets. It was assumed that redesigned management of e-book information systems would draw high use.
2. Awareness programs alone are not sufficient to spur and sustain use of e-books by undergraduate students. This assumption was based on the fact that ongoing awareness programs had not led to use of e-books in adequate levels.
3. Access channels to e-books by undergraduate students are cumbersome and therefore not appropriate. This assumption was derived from the fact that each database is accessed using a different approach. This demands a different training for each database which was confusing. Complex navigation channels affect the popularity of e-books in comparison to other alternatives such as use of search engines.

LITERATURE REVIEW

The literature reviewed was in the context of other studies on the use of e-books by undergraduate students from different parts of the world. Factors that positively influence use of e-books by undergraduate students include the ability of users to easily adopt use; motivation from the lecturers, ease of use; and relevance (Bennett 2006; Shimray & Ramaiah 2015). Any

kind of barrier to access was viewed to be costly in terms of limiting utilization by undergraduate students (Cowan, 2012). Availability and accessibility of information and situational factors such as lack of time can affect the choice of information resources. The ease of use and speed of electronic search engines, time saving probability; type of learning tasks; teaching and learning styles; motivation to learn and personality type; access and convenience were identified as major determinants in the choice of information resources by undergraduate students (Connaway et al. 2011).

Possession of an e-book reading device such as tablets influenced the level of use of e-books. Kahn and Underwood (2016) observed in a research done in four universities in West Cape in South Africa that users with personal devices were more interested in accessing e-resources than those who did not. They observed that as reading devices became more widespread and as their functionality improved, the attitudes of those using them became more positive thereby motivating the use of e-books.

Myrberg's (2017) opinion was that e-books could be unpopular because of small screen sizes in case of smart phones and recommended that they should be read on a screen that can display enough content and still have a font size that is large enough to be legible. Preferred devices should be hand held and not too small. She was of the view that so long as the text sizes and presentation of e-books were same as those of print formats there should be no significant differences in readership. She also observed that many users admitted to getting distracted to other platforms when they read e-books.

Gakibayo et al (2013) observed that the lack of computer skills and information literacy, low self-confidence, insufficient computers and slow internet connectivity obstructed the effective use of e-resources in Mbarara University in Uganda. They observed that access was not necessarily the problem but that careful utilization of the resources was the problem as the users did not always understand which information resources were appropriate for their needs. Weisberg (2011) (as cited by Kahn & Underwood, 2016) observed that as reading devices became more mainstream and as their functionality improved, the attitudes of those using them was likely to become more positive.

Allison (2013) observed that undergraduate students were good at filtering information but not skilled at evaluating the quality of information. Their skills for analysing were underdeveloped and they were likely to take in information without questioning its source. Their searches were biased to favourite sites or in selecting the first listed citation among search results.

In studies done in Dhaka University in Bangladesh and in University of Venda, South Africa undergraduate students were found to have difficulties in accessing information they required. They were characterized by low information skills and high deficiency in identifying diverse information sources and in some cases they had negative attitudes towards e-resources (Ferdows & Ahmed 2015; Tlakula & Fombad 2017).

Factors such as students' temperaments, preferred learning styles and pressure for information may influence information seeking behaviour. Lack of confidence about knowing how to begin a search; and lack of knowledge about how to navigate library resources accompanied by feelings of inadequacy; and fear of asking for assistance were major hurdles faced by many university students (Mellon 1986). Mizrachi (2013) suggests that policies and decisions based on the stereotype of the undergraduate students as digital natives missed 'important aspects of student information behaviours and preferences and thus create barriers to their learning potentials'.

Service quality directly translates to an equal measure of use. It was observed that there was a decrease in the number of times undergraduate students visited the library when it failed to provide information resources requested for (Salubi et al. 2018). Difficulties experienced in identifying relevant databases to meet their information needs contribute to non-use of library e-books by undergraduate students (Omeluzor et al. 2016). Undergraduate students have been observed to use resources that required minimal access effort (Olajide & Adiop 2017). Speed and reliability, convenience and ease of use are considered key factors in undergraduate students' resource selection. How quickly students believed they could find information determined where they looked for it. If they could not obtain the information promptly, they were less likely to continue using that particular system (Joo & Choi 2015).

Leonard (2017) observed that although students had a preference for e-books in the University of Namibia, utilization was hindered by lack of relevant e-books, lack of skills, slow internet, lack of integration of e-books into the curriculum, and difficulties in discovering e-books. According to Kahn and Underwood (2016), undergraduate students were found to be less inclined to use e-books probably because they were not being recommended by the faculty. Where the faculty was aware and placed them in their reading lists there was better awareness and use. The experience of Universities in South Africa between 2010 and 2012 was that the use of e-books rose from 24% to 70% because they were being more exposed and also because the library was stocking more of them.

METHODOLOGY

This study used mixed methods research. This involves combining different research approaches in order to better understand a particular research problem (Creswell 2014). Mixed methods are used to complement each other where more detail can be obtained by enhancing clarity of findings through balancing out the weaknesses of individual data collection methods. Mixed methods may also be used to corroborate the research findings through triangulation of data collected from more than one method which can be used to help verify or authenticate research findings leading to greater accuracy in understanding (David & Sutton 2011). Both the numbers and the factors that determine use were important in this study. The research attempted to understand the prevailing situation and the complexities involved by establishing existing facts through both quantitative and qualitative research approaches.

All respondents were drawn from four public university libraries purposively sampled. The study population were all registered undergraduates in Public Universities in Kenya who formed the main study population. Supportive data was also derived from lecturers in public universities and librarians in circulation services and library resources centres. Undergraduates were narrowed down to third years through the use of purposive sampling. Third years were singled out in this research as they were perceived to be the most representative category of undergraduate students in terms of understanding and experience in the use of e-books due to their length of stay and stage in the undergraduate calendar. These were further narrowed down to 300 obtained on convenience sampling. According to Crano et al. (2015), the absolute numbers in the sampling

size were not important so long as the sample was large enough. The survey questionnaire was distributed to 75 undergraduates from each of the four sampled universities; there was one focus group discussion in each of the four universities selected. Each group had 8 to 10 participants. These were drawn from different programs to ensure that data collected was inclusive. Also sampled were three librarians in circulation services and resource centres and five randomly selected lecturers from each of the four universities. These were identified on convenience and ease of availability for the personal interviews.

Data collection was done sequentially from one university to the other in concurrent phases of the four data collection tools in each of the four sampled universities. Data was then analysed sequentially while the discussions and interpretations were triangulated. Quantitative data formed the first part of the analysis and presentation on which other findings were integrated. Survey questionnaires were analysed using the Statistical Package for Social Sciences (SPSS). Focus group recordings and responses from lecturers and librarians were followed through by transcribing the responses qualitatively by emerging themes after every focus group discussion and interview.

FINDINGS

The undergraduate student survey respondents were grouped in five age groups as shown in Table 1.

**Table 1:
Undergraduate Students Age Profiles**

Age Bracket	Nos.	Percent %
20-24	196	92.0
25-29	13	6.1
30-34	1	.5
35-39	3	1.4
40 and above	0	0
Total	213	100

Majority of students surveyed were aged 20 to 24 years and comprised 92%. Students aged 25 to 29 who were 6% of the total survey undergraduate student respondents while those in 30-34 and 35 – 39 were 1% and 3% respectively.

Students were asked how frequently they used e-books in the survey. Their responses are as shown in Table 2.

Table 2:
Frequency of use of e-books

Measure	Nos.	%	Cumulative Nos.	Cumulative %
Daily	45	21.1	45	21.1
Once a week	78	36.6	123	57.7
Once a month	34	16.0	157	73.7
Once a semester	33	15.5	190	89.2
Never	23	10.8	213	100
Total	213	100		

A cumulative 57.7% (123) reported to use e-books ‘daily’ and at least ‘once a week’. The combination of those who used e-books ‘daily’ and ‘once a week’ was considered by the researcher to be indicative of frequent use.

Factors that Influence Use of E-Books

In establishing the factors that affected the undergraduate students use or non-use of library e-books, answers were sought from all respondents. Undergraduate students, lecturers and librarians gave their experiences and perspectives in this regard. This objective was answered through the research question *what factors influence the use and non-use of library e-books by undergraduate students?* This had four measures which included the: level of skillfulness in access to e-books; driving factors to the use of e-books; characteristics of e-books subscribed by the university and characteristics of other sites that gave them preference over the subscribed e-books.

(i) *Level of Skillfulness in Accessing E-books*

A cumulative of 84.5% undergraduate students considered themselves to have ‘moderate’ to ‘very high’ skills in accessing e-books as shown in Table 3.

Table 3:
Level of Skillfulness in Access of E- Books

Knowledge	Nos.	Percent	Cumulative Nos.	Cumulative %
Very High	17	8.0	17	8.0
Quite High	56	26.3	73	34.3
Moderate	107	50.2	180	84.5
Quite Low	17	8.0	197	92.5
Very Low	16	7.5	213	100
Total	213	100		

A majority of librarians considered the undergraduates to be skillful in the use of ICT gadgets and therefore in access to e-books as demonstrated through the enquiries they made on internet connectivity and in the interest they showed in getting connected online once registered. Undergraduates showed eagerness when access to e-resources was demonstrated to them as opposed to print. However, 5% of librarians observed that continuing undergraduates seemed to lack motivation to use e-books. There was lack of sufficient pressure to give them reason to use e-books as anticipated by the library. Librarians (5%) also observed that undergraduates normally were found unsure of how to identify e-resources and obviously without knowledge on how to access relevant e-books.

Lecturers were equally of the opinion that undergraduates were sufficiently skilled in the use of ICT gadgets and would therefore have no problem in accessing e-books. Some lecturers observed that the undergraduates were very competent in the use of electronic devices, but as opined by some others, not skilled in evaluating the different information resources as well as the information itself.

(ii) *Factors Driving the Use of E-Books by Undergraduate Students*

In the survey questionnaire undergraduates were asked to indicate on a Likert Scale what motivated their use of library e-books from four indicators namely: information literacy classes, self-motivation, peers and lecturers. Lecturers had the highest level of influence with 31% reporting *very high* influence. Information Literacy Programs had 30% reporting *very high* influence, while self-motivation had 25.4% and peers had 19.7% that reported *very high* influence. There was also an option to include other responses not listed among the four identified.

Focus group discussions revealed that they were influenced to use e-books by the fear of losing print books borrowed from the library. In trying to remain compliant, avoiding being penalized for late return or for losing books, some undergraduate students were found to opt for the use of e-books. The desire to do well in their assignments compelled them to access several e-resources for comparison. However, some in the focus group discussions felt that information contained in the e-books was not reliable.

Lecturers on the other hand were asked *where they advised their undergraduate students to access the references given in reading lists*. Several responses were given. Some lecturers referred students to e-books from specific sites which they considered to be most relevant, while others referred their students to their respective university web sites, while some provided references to specific blogs and online journals, others provided links to core e-texts, while yet others were only concerned in receiving well researched papers and for them it did not matter which resources were used but were open to references from any resource cited by the students.

(iii) *E-Book Qualities that Inspired Use and Non -Use*

In finding out what made the use of e-books conducive, 11 survey questions and four in focus group discussions were posed to the undergraduate students. Findings from the survey questionnaire are presented in Table 4 by ranking from the quality identified as having the highest influence to the lowest on an ordinal scale cumulating measures of ‘moderate’ to ‘very high’ influence.

Table 4:
Characteristics that Inspired Use of E-books

Measure	Percentage of Respondents
Convenience	69.4
Accessibility	67.6
Ease of Use	65.3
Relevance	64.7
Coverage	61.5
Format (eg PDF, html., doc)	59.7
Reliability and Credibility	59.6
Sufficiency	57.8
Accuracy	56.7
Inadequate print textbooks	52.1
Currency	49.2

Convenience was identified as having the highest impact in decision to use library e-books while currency had the least impact (49.2%). Accessibility, ease of use, relevance and coverage all had over 60% identifying them as most important factors in determining whether to use the e-books or not. Format, reliability and credibility, sufficiency, accuracy and inadequacy of print books were not rated highly. In focus group discussion discussions it was found that convenience was rated highly in use of e-books. Undergraduates valued the portability aspect of e-books which they could access and read from their smart phones from any locality provided there was internet connectivity.

Lecturers were asked to give their views on the existing e-books on whether they were sufficient, relevant, convenient and easy for use by undergraduate students. This was intended to find out whether their views had anything to do with the undergraduate students' tendencies towards use of e-books as well as supplement data given by undergraduate students as influencing their decisions to use e-books. Mixed responses were given as some lecturers reported to never using the resources while others had used them and found them relevant, good and appropriate for undergraduate students. Some lecturers who had used the resources were of the opinion that these were more helpful to themselves as lecturers while a few affirmed that the resources were

also useful to undergraduate students. However, most lecturers preferred to send relevant articles to their students to ensure that the students had what was required by their programs. Lecturers sometimes provided links to other online resources and e-textbooks even when well aware about library subscribed e-books. Lecturers observed that not all books in subscribed databases could be accessed full text as was desirable while others were not part of paid resources for use. Some lecturers held the view that the e-books were relevant but did not refer their students to them. Lecturers observed that even after referring students to the library resources it seemed that students were not keen on using them but preferred to access from other open access sites as these were perceived easier to access. The relevance of e-books to undergraduate students was not clear to the lecturers. Where there was relevance, inconvenience in terms of access was reported. One lecturer was of the view that the use of e-books is yet to be fully embraced by undergraduate students and that these are yet to be sufficiently rooted in their psyche. The lecturer was of the view that it was possible that undergraduate students had not well understood the use of e-books unlike print as they were not commonplace. For him, creating awareness should be the priority before dealing with issues of whether these were relevant, convenient, sufficient, or easy to use. This explained the low use of e-books and the preference of other sites as Shown in Table 5.

Table 5:
Characteristics Influencing Use of E-books From Other Sites

S/No.	Aspect	Percentage of Respondents
1	Convenience	73.7
2	Ease of Use	73.7
3	Accessibility	70.4
4	Relevance	66.2
5	Reliability and Credibility	63.9
6	Format	62.4
7	Accuracy	61
8	Sufficiency	59.7
9	Coverage	57.3
10	Currency	53
11	Inadequate print text books	48.8

Measures that were considered are the cumulative percentages of *very high* and *quite high* parameters of each attribute. Access to e-books from other sites was perceived to be more convenient, easy to use and accessible compared to e-books from the library as shown in Table 6.

Table 6:
Comparative Use of E-Books from Other Sites and Library Based

Frequency	Library %	Cumulative %	Other Sites %	Cumulative %
Daily	21.1	21.1	24.4	24.4
Once a week	36.6	57.7	45.1	69.5
Once a month	16.0	73.7	14.1	83.6
Once a semester	15.5	89.2	8.8	92.4
Never	10.8	100.0	7.6	100.0
Total	100.0		100.0	

Table 6 shows that whereas there were more undergraduate students that never used library e-books or used them once a semester compared to those that used other sites, there were slightly

more who used other sites more frequently (once a week and daily) than those that used library e-books.

DISCUSSION

While it was true that undergraduates were heavy users of the Internet, this had not translated to high use of e-books as a result of several contributing factors. These include level of skillfulness; layered forms of searching and access, and lack of awareness.

(i) Level of Skillfulness

From the literature review it was clear that the level of skillfulness in the use of ICT gadgets had an impact in the confidence levels in the use of e-books. There was some correlation between the level of skillfulness and the frequency of use. While there were a cumulative 57.7% who used e-books daily and once a week, those who considered themselves skilled in ICT access quite highly and very highly were cumulatively 42.3%. Undergraduates are able to use these gadgets in diverse ways and therefore the inability to use ICT gadgets to access e-books was not considered by this research as a widespread problem hindering effective use of e-resources despite the fact that some librarians raised it as a concern especially in online searching. The seamless flow and transition from one platform to another in use of e-resources was missing. Whereas there was technology adoption, its applicability in relation to the academic undertakings was missing. Lecturers and librarians observed that undergraduate students lacked skills on how to operate from one platform to another in search of relevant information resources and would therefore prefer seamless access operability functions. It was observed that undergraduate students will more often (99%) use search engines than go to the University website despite the training they received. Lecturers also observed that in Kenya most relevant titles were not available in e-format. To enrich the library e-collection lecturers recommended that the library should be well funded. Low use was also indicative of lack of allure such as was to be found in social media applications by which undergraduates were able to interact with without external promptings.

(ii) Factors that Inspired Use of E-books

Undergraduate students gave multiple responses on what motivated their use of e-books from four possibilities namely information literacy classes, self-motivation, peers and lecturers. Lecturers were reported to have the highest level of influence with 31% reporting *very high influence*. Findings identified lecturers as major drivers in the use of e-books. It was proposed that they be provided with sufficient capacity in order to give them *reason* to encourage undergraduates to use e-books in the library. Capacity maybe increased through awareness programs specifically targeting lecturers and creation of flexible e-book procurement processes that would allow for immediate purchase of an e-book required for teaching and learning. It was found that other parties in relation to undergraduate students needed awareness creation. Identified gaps needed to be filled such as by ensuring that reference groups were also aware of e-books and that e-books were appropriately packaged for undergraduate users. Deliberate measures are required to build and saturate the use of e-books among undergraduates to equal levels as print books. The use of e-books by undergraduates is likely to substantially improve where lecturers are involved. Very few lecturers referred their students to e-books in the library. Others were unaware of e-books from the university website that could be helpful to undergraduates.

Another motivation to use e-books was to avoid penalties that may be incurred through possible losses of print texts loaned by the library. Because of limited budgetary allocations print books were limited in numbers and currency. This led to a situation where it was a risk to get a book on loan as these could be easily lost.

(iii) Characteristics E-book that Influenced Use

Characteristics that endeared use as ranked from the one that was most important were convenience, accessibility, ease of use, relevance, coverage, format, reliability and credibility, sufficiency, accuracy, inadequate print books, and currency. Convenience, accessibility, ease of use, relevance and coverage had over 60% each reported to influence use of e-books. Any improvement should therefore ideally capitalize on these indicators.

The survey found that undergraduate students were quick to look for easier less demanding routes to identify and access information. These mainly used Wikipedia or Google, and several other sites identified through self-discovery or through their Lecturers. This put pressure on librarians not only in creating awareness but also to ensure that access to e-books was less demanding and easily understood.

The current packaging of the e-books was not popular with undergraduates and was found to be time intensive as was also found to be the case by Connaway *et al* (2011). Evaluation of resources for use was a challenge that undergraduates faced on a regular basis as was also observed by Currie *et al* (2010). Currie *et al* (2010) also observed that undergraduates preferred resources that were easy to find, easy to access, easy to understand, available when needed, up-to-date, and access to reputable publications and authors. The diversity and broadness of available information resources demands lots of time to wade through to identify a useable relevant e-book.

Survey results created an illusion that it would be possible to mitigate low use of e-books by creating more awareness. However, qualitative data collected through focus group discussions, interviews with lecturers and librarians suggested a need to relook at the entire management of e-books in university libraries in Kenya.

CONCLUSION

Undergraduate students were motivated in using e-books and other e-resources by their lecturers, peers, self-drive and librarians. E-resources were generally used as they were found to be convenient. E-books were, however, found not to possess the 'ease-of-use' quality which was important for the growth of use of e-books.

Inadequate infrastructure hindered the effective use of ICT in accessing and using e-books. It was found that internet connectivity was inconsistent in all universities visited. This inconvenienced electronic information resource users as access whenever and wherever required was not always assured. It was however observed that these were temporary inconveniences as access could be reached from different identifiable locations.

RECOMMENDATIONS

Awareness Creation for Reference Groups

It is recommended that awareness should be heightened to include lecturers. As a result of lack of awareness, lecturers referred the undergraduates to the Internet and online information resources.

Improved Accessibility

Relevance of e-books provided and ease of use needs to be improved if undergraduate students are to be convinced that these resources are better than those they access through search engines. This requires a seamless access to all information resources. It is recommended that access to e-books be consolidated to one platform in order to enhance ease of use as access through a single database is also more helpful. Librarians should capitalize on ensuring that e-books provided are accessible, convenient, and easy to use. This will enhance response to awareness creation by undergraduate students.

Lecturer Involvement

Undergraduates did not use e-books much. It is recommended that their motivation for use should stem from the lecturers who more frequently provided print references. It was observed by several librarians that undergraduates were unwilling to use references not given by their lecturers despite similar content. For the use of e-books or other information resources by undergraduates to be improved, there is need for faculty involvement in selection of relevant titles.

Procurement and Packaging of E-books

Package procurement of e-books was identified to be unfavorable to university libraries as most of the e-books were not relevant yet they had to be acquired with the 'package'. It was felt by several librarians that different options should be explored. It is recommended that packaging of e-books be made per program for ease of access. It was clear from the findings that awareness may fail to result to desired use unless certain adjustments were made in the packaging formats. This requires respective discipline oriented librarians to package e-books so that at the level of

evaluation of alternatives in the decision making stage, e-books in the library platform will meet the criteria for choice.

Library Staff Capacities

It is recommended that for effective continuous guidance and training for users, capacities for librarians need to be enhanced through diversified training to ensure that advice given is program specific. The university libraries are in need of librarians who are able to relate information resources to academic programs. Awareness of e-books should be enhanced not only for undergraduates, lecturers and other library users but also for all librarians and library staff. Staff should have adequate knowledge on all forms of e-resources. The curriculum for library schools should be inclined towards more content in digital information management and much less of the traditional print information processing.

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