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Challenges of Using Koha as a Library Management System among Libraries in Higher Education Institutions in Zambia

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ABSTRACT

This study investigated the challenges facing libraries in higher education institutions in Zambia in their use of Koha. The study was a descriptive survey involving 41 libraries from higher education institutions. Data was collected using a structured self-administered questionnaire. The findings revealed that the major challenge was the inability of librarians to effectively use all the modules in Koha because of a lack of skills. The modules that are mainly used are circulation and cataloguing modules. The other challenges identified were poor Internet connectivity, lack of technical support, and difficulties upgrading and backing up the Koha database.

Keywords: Koha; Library management system; Higher education institutions; Zambia

1. INTRODUCTION

Koha is the most widely used free and open-source library management system (FOSLMS) in Zambian higher education institutions (HEIs). Many libraries in HEIs use Koha because it is free and open-source. Mutula[1] observed that for many years, libraries in Sub-Saharan Africa remained the laggards as regards library automation because of budgetary constraints and the high cost of information and communication technologies (ICTs). For many years, library automation in Zambia had been limited to university libraries such as the University of Zambia and Copperbelt University libraries[2]. However, this changed in the late 1990s when the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) released a free library system called Computerised Documentation Services/Integrated Set of Information Systems (CDS/ISIS). Consequently, many libraries in Sub-Saharan African countries such as Zambia adopted CDS/ISIS[1].

Koha was developed in New Zealand by Horowhenua Library Trust because it became unsustainable for the trust members to pay for commercial software[5]. Katipo Communications Limited developed Koha for Horowhenua Library Trust in 1999. Later in 2000, Koha was released under General Public License (GPL). According to Kummar and Jasimudeen[6], Koha is the first full-fledged integrated library management system to be developed and conforms to cataloguing standards and ISO 2709 standard for information coding and exchange[7].

In many countries, libraries have adopted Koha. According to Small Business Software Reviews[3], Koha was widely used FOSLMS in 2018 and Adera[4] observed that Koha was widely used in Kenya with 67 per cent of libraries surveyed using it. Literature however shows some challenges in the adoption of Koha. Studies from Makori and Osebe[26], and Uzomba and Izuchukwu[20] have shown that libraries in Kenya and Nigeria that have adopted Koha experience some challenges which include lack of skills, knowledge, and competencies to effectively use Koha.

In Zambia, cooperating partners such as the Indian Technical and Economic Cooperation (ITEC) and the International Network for the Availability of Scientific Publications (INASP) have facilitated the adoption of Koha by providing Koha training to librarians in HEIs[7]. The Flemish Association for Development Cooperation and Technical Assistance (VVOB) also provided Koha training in all government colleges of education in Zambia[8].

2. STATEMENT OF THE PROBLEM

As already indicated, Koha is widely used by HEIs in Zambia. According to Bwalya, Akakandelwa, and Mwalimu [8], 41 (76 %) out of 54 libraries in higher education in Zambia were found to have automated their operations using Koha. Research has shown that the use of free and open-source library management systems is not devoid of challenges[9,20,22]. Therefore, this study sought to investigate the possible challenges of Koha adoption among libraries in HEIs in Zambia.

3. OBJECTIVES

The study sought to investigate the possible challenges of using Koha by HEIs in Zambia. In this regard, the specific objectives of the study were to: -

- Establish if libraries in HEIs faced challenges in their use of Koha,

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- Determine the nature of challenges libraries in HEIs faced in the use of Koha.

4. HYPOTHESES

The study also sought to test the following null hypotheses:

- Experiencing challenges in the use of Koha is not dependent upon respondents being trained in the use of Koha.
- Experiencing challenges in the use of Koha is not dependent upon respondents' qualifications.

5. LITERATURE REVIEW

5.1 Challenges of Using Koha

The use of FOSLMS such as Koha in libraries is not without challenges. A cocktail of challenges has been cited in many literature interrogating the viability and sustainability of the use of FOSLMS in libraries. According to research conducted by Adoma and Shana[9] in Uganda among 35 academic libraries that had adopted Koha, the majority (77 %) of the respondents cited the challenge of lack of technical support during and after the implementation of Koha. Similarly, Muruli and Kumar[10] observed that one of the problems associated with the adoption of FOSLMS in India was lack of technical support. Libraries had to make a plan regarding individuals or companies that would be providing technical support during and after the implementation of FOSLMS[11].

A study conducted by Omeluzor *et al*[12] on the use of Koha at Babcock University Library in Nigeria revealed that 64.7 per cent of the respondents indicated insufficient manpower as the major challenge they faced in the use of Koha. The other challenge cited in this study was the erratic power supply. Kumar and Jasimudeen[13] also observed that many libraries that did not have the local expertise to support open-source software, such as Koha, had to hire technical support for services such as installation, data migration, and maintenance software. This problem was compounded by the fact that Library and Information Science Schools' curricula in many countries did not have adequate ICT courses to equip librarians with skills and competencies needed to operate in the digital era[14 15]. Consequently, many libraries engaged third-party companies to maintain their Koha databases at a fee. For example, a Koha consulting firm in the United States of America (USA) charges a library with 15,000 items around USD 10,700 for Koha installation and an annual support fee of $2, 500[16].

Like other FOSLMS, Koha is not easy to install and configure. It requires a considerable amount of effort in installing and customizing it[18]. Further, Linux, SQL, HTML, and CSS skills are needed to install and customise Koha. Also, some FOSLMS lack user-friendly interfaces that affect productivity[19]. Studies have also shown that some libraries that have adopted Koha face problems to migrate the bibliographic records to it. For example, the staff at the University of Jos Library in Nigeria had problems migrating bibliographic records from the previous library system to Koha[20].

Research conducted by Chaputula and Kanyundo[21] on the use of Koha in library automation among higher education institutions in Malawi revealed that 81.3 per cent of the libraries had adopted Koha. Notable challenges included poor information and communication technology infrastructure, unreliable Internet connectivity, and limited finances. These findings were in line with the findings of Amando *et al*[22] who in their study in Nigeria identified poor Internet connectivity as a major challenge experienced by staff at University Jos Library in their use of Koha; Koha, which was installed on a cloud, was often not accessible due to unreliable Internet connectivity. In countries where Internet connectivity is still a challenge, it is difficult to use Koha if it is installed on a server or cloud as client computers have to connect to the Koha system through the internet[1].

5.2 Proposed Research Model

This study was guided by a model developed from Delone and Mclean's model of Information Systems Success and Al-Mamary, Shamsuddin, and Aziati Management Information Systems Adoption model. According to these two models, five variables determine the successful adoption of any information system; namely top management support, ender-user training, people's self-efficacy, system quality, and service quality as shows in Fig.1.

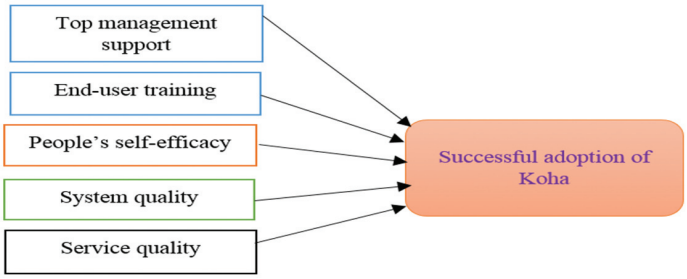

Figure 1. Model for the successful adoption of Koha.

Top management support refers to the extent to which management encourages, and allocates necessary resources for use of an information system while end-user training refers to the amount of training provided by computer specialists in the company, friends, consultants, or educational institutions external to the company[23]. It can therefore be argued that if there is no top management support and that there is inadequate or no end-user training of librarians in HEIs in Zambia, the adoption of Koha will be marred with many challenges.

Self-efficacy refers to an individual's belief that he or she has the skills and abilities to use computing technology to perform specific tasks. In this regard, if librarians in HEIs in Zambia have computer skills, Koha's adoption will be punctuated with less or no challenges.

System quality refers to the extent to which the system can deliver benefits using mediational relationships through the usage intentions and user satisfaction constructs. In this regard, a quality system should be easy-to-use, user-friendly, stable, secure, fast, and responsive[24]. It can therefore be argued that if Koha is not complex in its design and has a simple user interface; it will pose fewer or no challenges to librarians that have adopted it in HEIs in Zambia.

Service quality refers to the quality of technical support that system users receive from the technical support department[25]. The support ought to be prompt, responsive, and fair. In this

regard, if technical support about Koha is readily available to libraries that have adopted it, fewer or no challenges will be experienced by librarians in HEIs in Zambia.

6. RESEARCH DESIGN AND METHODOLOGY

The study adopted a descriptive survey design involving 41 HEIs in Zambia that had automated their libraries using Koha. In 2018, there were 41 HEIs in Zambia that was using Koha as a library management system[7]. A self-administered questionnaire was used to collect data. The questionnaire consisted of open and closed-ended questions and it was piloted among ten HEIs. Data were analysed using the Statistical Package for Social Science (SPSS) version 22 to generate descriptive statistics.

Table 1. Demographic characteristics of respondents

Variable	Value	Frequency	Percentage
Gender	Male	14	34
	Female	27	66
Age (yrs.)	25-34	12	29
	35-44	23	56
	45+	6	15
Qualification in LIS	Certificate	1	2
	Diploma	13	32
	Bachelor's	24	59
	Masters'	3	7

7. PRESENTATION OF RESEARCH FINDINGS

7.1 Characteristics of Respondents

The majority (66 %) of the respondents were females while 34 per cent were males. Further, the majority (56 %) of the respondents were aged 35-44 years (Table 1). In terms of academic qualifications, the majority (59 %) of the respondents had attained a Bachelor's Degree in Library and Information Science (LIS).

Many (64 %) of the respondents were drawn from universities and colleges of education; 24 per cent were from Technical Education, Vocational and Entrepreneurship Training (TEVET), and 12 per cent from Nursing schools). Further, the majority (57 %) of the respondents had been using Koha for at least three years.

7.2 Having Challenges Using Koha

Figure 2 shows that many (54 %) of respondents

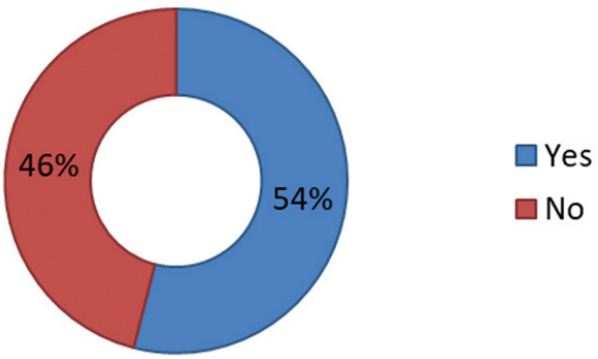

Figure 2. Having challenges using Koha.

Table 2. General challenges associated with the use of Koha

Common challenges associated with Koha	Agree (%)	Degree (%)	Total (%)
Libraries have difficulties using Koha because of a lack of trained personnel	74	26	100
It is difficult to get technical support	44	56	100
Koha can be easily discontinued	39	61	100
Koha does not have adequate documentation	31	69	100
Koha has high maintenance and hidden costs	20	80	100
It is difficult to migrate bibliographic data to Koha	19	81	100
Koha is not reliable and lacks a warranty	17	83	100
Koha is complex and user-unfriendly	12	88	100

experienced challenges in using Koha. On the other, 46 per cent reported not having any challenge.

7.3 Nature of Challenges Faced in Using Koha

In line with what was discovered in the literature review as regards the challenges of using Koha and other FOLMS, respondents were given eight statements with disagree and agree with responses to identify the challenges they were facing. Table 4 shows that the majority of the respondents disagreed with the seven listed challenges except for the first challenge; 74 per cent of the respondents agreed that libraries had difficulties using Koha because of the lack of trained personnel.

Respondents reported having challenges in effectively using Koha modules such as acquisitions, authorities, label printing, and serials management. However, they indicated not having challenges in using circulation, cataloguing, and reports generation modules.

Further, in an open-ended question, respondents were asked to indicate the major challenges they were facing using Koha. As summarised in Table 3, in their order of frequency, a considerable high number of respondents cited having problems using modules found in Koha as their major challenge.

Table 3. Challenges faced in using Koha

Nature of challenges faced in using Koha	Frequency	Percentage
Difficult using modules found in Koha	9	41.9
Network problems	4	18.1
Systems crashing and having difficulties recovering it	3	13.6
Lack of technical support	3	13.6
Difficult to back up the database	2	9.1
Difficult to upgrade the system	1	4.5
Total	22	100

Table 4. Association between having challenges using Koha, receiving training in Koha and LIS qualifications

		Have you ever had any challenges using Koha?		Total (%)
		Yes (%)	No (%)	
Did you receive any training on how to use Koha?	Yes	17 (41.5)	15 (36.5) (36.6)	32 (78)
	No	5 (12.1)	4 (9.8)	9 (22)
What is your LIS qualification?	Diploma/ certificate	6 (14.63)	8 (19.5)	14 (34.13)
	Degree/ Masters	16 (59)	11 (41)	27 (65.9)

7.4 Hypotheses Test Results

As pointed out earlier, the study also sought to test two null hypotheses: (i) Experiencing challenges in the use of Koha is not dependent upon respondents being trained in the use of Koha, and (ii) Experiencing challenges in the use of Koha is not dependent upon respondents' qualifications. Table 4 shows that more respondents (41.5 %) who received training reported having challenges using Koha. Further, more (59 %) Bachelors and Master's degree holders reported having challenges using Koha compared to their counterparts with a diploma and Certificate LIS qualifications (Table 4).

To test the above null hypotheses, Chi-square tests of independence (with Yates correction), at a significance level of 0.05 (5 %), were conducted. The results were not significant and null hypotheses were accepted in both cases. The results showed no significant association between receiving training in the use of Koha and not having challenges using Koha [X^2 (1, N = 41) = 0.0621, p = .803253]. Likewise, the results showed no significant association between LIS qualification and experiencing challenges using of Koha [X^2 (1, N = 41) = 0.4469, p = .5038].

8. DISCUSSION OF RESEARCH FINDINGS

The research findings have shown that the adoption of Koha in HEIs in Zambia is not without challenges. Many (54 %) respondents indicated having challenges using Koha. This contradicts the findings in Table 2; in which 88 per cent of respondents disagreed with the statement that Koha was complex and not user-friendly. If Koha was not complex and difficult to use, many librarians could not have difficulties grasping how it works. Many respondents have difficulties using modules found in Koha (Table 3), particularly serial management and budgeting modules. As articulated in the proposed research model, the issue of having difficulties in using Koha can only arise if the library staff were not adequately trained on how to use the new system[23].

The issue of network problems emerged in the study as another major challenge to the adoption of Koha in HEIs in Zambia (Table 3). Both the Internet and Intranet were reported to be unreliable, thereby making it a problem for library staff and users in accessing Koha installed on servers. These findings are in line with earlier findings at the University of Jos Library in Nigeria in which librarians had difficulties to access Koha installed on the Cloud due to poor Internet connectivity[12,21]. As Mutula[1] observed, Sub-Saharan Africa still has Internet connectivity challenges. Despite Zambia having many Internet Service Providers (ISPs), the quality of service provided is still poor; it is not reliable. This challenge is particularly being experienced by some of the HEIs in Zambia that has several campuses and installed Koha on servers at the Centre (main campuses) and the branch libraries are connected to the Centre through Internet. This implies that in case of Internet failure, the branch libraries do not have access to Koha.

Other respondents indicated having problems in upgrading and backing up the Koha database because they lacked technical skills (Table 3). As observed in previous studies, many libraries do not have staff with technical skills to administer FOSLMS such as Koha[9]. In Zambia, many librarians do not have Linux skills because Library Science curricula are devoid of modules in Linux. As a result, many HEIs have failed to upgrade their Koha installations in many years; they are still using the old versions installed as far back as 2011. Further, failure by librarians not to learn how to back up Koha has resulted in some libraries in HEIs losing their vital records when the system crushes. The findings in Table 3 show some respondents having difficulties seeking technical support when they encountered problems with Koha. These findings are similar to findings on the adoption of Koha among academic libraries in Uganda and India[9] and[10] in which lack of technical support was cited as one of the challenges of using Koha. However, technical support for Koha can be obtained from the Koha forum and web documents and videos on Koha. Although there are a few local Koha technical experts, they offer their services on a consultancy basis at a fee.

The findings in Table 4 showed no relationship between receiving training in Koha, LIS qualifications of respondents; and experiencing challenges using Koha. These findings imply that

- The training courses/workshops being offered by various organisations on the use of Koha is not adequate
- Training being offered in the library and information science schools in HEIs in Zambia is equally not adequate.

Consequently, even if librarians have received training and have a degree or better qualifications in LIS, they still struggle using Koha. Having challenges using Koha could be because Koha like any other FOSLMS is complex and not user-friendly as observed in the literature review[18-19].

9. CONCLUSIONS

It can be concluded that many libraries in HEIs in Zambia face challenges using Koha. These challenges include difficulties using some modules due to the complexity of Koha. Other challenges observed are lack of technical support, unreliable Internet connectivity, and problems in upgrading and backing up the Koha database. It has also been established that there is no relationship between receiving training in Koha, LIS qualification of respondents, and having challenges using Koha.

Given these findings, the following recommendations were proposed:

- Management of HEIs and Library and Information Association of Zambia (LIAZ) should conduct regular short training programmes on Koha to build capacity among librarians.
- Management of HEIs should strive to provide reliable Internet service to ensure continuous access to Koha installed at the centre by branch libraries.
- Library and Information Science Schools in Zambia should revise their curricula to include adequate training modules on Koha.

REFERENCES

1. Mutula, S.M. Library automation in Sub-Saharan Africa: A case study of the University of Botswana. *Emerald Insight,* 2012, **46**(3), 292-307. doi.org/10.1108/00330331211244832.
2. Khoma, N.B. A Critical analysis of library computerisation at the Copperbelt University Library. *Afr. J. Libr., Arch. Inf. Sci.*, 2003, **13**(2), 133-153. https://www.ajol.info//index.php/ajlais/article/view/26136/0 (Accessed on 14 March 2019).
3. Small business software reviews services, insight, and resources. Best free and open source library management software, 2019. https://cloudsmallbusinessservice.com/blog/best-free-and-open-source-library-management-software.html (Accessed on 12 March 2020).
4. Amollo, B. Feasibility of adaptation of open source ILS for libraries in Kenya: An evaluation. *Emerald Insight,* 2013, **31**(5), 608 – 634. doi: 10.1108/EL-12-2011-0171.
5. Umahi, B.O. Use of Koha open source software and library automation in university libraries in South-South, Nigeria. *Int. J. Sci. Res. Educ.,* 2018, **11**(6), 1118-29. http://www.ijsre.com. (Accessed 30 January 2020).
6. Bwalya, T. The use of free and open-source library management systems (FOSLMS) in Higher Education Institutions (HEIs) in Zambia: Adoption footprints, opportunities, and challenges. Unpublished (thesis report), 2020.
7. MESVTEE & VVOB. Teacher training support programme 2008-2013: Our Stories of Change, 2013. http://www.vvob.org.zm (Accessed on 10 January 2020).
8. Bwalya, T.; Akakandelwa, A. & Mwalimu, C.M. The adoption footprints of koha as a library management system. The International Conference in ICT (ICICT2019), 2019. https://scholar.google.com/citations? (Accessed on 20 April 2020).
9. Adoma, P. & Shana, P. Open source: Transforming Information Access in Libraries. IFLA WLIC IT Section Satellite Meeting: Open source: Transforming Information Access in Libraries, 2015. http://conferences.sun.ac.zm. (Accessed on 12 December 2019).
10. Murali & Kumar, G.T. Attitude of NewGenLib software users towards the adoption of open source integrated library system in India. *Int. J. Digital Libr. Serv. (IJODLS)*, 2014, **4**(4) 112-125. http://www.ijodls.in/uploads/3/6/0/3/3603729/11.pdf. (Accessed on 26 December 2019).
11. Kumar, V.V. & Jasimudeen, S. Adoption and user perceptions of Koha library management system in India. *Annals. Libr. Inf. Stud.*, 2012, **59**, 223-230. http://nopr.niscair.res.in/handle/123456789/15700. (Accessed on 20 May 2015).
12. Munyoro, P. Library and information science education and training in Zimbabwe and the paradigm shift in the information industry, 2014. http://researchspace.ukzn.ac.za/xmlui/bitstream/handle/10413/12149/Munyoro_Pedzisai_2014.pdf;jsessionid=466386ECA92E9A0CAD19F5668801E394?sequence=1 (Accessed on 18 November 2019).
13. Seena, S.T. & Pillai, S.K.G. A study of ICT skills among library professionals in the Kerala University Library System. *Annals. Libr. Inf. Stud.*, 2014, **16** (14) 132-141. https://www.researchgate.net/publication/290567545_A_study_of_ICT_skills_among_library_professionals_in_the_Kerala_University_Library_System (Accessed on 19 February 2010).
14. Wightman,T.Opensource.com, 2013. https://opensource.com/business/13/12/using-open-source-software (Accessed on 2 April 2020).
15. Nibusinessinfo.co.uk. Open source business software: Disadvantages of open source software, 2018. https://www.nibusinessinfo.co.uk/content/disadvantages-open-source-software. (Accessed on 2 April 2020).
16. Riewe, L.M. Survey of open source integrated library systems, 2008. https://scholarworks.sjsu.edu (Accessed on 13 June 2019).
17. Marshall breeding. Library systems report 2016, 2016. https://www.zambianlibrarian.com/. (Accessed on 2 April 2020)
18. Bwalya, T. Sad news, Kuali OLE is defunct. *Zambian Librarian*, 2019. https://www.zambianlibrarian.com/post/sad-news-kuali-ole-is-defunct. (Accessed on 2 April 2020).
19. Bwalya, T. The future of OpenBiblio revealed by the founder and developer (Hans van der Weij). *Zambian Librarian*, 2019. https://www.zambianlibrarian.com/. (Accessed on 2 April 2020).
20. Uzomba, E.C.; Oluwatofunmi, J.O. & Izuchukwu, A.C. The use and application of open source integrated library system in academic libraries in Nigeria: Koha Example. *Lincoln Libr. Philos. Pract. (e-journal),* 2015, **15**, 1-33. https://digitalcommons.unl.ed. (Accessed on 23 June 2019).
21. Amando, A.A.; Martyns, E.G.; Sule N.B. & Danjuma, D.N. Challenges of full implementation of the Koha at the University of Jos Library. *Int. J. Acad. Libr. Inf. Sci.*, 2018, **6**(4) 122-126. http://www.academicresearchjournals.org (Accessed on 5 February 2020).
22. Chaputula, A. & Kanyundo, A. Use of Koha-integrated library system by higher education institutions in Malawi. *Digital Libr. Perspect.,* 2019, **35**(3/4), 117-141. doi: 10.1108/DLP-07-2019-0028.
23. Omeluzor, S.U.; Adara, O.; Bamidele, A.I. & Umahi, F.O.

Implementation of Koha integrated library management Software (ILMS): The Babcock University Experience. *Canadian Soc. Sci.,* 2012, **8**(4).
doi: 10.3968/j.css.1923669720120804.1860

24. Al-Mamary, Y. H.; Shamsuddin, S.A. & Aziati, N.A. Factors affecting successful adoption of management information systems in organisations towards enhancing organisational performance, 2014. https://www.researchgate.net/publication/275041351_Factors_Affecting_Successful_Adoption_of_Management_Information_Systems_in_Organizations_towards_Enhancing_Organizational_Performance. (Accessed on 3 April 2020).
25. DeLone, W. & McLean, E.R. Measuring e-Commerce success: Applying the DeLone and McLean information systems success model. *Int. J. Electron. Commer.*, 2004, **9**, 31-47. https://www.jstor.org/stable/27751130?seq=1#metadata_info_tab_contents. (Accessed on 16 January 2020).
26. Makori, O.E. & Osebe, M.N. Koha enterprise resource planning system and its potential impact on information management organizations. *Libr. Hi. Tech. News,* 2016, **33**(4), 17-23.
doi: 10.1108/LHTN-01-2016-0005.

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His contribution to this paper include data analysis, interpretation and proof-reading the paper.