ASSESSING USER SATISFACTION OF KOHA IN THE PRIVATE UNIVERSITY LIBRARIES OF BANGLADESH

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Abstract

This study assessed the user satisfaction of library automation software (Koha) in private university libraries of Bangladesh. The survey conducted among three hundred seventy-two library users from thirteen private university libraries by a structured questionnaire which was adapted cautiously as per local arrangements after conducting a pilot survey. User category computed the users' responses for satisfaction through independent samples t-test. The Bartlett's test of sphericity and Cronbach's alpha measured the reliability of each multiple-items scale. Besides, item loading, commonalities, and KMO measured the validity. The overall satisfaction (3.64) ensured favorable appreciation by the users, and their level of satisfaction was reasonably very well. The students' satisfaction level (3.58) was significantly less (p < .006) than the teachers (3.83) in the private university libraries of Bangladesh. An attempt has been taken for the first time to assess the user satisfaction of library automation software (Koha) in the private university libraries of Bangladesh that will prompt further research on different aspects of Koha.

Keywords

Koha, OSILS, Integrated library system, Open source software, User satisfaction, Private university Libraries, Bangladesh

Introduction

An Integrated Library System (ILS) is also known as "Library Management System" (LMS) that is an "Enterprise Resource Planning" (ERP) system for a library (Alam, 2017). An ILS has all library functions under one system. The acquisition,

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cataloging, circulation, serials control, Online Public Access Catalog (OPAC), reporting, Inter-Library Loans (ILL), and patron management modules might be included in an ideal ILS (Ahammad, 2014; Khatun 2015; Silvestre *et al.,* 2010). An ILS has two "Graphical User Interfaces" (GUIs), i.e., one for patrons, another for staff. It usually includes two relational databases which are the bibliographic database and patron database. All database, functional modules, and user interfaces are integrated with each other by a unified interface (Alam, 2018).

There are no fundamental differences between the features and functions of proprietary, freeware, and open source ILSs, but significant difference are visible in the development process and distribution (Kumar and Abraham, 2009). An OSILS is free application software for library automation in which source code is available under "GNU General Public License" (GPL). The copyright holder of OSILS provides the right to "study, change, and distribute the software to anyone for any purpose". Koha is the first, mature, sustainable and most used Open Source Integrated Library System (OSILS) (Muller, 2011). The adoption and use of Koha OSILS in libraries are gaining momentum over the world including Bangladesh (Alam, 2016; Kumar and Jasimudeen, 2012).

User satisfaction is the most important indicator for assessing the effectiveness of any system or service (Mezbah-Ul-Islam, 2003; Alemna, 1999). There are two viewpoints regarding the evaluation of user satisfaction. One is indirect method or objective where user satisfaction is studied without taking users opinions as valid indicators, and another is the subjective or user-oriented approach that refers to the measures based on user opinions or attitudes related to the quality of a system (Mezbah-Ul-Islam, 2003; Stecher, 1975). Based on the available literature, it can be concluded that very few efforts have been made to assess the user satisfaction of Koha in the private university libraries of Bangladesh. Therefore, an attempt has been made in this study to assess the user satisfaction for evaluating the effectiveness of Koha in the private university libraries of Bangladesh.

Literature Review

Since the liberation of Bangladesh in 1971, the librarians have taken an active interest to bring their libraries up to the global standards. Initially, the icddr,b library used the UNESCO-supported software CDS/ISIS in the 1980s (Shuva, 2012). In 1998, DU Library installed the GLAS software (Rahman, 2010). BRACU Library installed Koha OSILS in 2010 (Afroz, 2014). At present, thirteen private university

libraries, seven public university libraries, three institution libraries, and two college libraries are using Koha in Bangladesh (Koha-community, 2018). As per the official website of SLiMSBD (SLiMSBD Community, 2018) three institutional libraries and one college library are using SliMS. However, no university library in Bangladesh is using SLiMS at this moment.

Koha, Evergreen, NewGenLib, PMB, and SLiMS are popular OSILS around the world (Alam, 2018; Muller, 2011). Among them, Koha is considered the most mature and sustainable OSILS (Muller, 2011). Besides, Koha is the first and full-featured OSILS, most widely used worldwide by the public, academic and special libraries. The latest version of Koha is 18.05.02 released in July 2018 (Koha-community, 2018). Koha is a web-based ILS, with a SQL database (MySQL preferred) backend with cataloging data stored in MARC and accessible via Z39.50 or SRU. The programming language is Perl and Linux is the preferred operating system. The source code and documentation are available online under the GNU General Public License. The user interface is configurable and adaptable and has been translated into many languages. Koha has most of the features that would be expected in an ILS, including acquisition, cataloging, circulation, serials control, union catalog, CMS, OPAC, budget, reporting, inter-library loans, patron management, auto email notification, renewal facility, overdue-fine control and various web 2.0 facilities. The supporting communities of Koha do not charge for the software, but do charge for consulting, programming, file migration, training, technical support, and the hosting services they provided (DeCandido and Boss, 2008; Kiriyanant, 2012; Koha-community, 2017; Müller, 2011; Sunil and Harinarayana, 2013).

Based on the available literature in Bangladesh, an insufficient number of studies have been carried out describing the practical experience of implementation of Koha (Ahammad, 2014; Zico, 2009), challenges and remedies for adoption of OSILS (Alam, 2017), a proposal for implementation of Koha OSILS (2014), providing a customized version of Koha (Morshed, 2008), usability of Koha interface (Khatun, 2015), and current trends of library automation (Haque, 2014). However, much importance has not been given on assessing the user satisfaction of OSILS in Bangladesh. Many authors have agreed that measuring user satisfaction is the most useful and easiest way to evaluate the success of information systems. Therefore, an effort has been made for the first time to assess the user satisfaction of Koha in the private university libraries of Bangladesh that will contribute to filling the research gaps regarding the implementation of OSILS in Bangladesh.

Research Objectives

At present, Koha is the predominant library automation system used in the private university libraries of Bangladesh and thirteen private university libraries were found to be using this software. Whether the users of the private university libraries are satisfied with Koha is a pertinent question which needs to be analyzed. Very few efforts have been made to study the effectiveness of Koha in the private university libraries of Bangladesh from the users' point of view. Accordingly, the objective of this study is to assess the user satisfaction on Koha in the private university libraries of Bangladesh.

Research Hypothesis

A question is raised here that is there any significant difference in satisfaction levels between students and teachers of private universities regarding their Koha. Based on the objective and raised question, the study has formulated a hypothesis as ***the satisfaction levels between students and teachers towards Koha in the private university libraries of Bangladesh differ significantly.***

Methodology

Research Design

The questionnaire was designed for collecting primary data from library users to measure the user satisfaction level on Koha. The variables regarding fifteen statements on user satisfaction were taken from the available related literature. Then the variables were adapted as per local arrangement consulting with professional experts. After conducting a pilot survey, a questionnaire-based sample survey was done through a structured questionnaire to achieve the research objectives and test the hypothesis. Descriptive statistics measured the overall user satisfaction. Besides, user category computed the users' responses for satisfaction through independent samples t-test. The Bartlett's test and Cronbach's Alpha assessed the reliability and several methods, i.e., item loading, commonalities, and KMO values measured the validity of this study.

Data Collection Instrument

The questionnaire included demographic information on library users and fifteen statements for measuring users' satisfaction level. A five-point satisfaction scale was made containing 5 = Highly Satisfied, 4 = Very Satisfied, 3 = Satisfied, 2 = Less

Satisfied, and 1 = Not Satisfied for assessing satisfaction level of library users towards Koha.

Population and Sample

There are 45 public, 103 private and 3 international universities in Bangladesh (UGC, 2019). For this study, thirteen universities were selected from private universities whose libraries use Koha. The population of this study included teachers and students from the thirteen selected universities. Staff members and part-time faculty members were not included in the survey as they comprise a small proportion of the library users. Probability sampling is possible where all the units of the total populations are known, and each of them has an equal chance to be selected (Saunders, Lewis, & Thornhill, 2016). Probability sampling is almost unfeasible here being the huge population size from thirteen private universities for conducting the survey. Purposive sampling is a non-probability sampling technique (Black, 2010; Saunders et al., 2016). The study took the purposive sampling method for collecting data from existing Koha users and making this study more convenient.

Data Collection Procedure

The textual and conceptual information relating to this study has been collected from both primary and secondary information sources. The researcher visited the chosen private university libraries and delivered the questionnaire to the students and teachers inside the library. Total three hundred ninety-eight (81.9%) questionnaires have been returned out of four hundred eighty-six and found that three hundred seventy-two (76.5%) questionnaires completely filled up by the library users. Among the respondents who completely filled up the questionnaires, two hundred ninety-one (78.2%) used the Koha, sixty-two respondents (16.7%) did not use Koha, and nineteen respondents (5.1%) were not aware of their existing Integrated Library System developed by Koha. So, two hundred ninety-one questionnaires (59.9%) were considered for data analysis. For secondary data, different types of publications, i.e., journals, research reports, theses, documentation, user manuals of Koha, etc. have been consulted to gather data and evidence regarding the research.

Pilot Survey

A pilot survey was done before finalizing the questionnaires among 38 library users from two private university libraries of Bangladesh which are EU Library, and DIU Library. The pilot survey helped to reshape the technical and technological terms that have been used in Bangladeshi context. Some statements of users' satisfaction were

deducted after conducting reliability and validity statistics. Finally, fifteen statements of user satisfaction were selected for the study.

Statistical Methods

The study used the 22 version of SPSS to calculate the descriptive statistics for overall user satisfaction on koha, Independent samples t-test for Hypothesis test, Bartlett's test of sphericity and Cronbach's Alpha for testing reliability, and Item loading, KMO value, and commonalities for testing the validity of this study.

Reliability

Nunnally recommended (1978) that the values of Cronbach's Alpha should be 0.7 or higher. The reliability of each multiple-item scale was measured by the Cronbach's Alpha and found that the internal consistency of all satisfaction statements has alpha value = 0.834 and fifteen statements of users' satisfaction has alpha value = 0.902 suggested the availability of good reliability of overall questionnaire elements. Schierholz and Laukkanen (2007) recommended that sphericity values should be less than 0.05. The Bartlett's test (Schierholz and Laukkanen, 2007) was also done and found that the test has p-value = 0.001 for 15 statements of user satisfaction suggested that the internal consistency among the extracted variables is appropriate.

Validity

Kaiser put the following Kaiser-Meyer-Olkin (KMO) values "0.90 to 1.00 marvelous; 0.80 to 0.89 meritorious; 0.70 to 0.79 middling; 0.60 to 0.69 mediocre; 0.50 to 0.59 miserable; and 0.00 to 0.49 unacceptable" (Kaiser, 1974). The overall KMO value matrix is 0.898 for 15 user satisfaction statements on Koha, which means that the sample size (291) is statistically significant for the exploratory factor analysis and there is no problem with the data. The items loading of the extracted from variables were shown to be between 0.535 and 0.752 for fifteen user satisfaction statements suggested that all variables represent the satisfaction scale successfully. Nadiri (1970) recommended that "all commonalities of a perfectly sufficient sample above 0.5 are acceptable". The commonalities of the variables extracted between 0.542 and 0.807 for 11 user satisfaction statements out of 15 recommended that the variance in most of the user satisfaction statements is within a suitable range.

Data Analysis and Findings

Demographic Information of Library Users

Table 1 shows that among the 291 respondents, the most significant number of the respondents were from East West University (34, 11.7 percent), followed by Eastern University (31, 10.7 percent), University of Liberal Arts Bangladesh (28, 9.6 percent), International Islamic University Chittagong (25, 8.6 percent), Green University Bangladesh (23, 7.9 percent), Daffodil International University (22, 7.6 percent), United International University (22, 7.6 percent), Northern University Bangladesh (21, 7.2 percent), Premier University (20, 6.9 percent) Independent University Bangladesh (18, 6.2 percent) Southeast University (17, 5.8 percent), Chittagong Independent University (16, 5.5 percent) and BRAC University (14, 4.8 percent). Among the respondents, 119 (40.9 percent) were female and 172 (59.1 percent) were male. Based on the user category, 221 (75.9 percent) were students, and 70 (24.1 percent) were teachers. The more significant proportion of the respondents were undergraduate students (196, 67.4 percent), followed by postgraduate students (25, 8.6 percent), Assistant Professor (25, 8.6 percent), Lecturer (19, 6.5 percent), Senior Lecturer (18, 6.2 percent), Associate Professor (8, 2.7 percent), and Professor (4, 1.4 percent). The demographic information of the respondents indicated that a broad cross-section of the population responded.

Table 1: Demographic Information of Respondents

Variable	Classification	Frequency	Percent	Valid Percent
University	East West University	34	11.7	11.7
	Eastern University	31	10.7	10.7
	University of Liberal Arts Bangladesh	28	9.6	9.6
	International Islamic University Chittagong	25	8.6	8.6
	Green University Bangladesh	23	7.9	7.9
	Daffodil International University	22	7.6	7.6
	United International University	22	7.6	7.6
	Northern University Bangladesh	21	7.2	7.2
	Premier University	20	6.9	6.9
	Independent University Bangladesh	18	6.2	6.2

Variable	Classification	Frequency	Percent	Valid Percent
	Southeast University	17	5.8	5.8
	Chittagong Independent University	16	5.5	5.5
	BRAC University	14	4.8	4.8
Gender	Female	119	40.9	40.9
	Male	172	59.1	59.1
User Category	Student	221	75.9	75.9
	Teacher	70	24.1	24.1
Status	Undergraduate Student	196	67.4	67.4
	Postgraduate Student	25	8.6	8.6
	Assistant Professor	21	7.2	7.2
	Lecturer	19	6.5	6.5
	Senior Lecturer	18	6.2	6.2
	Associate Professor	8	2.7	2.7
	Professor	4	1.4	1.4

Use of Koha Software

This survey shows that the highest number of the respondents, 255 (87.6 percent) borrowed books through Koha, while the lowest number of the respondents, 45 (15.5 percent) got SMS notification about borrowed books. The second highest number of the respondents, 227 (78 percent) used OPAC, followed by 198 respondents (68 percent) got email notification about borrowed books from the library, 178 respondents (61.2 percent) used Koha catalog outside of the campus, 152 respondents (52.2 percent) used self-renewal facility of borrowed books through Koha, 139 respondents (47.8 percent) searched Koha catalog through Smartphone, 99 respondents (34 percent) reserved book through Koha user interface, and 83 respondents (28.5 percent) submitted purchase suggestion of book through Koha. The study also revealed that overall 52.54 percent respondents used all the services and facilities provided by the Koha software, where 41.16 percent respondents did not use the services and 6.3 percent respondents were not aware of the services (table 2).

Table 2: Use of Koha Software

SL	Services	Yes		No		Don't Know	
		N	%	N	%	N	%
1.	Borrow books through Koha	255	87.6	31	10.7	5	1.7
2.	Use Online Public Access Catalog of Koha	227	78	49	16.8	15	5.2
3.	Get email notification about borrowed books from Koha	198	68.0	81	27.8	12	4.1
4.	Use Koha catalog outside of the campus	178	61.2	102	35.1	11	3.8
5.	Use self-renewal facility of borrowed books through Koha	152	52.2	114	39.2	25	8.6
6.	Use Koha catalog through Smartphone	139	47.8	143	49.1	9	3.1
7.	Reserve book through Koha user interface	99	34.0	166	57.0	26	8.9
8.	Submit purchase suggestion of book through Koha	83	28.5	163	56.0	45	15.5
9.	Get SMS notification about borrowed books from Koha	45	15.5	229	78.7	17	5.8
	Overall		**52.54**		**41.16**		**6.3**

Overall Perceived Services by Library Users regarding Koha

Table 3 shows that the overall user satisfaction mean was 3.64 on a five-point scale. Among the fifteen statements of the user satisfaction, *round-the-clock* access facility to the library catalog occupied the highest satisfaction mean of 3.93, followed by book check-out (issue) system scored 3.89, book check-in (return) system scored 3.84, the automation software (Koha) works timely scored 3.83, Online Public Access Catalog (OPAC) scored 3.73, user login facility scored 3.68, usages statistics facility through user interface scored 3.66, advanced search facility of the library catalog scored 3.65, auto email alert service scored 3.60, both user interface of the library catalog, and online catalog & user interface can be accessed from Smartphone scored 3.56, self-renewal service scored 3.44, both reservation of book through library catalog and receipt printing facility for users' confirmation regarding

circulation service scored 3.41. On the other hand, the service statement of making purchase suggestion through user interface of Koha formed the lowest satisfaction mean of 3.38.

Table 3: Descriptive Statistics of Perceived Services

ID	Statement	Mean	SD	Item Loading	Communalities
1.	Access facility to Koha catalog is available *round-the-clock*.	3.93	.996	.726	.647
2.	Book check-out (issue) system of Koha is user-friendly	3.89	.978	.713	.807
3.	Book check-in (return) system of Koha is excellent	3.84	.977	.694	.775
4.	The Koha software works timely	3.83	.973	.688	.642
5.	Online Public Access Catalog (OPAC) of Koha is easy to understand and navigate	3.73	1.029	.720	.575
6.	User login facility of Koha user interface is attractive	3.68	.945	.667	.462
7.	Users can check her/his library usages statistics through Koha user interface easily	3.66	1.027	.734	.610
8.	Advanced search of Koha catalog is exciting	3.65	1.000	.752	.576
9.	Auto email alert service of Koha is interesting	3.60	1.168	.625	.413
10.	The user interface of Koha is impressive	3.56	.917	.712	.615
11.	Online catalog & user interface of Koha can be accessed simply from Smartphone	3.56	1.079	.585	.542
12.	Self-renewal service of Koha is easy to use	3.44	1.111	.536	.645
13.	Reservation of book through Koha catalog saves time	3.41	1.108	.535	.723
14.	Receipt printing service of Koha for issue and return of books is exciting	3.41	1.172	.572	.438
15.	It is easy to make purchase suggestion	3.38	1.122	.620	.480

ID	Statement	Mean	SD	Item Loading	Communalities
	through the Koha user interface				
	Overall	**3.64**	**.676**	**.995**	**.996**

Hypothesis Test through Independent Samples T-test

The satisfaction levels between students and teachers towards Koha in the private university libraries of Bangladesh differ significantly. The category of user computed the library users' responses for satisfaction level towards Koha through independent samples t-test. This study showed that the overall satisfaction level of Koha software in the Bangladeshi private university libraries was a significant difference ($p < .006$) between the students and teachers indicated that the students (Mean=3.58) were significantly less satisfied than the teachers (Mean=3.83) towards Koha software. Besides, the satisfaction levels between the students and teachers of private university libraries had significant difference among eight satisfaction statements out of fifteen which were online public access catalog of the library ($p < .001$), user interface of the library catalog ($p < .002$), self-renewal facility ($P < .048$), auto email alert service ($p < .004$), online purchase suggestion ($p < .010$), *round-the-clock* access facility to OPAC ($p < .001$), the automation software (Koha) works timely ($p < .037$), and advanced search of the library catalog ($Pp < .011$). However, the satisfaction levels of book check-out system of the library ($p > .125$), book check-in system of the library ($p > .258$), reservation of book through library catalog ($p > .151$), user login facility to the user interface ($p > .239$), online catalog & user interface can be accessed from Smartphone ($p > .206$), receipt printing service for issue and return of books ($p > .156$), and usages statistics through user interface of Koha ($p > .428$) were not significant difference between the students and teachers in the private university libraries of Bangladesh (table 4).

Table 4: Result of Independent Samples t Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Overall Mean	Equal variances assumed	4.417	.036	2.752	289	.006	.25245	.09173	.07191	.43299
	Equal variances not assumed			3.071	141.666	.003	.25245	.08221	.08993	.41497

Discussion

User satisfaction is the most important for evaluating the efficiency of any system or service. This study conducted among 291 library users of thirteen private university libraries of Bangladesh to evaluate the efficacy of the Koha. The demographic information of the sample indicated that a broad cross-section of the population responded. The study assessed the overall and individual differences in satisfaction level of users towards Koha through descriptive statistics and independent samples t-test. The Bartlett's Test recommended that there an appropriate internal consistency of the data (.001) in the survey. The Cronbach's Alpha (.902) suggested that the overall questionnaire items are well reliable. The overall KMO value matrix is 0.898 for 15 user satisfaction statements on OSILS, meaning that 291 samples are appropriate for the exploratory factor analysis and there is no problem with normal data. The item loading of the extracted variables was shown to be between 0.535 and

0.752 for 15 user satisfaction statements recommended that all the variables successfully represent the user satisfaction scale. The commonalities of the variables extracted ranged from 0.542 to 0.807 for 11 user satisfaction statements out of 15 suggested that the variance in most of the user satisfaction statements is within a suitable range. All user satisfaction statements have attained both ends of opinion levels of the respondents as maximum five and minimum one suggested that all users were not equally satisfied with the services provided by the Koha OSILS.

The findings of the study showed that *round-the-clock* access facility to the library catalog, book check-out, and book check-in systems attained the exclusive recognition of the users. On the other hand, online purchase suggestion, receipt printing facility, and book reservation system formed the least perceived mean of fulfilling the need. The library users were satisfied with the services of Koha, and the level of satisfaction was reasonably very well. The study also identified that overall fifty-two percent services and facilities of Koha was used by the users where overall forty-eight percent functional modules of Koha was not used. Even, the respondents were not aware of more than six percent services provided by the Kaha software.

The satisfaction levels between students and teachers towards Koha in the private university libraries of Bangladesh differ significantly. A hypothesis was formulated earlier to assess is there any significant difference in satisfaction levels between students and teachers towards Koha in Bangladeshi private university libraries. For testing the hypothesis, an independent samples t-test has been done with the fifteen variables regarding user satisfaction of Koha. The results showed that the satisfaction level of library users towards Koha was a significant difference between the students and teachers in the private university libraries of Bangladesh recommended that the students were significantly less satisfied with the services provided by Koha in the private university libraries of Bangladesh. Besides, the satisfaction levels between the students and teachers of private university libraries had significant difference among eight satisfaction statements out of fifteen which were OPAC, user interface, self-renewal facility, auto email alert service, purchase suggestion through user interface, *round-the-clock* access facility to OPAC, Koha software works timely and advanced search facility of the library catalog. However, the satisfaction levels of book check-out system, book check-in system, reservation of book through user interface, user login facility, the accessibility of OPAC & user interface through Smartphone, receipt printing service, and usages statistics facility were not the significant difference between the students and teachers.

Conclusion

The study assessed the user satisfaction of Koha in private university libraries of Bangladesh. A structured questionnaire was administered carefully in accordance with local arrangements after conducting a pilot survey. Then the final survey was conducted among three hundred seventy-two library users to collect quantitative data from thirteen private university libraries using the structured questionnaire. Among the respondents, two hundred ninety-one were considered for data analysis who used the existing integrated library system developed by Koha. User category computed the users' responses for satisfaction through independent samples t-test. The Bartlett's test and Cronbach's Alpha measured the reliability of every multiple-items scale, indicating the internal consistency of the user satisfaction statements was good enough. Besides, three methods, i.e., item loading, commonalities, and KMO support the validity of the study.

This study showed that *round-the-clock* access facility to OPAC, book check-out, and book check-in systems attained the exclusive recognition of the users, while online purchase suggestion, receipt printing facility, and book reservation system formed the least perceived mean of fulfilling the need. However, overall forty-eight percent of users did not use the services and facilities of Koha, even more than six percent of users were not aware of the services of Koha. The overall satisfaction of library users towards Koha software ensured favorable appreciation, and their level of satisfaction was reasonably very well. So, Koha is efficiently performing in the Bangladeshi private university libraries. The satisfaction level of library users towards Koha was a significant difference between the students and teachers in the Bangladeshi private university libraries indicated that the students were significantly less satisfied with the services provided by Koha.

The findings have several significant implications for both practice and future research on Koha. It will help to build consciousness among library professionals and users regarding Koha. Moreover, an effort has been made for the first time to assess the satisfaction of library automation software (Koha) in private university libraries of Bangladesh that will prompt future study on the continuous evaluation of the effectiveness of the existing Koha. The study will also inspire further research on how much difference among user satisfaction levels of open source, freeware, and proprietary ILSs. As overall forty-eight percent of respondents did not use the services of Koha, even more than six percent of respondents were not aware of the services; an initiative should be taken by the concerned authority to orient the existing services and facilities of koha to the users.

References

Afroz, H. (2014). Digital library initiatives at BRAC University: Successes and challenges. INASP Publications. https://www.inasp.info/sites/default/files/2018-04/digital_library_initiatives_at_brac_university.pdf (accessed 13.02.19)

Ahammad, N. (2014). Implementing the koha integrated library system at the Independent University, Bangladesh: A practical experience. The Electronic Library. 32, 642–658. https://doi.org/10.1108/EL-04-2012-0036

Alam, M.J. (2018). Assessing adoption and satisfaction of open source integrated library system in the university libraries of Bangladesh (MPhil Thesis). Bangladesh University of Professionals, Dhaka.

Alam, M.J. (2017). Challenges and remedies for adoption of open source ntegrated library system in the university libraries of Bangladesh. International Journal of Ethics in Social Sciences, 5(2), 6-30.

Alam, M.J., Mezbah-ul-Islam, M. (2019). Factors for adoption of OSILS in university libraries of Bangladesh. IFLA Journal, 45(2), 127-139. https://doi.org/10.1177/0340035219833706

Alam, M.J., Shah, M.A.H. (2019). Effectiveness of open source integrated library systems in university libraries of Bangladesh. Proceedings of 2nd LIS Academy National Conference on Innovation in Libraries published by LIS Academy, Bangalore, India, 116-137.

Alemna, A.A. (1999). Library evaluation: some options for academic libraries. Aslib Proc. 51, 243–246. https://doi.org/10.1108/EUM0000000006983

Black, K. (2010). Business statistics: for contemporary decision making, 6th ed. Wiley, Hoboken, NJ.

Breeding, M. (2017). Perceptions 2016: an international survey of library automation. Library Technology Guide.

Chouhan, L.B. (2010). Open source software (OSS) for library management-A study. National Institute of Science Communication and Information Resources (NISCAIR).

DeCandido, G.A., Boss, R. (2008). PLA TechNotes.

Eyler, P. (2003). Koha: a gift to libraries from New Zealand | Linux Journal [WWW Document]. https://www.linuxjournal.com/article/6350 (accessed 11.17.18).

Haque, F. (2014). Current trends of library automation in Bangladesh: A study of some selected academic libraries and special libraries (Masters Thesis). University of Dhaka, Bangladesh.

Kaiser, H.F. (1974). An index of factorial simplicity. Psychometrika 39, 31–36. https://doi.org/10.1007/BF02291575

Khatun, A. (2014). Open source integrated library system and usability issues: A study of Koha interfaces (MPhil Thesis). University of Dhaka, Bangladesh.

Khatun, A., Ahmed, S.M.Z., 2018. Usability testing for an open-source integrated library system: A task-based study of the koha OPAC interface. The Electronic Library, 36, 487–503. https://doi.org/10.1108/EL-03-2017-0049

Kiriyanant, P. (2012). Survey of open source integrated library system in Thai university libraries in Bangkok and Pathumthani. The Center for Southeast Asian Studies Library, Kyoto University, Kyoto.

Koha | BibLibre. (2011). https://web.archive.org/web/20111109220830/http://drupal.biblibre.com/en/product/koha (accessed 11.17.18).

Koha-community (2018). Official website of koha library software [WWW Document]. https://koha-community.org/ (accessed 10.25.18).

Kumar, V.V., Abraham, T. (2009). Eight things you should know about open source integrated library systems.

Kumar, V.V., Jasimudeen, S. (2012). Adoption and user perceptions of koha library management system in India. Annals of Library and Information Studies, 59(4), 223–230.

Mezbah-Ul-Islam, M. (2003). Measuring effectiveness of university libraries: case study of Bangladesh (Unpublished PhD thesis). North-Eastern Hill University, Shillon, India.

Morshed, M. (2008). Open source library management system. BRAC University, Dhaka.

Muller, T. (2011). How to choose a free and open source integrated library system. OCLC Systems & Services: International Digital Library Perspectives, 27(1), 57–78. https://doi.org/10.1108/10650751111106573

Nadiri, M. (1970). Diagnosing university students zone of tolerance from university library services. Malaysian Journal of Library and Information Science.

Noman, K.F. (2014). Automation of IIT library management system using Koha (Master Thesis). Jahangirnagar University, Dhaka.

Nunnally, J.C. (1978). Psychometric theory, 2nd ed. McGraw-Hill, New York.

Rahman, A.I.M.J. (2010). Attitude of library professionals towards information technology of university libraries of Bangladesh (Unpublished M.Phil thesis). University of Dhaka.

Saunders, M., Lewis, P., Thornhill, A. (2016). Research methods for business students, 7th ed. Pearson, Harlow.

Schierholz, R., Laukkanen, T. (2007). Internet vs mobile banking: comparing customer value perceptions. Business Process Management Journal, 788–797.

Shuva, N.Z. (2012). Building digital libraries in Bangladesh: A developing country perspective. The International Information & Library Review, 44(3), 132–146. https://doi.org/10.1016/j.iilr.2012.07.002.

Silvestre, J.J.R., da Cunha, L.A., Le Meur, J.Y., Šimko, T. (2010). An integrated library system on the CERN document server. Universidade de Évora.

Singh, V. (2013). Experiences of migrating to an open-source integrated library system. Information Technology Library Online 32, 36.

SLiMSBD Community (2018). Senayan library management system Bangladesh.

Stecher, G. (1975). Library evaluation: a brief survey of studies in quantification. Australian Academic and Research Libraries, 6(1), 1–19.

Sunil, M.V., Harinarayana, N.S. (2013). Open source library automation software: features and capabilities. LAP LAMBERT Academic Publishing, Saarbrücken.

The Koha Project | Athens County Public Libraries (2011). https://web.archive.org/web/20110810055802/http://www.myacpl.org/library/koha (accessed 11.17.18).

UGC (2018). University Grants Commission [WWW Document]. http://www.ugc.gov.bd/en/home/university/public/120 (accessed 10.11.18).

Wikipedia (2018). Integrated library system. Wikipedia. Retrieved from https://en.wikipedia.org/w/index.php?title=Integrated_library_system&oldid=804237694 (accessed 10.11.18)

Zico, M.Z. (2009). Developing integrated library system (ILS) using open source software Koha (Masters Thesis). BRAC University, Dhaka.