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Cataloguer Acceptance on Cataloguing Module in Open-Source Integrated Library System in Academic Library in Malaysia

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Abstract –This paper aims to identify the acceptance of cataloguers on cataloguing modules in the Open-Source Integrated Library System in an academic library in Malaysia. The research design adopted for this study is descriptive research surveys. This study involved cataloguers in the academic university library in Malaysia that have used Koha as their open-source software since 2013. The survey used an online questionnaire distributed via email to all cataloguers in the selected libraries. The questionnaire comprises questions related to acceptance of module features and module usability on the cataloguing module. The 5-point Likert scale is used to measure the cataloguer acceptance of the cataloguing module, and the data were analysed using SPSS. The findings conclude that the majority of the cataloguers in academic libraries in Malaysia use open-source integrated library system similar to this study, Koha, and have entirely accepted the use of cataloguing module in terms of usability and features as the majority of the data reported on agreement of the user compared to a minority of disagreement. The findings of this study will encourage other researchers to do other studies on the usability of other modules in the open-source system that might improve the acceptance of open-source software.

Keywords – open-source system, library, Koha, cataloguing, cataloguer, acceptance

Introduction

Proprietary software is a standard integrated library system used in the library. Usually, the library will purchase the software package through the vendor, and the vendor will provide them with packages that generally include modules, such as acquisition, cataloguing, circulation, and OPAC for the librarian to implement library services. Amando et al. (2018) and Kumar et al. (2014) also mentioned that a library system is an application used by the librarian using a computerised system where the librarian can record various transactions that will include loan and return transactions, record data for books and students, and more.

However, a few years back, the practices in the library started to change. Don Keast (2011) stated that since 2007, the library management system practices have changed significantly with the entrance of several open-source systems in the market. An open source system as defined by Pankaja and Mukund (2013), is "a computer software with its source code made available and licensed with an open-source license in which the copyright holder provides the rights to study, change, and distribute the software for free to anyone and for any purpose". In contrast, proprietary software is defined as "computer software licensed under the exclusive legal rights of the copyright holder in which the developer sells or provides his creation under some concrete conditions which should be followed in order to avoid any legal issues". With these significant differences in terms of price and flexibility in modifying the system, many libraries have changed and adopted open-source systems, such as Koha and Evergreen as they feel that the functionalities available in open source meet their needs (Vandana, 2014). Breeding (2009) also mentioned that open-source software is one of the alternatives to overcome the maintenance issues of a proprietary system.

Several libraries have adapted the Koha open-source system in Malaysia, which includes public universities, private universities, colleges, and public and special libraries. The adoption of the new system in these libraries is caused by budget constraints faced by public and private universities (Zainab, 2017). Therefore, the researcher needs to study this

system further as most libraries start to change to the new system. Hence, this study is an attempt at it, and it will focus on the acceptance of one of the modules in the system as "modules compose the basic architecture of these systems and represent some facet of library operations" (Breeding 2008).

Research Objectives

- 1) To identify cataloguer acceptance on features in the cataloguing module of an open-source system.
- 2) To study the usability of cataloguing modules in an open-source system among cataloguers.

Review of Literature **Open-Source Software**

Open-source software is an operating system that allows users to have full access to the software's source code, and generally, the software is free to use and modify. The software also has all functionalities as a proprietary library system, such as a module for acquisition, cataloguing, and OPAC (<http://opensource-ils.cci.utk.edu/>).

OSS provides an alternative, cheap and innovative technological solution to libraries. For this reason, OSS can be a great alternative to expensive proprietary library software.
(Kumar, 2012)

Open-source software is readily available and 'free of cost' and committed to user's freedom to use, customise as per the requirement of the library managers.
(Chattopadhyay and Mukhopadhyay, 2016)

OSS has stolen a march on proprietary software and gained the attention of LIS professionals, as it provides an alternative to proprietary software by removing the vendor licence cost and lock-in
(Kampa, 2018)

The benefit and flexibility of OSS compared to proprietary software has attracted the attention of Kumar (2012), Chattopadhyay and Mukhopadhyay (2016), and Kampa (2018) to do research on this software. Based on the recent publication year of those studies, it can be seen that this topic is still valid and justifiable to explore and analyse. Various studies have been done on OSS, and several of the studies have been developed on OSS and proprietary systems.

For example, Joseph and Namjoo (2013) have studied Evergreen and Koha (open source) with Sirsi-Dynix's Symphony and Ex Libris' Voyager (proprietary). Similarly, Macan et al. (2013) researched Koha and ABCD (ISIS family). Chattopadhyay and Mukhopadhyay (2016) have studied Koha Libsys. On the other hand, Singh (2016) has done his studies on Koha, NewGenLib (open source) and Virtua, Libsys (proprietary). Singh and Sanaman (2012) and Hanumappa et al. (2014) have done their studies on open-source software, which are Koha and NewGenLib

Thus, previous studies above have shown that the studies on OSS involve Evergreen, NewGenLib, and Koha, and most studies in the field of OSS focus on Koha.

“Koha, the first open-source integrated library system originated in New Zealand by Katipo Communications Ltd. and maintained by a team of volunteers from around the globe” (Amando et al., 2018). Meanwhile, “NewGenLib (New Generation Library) is an Integrated Library Automation and Networking Solution Developed by Verus Solutions Pvt Ltd and The Kesavan Institute of Information and Knowledge Management, India. On 9th January 2008, NewGenLib has been declared Open-Source Software under GNU GPL Licence by the Verus Solutions Pvt Ltd, Hyderabad, India” (Randhawa, 2008). Evergreen “Developed by Equinox Software, Evergreen is a robust, enterprise-level ILS solution developed to be capable of supporting the workload of large libraries in a fault-tolerant system” (Randhawa, 2008).

There are many reasons stated in the previous articles on why Koha is the most popular OSS. Most established libraries have adopted Koha in India due to its ability to read and access Indian languages (Kumar and Jasimudeen, 2012). Amzari (2015) also mentioned that most libraries adopt Koha in their integrated library system (ILS) because they can extend their capabilities in ILS as it is an open technology. Kumar and Jasimudeen (2012), Amando (2018), and Kampa (2018) stated that higher implementation of Koha in ILS is because it is free software with higher capabilities in a system similar to proprietary.

Cataloguing Module

The module is the most crucial part of the integrated library system as it will represent library operation (Breeding, 2008).

“cataloguing module enables librarians to create and import bibliographic records; perform holdings maintenance; edit an item's status, and manage copies and records in buckets”
(manual.koha-community).

Abdussalam and Saliu (2014) have done their studies on cataloguing and classification using Koha. In their study on the implementation of the OSS, they found that the major problem faced by the cataloguer in using Koha software is caused by incessant power failure. Other research by Joseph and Namjoo (2013), Chattopadhyay and Mukhopadhyay (2016), Rai and Kumar (2011), and Avery (2016) studied the functionalities of the module in terms of their compatibility with the system or developer. Much extensive research has been carried out on open-source systems, but no single study solely focuses on cataloguer and cataloguing modules, except it just becomes a small part of the research.

Open-Source Software In Library

There are many studies on open-source integrated library systems. For example, Omeluzor et al. (2016) study the adoption and use of integrated library systems (ILS) for library service

provision in academic libraries in Edo. At the same time, Macan et al. (2013) focus on the open-source system's effectiveness.

Singh and Sanaman (2012), Madhusudhan and Singh (2016), Yang and Hofmann (2010), and Joseph and Namjoo (2013), focus on comparative analysis of functionalities and features of both open-source and proprietary systems.

Abdussalam and Saliu (2014), Amzari et al. (2015), Avery (2016), Chattopadhyay and Mukhopadhyay (2016), Amando et al. (2018), and Ahammad (2014) have done their research focusing on analysis on the system and effect of the implementation of the system on their respective libraries. The analysis is different based on the survey, interview, researcher's experience in installing and converting the system or the case study.

Acceptance In Module Feature And Usability In OSS

Some usability research has been done in OSS, but the discussion is not specific to the cataloguing module. For example, the usability research found that searches can post as persistent links found by McDermott in 2012. Meanwhile, Walls (2011) and McDermott (2012) stated that the reporting module has no file size restrictions and allows for the creation of numerous SQL-based reports. On the other hand, ShafiUllah and Qutab (2012) found that some staff in the Pakistan library system were reluctant to use all of Koha's modules. Dennison (2011) mentions that pull-down menus for systems administration modules are easy to use. In 2011, in his research, Walls found that the catalogue module has difficulty importing OCLC bibliographic.

The recent papers published by Kumar and Jasimudeen (2012), Beatrice (2013), Singh (2014), Hanumappa et al. (2014), Omeluzor et al. (2016), and Kampa (2018) also discuss the view of librarians on OSS; however, it still touched on the usability, features of Koha or other OSS modules as a whole, do not specify on a specific module.

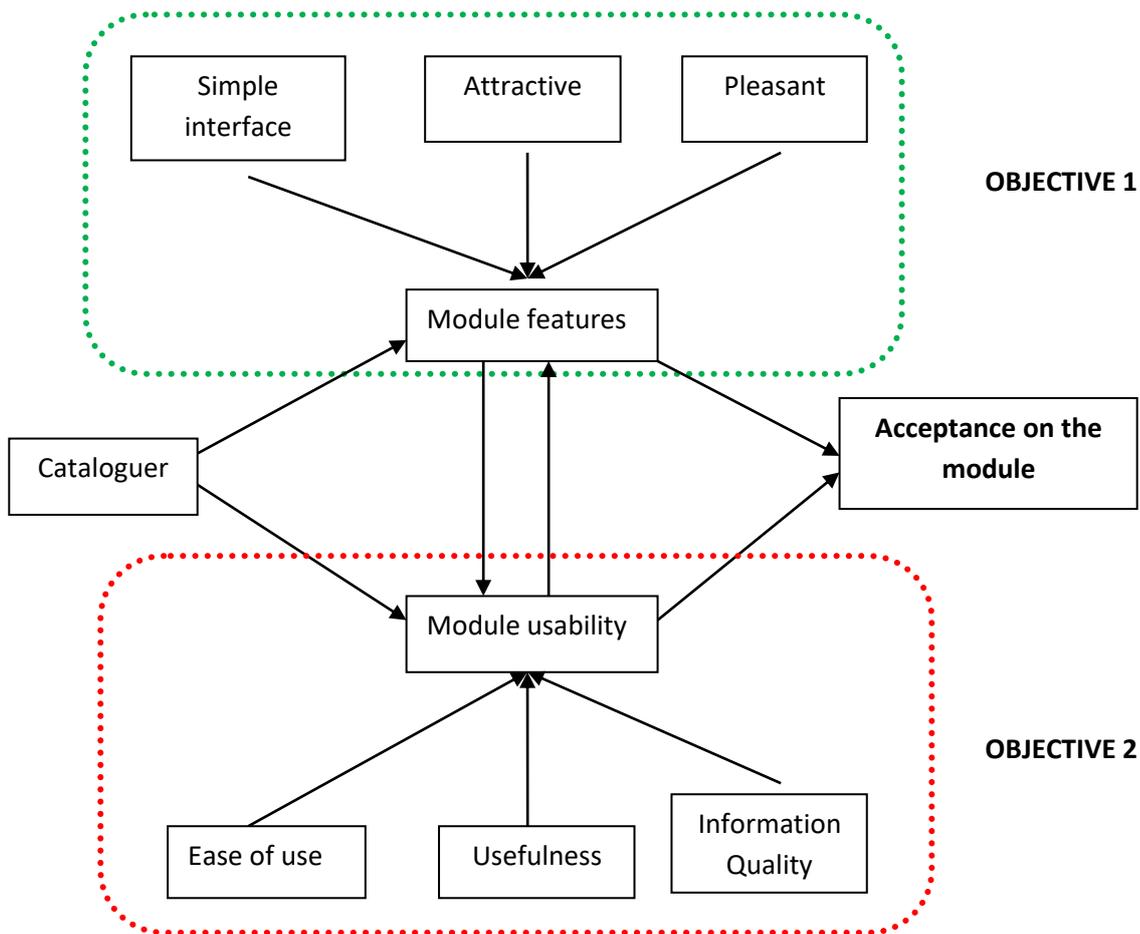
However, Ojedokun et al. (2016) have mentioned some points regarding the usability of the cataloguing module in part of their study. The study found that the workflow of the cataloguing module in OSS (Koha) is beneficial as it saves much time in material processing, is flexible and straightforward, and the system can restore and retrieve information easily from the database.

From the review above, the researcher found that not many studies focus on features and usability of a module in an integrated library system, especially OSS. Most of the discussions were done in general or as small as in the research. Moreover, the study would have been more interesting if it had included insights from the librarian on a specific module in OSS as each module has distinct features.

Research model

A specific research model is developed, as in Figure 1, to conduct the entire study. The framework in Figure 1 will act as a guideline throughout this study. It consists of two variables which are independent variable and dependent variable. The dependent variable for the framework is cataloguer acceptance of cataloguing modules in an open-source system, while the independent variables for this study are module features and module usability. Each of the independent variables consists of three specific features that will be carried out in this study. The first independent variable is module usability, measuring on specific features, simple interface, attractive, and pleasant. The second variable is module usability. This study will measure related features involving ease of use, usefulness, and information quality. The first independent variable will become the study's first objective, while the second independent variable will become the second objective of this study. All the independent variables will be analysed to see how it affects the dependent variable of this study.

Figure 1: Research model



Methodology

The research design adopted for this study is descriptive, and the type of research is a survey. Purposive sampling is used to select the population of this study. Purposive sampling is where the population is picked for some unique purpose (Shah et al., 2011).

This paper intends to study cataloguers in an academic library in Malaysia that uses an open-source system. Thus, the survey will be conducted only on open-source software that was used in Malaysia. According to Randhawa (2008), the most prominent open-source software for library automation is Koha Integrated Library System, NewGenLib, and Evergreen. However, according to the open-source ILS portal (<http://opensource->

ils.cci.utk.edu/content/libraries-using-oss-ils), only Koha is used in Southern Asia. In contrast, Evergreen is primarily used in Australia, Canada, Czech Republic, India, Mexico, Republic of Georgia, Netherlands, and the United States and NewGenLib is mainly used in India and Nigeria. Thus, the Koha Integrated Library System was chosen as OSS in this study.

Below are the lists of libraries that used the Koha Integrated Library System in Malaysia:

TYPE OF LIBRARY	NAME OF INSTITUTION
Library at Public university & institution	Universiti Sains Malaysia (USM)
	Universiti Sains Islam Malaysia (USIM)
	Universiti Putra Malaysia (UPM)
	Politeknik Kota Bharu
	Politeknik Seberang Perai
Library at Private University & institution	Universiti Tenaga Nasional (UNITEN)
	University Kuala Lumpur (UniKL)
	Manipal University
	Asia e University Knowledge Centre
	International Institute of Advanced Islamic Studies (IAIS)
	Kolej Universiti Poly-Tech MARA Kuala Lumpur
	Kolej Poly-Tech MARA Bangi
	Kolej Poly-Tech MARA Kuantan
	Kolej Poly-Tech MARA Kota Bharu
	Kolej Poly-Tech MARA Ipoh
	Kolej Poly-Tech MARA Batu Pahat
	Kolej Poly-Tech MARA KESEDAR
	Kolej Poly-Tech MARA Alor Setar
Kolej Poly-Tech MARA Semporna	
Public Library	Perbadanan Perpustakaan Awam Kelantan (Kelantan State Library Corporation)
	Perbadanan Perpustakaan Awam Perak (Perak State Library Corporation)
Special Library	Unit Perancang Ekonomi Negeri Sabah
	Perpustakaan Pusat Latihan TLDM
	Perpustakaan Kementerian Kewangan Negeri Sabah
	Perpustakaan Jabatan Hidupan Liar

By ensuring the received responses are relevant to the study, the samples are reduced to the university academic library that has only used Koha since 2013 until now. To ensure that the study only focuses on the current practices in open-source systems, it is still recent for their experience in using a proprietary system.

No.	List of selected libraries	Year
1	Universiti Sains Islam Malaysia (USIM)	2016
2	Universiti Putra Malaysia (UPM)	2016
3	Universiti Tenaga Nasional (UNITEN)	2015
4	University Kuala Lumpur (UniKL)	2015

Lastly, after identifying the selected library, the online questionnaire was distributed to the chosen library. First, the researcher called each library to ask for permission and the number of staff that used the cataloguing module in each library. After confirming the entire staff who used the module, the researcher started distributing the online questionnaire through email to each library. As the researcher used purposive sampling, the number of respondents will be specific only to staff using cataloguing modules in the library. The 5-point Likert scale is used to measure the cataloguer acceptance. After collecting enough data, Statistical Package for Social Science (SPSS) was used to analyse the data.

Below is the sample size from each of the libraries.

Sample size:

No	Selected Academic Library	Population
1	Universiti Sains Islam Malaysia (USIM)	7
2	Universiti Putra Malaysia (UPM)	7
3	Universiti Tenaga Nasional (UNITEN)	2
4	University Kuala Lumpur (UniKL)	2
TOTAL		18

From the table above, only 15 of 18 responses were received. The rate of the responses of the respondents is 83.3%. According to Morgan and Krejcie, determining the suitable sample size for the population of 18 is $N(15) = S(14)$ sample sizes (Morgan and Krejcie, 1970).

Findings

Cataloguer acceptance of features in the cataloguing module of open-source integrated library system.

In this section, the percentage of acceptance of the features in the open-source integrated library system's cataloguing module will be analysed in terms of simple, attractive, and pleasant interface. All the data were measured using a 5-point Likert scale in which 1 - strongly disagree, 2 - disagree, 3 - neutral, 4 - agree, 5 - strongly agree. The tables below show the results that have been analysed using SPSS.

On the first statement, "*The interface of the features in cataloguing module is simple*", most of the participants, 40% (6), strongly agreed with this statement, while 33% (5) of the participants stated that they agreed. Another 26.7% (6) of the participants stated that they are neutral about the feature.

On the second statement, "*The interface in cataloguing module is pleasant to use*", most participants, 53.3% (8), stated that they are neutral regarding the pleasant interface. Meanwhile, 33.3% (5) participants strongly agreed and the minority 13.3% (2) agreed with the features.

On the third statement, "*The features in cataloguing module are attractive to the cataloguer*", the highest percentage, 46.7% (7), of the participants stated that they are neutral; neither disagree nor agree on the attractiveness of the interface. It was also stated that

33.3% (5) participants strongly agreed, while 20% (3) of the participants agreed with this statement.

For the last statement, *“I like using the interface of this module”*, the majority of the respondents, 46.7% (7), were neutral with the statement. Meanwhile, 33.3% (5) respondents strongly agreed and only 20.0% (3) agreed on it.

From the four statements above, it can be concluded that most of the respondents were neutral and strongly agreed in terms of acceptance of module features in an open-source integrated library system. Thus, it can be concluded that most of the respondents were satisfied with the module's features. The neutral indicator shows that the staff are never concerned about this factor, and they embrace the changes in the library according to the new rule decided by the top management.

Cataloguers’ Acceptance of the Usability of the Cataloguing Module in Open-Source Library System.

This section will analyse the percentages of respondents' acceptance of the usability of cataloguing modules in an open-source library system in terms of ease of use, usefulness, and information quality. All the data was measured using the 5-point Likert scale in which 1 - strongly disagree, 2 - disagree, 3 - neutral, 4 - agree, 5 - strongly agree. The tables below show the results that have been analysed using SPSS.

The first analysis is to know the respondents' acceptance of the usability of the cataloguing module in terms of ease of use. On the statement *“The workflow of using the cataloguing module is simple”*, the highest percentage, 53.3% (8) of respondents, agreed with the statement, and 33.5% (5) strongly agreed with it. Meanwhile, only 13.3% (2) of the respondents stated neutral on this statement, neither disagree nor agree.

On the statement, "*The module is flexible to use*", similar percentages 40.0% (6) were recorded for strongly agree and agree, and only 20.0% (3) were neutral on this statement.

On the statement "*This cataloguing module is easy to use*", similar percentages 40.0% (6) also recorded strongly agree and agree, and only 20.0% (3) were neutral on this statement.

On the statement "*This cataloguing module can be used without instruction*", the highest percentage, 46.7% (7), were neutral on this statement, followed by 26.7% (4) and 13.3% (2) respondents agreed and strongly agreed on it, respectively. However, 13.3% (2) disagreed with this statement.

On the statement "*It is easy to do copy cataloguing in the module*", majority of the respondents, 53.3% (8) agreed, and 26.7% (4) strongly agreed on it. In comparison, 20.0% (3) were neutral on the statement.

On the last statement, "*It is easy to save the record in the module*", 46.7% (7) data showed that the respondents strongly agreed with the statement. In contrast, 40.0% (6) agreed on it, and lastly, 13.3% (2) were only neutral on this statement.

From the statements above, it can be concluded that most of the respondents agreed that the cataloguing module in open-source system is easy to use for either librarian or assistant librarian. However, the analysis also found that the module still cannot be used without instructions. Usually, everything new must have guidelines and instructions so that the user will understand the usability and workflow of the new thing; in this case, it is the new open-source system.

The second analysis is to know the respondents' acceptance of the usability of the cataloguing module in terms of usefulness. On the first statement, "*The module helps the librarian become more effective*", the majority of the respondents, 46.7% (7), agreed, and 33.5% (5), strongly agreed on it. 20% (3) were only neutral on this statement.

On the statement "*The module saving the time to catalogue*", the highest percentage, 40% (6), showed that the respondents strongly agreed and 33.5% (5) agreed with the statement. At the same time, the remaining 26.7% (4) were neutral on the statement.

For the last statement, "*The cataloguing module is useful*", most of the respondents, 40.0% (6), strongly agreed with the statement, and 33.5% (5) agreed. The remaining respondents (26.7%) were only neutral on the statement.

From the data above, overall, respondents stated that they strongly agreed and agreed on the usefulness of the cataloguing module in the open-source system. This data indicates that most respondents were satisfied with the module's usefulness in doing their daily work as cataloguers.

The third analysis is to know the respondents' acceptance of the usability of the cataloguing module in terms of information quality. The first statement on information quality is "*The system displays relevant information on cataloguing module*". The data showed that 40.0% (6) of the respondents agreed with the statement, and 35.5% strongly agreed. At the same time, 26.7% (4) were neutral on it.

On the statement "*The system can restore information easily*", 6.7% (1) of respondents disagreed with the statement. Meanwhile, 26.7% (4) were neutral on it and 33.5% (5) agreed and strongly agreed.

On the statement "*The information in the module is accurate*", most of the respondents, 46.7% (7), were neutral on it, while 33.5% (5) strongly agreed and 20.0% (3) agreed on it.

The other statement is “*Instruction is clearly labelled on the cataloguing module*”, 40.0% (6) respondents strongly agreed and neutral on this statement. At the same time, 13.3% (2) agreed with this statement. However, there was also 6.7% (1) who disagreed on it.

The last statement on information quality is “. *The language used in the module is clear*”. The analysed data showed that most respondents, 40.0% (6), strongly agreed, and 33.5% (5) agreed on the statement. At the same time, the remaining 26.7% (4) were only neutral regarding this statement.

From the analysed data, there are some different opinions on the information quality of the cataloguing module among the respondents. However, the majority of respondents still gave positive feedback on it. It indicates that OSS also can provide good quality information in the system even without annual maintenance such as proprietary software.

Discussion

This study addresses the research questions concerning library cataloguers and their acceptance of the cataloguing module in open-source software in the academic library in Malaysia.

The researcher addresses the general question of knowing the cataloguer acceptance of module features in cataloguing modules of open-source software. In the first aspect, which is a simple interface, the findings revealed that the highest percentage of respondents strongly agreed that the interface of features in the cataloguing module is simple. For the second aspect, which is a pleasant interface, most of the respondents were neutral on this aspect, and the result was also similar in terms of an attractive interface. Here, it can be defined that the majority of respondents were satisfied with the interface for cataloguing modules in open-source software as it is simple to use. This finding is in line with the study by Asma Khatun (2014), where she mentioned that OSS (Koha) as a whole, has a user-friendly interface as

both of the groups, which are users and librarians, are satisfied with it. Therefore, if overall software is user-friendly, it also means that part of the software, the cataloguing module, must have excellent and user-friendly features.

The subsequent discussion is on the question related to module usability. Few questions were asked to the respondents to identify the cataloguer acceptance of module usability in an open-source integrated library system. The question comprises three main points, which are usefulness, ease of use and information quality. In terms of usefulness, most respondents stated that the cataloguing module in open-source software is helpful to the cataloguer. Not even one respondent disagreed on this term, and in addition, only a minority stated that they are neutral. Thus, it solidifies that the cataloguing module in OSS is constructive and valuable to the cataloguer.

The following term that has been analysed is ease of use of the module. Few questions have been asked to the respondents related to the ease of use of the module. The finding recorded that the majority of respondents strongly agreed and agreed on it. Thus, it indicates that the cataloguing module in OSS is easy to use either by the librarian or the assistant librarian. However, some data disagreed with respondents on the statement, *“This cataloguing module can be used without instruction”*. The data implies that everything new always needs instruction and guidelines. Even though open-source software is a self-modifying system that does not have any vendor involvement, the organisation should still provide enough guidelines to the staff to do their job efficiently. Then, they also will sincerely and heartily embrace the new system.

The last analysed data is on cataloguer acceptance of module usability in terms of information quality. In this finding, disagreement, neutral and agreement were recorded during analysis in the previous chapter. However, the highest percentage is still strongly agreed and agreed; and only a minority stated that they disagree with the statement. So, it can

be assumed that the cataloguing module still has positive feedback on module usability in terms of information quality. The disagreement is on the statement *“The system can restore information easily”* and *“Instruction is clearly labelled on the cataloguing module”*. As for the first statement, *“The system can restore information easily”*, there is a high possibility that the problem occurs because of the power supply or internet connection at their organisation because based on a previous study by Abdussalam and Saliu (2014), to do cataloguing in open-source software (Koha), it must depend on internet connectivity and power supply. That is one possible reason that could answer the disagreement on that statement.

In a nutshell, the usability of the cataloguing module in terms of usefulness, ease of use and information quality was supported by Ojedokun et al. (2016). They found that the workflow of the cataloguing module in OSS (Koha) saves much time in material processing, is flexible and straightforward, and can restore and retrieve information easily from the database.

Conclusion

In conclusion, it can be concluded that the majority of the cataloguers in academic libraries in Malaysia that use open-source integrated library system similar to this study, Koha, and have entirely accepted the use of cataloguing module in their organisation as the majority of the data reported on agreement of the user compare to the minority of disagreement. There are differences between cataloguing modules in various software, either proprietary or open-source, in terms of features, usability, and design. However, with the guidelines and instructions, cataloguers can embrace the module readily as the catalogue concept is the same. The findings of this study will encourage other researchers to examine the usability of

other modules in the open-source system that might improve the acceptance of open-source software in the future.

Recommendation & Suggestion

This research can be called base or pilot research in this field. As an open-source integrated library system is a technology in the library that keeps growing, further research must always be done to see the reliability of the technology in the library. Further research may also apply different methodologies, such as interviews, observation, and focus group sessions to get more accurate and varied data. It is also suggested to the library that intends to migrate to open-source software to send their staff for training or seminars to increase their knowledge and understanding of the new system before starting working on it.

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