# A study on the implementation of Koha cataloguing module in Malaysian academic libraries

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## ABSTRACT

*The study explores the experiences of the Malaysian academic libraries' cataloguers in their use of the cataloguing module of Koha Open Source Software (OSS). The purpose of this study is to shed light on issues concerning Koha cataloguing module and the local practices in policy and procedure while utilising the module. An exploratory sequential research design was adopted for the study involving an online focus group interview and a questionnaire survey as the data collection techniques. Twenty-two academic libraries from public and private universities in Malaysia were purposively sampled. A total of six academic libraries participated in the focus group, whereas 41 participants took part in the survey. The study highlighted academic libraries in Malaysia embrace Koha for two main reasons - popularity as and OSS and budget constraints for a proprietary library system. The findings of the study revealed that missing records is a significant issue that cataloguers will have to deal with and there is a lack of certain features available in the Koha cataloging module, such as the label creator and search feature. Apart from that, using Koha for cataloguing does not affect the cataloguing practices in terms of policy, but it does affect the cataloguing procedure. Satisfaction level with Koha cataloguing module is high. Other academic libraries in Malaysia that have not yet made a move to Koha or are in the midst of doing so would benefit from this study.*

**Keywords**: Open-source integrated library system; Koha library software; Koha cataloguing module; Academic libraries; Malaysia.

## INTRODUCTION

One of the major operations in a library is to describe the makeup of information resources through descriptive cataloguing. Cataloguing activity plays a vital role in contributing quality bibliographic descriptions of the library collections. It is an endeavour to depict the library collections to introduce them to the patrons. Academic libraries supply detailed descriptive data extensively using organising systems and software (Çakmak 2019). Using the libraries' Integrated Library Management System (ILMS) is one of the keys to disseminate information efficiently.

ILMS is a library software for managing an institution's repositories, such as in academic libraries. It was developed to minimise librarian's time completing the library tasks. The function of an ILMS in a library is to handle tasks such cataloguing, circulation, acquisition, and serials management (Uzomba, Oyebola and Izuchukwu 2015). Different libraries used different ILMS, which may be proprietary or using open-source software (OSS). Proprietary software is paid software that involves costs for customisation and maintenance that are typically held by for-profit organisations. Meanwhile, open-source library software is publicly or collaboratively developed (Reddy and Kumar 2013). Technology innovation has resulted in the emergence of open-source library software which is a costing free software. These days, proprietary software is gradually being replaced with open-source library software. Many libraries worldwide have opted for free and open-source software to meet their library automation requirements (Bwalya 2021). Most libraries are migrating to open source ILMS because the maintenance costs for proprietary software, such as annual licenses and software upgrades, have risen. (Jamaluddin, Mohd Yusop, and Abu Bakar 2012). Since the libraries are facing budget constraints, they cannot afford to commit to these costs and have started to find an alternative to replace the proprietary software (Bwalya 2021).

Open-source library software has a licensed source code or a public domain where the users are permitted to explore, revamp, and upgrade the software and redistribute it in the form of being modified or unmodified. Open-source library software is associated with open-source technology applications in the day-to-day management of various library tasks. It releases and updates software regularly, with web protocols and library standards integrated (Adrakatti, Wodeyar and Kumbar 2017). Alternatively, because the perceived functional advantages are the same as those of proprietary software, many libraries have begun to adopt open-source library software. The comparison between proprietary and OSS features are summarised in Table 1.

Table 1: Differences between Proprietary Software and Open-source software

| Features | Proprietary | Open-source software |
|---|---|---|
| Software developer | Profit organisation | Open collaboration |
| Source code | Protected | Public |
| Permission of modification | Only vendor is allowed to modify | Users are permitted to modify, add new features or upgrade freely |
| Cost of installation | Different module different cost | One time installation |
| Cost of maintenance | Gradually increased | Low cost or free |
| Functioning module | Availability depends on library needs | Available whenever needed |

Source: Jamaluddin, Mohd Yusop, and Abu Bakar (2012) ; Reddy and Kumar (2013) ; Deshmukh (2017)

OSS has become increasingly popular in the library profession in recent years. Several OSS are available for automating library maintenance tasks, among others Koha, NewGenLib, ABCD and Evergreen (Uzomba, Oyebola and Izuchukwu 2015). Different OSS has different functionalities. However, Koha is an OSS that is broadly employed all across the world. (Adrakatti, Wodeyar and Kumbar 2017). Koha is an OSS that was developed in 1999 by Katipo communication in New Zealand (Asim and Mairaj 2019). The popularity of Koha in the open-source community is increasing by the day. It offers a better service to libraries at a lower cost and supports all features of library operations such as acquisition, cataloguing, circulation, and serials management.

Since the early days of OSS in libraries, studies on OSS have focused on the librarian's view or acceptance of OSS (Asim and Mairaj 2019; Mohideen et al. 2019), comparisons between OSS with proprietary software (Pruett and Choi 2013), comparisons of various OSS (Bwalya 2021; Deshmukh, 2017), and obstacles in the use or implementation of OSS (Thacker 2016). In addition, studies that have been conducted on Koha are regarding Koha reviews (Kumar et al. 2016), Koha usability assessment (Khatun and Ahmed, 2018), Koha interoperability (Adrakatti Wodeyar and Kumbar 2017), issues or challenges of Koha application (Babu and Thomaso 2017; Amando et al. 2018; Bwalya and Akakandelwa 2021) and Koha usage experience (Majumder 2019; Uluocha 2020; Bwalya and Akakandelwa 2021). However, limited research has been conducted on a single OSS module, notably the cataloguing module, as no library system is complete without a cataloguing module. As cataloguing activities play an important role in contributing quality bibliographic descriptions of library collections and introducing them to the library patrons, this study focuses on the Koha cataloguing module in an attempt to clarify issues related to the OSS cataloguing module, local practices among the cataloguers in Malaysian academic libraries and their perception and satisfaction towards the Koha cataloguing module.

This study is vitally important because there is still a need to determine any issues or problems encountered during the implementation of OSS on certain features, specifically the cataloguing module. Consequently, this study will be helpful for the cataloguers when facing any issues affecting the use of the cataloguing module. It might also help librarians who are new to OSS to make decisions on the appropriate software to comply with the cataloguing practice and prepare to release new cataloguing procedures, such as cataloguing workflow and guidelines.

## LITERATURE REVIEW

Koha has been categorized as the best alternative of OSS to replace the proprietary software and it has been implemented by most of libraries around the world (Adrakatti Wodeyar and Kumbar 2017). According to Sheeja (2009), at the beginnings of its implementation, Koha was installed throughout North America, Asia, Europe, and Oceania including Australia and New Zealand. Only a small number of libraries in Africa and South America have implemented Koha. In Asia, among the countries that have adopted Koha are India, Taiwan, Thailand, China, Afghanistan, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka and Bangladesh. Of all the Asian countries, India is the country that implements Koha the most (Sheeja 2009). In addition, Sheeja (2009) also revealed that the implementation of Koha was spearheaded by academic libraries, although it is used world-wide by public, school and special libraries.

Migrating from proprietary software to OSS has always come with challenges. Concerning Koha implementation in libraries, a recent study in Nigeria (Kolawole and Oladokun 2021) revealed that the challenges of implementing Koha are insufficient skills, expertise, and proficiencies to utilise the OSS effectively. In an earlier study, Chaputula and Kanyundo (2019) reported the challenges are lack of staff, migration issues, inadequate ICT infrastructure, unstable Internet connections, and restricted funding.

In Malaysia, Koha is the most popular OSS utilised by libraries of all types. Asia e-University (AeU) library incorporated Koha as its ILMS in 2008 (Jamaluddin, Mohd Yusop, and Abu Bakar 2012). Since then, the number of Malaysian academic libraries employing Koha has risen, and this includes both public and private academic libraries. A search on kohacommunity.org

indicated that Koha is used by 6 private academic libraries (4 university libraries and 2 college libraries) and 14 public academic libraries (2 university libraries, 1 university college library, and 11 college libraries) in Malaysia.

Regardless of it being an OSS or a proprietary software, an ILMS has been carefully developed to integrate multiple library operations in a structured way. It is made up of various distinct yet integrated modules (Table 2) as outlined by Igbudu et al. (2020).

Table 2: ILMS Modules and its Function

| Modules | Function |
|---|---|
| Acquisitions | Monitoring the process of book purchasing and the payments made. |
| Cataloguing | Adding MARC21 records into the library catalogue to make them accessible to users |
| Circulation | Monitoring items checked in and out of the library as well as store user information |
| Serials | Managing check-in and subscriptions information for newspapers and magazines |
| OPAC | An interface for the users to search the catalogue online |

**The Cataloguing Module, Cataloguing Policy and Procedure in OSS**

The cataloguing module is one of the core modules in ILMS. The function of this module is to maintain the bibliographic file, authority file, and holdings. In other words, it satisfies the prerequisite for establishing a database of library holdings and is capable of incorporating all the necessary collection management features. The module for cataloguing has two interfaces - input, and output. The cataloguer interface is the input, and the public interface, commonly referred to as the Online Public Access Catalogue (OPAC), is the output. The cataloguer interface is used for data entry, and both interfaces are able to retrieve and view the outputs. However, cataloguers are more accustomed to the cataloguer interface. Due to the fact that the OPAC reflects the library service interface, it is equally crucial (Archana, Padmakumar and Beena 2014). The usage of cataloguer interface for a cataloguing module include creating the bibliographic records, creating spreadsheets, managing the bibliographic records and authority files, importing and exporting data, indexing, and searching. Hence, the cataloguing module was discovered to systematically catalogue and maintain the bibliographic records and authority files (Malkanthi and Hettiarachchi 2015).

The cataloguing policy describes the cataloguing facets by the libraries, which are made up of descriptive and subject cataloguing, classification, and systems/software. Each facet involves considerations regarding the standards adopted and how those standards will best benefit the library (White and Choemprayong 2019). To encourage worldwide cataloguing data exchange and universal access for library users, complying with common cataloguing standards is significant. Therefore, libraries' commitment to utilise the most recent versions of all standards and take an active role in their development, interpretation, and implementation is called for. In brief, the general content of the cataloguing policy should include the following:

(a) Rules standard - Following the international standard, named as the Resource Description and Access (RDA), to adhere to the common cataloguing standards and promote the international sharing of cataloguing data.
(b) Cataloguing tools - Using the bibliographic utilities from the Library of Congress Subject Headings (LCSH), Library of Congress Classification (LCC) and National Library of Medicine (NLM) Classification Scheme.
(c) Access Point - Providing uniform access to the library patrons, authority control is utilised to generate single preferred heading such as personal, corporate and meeting names; uniform and series titles; and topical and geographical headings. These headings will be

constructed in accordance with the Library of Congress (LC) Subject and Name Authorities.

(d) Record sources - Performing in-house cataloguing by creating original cataloguing or copy cataloguing from available sources such as Library of Congress Catalogue, OCLC WorldCat database or CiP (Cataloguing in Publication) data provided by publishers.

Bibliographic description or cataloguing procedures are technical services provided by libraries that include the creation of original metadata and the provision of intermediary structures for user participation. First and foremost, the library catalogue should be a very efficient and accurate bibliographic tool. It is critical to pay attention to the catalogue's internal consistency, constructing the best cataloguing workflow to accomplish correct descriptive and authority records and efficient procedures and tools for cataloguing cooperation and network (Gallevi 2015).

Therefore, the cataloguing procedure's content should outline the resource cataloguing process (workflow) and illustrate the quality output of catalogue records, authority files, catalogued materials, and shelf listing arrangement for effective OPAC retrieval and systematic shelf access. In brief, the cataloguing procedure should have the following details, namely (a) cataloguing workflow, showing the flowchart of the cataloguing work process (see Figure 1) and (b) cataloguing guidelines, explaining the step-by-step working instruction of all cataloguing processes in detail.

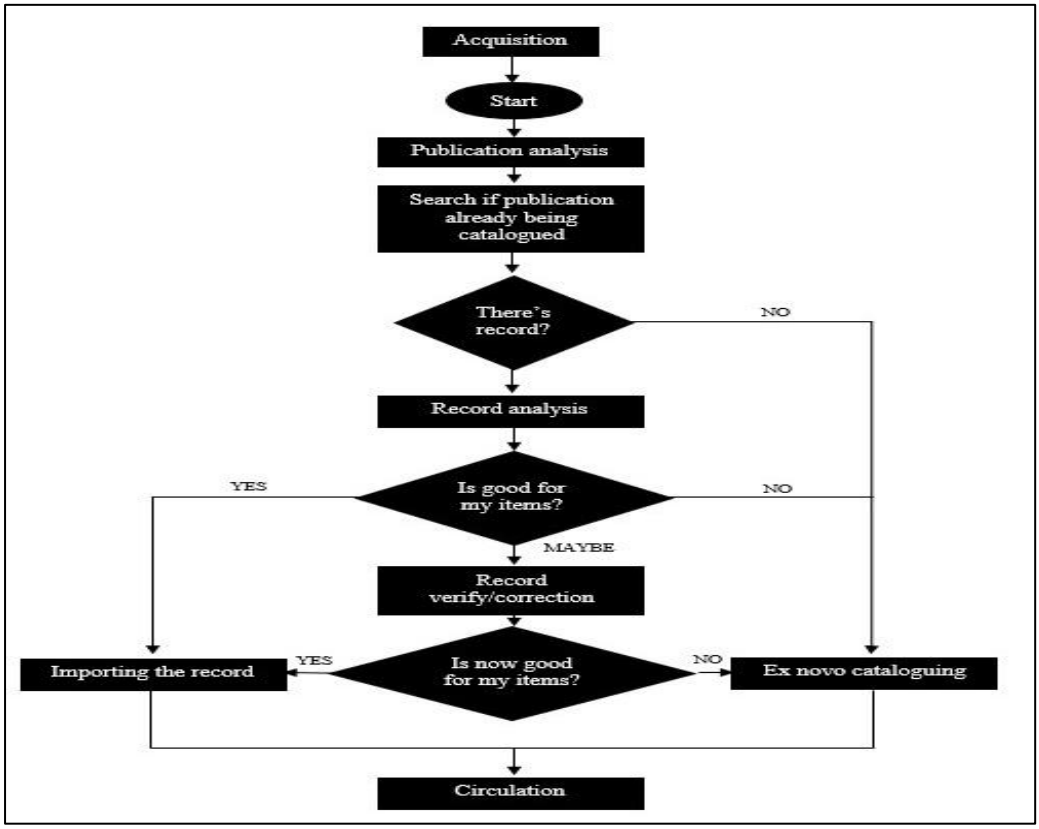


Figure 1: The Cataloguing Workflow (source: Gallevi 2015)

## OBJECTIVES AND METHOD

The objectives of this study are twofold:

(a) to explore cataloguers' experiences with the Koha cataloguing module in Malaysian academic libraries, including the local practice chosen for the cataloguing module during the implementation of Koha; and

(b) to identify the cataloguers perception and satisfaction utilising Koha cataloguing module.

The study employed a mixed methods exploratory sequential design in which qualitative and quantitative data were collected and analysed. Focus group interviews and questionnaire were the data gathering techniques used. The research subjects consisted of librarians and library assistants from Malaysian academic libraries, namely the cataloguers who had been using Koha cataloguing modules. Since the sample size is small, purposive sampling was used to recruit the participants for both qualitative and quantitative approach. A check on Koha website (see koha-community.org) revealed that there were 22 academic libraries in Malaysia listed as Koha users, comprising eight from public universities and 14 from private universities. An attempt to contact cataloguers from these academic libraries were made to recruit participants for the focus group interviews. Names, contact numbers, and e-mail addresses of the cataloguers were obtained from their respective library websites. The recruitment e-mails were sent to all 22 academic libraries, however, only six agreed to participate, comprising three from public universities (encoded as Library A, Library B and Library C) and another three from private (encoded as Library D, Library E and Library F). Following the qualitative study, other attempts were taken to contact cataloguers from all 22 academic libraries using Koha to recruit them as prospective sample for the quantitative study.

## Focus Group Interviews

The purpose of conducting focus group interviews in this study was to address the first objective i.e. to explore the cataloguers' experience utilising the Koha cataloguing module and identifying their cataloguing practices. Each interview participant was asked to answer a fixed set of questions. There were two components to the focus group interview questions: (a) demographic information on experiences; and (b) cataloguing practices of Koha cataloguing module. The questions on demographic information focused on participant's experience, such as period of implementation, migration reason, challenges, and insights into using the Koha cataloguing module. The questions on cataloguing practices of Koha cataloguing module usage mainly concentrated on the content of the cataloguing policy and procedure. The focus group interviews were conducted online. The information sheets for focus group interview participants were e-mailed to 12 participants who agreed to participate in this study. Two focus groups were conducted with six participants per group via Google Meet on the agreed-upon time and date. The focus group interviews, about 120 minutes in duration, were recorded, with the transcripts manually coded in Excel spreadsheet to establish analytical codes needed for a qualitative analysis and returned to the participants to ensure agreement and to obtain further clarity.

## Questionnaire

The purpose of the questionnaire was to address the second objective i.e. to identify the cataloguers' perception of and satisfaction with their use of Koha cataloguing module. The questionnaire was constructed based on the qualitative findings analysis. The authors built the questionnaire around two areas i.e. on (a) quick-response questions on the frequency usage of the features available in Koha cataloguing module (such as design and layout, display, ease of use, learnability and usability); and (b) quick-response questions on perception and satisfaction using the Koha cataloguing module. Demographics information and further comments or suggestions were also requested.

The authors intended the questionnaire to be completed by cataloguers. Therefore, the questionnaire, and cover letter, designed in Google Form, and were sent to 45 cataloguers from the academic libraries listed in the Appendix, solicited via direct e-mail. Reminder e-mails were sent to encourage participation, which was strictly voluntary. In about 15 days, 41 (91.1 %) responses were received and all were complete responses. Google forms and Excel spreadsheets were used to generate and analyze data from the online survey questionnaire. Frequency tables and percentages were used to interpret the data collected and the results of the questionnaire were explained using descriptive statistics.

## FINDINGS

### Qualitative Data Analysis

Four key points, and the quotes of the cataloguers, are presented in this section, which highlight (a) Koha practical usage experience; (b) Challenging experience of using Koha cataloguing module; (c) Cataloguers' perception and satisfaction on Koha cataloguing module; and (d) Koha cataloguing practices.

### (a) Koha practical usage experience

Library D has the most years of experience with Koha (12 years), making it the pioneer in the application of Koha in Malaysian academic libraries. Library B, Library E, and Library F have been utilising KOHA for eight years, followed by Library A, six years. Only Library C library has the least years of experience with Koha (2 years). The library holdings consisting both printed and non-printed materials ranged from more than 10,000 to about one million items for each library. All libraries, except Library A, are using the latest version of Koha (version 21.05). Library A is still using Koha version 16.05, and the cataloguer remarked that, "there was no need to upgrade to the new version because the system had not changed much".

Before switching to Koha, Library B, Library E, and Library F used ILMU™ proprietary ILMS while Library C used Virtua. These academic libraries migrated to Koha for similar reasons. Library D participant justified that Koha had become the preferred option because "*it is used worldwide, involves zero cost of implementation and low cost of maintenance.* He also remarked that *"Koha has the capacity to cater high volumes of library collection records*". Library B participant acknowledged that what makes Koha software stand above other alternatives is its affordability. "*My library is under budget. Hence, we need to find a replacement for the proprietary software because maintenance and installation costs for module addition are rising"*.

Koha's capacity to handle large collection and high-volume circulation was acknowledged by other participants (Library A, B, C, and E); their general comments inclined towards acceptance with Koha as exemplified from the following verbatim statements:
*"The proprietary software we utilise does not have the capacity to support the expansion of library collections*" (Cataloguer, Library E).
*"The most appealing aspect of Koha is that it is web-based. Hence, it can be accessed from home*" (Cataloguer, Library A).
"*Koha has functionality and capability that is suitable for all, as it includes a comprehensive module and proprietary software*". (Cataloguer, Library F).

Library E participant further described that the library installed Koha on a server, setting up a web-based installation "*due to the fact that each campus has its own server*". Summarized in Table 3 is Koha practical usage experience in the six academic libraries.

Table 3: KOHA Practical Usage Experience

| Library | Library A | Library B | Library C | Library D | Library E | Library F |
|---|---|---|---|---|---|---|
| | (Public universities) | | | (Private universities) | | |
| No. of years | 8 | 6 | 1 | 12 | 8 | 8 |
| Previous ILMS | ILMU | VIRTUA | SYMPHONY | - | ILMU | ILMU |
| Koha version | 12.05 | 16.05 | 12.05 | 12.05 | 12.05 | 12.05 |
| Reason of use/ migration | Budget constraint, increasing cost of proprietary software | Web-based | Budget constraint, increasing cost of proprietary software | Worldwide use, low cost, capability and capacity to cater high volume of collection | Functionality and capability suitable for all library functions | Incapability of proprietary software to support the expansion of library collections |
| Library collection size | Print and non-printed collection: 1.6 million | Print collection: 71,000 | Print collection: almost 1 million | Mostly e-collection Print collection: 8,000 | Print collection: 170,000 | Print collection: 49,000 |

## (b) Challenging experiences using Koha cataloguing module

The participants reported having challenges in effectively using Koha cataloguing module. Missing records during system migration, conversion and upgrades is the major issue that cataloguers must deal with throughout the Koha implementation. Library D participant revealed "*Missing record occurred each time the library upgraded Koha to a new version".* Library F participant explained: "*Missing records happen due to the different MARC tag formats used by Koha and the proprietary software. Certain tags are obscured*".

However, the participants know how to resolve the problems as reflected from the following responses.

"*To resolve this issue, prior proprietary records are compared with Koha or older versions of the newest ones*" (Cataloguer, Library D).

"*The issue of missing records is fixed by data cleaning and mapping. In fact, the proprietary software continues to run for a year before being totally shut off. Thus, manual record addition and cross-checking are done*". (Cataloguer, Library F)

"W*hen doing mapping, there are not only missing records but also redundant records. Besides, transferring data into an Excel worksheet is another alternative used to avoid missing records*". (Cataloguer, Library E)

Participants from Library A and Library B stated that they had to do stock taking to determine the missing records. According to Library B participant, in the event that any records were missing, manual re-cataloguing was undertaken. Library A participant clarified, "*there are duplicate records occurring throughout the migration procedure. Consequently, the task of deleting or merging records needs to be done"*. Participants acknowledged that data migration process to Koha was a challenging task and it hard to do it successfully without any data loss. For example, Library C participant told that almost one thousand records were missing during migration, that happened to e-book collection because e-books only have

bibliographic records that include a link to the full-text and not the item itself. "*As a result, the e-book records were lost because the record could not be extracted"* (Cataloguer, Library C)

Other challenges faced by the cataloguers in their use of Koha cataloguing module are the label printing and searching results issue. Library A, Library B, and Library D participants reported that they printed the barcodes and labels on other platforms, i.e. barcodes or labels are not generated directly from Koha cataloguing module because the printing output did not meet their expectations. Library C, Library E, and Library F participants, on the other hand, informed that they printed barcodes and labels from Koha cataloguing module. However Library C participant reported a minor issue with label printing in which the call number line did not appear when printed as illustrated in Figure 2. Given the sample call number of the book is **aic p BP63 A785 H784M 1983,** the expected printed label should appear in 7 lines. However, it turned out to be printed in 6 lines as shown in the Koha output sample. The solution taken by Library A was that "*the generated label will be saved as PDF and the call number that need to be adjusted will be edited in the PDF file before printed*" (Cataloguer, Library A).

| Expected output: 7 lines | Koha output: 6 lines |
|---|---|
| Aic | aic p |
| P | BP |
| BP | 63 |
| 63 | A785 |
| A785 | H784M |
| H784M | 1983 |
| 1983 | |

Figure 2: A Sample of Koha Output for a Book with a Given Call Number

With regard to the search results issue, Library A and Library C participants admitted that Koha cataloguing module's display of MARC fields and subfields was not very impressive. The search results display all of the records that contain the same keyword. As such, cataloguers may struggle in determining duplicate titles since they have to browse the search results one by one.

## (c) Cataloguers' perception of and satisfaction with Koha cataloguing module

During the focus group interviews session, opinions were sought from the cataloguers about Koha cataloguing module interface. Library D participant opined that Koha cataloguing module has the interface that is "*flexible, easy to understand, and provide enough information for the beginner".* Library F echoed her view "*Koha cataloguing module is easy. We can set framework and the system will enter the necessary tags. Images can also be uploaded easil*y". It seems that participants from all libraries agreed that Koha cataloguing module is easy to be used because all the tags for bibliographic elements are already displayed:

"*We can add tags with just a click and the subfield has been prepared according to the material template*" (Cataloguer, Library A).

"*We can also see the tagging in advance and basic form. Up to us which one we want to use*". (Cataloguer, Library C)

All participants agreed that it is useful because it allows them to create cataloguing templates based on item types such as monographs, e-books, theses, and others. In other words, Koha cataloguing module has a function and navigation layout that can be

customized. Library C participant admitted that "*the authorized function of Koha cataloguing module is easier to use than the previous proprietary software"*. Overall, the cataloguers were satisfied with Koha cataloguing module and agreed that it was one of the principal strong points of Koha.

### (d) Koha Cataloguing Practices

Cataloguing practice is the way in which the process of bibliographic and authority records is created and maintained in a library's catalogue according to the cataloguing policy set by the library (Librarianship Studies 2019). Participants in this study concurred that the implementation of Koha has no effect on the cataloguing policy because the policy's content is about standards and tools used to create catalogue records. Academic libraries in this study are using the same cataloguing standards and tools, such as the Library of Congress Subject Headings (LCSH), the Library of Congress Classification Scheme (LCCS), and the National Library of Medicine (NLM) Classification Scheme. The creation of a heading access point adheres to the Library of Congress' standard authority rules. The sources of record for copy cataloguing come from whatever platforms available for importing. All participants informed that the majority of the records were imported from the Library of Congress catalogue and OCLC WorldCat, both of which contain a large number of titles with complete records.

ALthough the cataloguing policy has not changed much, all participants agreed that switching to Koha has an impact on the cataloguing procedure's content, and they echoed these thoughts:

"*Changes on cataloguing procedure will occur whenever the system is changed"* (Cataloguer, Library A).

*"The changes, were caused by the different interfaces of the cataloguing module. The instructions in the cataloguing guideline were written with the system in mind".* (Cataloguer, Library F)

"*Several templates for cataloguing guidelines in the form of a matrix had already been prepared for various types of materials. As a result, whenever the system changes, the same template will be used to create a new cataloguing guideline. In fact, these templates are made available online via an internal portal so that employees can easily access it*". (Cataloguer, Library C)

### Quantitative Data Analysis

The data obtained from the questionnaire provides findings on (a) Cataloguers' usage experience of Koha cataloguing module, (b) Cataloguers' perception of Koha cataloguing module, and (c) Cataloguers' satisfaction with Koha cataloguing module. Table 4 presents the demographic characteristics of the 41 respondents from the academic libraries constituting the sample size used for data analysis, of which 54 percent were from public universities and 46 percent were from private universities in Malaysia. The table shows that more experienced staff constituted the sample (i.e. 24.4 % had 4 to 8 years working experience in the cataloguing section, 29.3% had more than eight years). Specifically, those cataloguers (n=33) with more years of experience using Koha cataloguing module (n-35) dominated the sample. This suggests that the respondents were well-versed in their use of Koha cataloguing module.

Table 4: Demographic Characteristics of the Respondents (N=41)

| Demographic characteristics | Frequency | Percentage (%) |
|---|---|---|

| | | |
|---|---|---|
| ***Types of academic libraries*** | | |
| Public | 22 | 54.0 |
| Private | 19 | 46.0 |
| Total | 41 | 100.0 |
| ***Working experience in the cataloguing section*** | | |
| 1 to 3 years | 19 | 46.3 |
| 4 to 8 years | 10 | 24.4 |
| More than 8 years | 12 | 29.3 |
| Total | 41 | 100.0 |
| ***Designation*** | | |
| Senior Library Officer | 1 | 2.4 |
| Librarian | 32 | 78.0 |
| Library Assistant | 4 | 9.8 |
| Administrative Assistant | 4 | 9.8 |
| Total | 41 | 100.0 |
| ***Cataloguing experience using Koha cataloguing module*** | | |
| Less than 1 year | 6 | 14.6 |
| 1 to 5 years | 26 | 63.4 |
| More than 5 years | 9 | 22.0 |
| Total | 41 | 100.0 |

## (a) Cataloguers' usage experience of the Koha cataloguing module

The questionnaire solicited how often respondents use the features establish in Koha cataloging module, namely (a) bibliographic records, (b) item records, (c) authorities, and (d) label creator. Besides identifying the usability of each feature in the cataloguing module, the core tasks frequently utilised for each feature were also ascertained (from "do not use" to "daily"). Figure 3 shows that the most frequent bibliographic record feature utilised on a daily basis are searching record (58.5%), followed by editing record (48.8%), adding record (41.6%), importing record (19.5%) and duplicating record (14.6%). While features that are rarely utilised are merging and deleting record, and attaching file to record.

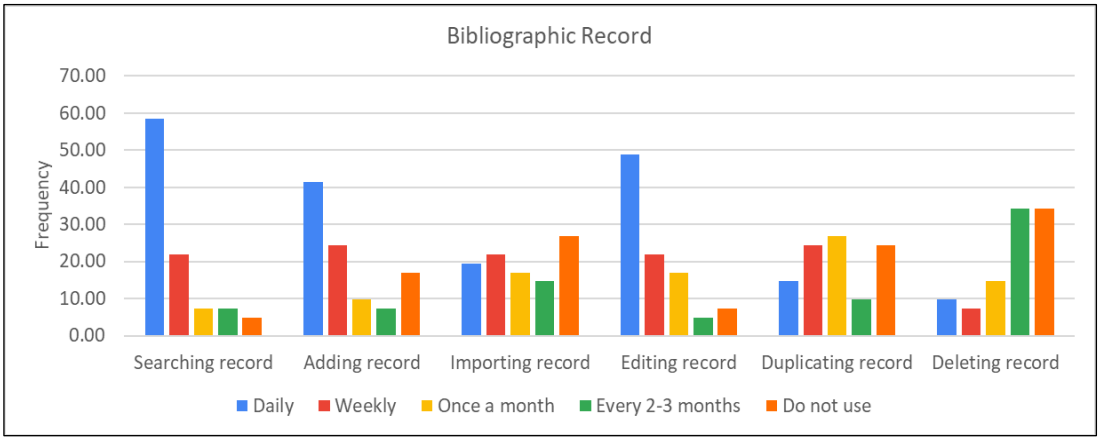


Figure 3: Frequency of Bibliographic Record Feature Usage

Shown in Figure 4 is the most frequent item record feature utilised daily - the most being editing items (46.3%), followed by adding items (43.9%). The features that are rarely utilised are adding cover images for items, moving items and deleting items.

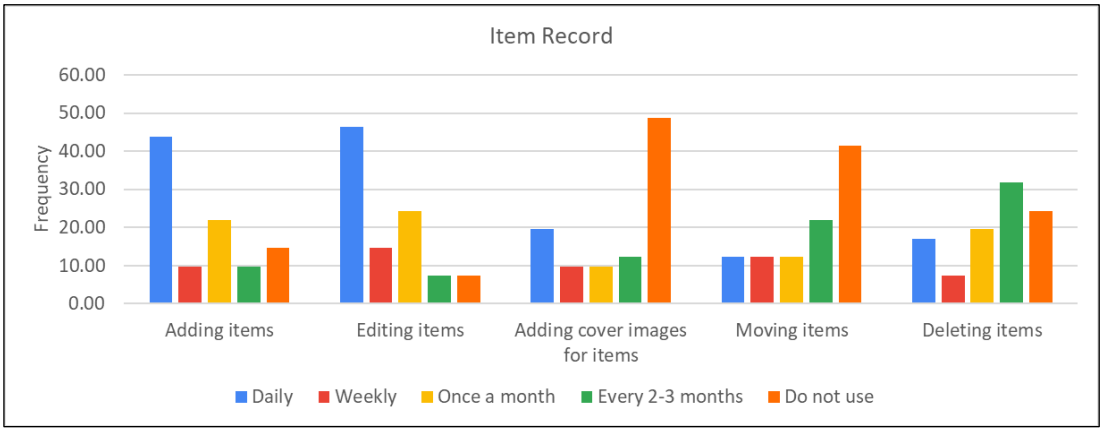


Figure 4: Frequency of Item Record Feature Usage

Authorities feature involves activities such as adding, searching, editing and merging authority records. As shown in Figure 5, findings on how frequent these features are utilised were almost the same for "daily" (blue bar) and "do not use" (orange bar). Adding authorities was reported to be used daily (34.2%) and do not use (36.6%). Searching authorities was reported to be used daily and do not use (36.6% respectively). Similar findings were obtained for the "daily" and "do not use" bars corresponding to editing authorities. In the interim, only 21.9 percent of the tasks related to merging authorities were utilised daily.

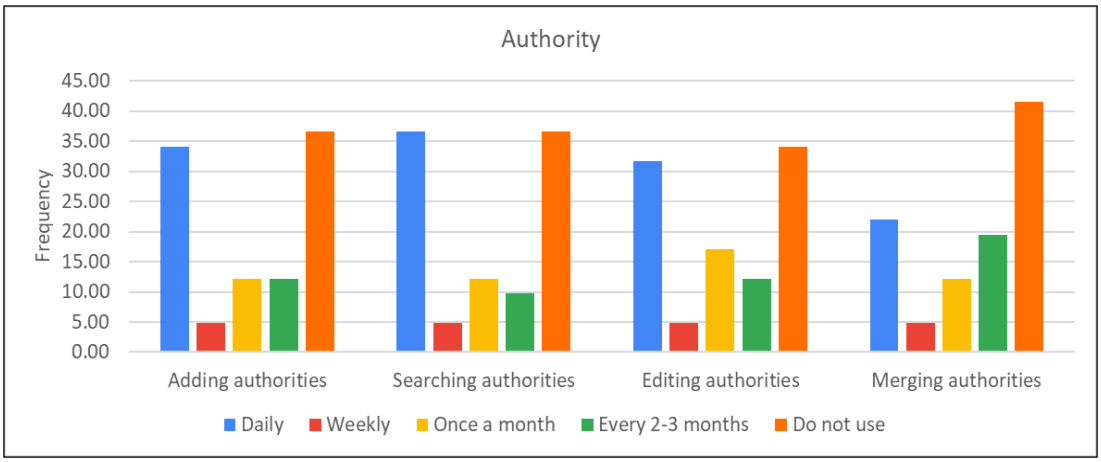


Figure 5: Frequency of Authorities Feature Usage

The label creator enables the use of layouts and templates designed to print an almost infinite number of labels, including barcodes. The label creator feature's functions include creating customised label templates for printed labels, customizing label layouts, managing batches of labels, exporting batches or individual labels, and exporting the data of the label in three different formats, such as PDF, CSV or XML. As can be seen in Figure 6, the label creator feature was rarely utilised. The percentage of the daily usage of adding a template, adding a profile and adding a layout features was 7.32 percent respectively from the overall results.

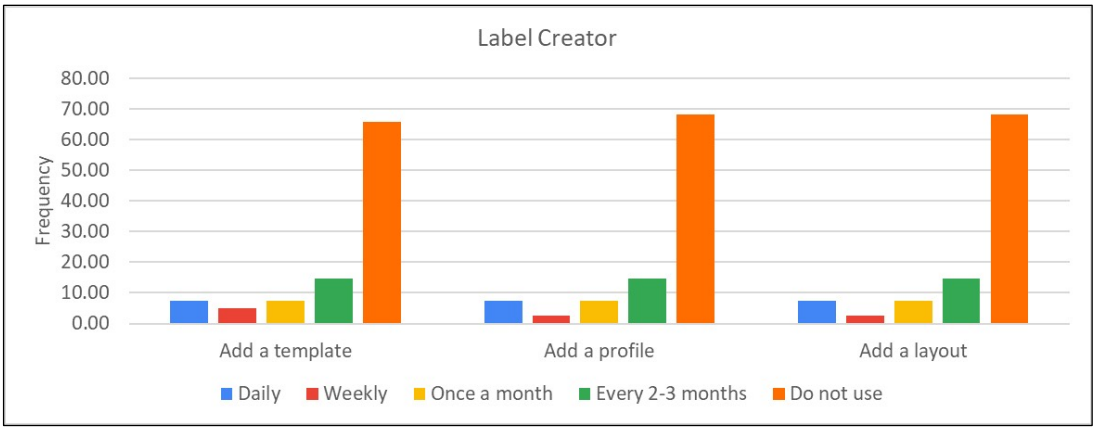


Figure 6: Frequency of Label Creator Feature Usage

**(b) Cataloguers' perception of Koha cataloguing module's quality attributes**

The aim of determining the cataloguers' perception on Koha cataloguing module is to identify areas for improvement, if any exists. Five criteria were evaluated for quality namely design and layout, display, ease of use, learnability and usability asking how much the respondent agrees or disagrees with a particular statement, based on a 5 point Likert rating scale ranging from strongly disagree to strongly agree (Table 5). The mean value (M) indicates the critical criteria, whereas the standard deviation (SD) indicates how much agreement the respondents have with the criteria.

Nearly 83 percent of respondents viewed that Koha cataloguing module's design and layout are user-friendly (M=3.83, DS=0.70), and that slightly more than 90 percent reported like using the interface (M=3.93, DS=0.69). Nearly 88 percent found it to be enjoyable to use (M=3.88, DS=0.68).

Regarding the display criterion, nearly 83 percent of respondents agreed the material was organised clearly (M=3.83, DS=0.70). However, in term of display of search results, the finding was less encouraging as slightly more than 63 percent thought that search results were displayed very accurately (M=3.83, DS=0.70). In terms of ease of use, about 76 percent of respondents agreed that it was straightforward to use (M=3.80, DS=0.78), and 78 percent found it simple to find the information they wanted (M=3.78, DS=0.79) .

Within the evaluation indicators of learnability, consistently more than 80 percent of respondents indicated that the module was simple to learn (M=3.98, DS=0.76), the Koha cataloguing module's instruction is well-labelled (M=3.95, DS=0.71), and a high 87 percent thought that the language used in the module is straightforward (M=4.07, DS=0.75). Clearly, 'learnability' is the most important criterion for the Koha cataloguing modules interface among Malaysian cataloguers, as represented by the two items with very high mean score.

Regarding usability, about 83 percent of respondents concurred that the Koha cataloguing module follows a straightforward process (M=3.93, DS=0.72). Although the majority of respondents (85.37%, M=3.93, SD=0.69) agreed that the module is flexible to use, a much lower percentage (65.85%, M=3.51, DS=0.87) agreed that it can be used without instructions. Nevertheless 78 percent agreed that it helps the cataloguer become more effective in cataloguing (M=3.85, DS=0.73). More than 80 percent concurred that the module reduces cataloguing time (M=3.83, DS=0.72) and is very useful (M=3.93, DS=0.69).

Table 5: Cataloguers' Perception of Koha Cataloguing Module's Quality Attributes

| Item statement | SA | A | N | DA | SDA | Total score (SA & A) | Mean | SD |
|---|---|---|---|---|---|---|---|---|
| **Design and Layout** | | | | | | | | |
| I like using the Koha cataloguing Module interface | 4 (9.8%) | 33 (80.5%) | 2 (4.9%) | 1 (2.4%) | 1 (2.4%) | 37 (90.24%) | 3.93 | 0.69 |
| It was pleasant to be used | 3 (7.3%) | 33 (80.5%) | 3 (7.3%) | 1 (2.4%) | 1 (2.4%) | 36 (87.80%) | 3.88 | 0.68 |
| The layout is user friendly | 3 (7.3%) | 31 (75.6%) | 5 (12.2%) | 1 (2.4%) | 1 (2.4%) | 34 (82.93%) | 3.83 | 0.70 |
| **Display** | | | | | | | | |
| The organisation of information presented was clear | 3 (7.3%) | 31 (75.6%) | 5 (12.2%) | 1 (2.4%) | 1 (2.4%) | 34 (82.93%) | 3.83 | 0.70 |
| The display of the searching results is very accurate | 4 (9.8%) | 22 (53.7%) | 13 (31.7%) | 1 (2.4%) | 1 (2.4%) | 26 (63.41%) | 3.66 | 0.79 |
| **Ease of Use** | | | | | | | | |
| It was simple to use | 5 (12.2%) | 26 (63.4%) | 8 (19.5%) | 1 (2.4%) | 1 (2.4%) | 31 (75.61%) | 3.80 | 0.78 |
| It was easy to find information I needed | 4 (9.8%) | 28 (68.3%) | 6 (14.6%) | 2 (4.9%) | 1 (2.4%) | 32 (78.05%) | 3.78 | 0.79 |
| **Learnability** | | | | | | | | |
| It was easy to learn | 8 (19.5) | 26 (63.4%) | 6 (14.6%) | 0 (0%) | 1 (2.4%) | 34 (82.93%) | 3.98 | 0.76 |
| Instruction is clearly labelled | 6 (14.6) | 29 (70.7%) | 5 (12.2%) | 0 (0%) | 1 (2.4%) | 35 (85.37%) | 3.95 | 0.71 |
| The language used in the module is clear | 10 (24.4%) | 26 (63.4%) | 4 (9.8%) | 0 (0%) | 1 (2.4%) | 36 (87.80%) | 4.07 | 0.75 |
| **Usability** | | | | | | | | |
| The workflow of using the Koha cataloguing module is simple | 6 (14.6) | 28 (68.3%) | 6 (14.6%) | 0 (0%) | 1 (2.4%) | 34 (82.93%) | 3.93 | 0.72 |
| The module is flexible to use | 5 (12.2) | 30 (73.2%) | 5 (12.2%) | 0 (0%) | 1 (2.4%) | 35 (85.37%) | 3.93 | 0.69 |
| The module can be used without instruction | 1 (2.4%) | 26 (63.4%) | 9 (22.0%) | 3 (7.3%) | 2 (4.9%) | 27 (65.85%) | 3.51 | 0.87 |
| The module helps the cataloguer become more effective | 5 (12.2) | 27 (65.9%) | 8 (19.5%) | 0 (0%) | 1 (2.4%) | 32 (78.05%) | 3.85 | 0.73 |
| The module saving the time to catalogue | 4 (9.8%) | 29 (70.7%) | 6 (14.6%) | 1 (2.4%) | 1 (2.4%) | 33 (80.49%) | 3.83 | 0.72 |
| The Koha cataloguing module is very useful | 6 (14.6) | 28 (68.3%) | 6 (14.6%) | 0 (0%) | 1 (2.4%) | 34 (82.93%) | 3.93 | 0.69 |
| Notes: N = 41. SA = Strongly agree, A = Agree, N=Neutral, DA = Disagree, SDA = Strongly agree | | | | | | | | |

## (b) Cataloguers' satisfaction with Koha cataloguing module

Findings on cataloguers's satisfication revealed that overall, the majority of the cataloguers were satisfied with the features that are available in Koha cataloguing module, Table 6 details the findings. Specifically, based on a 5 point Likert rating scale ranging from very dissatisfied to very satisfied, 29 out of 41 respondents (70.7%) were satisfied with the bibliographic record feature (M=4.05, SD=0.55), 28 (68.3%) were satisfied with the item record feature (M=4.07, SD=0.57), and the authorities feature (M=3.80, SD=0.60) respectively, and 24 (58.5%) were satisfied with the label creator feature (M=3.63, SD=0.54). Taking into consideration those who expressed satisfaction (very satisfied and satisfied), these indicated their belief that Koha cataloguing module meets their current and future needs. These findings somehow contradicted with that of the qualitative study. Participants in focus group interviews highlighted the issues they encountered while using the label features, whereas the survey respondents had different satisfaction perspectives. This could be because the survey shows areas of satisfaction and dissatisfaction, but not reasons.

Table 6: Satisfaction with the Features in Koha Cataloguing Module

| | VS | S | N | DS | VDS | Mean | SD |
|---|---|---|---|---|---|---|---|
| Bibliographic Record | 5 (12.2%) | 29 (70.7%) | 7 (17.1%) | 0 (0%) | 0 (0%) | 4.05 | 0.55 |
| Item Record | 5 (12.2%) | 28 (68.3%) | 8 (19.5%) | 0 (0%) | 0 (0%) | 4.07 | 0.57 |
| Authorities | 3 (7.3%) | 28 (68.3%) | 9 (22.0%) | 0 (0%) | 0 (0%) | 3.80 | 0.60 |
| Label Creator | 16 (39.0%) | 24 (58.5%) | 1 (2.4%) | 0 (0%) | 0 (0%) | 3.63 | 0.54 |

Notes: N = 41. VS = Very satisfied, S = Satisfied, N=Neutral, DS = Dissatisfied, VDS = Very dissatisfied

## DISCUSSION AND CONCLUSIONS

Findings on cataloguing experience highlighted two main reasons academic libraries in Malaysia embrace Koha; first, it is the most popular OSS; and second, those academic libraries were facing budget constraints, plus the maintenance cost of proprietary ILMS was increasing. Majumder (2017) stated that proprietary ILMS involve initial costs, such as development costs, license fees, upgrading fees and maintenance fees. Whereas in Koha, no initial cost is needed, and even if it does, those costs are very much lower. Thus, Koha is the best alternative of proprietary software since it involves lower cost of application and maintenance and has the capacity to accommodate large volumes of library collection records. Besides, it is web-based system and has a comprehensive module similar to the proprietary software.

Based on the survey's findings, the bibliographic record, item record, and authorities were the features of the Koha cataloguing module that cataloguers utilised most frequently. The survey found that the label creator feature was rarely utilised. This may be because only administrative library assistants are the ones who normally utilise this feature, and they are not sampled in this study. Koha is found to be very functional for cataloguing activities as all the academic libraries sampled are utilising all the features available in Koha cataloguing module, though not entirely. It would be great if cataloguers could optimize the use of the functions available in each feature available in Koha cataloguing module. This will significantly improve the quality of the library record catalogue.

The biggest challenge in using the Koha cataloging module was that the cataloguers have to deal with the issue of missing records. According to Vimal, Kumar and Majeed (2019), the challenges are mostly brought on by issues with the previous proprietary's data migration. The MARC21 format in the previous proprietary ILMS was not in the correct structure and corrupted database entries cause issues during data migration.

This study discovered the label printing as another challenge. This issue was also reported by Bwalya and Akakandelwa (2021) in their study, however, it is not reported in detail. According to the cataloguers in this study, the label cannot be printed directly from Koha. To address this issue, the cataloguers stated that they printed barcodes and labels on other platforms. They reported not printing labels directly from Koha cataloguing module because the printing output does not meet their expectations.

In terms of cataloguing practice, Koha for cataloguing does not affect compliance with the cataloguing policy, where the same policy remains being utilised for Koha cataloguing. As stated by Adrakatti, Wodeyar and Kumbar (2017), Koha is developed based on library standards and protocols, such as MARC21. Hence, it becomes the reason why it does not affect compliance with the cataloguing policy. Libraries that intend to use Koha as their ILMS can be rest assured that the current cataloguing policies in place can be used for Koha cataloguing.

Findings of this study confirm that the cataloguing procedure changes with system changes. The cataloguing procedures is technical services provided by libraries which include the creation of original metadata and the provision of intermediary structures for user participation. It is critical to pay attention to the catalogue's internal consistency, constructing the best cataloguing workflow to accomplish correct descriptive and authority records and efficient procedures and tools for cataloguing cooperation and network (Gallevi 2015).

This study in general revealed that cataloguers have positive intentions to use this system and believe it meets their current and future needs. The findings of this study indicated that cataloguers must be prepared to utilise the Koha cataloguing module. It can be clearly seen that missing records is a significant issue that cataloguers will have to deal with. The probability of carrying out re-cataloging, deleting, and merging tasks is high. Hence, cataloguers must be well prepared and plan a strategy to resolve the issue immediately without affecting cataloguing productivity.

Though Koha may be the best alternative for proprietary software, there is a lack of certain features available in the Koha cataloging module, such as the label creator, and search and display feature. These features could be enhanced so that the productivity and efficiency of cataloguing would increase. Furthermore, the cataloguing policy and procedure must outline the best practices for utilising the Koha cataloguing module.

In addition to focusing on current bibliographic record requirements in the library catalogue, the function of cataloguing is to anticipate future applications of bibliographic data in emerging services. As technology evolves, new opportunities will emerge to release the power of the information contained in legacy records for future interactions and purposes. In order to improve the cataloguing process, it is necessary to revise the library's cataloguing policy and procedure in accordance with the current system in use.

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## AUTHOR DECLARATION

There are no conflicts of interest involving either of the authors of this paper.

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**APPENDIX**

## List of Malaysian Academic Libraries using Koha

| No. | Academic libraries | Category |
|---|---|---|
| 1. | Asia e University | Private |
| 2. | Asia Pacific University of Technology and Innovation | Private |
| 3. | International Medical University | Private |
| 4. | Kolej Poly-Tech MARA | Private |
| 5. | Madinah International University | Private |
| 6. | Nilai University | Private |
| 7. | Politeknik Seberang Perai | Government |
| 8. | Politeknik Sultan Haji Ahmad Shah | Government |
| 9. | Quest International University | Private |
| 10. | SEGi University | Private |
| 11. | Taylor's University | Private |
| 12. | Universiti Kuala Lumpur | Private |
| 13. | Universiti Malaysia Pahang | Government |
| 14. | Universiti Putra Malaysia | Government |
| 15. | Universiti Sains Islam Malaysia | Government |
| 16. | Universiti Sains Malaysia | Government |
| 17. | Universiti Teknikal Malaysia Melaka | Government |
| 18. | Universiti Tenaga Nasional | Private |
| 19. | Universiti Tun Abdul Razak | Private |
| 20. | University College MAIWP International | Private |
| 21. | University Malaysia of Computer Science and Engineering | Private |
| 22. | University of Technology Malaysia | Government |