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The Usability of Katalog Induk Kebangsaan (Kik): Investigating the Perception of the Participating Libraries

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Abstract: A national union catalog is recognized as bibliographic information tracking device that could locate information around the countries. It is the catalogue of combined holdings of several libraries. Union catalogue have been so much important to libraries as reference and resource sharing tools. This situation makes more libraries involves in producing their own union catalog while some union catalog project has been brought to national level. The awareness of resource sharing demands does not exclude Malaysia from having their union catalogue. Thus, a project called Katalog Induk Kebangsaan (KIK) was organized and initiated by the National Library of Malaysia. The KIK project aims to manage and develop repository of bibliographic and non bibliographic information through collaborative network among libraries in Malaysia. In the year 2006, KIK has been made available in Web format and it was put under the responsibility of Perpustakaan Digital Nasional (PERDANA) Department in National Library of Malaysia. The main mission of the project is to manage and develop repository of bibliographic and non bibliographic information through collaborative network among libraries in Malaysia.

This paper provides insight on the participating libraries perceptions on the usability of Katalog Induk Kebangsaan (KIK). A recent study has been conducted to investigate the perception of the participating libraries towards the accessibility of KIK, to identify potential improvement for KIK functionalities as perceived by the participating libraries and to investigate the authoritativeness of KIK records. The study adopted survey method whereby questionnaires have been distributed to participating libraries involved with the development the KIK in the first phase. The finding of the study indicates that the perceptions of the participating libraries towards the accessibility, functionality and authoritativeness of the KIK are motivated to Exceed Minimal Acceptable Level. However the results did not illustrate significant tendency of the perceptions towards Exceed Minimal Acceptable Level. The usability of the KIK perceived by participating libraries inclined to the same level as other variables. Furthermore, the relationship of each variable was also tested and illustrates positive relationships. The study was limited to the issues on the usability of KIK which highlight the accessibility, functionality of KIK and authoritativness of KIK records. Findings from this study could be used to improve the service and facilities provided by KIK in order to satisfy the users’ information needs and become the opening gateway for other researcher to engage in similar research. This study provides highlights on real issues relating to national union catalog as well as few improvements that could be done to improve the usability of the KIK.

Keywords: National Union Catalog, Katalog Induk Kebangsaan (KIK), National Library of Malaysia, Malaysia Usability Study
INTRODUCTION

With the enormous increase of information from time to time, the needs of information retrieval desire better information organization and accessibility. These needs demand a device that could solve the phenomenon of scattering information by housing them under one roof. Thus, establishment of national union catalog has been looked as one of the entities that give great impact and having its own significance to the access and retrieval issues (Brunhill & Law, 2005).

A national union catalog is recognized as bibliographic information tracking device that could locate information around the countries. It is the catalogue of combined holdings of several libraries. It combines the catalog records of multiple libraries into one database using a single or master bibliographic record with specific item records and summary holdings data for each institution attached to it (Beam & Copeland, 2001). Commonly, people always preferred union catalogue to be known as directory on what is held by others where each institution makes details of the resources (Burnhill, Guy & Osborne, 2006).

According to Severt (2003), in the beginning most union catalog was regional or consortium based and they all started from papers based union catalog. Then, the assistance of computer based networks has allowed the national and international sharing of holdings information. Increases in the volume of information available, and the growing expectation of library users have put a new demands on libraries especially in resource sharing (Severt, 2003). The awareness of resource sharing demands does not exclude Malaysia from having their own union catalogue. Thus, a project called as Katalog Induk Kebangsaan (KIK) was organized and initiated by the National Library of Malaysia. The KIK project aims to manage and develop repository of bibliographic and non bibliographic information through collaborative network among libraries in Malaysia.

Katalog Induk Kebangsaan (KIK)

Katalog Induk Kebangsaan (KIK) was started in paper based union catalog format in 1990s where automation and ICT has not yet popular and massively used in Malaysia especially in library and information science fields. At that time the KIK project was handled manually and a lot of effort has been put in to control and organize all the bibliographic records in Malaysia. Its paper based format has created a barrier of access to the libraries or users who interested to use the union catalog since they were unable to access it remotely.

In the year 2006, the hassle of accessing the KIK has been brought to rest as the KIK has been made available in Web format and it was put under the responsibility of Perpustakaan Digital Nasional (PERDANA) Department in National Library of Malaysia. The main mission of the project is to manage and develop repository of bibliographic and non bibliographic information through collaborative network among libraries in Malaysia.

KIK project aims to serve as a centralized catalogue database where it holds all bibliographic and non-bibliographic information of “participating libraries” in Malaysia. According to an informal interview with the Deputy Director of PERDANA Management Service Division, Yatimah Yaakub, from 2006 to 2008, 102 “participating libraries” have contributed their library bibliographic information to the KIK project. Each library sent their library collection’s bibliographic records to be gathered and processed.
PROBLEM STATEMENT

KIK mission is to manage and develop the bibliographic and non-bibliographic information repository via collaborative network among libraries in Malaysia. As to achieve this mission, accessibility, functionality and the quality of the bibliographic records in KIK is the core issues when questioning about the usability of the KIK. These issues has been highlighted by few scholars like Yushiana Mansor and Zuraidah Abdul Manaf (2008) highlighted that catalogue records are used as a tool to access the library’s collection. Besides, it is crucial for these records to have some “quality”. In other words, Graham (1990), Noryati Abdul Samad (1994) and Thomas (1996) agreed that the “quality” of the records is depending on its cataloging process. It must intellectually accurate, consistent and free of errors especially in their access points. This study attempts to analyze the perception of the participating libraries towards the issue of KIK usability. The findings of the study are important in determining the KIK accessibility, functionality and records quality.

Research Questions

RQ 1. What are the perceptions of participating library towards the accessibility of the KIK with regards to:
   i. Access points used in KIK?
   ii. Retrieval of relevant items?

RQ 2. What are the perceptions of participating libraries towards the functionality of the KIK?

RQ 3. What are the perceptions of participating libraries towards the authoritativeness of KIK records based on:
   i. KIK compliance with standards for bibliographic records (AACR2R & MARC21)?
   ii. Accurate assignment of access points?

RQ 4. What are the perceptions of participating libraries towards the usability of KIK on ILL, CDM, DDS and Copy Cataloging?

LITERATURE REVIEW

Union Catalog housed multiple libraries’ bibliographic records in the same repository by according to certain standards with the provision of access to its information. It allows the patrons who want to dig out information scattered in many libraries by utilizing this single access gateway. The remarkable idea of initiating a cooperative access through union catalog was triggered since the concept of shared cataloguing becomes the major concern in Librarianship. In 1901, the first regional union catalog was initiated by California State Library which at that time printed catalog cards were massively used (Rupp-Serrano, 2000). According to Weber (1976), dozens of new union card catalogs begun in 1930s and notes that a 1940-41 ALA survey of programs recommended future coordination to assure thorough coverage, minimum overlap and sound fiscal support. At this time, the function of union catalog cards were merely used to support shared cataloguing or cooperative cataloguing and inter-library lending facilities among cooperated libraries. From this general review of history, two gigantic type of union catalog emerged with both exist in different formats. These legendary union catalog projects are Mansell and WorldCat. Mansell catalog is the enormous printed union catalog project published by Mansell Information/Publishing Ltd while WorldCat is the online union catalog project handled by the OCLC.
Printed Union Catalog – Mansell Catalog

Mansell Catalog or Mansell was named upon it publisher. MansellCatalog project was started by a project of union catalog that established by Library of Congress (LOC) in 1901. It initiated by obtaining copies of the catalogs from major libraries including New York Public Library, Boston Library, Harvard University Library and John Crerar Library. Until 1926 this collection of catalog has reached 2 million cards. After 14 years of publication, Mansell Catalog published in 754 volumes with cost over $34 million and contained 528,000 pages of text (Hall, 2004).

Online Union Catalog – WorldCat

Another format of union catalog is the online union catalog which known as the WorldCat. In 1964, the introduction of the first family of computers by IBM brought a new paradigm to the development and coordination of union catalog. Automation or Computerization potential to library task has been recognized by IFLA to assist library in facilitating and enhancing consistent and repetitive task of library operation (McCallum, 2003). This phenomenon triggered the establishment of the world largest online union catalog, WorldCat (www.worldcat.org). WorldCat was found by a leading figure in librarianship during 20th century called Frederick G Kilgour. He come out with an idea of creating an online union catalog through shared cataloging in order to reduce individual transaction costs for libraries. The project was started in 1967 by consortia called OCLC (Ohio College Library Center) which formed a network of 54 Ohio Colleges using MACHine-Readable Catalog (MARC) records. In 1977, that network was opened to all libraries and in 1981, the legal name of the corporation became OCLC Online Computer Library Center, Inc. (O’Daniel, 1999). The project has now known as the WorldCat. It holds billion of bibliographic records consist of books, serials, sound recordings, musical scores, maps, visual materials, mixed materials and computer files (OCLC, 2010). Vastly, these collections are covering more than 6,000 years recorded knowledge, approximately since 4800 B.C to the present. Recently, 217,039,922 of bibliographic records are available in WorldCat (OCLC, 2011).

National Union Catalogue Paradigm

Printed and online union catalog has tremendously breaks down the barriers between individual library catalogues and makes it easier for users to find their desired materials. It encourages lots of countries to have their own national union catalog to accumulate all the knowledge hold by the libraries and made it viable to be access by one single access tool or interface (Cousins & Sanders, 2006). Besides, with the rapid advancement of new technologies in librarianship after 2003 (McCallum, 2003) and the increased use of Z39.50 technology has stimulated the interest in national union catalog creation (Stubley& Kidd, 2002). National union catalog provides the paradigm of “one-stop shopping” whereas users’ needs could be satisfied through single route of information searching.

Whether the union catalog is a centralized or virtual union catalog, they provide simultaneous access to current items in a vast materials or collections (Hider, 2003). Hider (2003) highlighted, naturally a union catalog served interlibrary documents delivery. Thus if a union catalog was made to be a national catalog, it would provide public access to the union catalog and stimulate the end-users to utilize all potentially valuable interlibrary loans and interlibrary transactions. Hence, the establishment of UK National Union Catalog (UKNUC), SpaceCat (online union catalogue for space serials science in India), Virtual Canadian Union Catalog (VCUC), Bavarian Union Catalogue, Danish Union Catalogue, Katalog Induk Kebangsaan (KIK) and any other national union catalog clearly displayed that National Union Catalog has become the new paradigm to individual catalogues.
Usability of National Union Catalogue

National union catalog possessed with several goals in order to support and respond to users’ information needs. As for the librarians, Chand and Chauhan (2008) announce that in India, national union catalog is utilized as the collection development tools and document delivery mechanism for different types of materials owned by the participating libraries. Besides, union catalog is also used to facilitate Inter-Library Loan (ILL) request from the users and also encourage shared / copy cataloguing (Hider, 2003; Petersen, Lose & Einarsdottir, 2009; Chelak & Azadeh, 2010). From the users’ side, Chelak and Azadeh (2010) emphasized that union catalog could provide advantages to user in terms of confirmation of the existence of an item, accurate known locations for an item and its availability status. As national union catalogue being used by the users to satisfy their information needs, the usability of the union catalog is the major issues discussed among researchers and librarians. As yet, usability practitioners have rarely articulated this issue. Caidi (2005) mentioned that the concept of usability is based on establishing criteria for effective, efficient and satisfying use while Feret (2005) discussed usability in deeper paradigm which usability is not only about efficiency but also the transparency of services and its flexibility to the end-user. In other words, usability is the success-ability of searching task in shorter duration with less difficultness (Fast & Campbell, 2004; Nielsen & Baker, 1987).

Predicated on the usability concept by the scholars, effectiveness and efficiency of the national union catalog in retrieving and locating the information is the major respond that seek by the users. However, the effectiveness and efficiency greatly depending on the accessibility of the union catalog in terms of how union catalog access the storage of information and retrieved it for the user. In consequence, such barriers in accessibility could threaten the effectiveness and efficiency of information retrieval. Hence, it shows that the accessibility could become the issues of the usability of national union catalog. Satisfying use, flexibility and the difficultness of the union catalog (Caidi, 2005; Feret, 2005; Fast & Campbell, 2004; Nielsen & Baker, 1987) can be assumed as the facilities or functionalities that should be offered by the union catalog to the end-users. Sorting out features of search hits by relevance, comprehensive browse capabilities, availability status of collections and also real time information could make the union catalog preferable and increase its frequency of usage (Antelman et al., 2006; Hider, 2003).

Another issue of usability of union catalog is the success-ability of the searching task (Fast & Campbell, 2004; Nielsen & Baker, 1987). Hider (2003) urged that success-ability of a search using union catalog is depending on the particular bibliographic qualities and authoritativeness. The authoritativeness of the bibliographic information depends on the bibliographic records consistency, accuracy, one universal data must be used for same materials and union catalogue records must be used for serious purposes. These qualities would give great advantages to users and meet their information needs.

a. Accessibility Issues
In regards to accessibility issues, the national union catalog effectiveness and efficiency can be looked from the perspective of information searching and retrieval. However, it greatly depends on accessibility elements and factors like searching system algorithm of union catalog, access points, networking speed, network protocols and format of catalogs (Holmes & McCabe, 2002; Hider, 2003; Noryati Abdul Samad, 1994). Nevertheless, searching system algorithm plays major role in ensuring the success of information searching and retrieval in union catalog. Holmes and McCabe (2002) mentioned that misspellings, nicknames, and cultural variation complicate information retrieval.

Pertaining to information retrieval, according to Croft (1995), there were 10 issues that related in searching and retrieving information and one of them is the effectiveness and efficiency of obtaining the information. Effectiveness and the efficiency are depending on the recall and the precision of the search results. High recall / search results is equal to effectiveness while precision or relevancy of the search results is the efficiency of the search tools. However, information retrieval depends on how union catalog
system searches for information. In order to do any searching, union catalog system use access points to
access bibliographic information from the union catalog database. These access points can be any name,
term, code or etc. under which a bibliographic record may be searched and identified (ALA, 2002).
According to Anglo American Cataloging Rules Revision 2 (AACR2R), access points of particular
materials can be accessed by their main entry (authors’ names, corporate body, conferences / seminar,
etc.), title of the materials, subject headings and added entry. Without the access points, any search done
will not be able to access the union catalog database thus no results will be retrieved. Moreover,
utilization of Z39.50 protocol is very synonym with librarianship. Z39.50 protocol allows library
management system (LMS) to communicate to each other and facilitate shared cataloguing and
interlibrary loan. However, in the aspect of union catalog, few issues of utilization of this protocol have
emerged. Burnhill, Guy and Osborne (2006) emphasized that even though federated search (distributed
union catalog) could bring access to more library catalogs, if Z39.50 is utilized to enable the federated
search it will risk low usability since the system will be slow or unreliable due to nature of searching
multiple target at once. Hider (2003) also emphasized that, as Z39.50 remains affordable the issues of not
all Z39.50 clients and server offer sophisticated searching functionality and access yet. Besides, according
to Yatimah Yaakub (personal communication, December 24, 2010), Deputy Director of PERDANA,
National Library of Malaysia, without enabling Z39.50 in both client and server, LMS of particular
library could not communicate and access all the cataloguing records that other libraries has. Lastly, the
format of the union catalog could also be the issues of its accessibility. Book catalog or card catalog
possess less accessibility as the user needs to come on site in order to use the union catalog (Hall,
2004). However, currently most of the union catalog has vastly used the online union catalog. As the
format used for the online union catalog is MARC format and this format is standardized to any library it
should not become a problem in accessing and merging the cataloguing data into any libraries. However,
in Malaysia, certain libraries are using MALaysia MARC (MALMARC) instead of MARC. This situation
will restrict the access and retrieve comparable items from other library catalog since it requires
participating database to offer uniform set of standards (Coyle, 2000).

b. Functionalities
Satisfying use, flexibility and the difficulty of the union catalog (Caidi, 2005; Feret, 2005; Fast &
Campbell, 2004; Nielsen & Baker, 1987) are very subjective to be measured as it depends on human
perceptions on the usability of the union catalog. However, enhancement could be done to union catalog
by providing additional relevant functionalities. Antelman et al. (2006) highlighted that North Carolina
Estate University enhanced its catalog by providing relevance ranked results whereby he user would be
able to sort out the search results by level of relevancy. Beside, new browse capabilities and improved
subject access were also added to the catalog. These enhancements not only enhance the capability of the
catalog system but also increase the usability of the union catalog. Providing opportunity to refine search
result as what been offered by WorldCat is also a great idea instead of simply offers a list of results like
Google Scholar (Soules, 2010).

c. Authoritativeness
Another issue in union catalog is the authoritativeness of the catalog records. Trustworthiness or
reliability of a union catalogue records is highly depending on the process of cataloguing the materials.
Noryati Abdul Samad (1994) stressed out that for the catalogue to be an effective tool to access the library
collection it has to have some quality. Quality cataloguing records must consistent, accurate, and one
universal data must be used for same materials which can only be monitored through quality control
(Noryati Abdul Samad, 1994; Hider, 2003). Moreover, records must be error-free in their access points,
abide by nationally accepted cataloguing rules and standards and must be consistently maintained to
ensure currency and accuracy of the bibliographic information as well as perform and support the
importance of authority control to provide simplified searching (Noryati Abdul Samad, 1994). From
national union catalog perspective, authoritativeness of the cataloguing records not only depends on the
cataloguing quality but also lies in the uniqueness of data catalogued by the librarian (O’Neill, Rogers, &
Unique data is required to represent materials with same attributes. Since union catalog is a combination of multiple catalogs in one place, the merging of data could create duplications of records in the union catalog database. O'Neill, Rogers, & Oskins (1993) found that general cataloging and data entry patterns such as variations in title transcription and form of name, typographical errors, miss-tagged fields, misplaced subfield codes, omissions, and inconsistencies between fixed and variable fields often caused records that were duplicates to appear different. These duplication matters were tried to be solved by de-duplicating programme through the union catalog system however, danger consequences could happened to the catalogue records such as records being collapsed which do not in fact represent the same item could be deleted (Hider, 2003). Hence, in order to overcome the issues most likely, preventive measure must be taken by the effort of librarian by minimizing the risk of non-quality cataloguing process and adhere to standards accordingly (O'Neill, Rogers, & Oskins, 1993).

KIK in Malaysia’s Library Environment

Katalog Induk Kebangsaan (KIK) is the name for Malaysia’s National Union Catalog. As the first history of union catalog, KIK also started with printed version of national union catalog. The first union catalog was established on 1978 and being used in the same format until end of year 1990. During the period, only few “participating libraries” contribute catalog records for the union catalog project. It involved only few libraries which are National Library of Malaysia and five universities libraries like Universiti Sains Malaysia, Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Pertanian Malaysia (now is known as Universiti Putra Malaysia) dan Universiti Teknologi Malaysia. Impressively, until 1990, 480,000 catalog records were accumulated and the project has been recognized as the biggest bibliographic database in the country. Then, with the establishment of technology, MALMARC (Malaysia Machine-Readable Cataloging) was established and used for the union catalog as the standards format of cataloguing records where Computer Center of USM has acted as the host and organizer for the project. Unfortunately in the 1990s, the project rested since most of the participating libraries have their own integrated library system. Besides, at that time the information system could no longer able to handle a big number of records.

In November 2005, a project called as Katalog Induk Kebangsaan (KIK) was established to pursue the older function of the national union catalog. The project was organized in three phases with the contribution and collaboration of different types of participating libraries throughout the Malaysia. Participating library is the library or institutional resource center that joined and collaborates in KIK project which intend to contribute their library collections’ bibliographic information to be participated in KIK catalog records. Participating Libraries consists of few types of libraries like Public Libraries, State Public Libraries, Universities Libraries, and Special Libraries. Currently, there are 101 participating libraries has joined in KIK projects with approximately 7.3 million of bibliographic data accumulated and available via KIK portal. Currently the project established using the web-based version of KIK whereby the union catalog can be access remotely through internet at http://kik.pnm.my.

Perceptions Study

Perception study has been used by Einasto (2009) to study the service quality in Estonia. The study was implemented by distributing surveys to the users of the library in order to evaluate the library performance based on the users’ perceptions. According to Cook et al. (2001), the best assessors of service quality in libraries are their users including the provision of union catalog to the users. In fact, users of a library are not merely recipients of services offered, but they are also partners in the development and implementation of services (Nitecki, 1996).
Pertaining to union catalog study, Stubley and Kidd (2002) did a survey to discover the perceptions of the users and librarians on how successful the facilities and services of UK National Union Catalog in satisfying the needs. They also mentioned that users are the people with experience of searching library catalogues and perceptions from the users could provide focused on optimal results of the study. However, studies on perception possess the complication of users’ expectation. This expectation provides gap and extreme deviation in evaluation since expectation is based on two levels which are Desired Level and Adequate level (Parasuraman et al., 1994). Desired level is the level of the users hopes to receive, consisting of what the user believes should and could be provided by an excellent service organization. Adequate service is the minimal level of service the users will expect and accept. Due to these levels, the Zone of Tolerance (ZoT) has been recognized to respond to the level of users’ expectation since ZoT is the area between the levels of users’ expectations (Johnston, 1995). As a result, ZoT could provide the solution to the complication brought by the perception study by ranging the expectation of users according to desired and adequate level.

METHODOLOGY

In this study, survey method was used to collect data from the research respondents and bibliographic records from KIK database. The questionnaire was prepared in both printed and online format in order to make the questionnaire easier to be accessed and answered by the respondents.

Population and Respondents

In this study, purposive sampling technique was used to select the respondents. As according to Agarwal (2007), purposive sampling makes selection of populations entirely depends on the choice of the researchers. In fact, the selection of the unit is made with a definite object in view (Ashiq Hussain, 1985; Khan, 1998) and non-random (Teddlie and Tashakkori 2008). Therefore, the target populations for the study were Librarians and staff from the 20 participating libraries which involve in KIK from the first phase of KIK project. These libraries were chose because they have used the KIK more than 3 years. However, National Library of Malaysia (PNM) was excluded from the survey in order to avoid bias since they are the host of KIK.

The Questionnaire

As questionnaire was the instrument used to study the usability of KIK, each variable of the study were divided into few sections in order to comprehensively study the perception of the respondents. Data were collected using questionnaires which were distributed to the librarians of participating libraries. A scale of a concept from other studies were also adapted and altered to meet the requirement of the study. In order to design the questionnaire appropriately, a modified Zone of Tolerance (ZoT) was used to determine the level of users’ satisfaction upon KIK. This level of satisfaction was applied by Einasto (2009) using Zone of Tolerance (ZoT) in her study to determine the perceptions of users towards the service quality in library. The level of satisfaction in ZoT was found to be appropriate to assess users’ perception since it will not evaluate the service as good or bad but what best satisfies the users (Gwynne et al., 2000). In Einasto study, the level of satisfaction is consists of seven scale of satisfaction. However, for this study the scale were modified and five scale of satisfaction as indicated in Table 1 was adapted.
Table 1: Five scale of Satisfaction

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>5</td>
<td>Correspond to Entirely Acceptable Level</td>
</tr>
<tr>
<td>4</td>
<td>Exceed Minimal Acceptable Level</td>
</tr>
<tr>
<td>3</td>
<td>Correspond to Minimal Acceptable Level</td>
</tr>
<tr>
<td>2</td>
<td>Lower than Minimal Acceptable Level</td>
</tr>
<tr>
<td>1</td>
<td>Does not meet my expectation at all</td>
</tr>
</tbody>
</table>

A reliability test was performed to test the questionnaire. The score of Alpha values ranging from 0.878 to 0.959 demonstrated good reliability of the questionnaire.

ANALYSIS AND FINDINGS

From 20 Participating libraries, only 70% were involved in the study.

Accessibility

The findings indicated that the perception of USM Library, IIUM Library, UM Library, Sandakan Regional Library, Kettha Library towards the accessibility of KIK inclined to correspond to minimal acceptable level without extreme standard deviation. UPM Library, Arkib Negara Library, UNIMAS Library, SIRIM Library, Ministry of Treasury Library, UiTM Library, INTAN Library and UUM Library perceived KIK as inclined to correspond to minimal acceptable level without extreme standard deviation while MITI Library and Penang State Library perceived KIK as inclined to exceed minimal acceptable level. This is demonstrated in Table 3.

Table 3: Accessibility Analysis

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Accessibility</th>
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<th>Accessibility</th>
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<tr>
<td></td>
<td>Mean</td>
<td>Std Dev.</td>
<td></td>
</tr>
<tr>
<td>USM Library</td>
<td>2.24</td>
<td>1.08</td>
<td>SIRIM Library</td>
</tr>
<tr>
<td>IIUM Library</td>
<td>2.74</td>
<td>0.82</td>
<td>Ministry of Treasury Library</td>
</tr>
<tr>
<td>UM Library</td>
<td>2.77</td>
<td>0.90</td>
<td>UiTM Library</td>
</tr>
<tr>
<td>Sandakan Regional Library</td>
<td>2.82</td>
<td>0.00</td>
<td>INTAN Library</td>
</tr>
<tr>
<td>KETTHA Library</td>
<td>2.91</td>
<td>0.00</td>
<td>UUM Library</td>
</tr>
<tr>
<td>UPM Library</td>
<td>3.15</td>
<td>0.46</td>
<td>MITI Library</td>
</tr>
<tr>
<td>Arkib Negara Library</td>
<td>3.27</td>
<td>0.00</td>
<td>Penang State Library</td>
</tr>
<tr>
<td>UNIMAS Library</td>
<td>3.36</td>
<td>0.42</td>
<td></td>
</tr>
</tbody>
</table>
Functionality

Functionality of KIK perceived by the USM Library, IIUM Library, UM Library, Sandakan Regional Library, KETTHA Library, Arkib Negara Library and Ministry of Treasury Library as correspond to minimal acceptable level without extreme deviation. SIRIM Library, UNIMAS Library, UUM Library, UiTM Library, INTAN Library and MITI Library perceived KIK as exceed minimum acceptable level while only Penang State Library perceived KIK as entirely correspond to acceptable level. This is indicated in Table 4.

Table 4: Functionality Analysis

<table>
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<tr>
<td></td>
<td>Mean</td>
<td>Std Dev.</td>
<td>Mean</td>
</tr>
<tr>
<td>USM Library</td>
<td>2.50</td>
<td>0.83</td>
<td>SIRIM Library</td>
</tr>
<tr>
<td>UPM Library</td>
<td>2.50</td>
<td>0.93</td>
<td>UNIMAS Library</td>
</tr>
<tr>
<td>IIUM Library</td>
<td>2.88</td>
<td>0.39</td>
<td>UUM Library</td>
</tr>
<tr>
<td>UM Library</td>
<td>2.90</td>
<td>0.93</td>
<td>UITM Library</td>
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<tr>
<td>Sandakan Regional Library</td>
<td>3.00</td>
<td>0.00</td>
<td>INTAN Library</td>
</tr>
<tr>
<td>KETTHA Library</td>
<td>3.00</td>
<td>0.00</td>
<td>MITI Library</td>
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<td>Arkib Negara Library</td>
<td>3.00</td>
<td>0.00</td>
<td>Penang State Library</td>
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<tr>
<td>Ministry of Treasury Library</td>
<td>3.00</td>
<td>0.00</td>
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</tbody>
</table>

Authoritativeness

USM Library, UM Library, Arkib Negara Library, SIRIM Library, Sandakan Regional Library, KETTHA Library and Ministry of Treasury Library perceived KIK bibliographic records as inclined to correspond to minimal acceptable level without extreme deviation. UPM Library, UNIMAS Library, UiTM Library and UUM Library perceived KIK bibliographic records as inclined to exceed minimal acceptable level while MITI Library, INTAN Library and Penang State Library perceived the KIK bibliographic records as inclined to correspond to entirely acceptable level as shown in Table 5.

Table 5: Authoritativeness Analysis

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<th>Institutions</th>
<th>Authoritativeness</th>
<th>Institutions</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std Dev.</td>
<td>Mean</td>
</tr>
<tr>
<td>USM Library</td>
<td>2.67</td>
<td>1.00</td>
<td>UPM Library</td>
</tr>
<tr>
<td>UM Library</td>
<td>2.72</td>
<td>0.97</td>
<td>UNIMAS Library</td>
</tr>
<tr>
<td>Arkib Negara Library</td>
<td>2.81</td>
<td>0.00</td>
<td>UITM Library</td>
</tr>
<tr>
<td>IIUM Library</td>
<td>2.91</td>
<td>0.33</td>
<td>UUM Library</td>
</tr>
<tr>
<td>SIRIM Library</td>
<td>2.94</td>
<td>0.00</td>
<td>MITI Library</td>
</tr>
<tr>
<td>Sandakan Regional Library</td>
<td>3.00</td>
<td>0.00</td>
<td>INTAN Library</td>
</tr>
<tr>
<td>KETTHA Library</td>
<td>3.00</td>
<td>0.00</td>
<td>Penang State Library</td>
</tr>
<tr>
<td>Ministry of Treasury Library</td>
<td>3.00</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>
Usability

Usability of KIK derived from the accessibility, functionality of KIK and the authoritativeness of KIK bibliographic records. In table 6, USM Library, IIUM Library, UM Library, Sandakan Regional Library, KETTHA Library, SIRIM Library and Ministry of Treasury perceived the usability of KIK as inclined to correspond to minimal acceptable level. UPM Library, UNIMAS Library, Arkib Negara Library, INTAN Library and UiTM library perceived KIK usability as inclined to exceed minimal acceptable level while MITI Library, Penang State Library and UUM Library perceived KIK usability as inclined to correspond to entirely acceptable level.

Table 6: Usability Analysis

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Usability</th>
<th>Institutions</th>
<th>Usability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std Dev.</td>
<td>Mean</td>
</tr>
<tr>
<td>USM Library</td>
<td>2.50</td>
<td>0.87</td>
<td>UNIMAS Library</td>
</tr>
<tr>
<td>IIUM Library</td>
<td>2.56</td>
<td>0.72</td>
<td>Arkib Negara Library</td>
</tr>
<tr>
<td>UM Library</td>
<td>2.73</td>
<td>1.03</td>
<td>INTAN Library</td>
</tr>
<tr>
<td>Sandakan Regional Library</td>
<td>2.75</td>
<td>0.00</td>
<td>UITM Library</td>
</tr>
<tr>
<td>KETTHA Library</td>
<td>2.88</td>
<td>0.00</td>
<td>MITI Library</td>
</tr>
<tr>
<td>SIRIM Library</td>
<td>3.00</td>
<td>0.00</td>
<td>Penang State Library</td>
</tr>
<tr>
<td>Ministry of Treasury Library</td>
<td>3.00</td>
<td>0.00</td>
<td>UUM Library</td>
</tr>
<tr>
<td>UPM Library</td>
<td>3.08</td>
<td>0.07</td>
<td></td>
</tr>
</tbody>
</table>

Overall Perception Analysis

Table 7 demonstrates the means score of all variables studied which consists of Accessibility, Functionality, Authoritativeness and Usability of KIK. Each variable perceived by the participating libraries as exceed minimal acceptable level whereby each mean score inclined to the forth scale of satisfaction without extreme standard deviation.

Table 7: Accessibility, Functionality, Authoritativeness and Usability of KIK

<table>
<thead>
<tr>
<th>Variables</th>
<th>Accessibility</th>
<th>Functionality</th>
<th>Authoritativeness</th>
<th>Usability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Score</td>
<td>3.15</td>
<td>3.15</td>
<td>3.20</td>
<td>3.09</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.83</td>
<td>0.75</td>
<td>0.74</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Scale

1. Does not meet my expectation at all
2. Lower than Minimal Acceptable Level
3. Correspond to Minimal Acceptable Level
4. Exceed Minimal Acceptable Level
5. Correspond to Entirely Acceptable Level
DISCUSSION

The main purpose of the study is to determine the perceptions of the participating libraries towards the usability of the Katalog Induk Kebangsaan (KIK). Therefore, this study was done to answer all research questions.

Perceptions of the "Participating Libraries" towards the Accessibility of KIK Records in KIK Portal

Accessibility of the KIK in this study regards to the ability of the KIK system to provide access to the users, especially the participating libraries to any bibliographic or non-bibliographic information available in the KIK database. The ability to access and retrieve particular materials falls under the role of the access points of particular materials (Chan, 2007) whereby access points could bring the searcher to the bibliographic information of the desired materials throughout the database. The accessibility of the KIK was studied based on the 5 scale of satisfaction level of the participating libraries. From the data analysis, it indicates that perceptions of the participating libraries towards the accessibility of the KIK are inclined to “Exceed Minimal Acceptable Level” (Table 7). However, this perceived level still not enough for the KIK team to remain stagnant with the overall perception from the respondents because from the survey, there was comments which mentioned about the inaccessibility of KIK. Some of the comments from the survey are as follows:

“…lots of book records can no longer be accessed. Sometimes, materials from the national library itself cannot be accessed through KIK portal…”  
-Respondent from Academic Library-

“… need to upgrade searching term for materials…”  
-Respondent from Academic Library-

The first comment indicate the overall accessibility of KIK while the second comment specifically mentioned pertaining to searching terms in retrieving the information. These comment indicate that the accessibility of the KIK require improvement especially in terms of records retrieval to ensure the accessibility of KIK could really help the users to retrieve their desired materials or information.

KIK Functionalities as Perceived by the Participating Libraries

Functionality is important for a system to provide search services to the user. In this study, functionality is the feature or aid that provided by the KIK system to facilitate the user in order to fulfill their information needs. From the table 7 data analysis, it shows that the participating libraries perceived the KIK functionality as “Exceed Minimal Acceptable Level”.

However, a basic trial performed by the researcher towards the functionality of the KIK did not agreed with the perception of the survey respondents. A basic trial was done by testing a search process on particular topic using the KIK portal in order to be familiar with the system features and facilities. A basic keyword search using “Information Communication Technology” was used in the trial. Other than the KIK portal, SUNCAT which is the UK serials union catalogue portal was also used in the trial as the benchmark union catalog however, SUNCAT were only used to compare basic search facilities and services.

During the comparison trial, it was found that SUNCAT and KIK provide almost the same functionality to the user in terms of basic search and advanced search facilities. However, there were other
functionalities that SUNCAT have, but not provided by KIK which is important to the user. SUNCAT provide sorting service for search results, allow bibliographic information to be emailed, provide more comprehensive manual on using the union catalog and provide search history for user to keep track on the searching process being done. Hence, as a development of additional services and better functionality is required. Besides, these improvements would leads to the increments of usage of KIK. Besides, improvement made by North Carolina Estate University by providing relevance ranked results feature (Antelman et al., 2006) and providing opportunity to refine search result as what been offered by WorldCat are great ideas instead of simply offers a list of results(Soules,2010) like KIK.

The Authoritativeness of KIK Records

The authoritativeness of the KIK records was surveyed from the perspective of its compliance with the standards of bibliographic records such as AACR2R and MARC21. Besides, the accuracy of the access point assignment was also studied. From the data analysis, participating libraries perceived the KIK compliance with the standards and the accuracy of access point assignment as “Exceed Minimal Acceptable Level” which inclined the overall perceptions towards the authoritativeness of KIK records as “Exceed Minimal Acceptable Level” (table 7).

Based on the table 7, the perception of the respondents indicates that the minimal acceptable level has been exceeded however, based on the mean score which is 3.20 with standard deviation of 0.74, which is not very significant to accept it as exceeding minimal acceptable level if it looked from the perspective of quality cataloging. This was agreed by Noryati (1994) and Hider (2003) who stated that quality cataloguing records must consistent, accurate, and one universal data must be used for same materials which can only be monitored through quality control. Moreover, records must be error-free in their access points, abide by nationally accepted cataloguing rules and standards and must be consistently maintained to ensure currency and accuracy of the bibliographic information as well as perform and support the importance of authority control to provide simplified searching (Noryati Abdul Samad, 1994). Therefore, the authoritativeness of the records should be control in order to protect the quality of the cataloging records by accurately assigned access points and comply with the appropriate established standards.

The Usability of the KIK as Perceived by the Participating Libraries

The usability of the KIK was derived from the accessibility, functionality of KIK and the authoritativeness of KIK records. Based on the data analysis of KIK usability in table 7, it indicates that the respondents perceived the usability of KIK as “Exceed Minimal Acceptable Level”. However, this satisfaction level seems to be opposed by the comments given by the respondents. Some of the comments are:

“…most of the KIK records were not actually updated. Besides, ILL facility is not practical and not all libraries use this facility. Moreover, for public library collection, other libraries are not allowed to borrow whereas the members can. So, it should not be included in ILL package…”
-Respondent from Academic Library-

“I seldom use KIK because it is not user friendly, the data is not complete and lack of access facilities like “Limit Search”
-Respondent from Academic Library-

Therefore, some feedback from the user of KIK should be looked as important and modification or alteration for better services should be planned as to provide better national union catalog for the user.
Even though the perception level of the participating libraries has reached more than minimal acceptable level however, KIK team should plan to reach the “entirely acceptable level” so that it will increase the usability of the KIK.

CONCLUSION

The usability of the KIK has been studied based on the perception of the participating libraries and records analysis. KIK can be presumed as one of the national knowledge keepers as it holds millions of book collection from more than 100 participating libraries. The maintenance and the management of the KIK are essential in ensuring its usability and practicality to the participating libraries and end users. From the study, it was found that the usability of Katalog Induk Kebangsaan (KIK) can be influenced by three different dimensions which are (1) accessibility of KIK, (2) functionality of KIK and (3) the authoritativeness of the KIK bibliographic records. Each dimension possess positive relationship which whenever each of them improves, the usability will also be improved. In conclusion, the usability of the KIK as perceived by the participating libraries is exceeding minimal acceptable level. However, such improvement should still be acknowledged to ensure that the provision of better service offered by national union catalog is usable and practical.
REFERENCES


