Master Plan Design and Implementation of e-Library System

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Abstract
A study shows that the successful use of e-library system in implementation depended on the speed of access, accuracy and appropriate searching collection access (Umukoro and Tiamiyu 2017). Of course, the incomplete design and implementation of the e-Library System at IAIN Batusangkar had become a challenge for the library unit in implementing the e-Library system optimally to retrieve information easil and fast. The purpose of this study was to see the extent of the implementation of the master plan design and that of the e-Library system at library unit of IAIN Batusangkar. This research was a qualitative, library research, this research, used some references to analyze the strengths and weaknesses of the e-Library system. The results showed that the development of the e-Library or digital library at the library unit of IAIN Batusangkar was a way out to overcome various obstacles in the individual input and Information retrieval process, location distance, high social environmental demands and up to date information that is fast, precise, and accurate without having to visit the library and data collection needs which couls be accessed via one touch by connecting to the internet network for Search to e-Library (e.g using web: Zi-shof model e-Campus).

INTRODUCTION

Information and communication technology (ICT) that develops dynamically provides convenience and speed of service by users. In addition to providing a great opportunity to compete for libraries to improve the quality of their services. With very rapid technological advances at this time also facilitate the dissemination of information quickly to parts of the world (Ananda 2003). The development of information technology that is getting higher in a country makes the fulfillment of the country's information needs higher (Yusrizal 2016).

Based on this, there is an awareness to utilize information technology, followed up by implementing and investing in information technology, in the form of software and hardware, as well as infrastructure, so that technology can provide utility and accommodate
library programs according to their objectives. Information technology is interpreted as a technology for the procurement, storage, and dissemination of various kinds of information sources by using existing computers or telecommunications (Ardoni, 2019). Therefore, there is a great motivation to manifest new technologies that can overcome the obstacles of humans managing information (Ardoni 2019).

The obstacle is felt because the capacity of information spread quickly. Information technology allows the consumption of large amounts of information and at an extraordinary time (Ardoni, 2019). This ability is due to the "spearhead" of information technology, namely computers (Ardoni, 2019). Likewise, the information technology in the library of IAIN Batusangkar is the spearhead for universities to support the Tri Dharma of Higher Education.

The implementation of information technology will have a positive or negative influence on the library. Consequently, there must be anticipations of each implementation of the application of information technology which is believed to have an impact that needs to be anticipated by the library from an early age.

This implementation does not only affect technology alone, but also in other sectors, including libraries. Information technology has a very important position in growing the ability of information organizers in the library. However, the big problem that becomes a challenge for libraries is changing information technology in line with the desire of library users to be more active, not necessarily reactive when there are modifications in general needs to accommodate each lecture to be better and more efficient for educators and specific students at IAIN Batusangkar.

The e-Library concept is one version to make it easier when doing information retrieval in the library because this process provides convenience in tracing processes in the library. E-Library is one of the perceptions proposed for technological advances that occur today (Husna 2018). This concept is able to transmit conventional libraries to digitization from the input system to the fast and up to date Search for information sources process.

To implement the management of information technology in an effective value, it is essential to improve systems and information technology that are very measurable. In addition e-Library must have an exclusive design to develop excellence and service quality so that it can recommend information through research results that are faster, more precise and accurate for users. Then, this research will discuss the master plan design and implementation of the e-Library system at the Library of IAIN Batusangkar.

**METHOD**

Some steps taken in obtaining data regarding this research are as follows:

1) Doing interview with library ICT staff. It is done to obtain the necessary data (Oktavianus 2015). The identification to the e-library system applications that have been used so far is also done.

2) Doing literature study, searching for reference sources related to web design (mysql, php), and also studying sources related to the research being discussed in the form of sources of information from book collections and searches on relevant sources on the internet.

3) Creating master plan of system design and designing relation model for data base table required for system design.

4) Doing direct observations through trials on web-based online library designs using the internet or networks (Nawi and Yuhanef 2007).

The e-Library application which is mainly used in the library has not been fully implemented. Thus, this discussion focuses on the e-Campus Application to advance e-Library. Therefore, it is necessary to observe more directly the need for e-Library as a digital application, which is one of the software for controlling digital libraries that has been implemented at the Library Unit of IAIN Batusangkar.

**RESULTS AND DISCUSSION**

**E-Library Activities**

E-Library here is an analogue of a conventional library transition in terms of the diversity and complexity of reference sources, the discussion must contain electronic media, and be stored in a form that can be seen (Husna 2018). E-Library facilitated and expedited the...
process of implementing activities in the library and the advantages of the development of digital libraries including various access advantages as well, namely: a) Long Distance Service, b) Smooth access, c) Cheap (Cost-Effective), d) Digital maintenance or preservation of collections, e) Completed answers, f) Global Network. With easy access to e-Library activities, it started from the master plan design of the e-Library implementation.

The University Libraries that have used e-Library activities are libraries that have collected, preserved or preserved and published the output of information sources in the form of online and offline digital structures. This effort is carried out on an ongoing basis to support education, research, and community service (PKM) activities in accordance with the Tri Dharma of higher education. To operate this system, State Institute for Islamic Studies (IAIN) Batusangkar provided fund through List of Budget Implementation Fund.

There are four efforts that are the main focus of the existence of the e-Library program in the university library:

1. The collection of content from one location makes it easier for the information retrieval process.
2. The storage and preservation of existing information sources at a university or other information sources.
3. Availability of Open Access for the whole community by utilizing e-Library access
4. Availability of access to increase access to e-Library

E-Library System Implementation

On the e-Library data input page with data input on the e-Campus is the page used by administrators to upload collection data along with metadata entry related to the data. This page is also the page that continues with the Event Setup page. This page can only be accessed by the e-Library administrator who is the admin in order to login and perform the data entry process into the e-Library system see Figure 1.

This system is a data archive that is designed with the main source of data on the main e-Campus system. The e-Library administrator only plays a role in inputting the collection processing. Therefore, the data added by the admin needs to be verified first so that the input content is appropriate or not.

E-Library System Requirements

With the hardware and software needed in implementing the system and database management can be displayed as Figure 1.

E-Library System Hardware

Hardware specifications on the e-Library system are divided into two parts, namely for server and client computers. The peculiarities used in this system included can be seen from Table 1.
Table 1. Hardware Specifications on the E-Library System

| Device   | Server Computer                        | Client Computer                             |
|----------|----------------------------------------|---------------------------------------------|
| Processor| Intel (R) Xeon (R) CPU E5-2620 @ 2.00Ghz | Intel (R) Core (TM) i3-4160 CPU @ 3.60GHz   |
| RAM      | 32 GB                                   | 2 GB                                        |
| Hardisk  | HDD 1 : 300 GB HDD 2 : 1 TB             | 500 GB                                      |
| Lan Card | Realtek PCIe GbE Family Controller #2    | Realtek PCIe GbE Family Controller #2        |
| VGA      | Microsoft Basic Display Adapter 8146 MB | NVIDIA GeForce GT 705                      |
| Server   | Intel (R) Xeon (R) CPU E5-2620 @ 2.00Ghz | Intel(R) Core (TM) i3-4160 CPU @ 3.60GHz    |

**E-Library System Software**

The application on the server computer utilizes Microsoft Windows 2003. In accommodating the application in the library, it is necessary to prepare software that has been installed on the computer, used to be able to access the application. The software to consider are:

a. **Operating system**

An operating system or what is often called an operating system is a set of basic instructions that function in executing and running a computer.

b. **E-Library system browser**

The e-Library system web browser is a program that is used to display information on web pages and stored on a computer. utilizing Mozilla, google chrome, and edge, in order to make it easier for users to search on the e-Library Browser of the Batusangkar IAIN library.

The softwares above are used to control the digital files and documents at the library unit of IAIN Batusangkar by using e-Libraries, such as the digital library. E-Library is an open source-based software. Library users can access the work of information sources that have been done and processed through (e-Library). By browsing on the website https://library.iainbatusangkar.ac.id or https://ecampus.iainbatusangkar.ac.id/library/main/index, then the search results can display the home page of the IAIN Batusangkar e-library system.

The reason why IAIN Batusangkar has an e-library application is because the e-library application is aligned through the extended metadata, the usual assessment facilities are advanced search, and other displays. The software of the e-Library system is adjusted to the needs of the system, so that it can be modified according to the needs of the local system available at IAIN Batusangkar. Some e-Library features at IAIN Batusangkar are:

a. **Home Page**

The Home Page which is used by users in searching for information sources at the library unit of IAIN Batusangkar can see Figure 2 and 3.

b. **Verification**

After being input into the e-Campus system, it is then exported to the e-Library system. The operator then verifies the process of inputting data from the export results on the e-Library system.

c. **Generating results from e-Library**

This is the process of inputting the breakdown of files that must be filled in based on the program provisions in the e-Library. There are 31 stages of the process: 1) ISBN 13, 2) ISBN 10 3) ISSN, 4) Title, 5) Theme/Subtitle, 6) E-Book (PDF), 7) Classification (DDC), 8) Manual Classification Code, 9) Language, 10) Edition, 11) Physical Description/Conquest, 12) Faculty, 13) Study Program, 14) Type, 15) Default Type, 16) Publisher, 17) Date of entry, 18) Year of publication, 19) Place of publication, 20) Page, 21) Link, 22) Image Link, 23) Note, 24) Caption, 25) Topic/Category, 26) Author, 27) Attachment File, 28) Scan each page, 29) Image, 30) Barcode, and 31) Abstract and Keywords.

d. **Deposit Types**

Deposit Types is one of the places for data storage by making choices, namely: 1) Books, 2)
Bulletin, 3) Dissertations, 4) International Journals, 5) National Journals, 6) Accredited National Journals, 7) BI Reports, 8) Research Reports, 9) Magazines, 10) Proceedings, 11) Thesis, 12) BI statistics, 13) Thesis, 14) Text Book, 15) e-Book, 16) e-Journal, and 17) All these Deposit Types are selected according to the document that will be uploaded to the system by selecting the type of item in the input process, see Figure 4.

Figure 2. Home Page https://ecampus.iaimbatusangkar.ac.id/pustaka/main/index#

Figure 3. Home Page https://ecampus.iaimbatusangkar.ac.id/batusangkar/

Figure 4. Types of Submission Items in the E-Library system
e. Uploading document

The process of uploading documents on the e-Library system where all files are processed in the form of PDF files will be uploaded by the administrator of the e-Library library of IAIN Batusangkar.

f. Metadata Entry

The Dublin Core metadata provides several rules that describe the relationship between metadata and the object being described, among others are: a) The One-to-One Principle, b) The Dumb Down Principle, and c) The Dum Down Principle (Mulyono and Dwijono 2014) where from 13 elements are developed into 15 elements which consist of:

1) Title (Collection Title)
2) Creator (Author or Writer)
3) Subject (Keywords or Topic)
4) Description (e.g. Abstract, Table of Contents from A Collection)
5) Publisher (Publisher or Person in Charge)
6) Contributor (Author, Contributor/non-Primary Author)
7) Date of publication
8) Type of data in the form of images, documents, sound, and video
9) Format (physical form of data, in the form of image/gif, audio or mp3)
10) Identifier (unambiguous permanent link of the data source)
11) Source (information on the origin of the source, in the form of page numbers or journal titles)
12) Language used
13) Relationship between a source of information with other information
14) Coverage of the content in terms of geography or time period
15) Rights (copyright owner of the information source; (Mulyono and Dwijono 2014)/(Apps, Ann. & MacIntyre 2001)/(Weibel 2005)/(Quam 1995).

The process of inputting metadata is carried out by the administrator of the e-Library of IAIN Batusangkar library. The following is the stage of filling out the Form on the e-Library metadata of the library. The stages for inputting into metadata in the e-Library application has to input those elements chronologically. Then the library unit ICT staff of IAIN Batusangkar publish the library collections and can be accessed later on through the following websites: https://librar.lainbatusangkar.ac.id or https://ecampus.ainbatusangkar.ac.id/library/main/index. It is very helpful for users who come to the library to access existing information, because users can independently access all collections in the Batusangkar IAIN Library. Then, IAIN Batusangkar students and also students from outside institutes can access openly anytime and anywhere they are as long as they have internet access.

In analyzing the implementation of library system at IAIN Batusangkar, the unit had done some steps. First, it analyzed the implementation of hardware. Second, it also analyzed the implementation of software. Third, it analyzed the implementation of brain-ware. At last, the analysis to the implementation of program installation was also done.

In relation to the last step above, users ought to come to data entry. There are some steps in data entry: 1) writing International Standard Book Number (ISBN) or International Standard Serial Number (ISSN), 2) typing the title collection and authors’ name, 3) typing the theme or sub-title, 4) selecting the collection in form of hard-copy or soft one, 5) typing classification number, 6) choosing language to be familiar with, 7) selecting the collecting edition, 8) writing the description of the collection, 9) selecting the background knowledge to be interested, 10) selecting the provided tools (text, audio or video), 11) inputting type default, 12) inputting the authors, 13) inputting the date of entry to the library, 14) inputting the year and publisher of the entry, 15) inputting the page numbers of the collection, 16) inputting the collection link and picture, 17) inputting the owners’ collection, and 18) inputting some information about the collection related with fund source and others. These steps could be seen in in Table 2.
CONCLUSION

The development of an e-Library or digital library at IAIN Batusangkar was a way out to overcome various obstacles in the process of inputting and individual information retrieval, location distance, high social environmental demands and fast, precise and accurate up to date information without having to visit the library and data collection needs that can be accessed via one touch by connecting to the internet network for Search to e-Library. IAIN Batusangkar Library developed computerized library automation by conducting Master Plan Design and Implementation of the e-Library System.

The system is directed to improve the processing and search processes to e-Library for library users with good quality and speed, as well as increasing the effectiveness and efficiency of library management. The Digital Library was built using the Zi-shof e-Campus e-Library application. In the Digital Library, there are various collections of Books, Bulletins, Dissertations, International Journals, National Journals, National Accredited Journals, BI Reports, Research Reports, Magazines, Proceedings, Thesis, BI statistics, Thesis, Textbooks, e-Books, e-Books Journal, and others. The development of the e-Library can be accessed by students or not through the IAIN Batusangkar campus application with the access link such as https://library.iainbatusangkar.ac.id or https://ecampus.iainbatusangkar.ac.id/librar/main/index.

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Table 2. Metadata Entry

| Nama/Judul | Jenis | Tipe | Kategori | Penerbit | Bahasa | ISBN/ISSN |
|------------|-------|------|----------|----------|--------|----------|
| Ananda, E. D. 2003. “Utilization of Information Technology (TIPD) of IAIN Batusangkar which had helped providing data for the Master Plan Design and Implementation of the IAIN Batusangkar e-Library System. | Textbooks | e-Books | e-Books Journal | Library IAIN Batusangkar | English | 2580-8019 (p), ISSN: 2580-8019 (e) |

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