

# Digital Library Practice in University: Advantages, Challenges, and Its Position

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**Abstract—** This paper is written to describe the importance of digital libraries to be applied in university library through the exploration of the advantages offered by digital libraries, as well as the challenges that will be faced in the implementation of digital libraries as infrastructure to support education. The exploration was carried out by conducting a literature review from some empirical study resources. Rapid technological developments in all fields including the library are the cause of the emergence of digital libraries. As a source of information and learning resources for educational academics, digital libraries offer a variety of advantages over conventional (traditional) libraries. With these various advantages, conventional libraries are irreplaceable, but the existence of digital libraries completes conventional libraries. In addition to offering many advantages, various obstacles found in the digital libraries practice such as facilities problems, digitizing collections, copyrights, human resource, and cost issues. These obstacles will later become challenges for library managers who will apply digital libraries in their university. The result found that conventional library remained irreplaceable by the digital library.

**Keywords:** *digital library, advantages, challenges, conventional library*

## I. INTRODUCTION

The library categorized as an infrastructure of school, university, and any other educational institution. The library at a university is one of the university facilities that very important. Libraries can support the teaching and learning process both directly and indirectly. In general, libraries has a meaning as a place in which collecting activity, processing and dissemination (service) of all kinds of information occur, both printed and recorded in various media such as books, magazines, letters news, films, tapes, tape recorders, videos, computers and others. All of these information sources arranged according to a particular system and used to the benefit of learning through reading and finding information for all people who need it [4].

Over time, libraries began to develop and adjust to the rapid development of technology. Digital Library is the result of the technological developments influence in educational field. Digital library has now widely applied in various university libraries including in Indonesia. Digital library is an ITC based library management system where users of library services can find information related to reading books or other documents in digital form. Libraries development towards digital libraries is actually not just adjusting to the development of information technology, but rather due to demands for a change in the paradigm of higher education, which includes a paradigm shift in learning with e-learning, changes in scientific communication that lead to e-research, and urgent needs to create information literacy in higher education [9].

The essence of the digital library practice is the impact of information technology development. Digital library emergence will certainly offer more advantages for each user, especially users from the education sector such as students who obviously need a library to support their learning process. In addition, the digital library practice certainly has its own challenges that are ready to face by the educational managers. This paper wants to explore more deeply about what advantages might obtained from the digital library practice and what are the challenges that managers might face in implementing digital libraries. After its advantages and challenges revealed, the position of digital library practice in education will be understood.

## II. METHOD

The paper's method used some literature of earlier research as an information and data sources. The process of taking data and information employed some journal, conference, thesis and any other research results as the main resources. The authors collected all these literatures by visiting library or searching on the internet. The authors collected all then analyze every result of these researches. After the

analyzing process, the writer will make a conclusion about the advantages, challenges, and the position of digital library practice in university library.

### III. DISCUSSIONS

#### A. Digital Library

Digital library is a library that stores information in digital form or fulfillment of information needs in digital form from external information sources to be distributed to users both registered as certain customers and the community in general [7].

Digital libraries are the same as traditional libraries, but the material provided is digital. The definition and characteristics of digital libraries at several points can be describe as: (a) Digital libraries are those that encode journals, books and information in digital format. (b) Collection of text, images, etc., encoded so that they are stored, retrieved, and read by using a computer. (c) A digital library is a digital collection representation of information content, along with hardware, software, and staff to support library functions. (d) A series of integrated services to capture, catalog, store, search, protect and retrieve information. (e) A large collection of digital objects, consisting of all types of materials and media, which are stored in distributed information repositories and accessed through national computer networks. (f) Large collection of information that has been stored in digital form. Digital libraries can include documents, images, sound, and information collected from ongoing events (eg continuous photos from weather satellites). (g) Digital libraries can include reference material or resources that accessible through the World Wide Web. Digital parts of library collections or original material produced for the web can also be included in a digital library [15].

There are several characteristics of digital libraries, namely as follows [13]:

- 1) Use a computer to manage.
- 2) Use electronic channels to connect information providers with information users.
- 3) Make use of electronic transactions.
- 4) Use electronic facilities to store, manage, and convey information to users.

Digital library is an innovation from conventional library that very closely related to the use of technology. The core of a digital library is library materials that are not physical but digital.

#### B. Digital Library Advantages

Digital library is the answer to the challenges of the technological development. Many universities have implemented digital libraries as supporting facility for student learning activities. Compared to conventional libraries, digital libraries provide more benefits for each user.

According to Rodliyah there are several advantages if digital libraries are implemented such as digital libraries can be accessed anywhere, improve the ability to search for information, provide ease of sharing information, help users get the latest information, lower costs and so on [10]. In line with Rodliyah, Uzuegbu and McAlbert from their research in Michael Okpara University of Agriculture library also argue that digital libraries promise new social benefits, one of it is the removal of time and space restrictions in accessing knowledge and information from library [14]. Research from Mishra also found almost the same thing about the advantages of digital libraries. The benefits of digital libraries such as no physical limits, people can get information 24 hours, allowing multiple access to an information source, making it easier to search for information by keywords, preservation and conservation data, digitization clear up the writing in books or other printed reading sources, and information is more easily accessed by the digital library [5]. Another opinion from Bamgbade et al mentions some benefits that can be obtained from the digital libraries practice compared to traditional libraries namely storage space is almost unlimited with much lower costs, no physical boundaries, no limited time, easy to search information, preservation of some printed materials, universal access [2].

In Indonesia, digital libraries have implemented at several universities. A study conducted by Mukhlis at the digital library at UIN Sunan Kalijaga about the exploration of digital library development at UIN. In his research found that the Digital Library UIN Sunan Kalijaga can be accessed on the page [www.digilib.uin-suka.ac.id](http://www.digilib.uin-suka.ac.id), in the portal there are several advantages that can be obtained by users. The advantages of digital library according to Mukhlis research's such as (a) There is a digital collection that can be accessed through networks such as theses, dissertations, research reports and so on. (b) Facilities for searching and retrieval of information are available. (c) Has collection content, both in the form of data and metadata formats. (d) Information access to various links is available. (e) Can be accessed anywhere and anytime through remote libraries [6]. There is any other research findings from Sugianti about digital library in MM-Digilib University of Indonesia (UI). This study concerned in the user interface of digital library system. In general, this research found that it has benefit on ease of access of any research publication and ease of usage [11].

Various findings above explain the benefits obtained from digital libraries. Based on these findings, there are many benefits of digital library practice obtained. It categorized in three main advantages:

- 1) Easy to Access

All of research results agree that digital library is easier to access than conventional library. The

researcher agree that by using digital library, users can find an information that they need easily. It is easy because users can access digital library without space and time limited. Users can access the collection by using their own device everywhere and every time if the digital library is online based. If the digital library is not an online-based library, users still get many benefits than using conventional library. For example when users want to read a book in a digital library, they do not need to search over the bookshelf but they only need to search it in the computer that the libraries provided.

### 2) Bigger Storage

The second advantage of digital library practice is the space that provided to store the collections. If universities applied a conventional library, they need to provide big room, building, and many bookshelf to store its collections. This is caused by what they store is a physical form so it take more place. Digital library is different from the conventional library, it provide more space not only the collections storing purpose but also any information. It can be happen because what is digital library store is all in digital form. The university library managers only need to provide some devices (computer) that have a big storage capacity or they can synchronize the collection and any other information into cloud storage.

### 3) Persevation of Any Collection

The basic difference between conventional and digital library is about the physic and the digital form of all information sources including the collections. Digital form collections quality is better than printed collections. The collection quality is timeless. Even the digital collections unbreakable by users during the loan period that usually happen to the printed collections. The preservation is not only for the digital collections itself but also for the printed collections. The printed collections can be made into the digital form through digitization. Digitization can preserve the old collections into digital form so it can be saved into a digital storage before it is started to be unreadable. The digitization itself can clear up the writing of the book collections.

### *C. Challenges of Digital Library Practic*

Digital library is useful to be applied in any university library. Although the digital library is important and useful to be applied a university library, there are many challenges that must be faced by the university library managers. The challenges that they will be supporting facilities, lack of human resources, the number of documents provided, equipment maintenance problems, technicians needed, and the main problem of the library itself is like the budget for the digital library and the need for the digital library. Anunobi and Ezeani explain digital libraries practices in universities in Nigeria. In this case, several digital library problems were found, namely: (1) Lack of

awareness of digital library projects, (2) the length of the bureaucracy to build a digital library, (3) Inadequate internet access, (4) Poor infrastructure to support digital libraries such as lack of electricity, (5) Lack of skilled staff to operate digital libraries, (6) Lack of subscriptions to electronic databases such as e-book or journal supplier subscriptions, (7) Lack of integration with traditional libraries, (8) Lack of sustainability plans, (9) There is no external funding [1]. Besides, Sen, Jain, and Ranjan from their research finding about digital library practice in university in Nigeria find many problems such as [10]: (1) Lack of cost to build the digital library, (2) Lack of networking (LAN/WAN or internet network), (3) Inadequate electricity supply, (4) Lack of technological infrastructure, (5) Lack of digital documents and bad digitization results quality, (6) Ineffective interface search engine, (7) Copyright problems, (8) Information security issues against computer virus attacks, (9) Lack of suitable staff and lack of technical support.

Meanwhile, some researchers in Indonesia also found various problems that were not much different. Susanto suggests two main obstacles in the digital library practices, there are the digitizing quality documents and the copyright issues for digital collections that must sorted for borrowing [12]. In other study, Rodin found four main obstacles in digital library practices in some universities in Bengkulu, there are inadequate facilities, the cost problems to build up the digital libraries, the lack of human resources in IT (Information Technology), and non-technical issues such as the ego of every library staff [8]. The other research result from Yuliani about digital library practice in IAIN Batusangkar found that some trouble faced in their digital library such as human resource problem, library management problem, and the facilities problem [16].

The various findings above explain the obstacles faced in implementing digital libraries. Obstacles will be a challenge for every library manager who will apply a digital library for their university. From these challenges, the core issues about the digital library practices listed such as:

#### 1) Facilities

Digital library establishment requires physical equipment and non-physical equipment. Physical equipment means building, hardware (computer, LAN, WAN, etc.), electricity supply, etc. Non-physical equipment means software, digital collections, internet network, etc. To apply the digital library in a university need to adequate all of facilities required. It will be difficult to build especially in a development country like Indonesia. In Indonesia, there are many places that still not having internet access even some places also has no electricity supply. These conditions will be the biggest challenge

for educational managers who will establish a digital library.

2) Human Resources

It is important to consider the human resource ability. Human resources who are trusted to manage or operate digital libraries must understand the use of technology in the system. The needs of human resource that understand about ITC is not only for the technician but also for every staff. To find a man to operate the digital library maybe is not too difficult, but how about a university that has a conventional library then want to upgrading their library into a digital library? Should they find many workers to be a staff and retiring the old staff and find new people to works? These questions are every manager should answer the challenges.

3) Copyrights

Many book authors do not want to sell their books in digital form. It is happen because the copyrights issue problems. Digital library materials will be very vulnerable to copyright infringement problems. If there is no system that protects the digital collection, copyright infringement will be very easy to do for example by copying the file. In addition, data in digital form will be easier to expose to plagiarism if not protected.

4) Digitization

Library material certainly becomes the core of a library, while the core of a digital library is the collection in a digital form. The addition of a digital collection must be complete and the collection quality must be good. The digital collection quality means the level of readability of a digital collection that must be clear. The book that will be digitized must be various from the new book until the old book. The digitization of the old book must be more difficult than the new book because its writing is usually unreadable. This is the challenge of library manager to makes it clear and readable if the book will be digitized.

5) Cost Issue

The cost issue is the basic problem in every program that will implemented in every organizations especially the university digital library. Digital libraries is taking cost less in operation than conventional libraries, but the establishment of new digital libraries requires expensive costs ranging from building infrastructure to procuring computer equipment.

*D. Digital Library Position*

Viewing the many shortcomings of digital libraries as described above, it shows that the position of digital libraries cannot replace conventional libraries but it is complete the conventional libraries with all the benefits that cannot met by conventional libraries. For example, when there is a problem with

electricity, it is clear that digital libraries will not run optimally, while conventional libraries will continue to work. Another example is when the digitization process of an old published book, it usually found problems such as writing that is difficult to read. In this case, old books will be easier to read in print. Many people also still prefer to read printed books to e-book. It is be evidenced from a study conducted by Gray & Copeland shows that the demand of printed books outpaced the demand of e-books in academic libraries [3]. Things like explain above is that makes digital libraries still not able to replace the position of conventional libraries, but its position is as a complement. From all the explanation above drawn below:

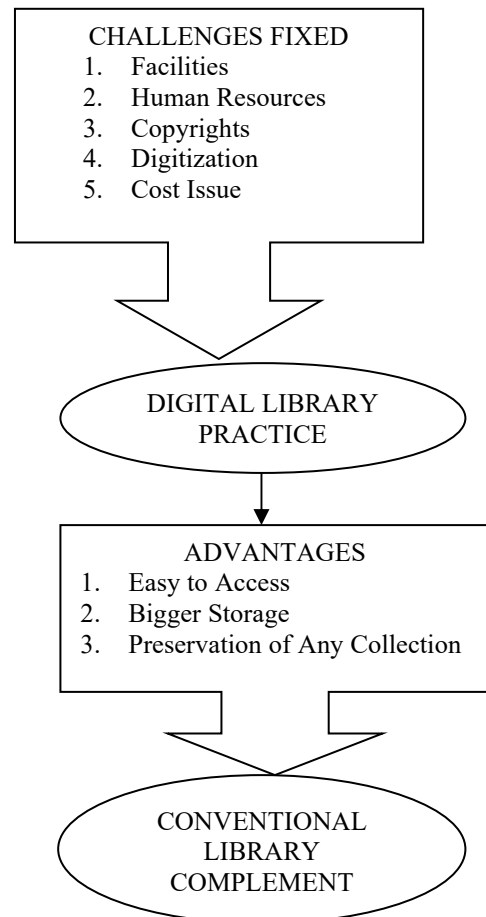


Fig. 1. Relation concept of digital library challenges, advantages, and position.

IV. CONCLUSIONS

Digital libraries provide a variety of benefits that can help users in many ways. Digital library existence certainly greatly helps educational academics in finding learning resources. The core benefits of digital libraries are easy access, unlimited space and time, preservation of collections. From many benefits provided by digital libraries, do not makes it replace the position of conventional libraries. The position of

the digital library is complementary to the existence of conventional libraries in facing technological developments.

Although it has many benefits, digital libraries still have various problems in its practice. These problems will later become a challenge for educational managers. These challenges are facilities that does not support, challenges of digitizing library collections, challenges of human resource ability in operating and managing digital libraries, challenges of copyright protection, and challenges of financing.

Conventional libraries irreplaceable by other library models including digital libraries. Although conventional libraries have their disadvantages, digital libraries come with all the benefits they offer as a complement to conventional libraries in facing the technological developments. Digital library practices should be integrated with conventional libraries so that their use is more effective in supporting learning activities in every university library.

Library managers should be familiar with every challenge that will face in implementing a digital library. Therefore, they can prepare whatever needs to be done to face each of these challenges in the implementation of digital libraries.

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