THE CHALLENGES FACED BY UNIVERSITY LIBRARIES IN THE SCIENTIFIC INFORMATION DEVELOPMENT

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A. Introduction

Customers need in using the provided information in the library, sometimes is different one to another. The different of information need is strongly determined by education, occupation, socio-culture, age background, etc. The differences of them result in the specific mission, function and library service.

Some libraries limit themselves to collect, process, and serve various information to certain group of society. The specification of mission, function, and service consequence to appear the different kind of libraries and to mention one of them is University Library

Williamson states that,"The University library is a part of university community and hence it must reflect the basic philosophy of higher education", (Shera, 1976: 43). This opinion emphasizes that as a part of the university community, it must reflect the basic philosophy of higher education. One of the basic philosophies of higher education is scientific communication, either formal or informal communication. Through the scientific communication, that will create a certain condition which is called a scientific society.

The appearance of scientific society is a condition needed by scholars and scientists in the university community. In scientific communication, scholars and scientists will produce scientific information. Because, "The need of scientific information is an absolute need for scientists, like the need for food and drink, therefore with the information that they obtain, the science will develop" (Wijayanti, 1997: 1).

Scientific information is recorded in some media, as like in books, journals, audio visuals, CD-ROM as well as in the other electronic media. The information recorded in the media is usually called as library materials or document. Of course, that the materials are ready and can be accessed in University Libraries.

Through the acquisition, processing and service activities, University libraries act as facilitator in the scientific communication. According to it’s role, the university libraries
can become a research library, “whose special purpose is to support the advancement of scholarship and scholarly communication and research activities of faculty members and doctoral student at Ph.D.- granting institutions” (Cummings, 1992)

Generally, the scientific information is descended from result of research. The researcher is motivated by himself, continuously has wish to seek a solution of science truth by giving a response to any problems that appear in the society, using scientific methods. Therefore the scientific information will develop both in quantity and in quality.

The scientific information development will give direct impact to University library activities. University libraries are often unable to anticipate the development of scientific information, because the development is very fast. The ability of librarians select, and collect the scientific information is very low, compared with its development. The University libraries face many challenges in doing their activities, result from many factors.

Based on the condition explained above, this paper tries to discus the issues related to scientific information, the application of information technology and library automation in their condition as university library collections and tools. It will propose challenges faced by University library in selection, acquisition, processing, and service of scientific information. The challenges will be discussed from many sides.

B. Scientific Information as The Important Part of University Library Collections

Information term here is a general term which it had known in various aspects of daily life. It can be understood, because the definitions of information are various. The definition of information can depends on the different of science discipline, and also it can be decided by another interest.

For example, Mikhailov recommended some of information definition, as follows: “1) Information is the designation of the content, received from the outer world in the process of our adaptation to it and the adaptation of our feeling to it. 2) Information is the basic concept of cybernetics. 3) Information is raw material and consists of a simple collection of data, since knowledge presupposes certain thinking or judgment that organizes data by comparison and classification. 4) Information is something acquired or obtained by informing. 5) Information is a message or notification about something. 6) Information is knowledge, which is the object of storage, transmission, and transformation” (Mikhailov, 1984: 64).

From all of information definition above, in the scientific information frame work, we assume that the definition number six is more exactly (Information is knowledge, which is the object of storage, transmission, and transformation). The reason to choose that definition, because it is suitable with Hector’s opinion, “The word information is often used to mean the whole range of intellectual output” (Hector, 1996: 191). Other reason, it can be understood by all and is completely adequate for talking about scientific information as a basic of knowledge. The scientific information is said as a basic of knowledge because it is logical information received in the process of cognition, and it is gained from knowing the objective laws of nature, society, and thought.

The user and producer all at once of the scientific information generally are the scientific societies. Multitude of them lived in the university community. Scientific information which they produce can be in papers, articles, research reports, books, journals and other print materials.

Except in print materials, the scientific information can be recorded in electronic materials; fore examples, “the major bibliographic databases that contain genetic information consist of the following:
Scientific information that recorded in print materials, non-print materials and electronic materials are the important part of university library collection. Therefore, in their mission and function, the university library became a formal scientific communication which communicates the scientific information through their collections to the customers.

C. The Growth of University Library Collections

Anthony M. Cummings in University Libraries and Scholarly Communication states that, "Libraries must continue to acquire the books and periodicals necessary to maintain and strengthen collection, ..." (Cummings, 1992). This opinion indicates that library must do acquisition to improve their collections. The continuance of library activities very determined by added collections. The added collections indicate that in all libraries there is the growth of collections.

1. Books and Scientific Journals

Although the electronic materials already become the important part of library collections, books and scientific journals are still the dominant university library collections. Books and scientific journals in the library term are grouped in kind of print materials. Scientific information is still the most majority recorded in these materials. Therefore university libraries will keep, collecting, processing and lending the print materials in the future.

In one research that had been done in 1991 to some university libraries, members of Association of Research Libraries (ARL), indicated that, "the average collection growth of university libraries in USA is 10 percent per year, whereas their ability to hold new book titles only about 3.2-4.5 percent from the books which published every year. The numbers of title published in these Western European Countries, The United Kingdom, France, and Italy since 1970, between 3.5-5.0 percent per year (Cummings, 1992).

The interpretation of data above indicates that the university library have good collection growth, but their ability to hold or to have new book titles published every year is still low. It indicates that the growth of book published is higher than the ability of library to keep. Of course, it is impossible for the library to hold all of new book titles published every year, because there are many obstacle factors as limitation of budget, furniture, equipment, other facilities, human resource, etc. However, the vital thing in this case are the policy and strategic of selection and acquisition that be applied. How the policy and strategic of selection and acquisition that be formulated can anticipate the growth of new book titles, with the scientific information necessity of the university society. So, the university libraries must be able to decide priority scale in doing selection and acquisition.

Scientific journals also have a special growth. Bambang Setiarso stated, "scientific and technological information explosion nowadays is very fast, recently there are more than 110.000 titles of scientific journals, about 8.000 titles of periodicals abstract. The numbers of scientific periodicals increase 3-4 percent per year" (Setiarso, 1997: 1).

The truth of the statement above maybe can be received, because there is the similarity with Cummings’s explanation. Cummings explained that there is the high increase of scholarly journal titles added in era 1950, 1960 - 1970, about 43 percent. Besides of that, he stated that "the 30th edition of Ulrich’s international Periodicals Directory list more than 118.500 titles" (Cummings, 1992).
Regarding to the data presented above, it is clear that there is a high scientific information growth in print materials, especially in books and journals. Maybe in the future the growth will be higher than it is before.

2. Electronic Materials
In the end of this century, there are several of information resources which computerized by librarian and publishers, especially in welfare state. Some of scientific information in print materials which had been dominant in the library collection nowadays can be found in electronic materials. In fact, the library which only keeps and prepares scientific information in print materials is called a traditional library.

The rapid growth in these electronic materials had appeared an expression as electronic library or digital library. “Electronic library which be meant is a surroundings of library where some of information object (document, images, sound and video-clips) held and accessed in electronic form” (Creth, 1996). The information object recorded in some kind of computer media as hard disk and CD-ROM. These materials are very much provided for accessed by internet, and also in stand-alone computer or local network.

Margy Burn in “Electronic journals: the issues for libraries” compared the existence of print materials with the electronic materials existence in library service: “with print materials client came to the library to read on site or borrow. In the digital world the physical location of electronic materials is irrelevant. Provided they can be reached through a network, there is no need for client to be physically located in the library. Access can easily be provided to the home or office and this is what client will increasingly want and what libraries will have to provide” (Burn, 1995: 28)

The opinion above indicates that there is a basic different between print materials and electronic materials, it is about physical location. The library with print material collections are very determined by physical location and the users must come to the library to read or borrow the collection which they need. Whereas with electronic materials users can access the information which they need from the office, home, or another place, provided they can be reached through a network.

In connection with the tendency, the librarian is demanded to have a responsive attitude toward the change by looking for effective and innovative methods to fulfill the user’s expectation. It is important if the librarian and library want to grow and develop, even survive in their circles which continue change.

Challenges to librarian and university libraries is to understand and place again their position in the process, and change from the library as physically location thinking to new fact, that library as an organization which must develop and prepare various kind of services including electronic information access.

The concept of library as an organization is one of the customer’s expectations in electronic information access. But this concept wishes “varied electronic information resources and system, as well as good communication skill to assist client” (Burn, 1995: 29).

3. Library Expenditures for Acquisition
The university libraries collection growth is very determined by availability of fund. The activities of collection acquisition need much money. Without the availability of fund, maybe the activities of collection acquisition only receive gift of library materials. If it happens, the quality of university library collections will be hesitated, because the collections which are received are not produced by the selection activity.

“There are three major categories of direct university expenditures: a) staffing and staff salaries, b) expenditures on materials and binding, c) other expenditures (in recent
years, principally outlays related to automation)” (Cumming, 1992). The expenditures of university libraries are the part of educational and general expenditures of the University. The expenditures portion of university library is not always same in all countries. For example, in 1970 the expenditures of university libraries in USA average 4.0 percent from total of university expenditures. From that total, 35 percent used for collection acquisition, 52 percent use for staffing and staff salaries, and 13 percent use for other activities, primary for library automation (Cumming, 1992).

Regarding to the data presented above, it is important to locate fund clearly in the expenditures of university libraries. Decision of percentage portion is very important to do.

The expenditures value of collection acquisitions are also determined by the price of library materials. If the price of library materials are very expensive, so the expenditures value become fewer than normal price. General fact faced by library that the price of library materials always rise, whereas the ability of university libraries to raise their expenditures very limited. Therefore expenditures in university libraries are still serious challenges. Perhaps the biggest barriers to restrain the growth of university library collections are money.

**4. The Application of Information Technology**

Information technology in the university library is often reflected as the combination of computer technology and communication technology. The technology changes our way be in communication with another one, to our self, or the other world.

“This late 20th century technological development has still another implication for libraries. Once the preeminent information service for research and scholarly communication, the library is now complemented by an entirely new set of information service provided by computing, each being the expression of a particular technology” (Cumming, 1992).

The opinion above indicates that the technology have implicated in the library activities. The library is complemented by the presence of computer. Computer storage capacity, which the center of this technology had capacity to save the large sum information in the small space, including their capability to convey the information fast through by communication maintenance aid or networking. This condition also result some of basic alteration in the library service system.

The library in a traditional form has collections which, most of them are in print materials, will be influenced by the information technology also. With the information technology, modern libraries provide all product and information services, in print base including electronic materials.

The fact which often happen, that the library manager and the librarian maybe less sensitive to the development in their surroundings of library, including the development of information technology. They are busy in routine which is able to extinguish their creativity and innovative, so they are unable to look for breakthrough increase the library services. To avoid it, the library managers and librarian must open themselves and sensitive toward the present development, especially in information technology. They are demanded to be able to change and implement the appropriate information technology in their library. The implementation of information technology in the library activities are usually called as library automation.

**D. Library Automation**

In the first time, library automation is developed on the big library, and the kind of computer used generally is mainframe, which it’s price and maintenance cost is expensive. The development of personal computer and networking technology, server, along with provision the various kind
of soft-ware make the library automation is no more expensive thing.

Library automation is often said as the computer application or electronic technology in the library. The application of electronic technology in the library in the first time was done to produce bibliography. “Electronic technologies have been effectively employed in automating the bibliographic record” (Cummings, 1992). But in the next development, computer had being used for a large function in the library automation.

“Library automation is a computerized activity in routine and library housekeeping system operation including some activities such as, acquisition, cataloguing, circulation control and serial control” (Siregar, 1997: 3). This opinion states that there are four subs-systems or modules system which is necessary built and developed in the library housekeeping system operation. The system should serve as an integrated library system, with join together the fourth modules system in to one network, so that all modules can be in inter-activity one to another. For example: By public access catalog, we can know the status of a book whether it is borrowed or it is ready on the shelf, because the cataloguing module is integrated with circulation modules. Other example, a simple entry of a book which be entered by acquisition module further it can be edited by cataloguing module and add on other bibliographic data which be needed, it becomes a catalog entry which can be accessed through cataloguing module in Online Public Access Catalog (OPAC) form.

Using integrated system in the library can be done by “buying turnkey system, adapting system from networking (networking system), adapting system from other library, and in-house developed system” (Bustan, 1995: 54). But the obstacle which often faced by university libraries in the development countries like Indonesia, generally it is unable to buy turnkey system because its price is very expensive and commercial. Whereas the ability to build in-house developed system is still very limited, because university libraries in the development countries seldom have librarian as computer programmer.

This is a dilemma. Even though, there are many challenges in library automation, but university libraries must do it, because automation is a requisite for library to follow and handle the scientific information which develop very fast.

E. Conclusion

The changes which have been happening in surrounding of university libraries at this moment can satisfy and can also discourage to the librarian, especially in facing the scientific information and information technology growth which is so fast. Information explosion and the change of print materials to electronic materials or digital materials require university library to apply automation in many sectors. Human resources and readiness of fund still become the vital need of university libraries in handling scientific information. Facing all of them, the university libraries must change their vision from traditional library concept to the modern library concept. The main characteristic of modern library is the openness toward the present development and innovation.

F. References


