The effectiveness of electronic library service management at central library in Yogyakarta State University

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Abstract: *This study was aimed at evaluating the effectiveness of electronic library service management concerning the components of (1) Input based on the items of the Mission Vision formulation, compilation of electronic programs and the availability of resources and (2) Process, including Planning, Organizing, Actuating and Controlling. The evaluation engaged a combined quantitative and qualitative paradigm in which three data collection techniques were used: a questionnaire, an interview, and an observation. The result from the questionnaire indicates that the mean of Input management is 3.16 which is the most effective performance and the mean score of Process is 3.32 which is also the most effective performance. The results of the interview and observation show that the management and leadership in the Electronic Section were formulated and implemented well since the mission and vision were disseminated and nearly everyone understood.*

Keywords: *electronic library program management, electronic library service, input-based management, process-based management*

1. Introduction

Background

The political, economic, societal and technological (PEST) context of education is changing. Education has been moving very fast during the past decade, from traditional classroom settings, face-to-face instruction and correspondence in the distance education to online education. Of all the distance education medium, the Internet has become the most widely used (National Center for Education Statistics, 2002). The Internet and especially the World Wide Web has broadened the scope of traditional education and conventional distance education to include e-learning, virtual universities, virtual courses, and electronic libraries. The new forms of teaching and learning, web-based instruction or online learning, has gained its popularity in higher education, especially in the field of library and information sciences.

Liebscher & McCaffrey (1996: 384) stated that distance learning technology, which is also information delivery technology fitting well in a program for library and information professionals who are examining a range of scientific information technologies, has changed dramatically over the past ten years. In the course content, the Web is integrated in all courses. Digital libraries or virtual libraries are incorporated in library and the information science curriculum and have become a strong technological focus. In the teaching and learning process, the Web is a course delivery, a teaching medium, a major

tool for delivering teaching and learning materials, and as an information and reference source in courses.

Web-based instruction or Web-supported teaching integrates information and technological skills, offers considerable potential for delivering useful library instruction, and enhances students' information literacy skills. It allows students to experiment with cutting-edge teaching technologies, which provides them the skills they will need to become the information professionals of tomorrow. In communication, the Web bulletin boards are used to support intensive student-to-faculty and student-to-student communication. Students are encouraged to participate in virtual discussion, communicate through the e-mail, and engage in collaborative learning with their peers (Chutima Sacchanand, 2004).

Electronic library refers to digital information resources online service digital books, digital journal, bibliography, theses and dissertations online for user in all time. The librarians utilize programs and computer for service user. The term 'electronic library' is being used here in a broad terms to mean a collection of networked digital information resources and associated technical and managerial infrastructure. It is assumed to include data and metadata in various formats which are created or assembled in order to provide a service to end users. The terms 'electronic library', 'e-library', and 'digital library' are used as synonyms as cited by Stephen, (2001).

Electronic libraries will be more and more important as Information technology is increasingly offers a better ways of tracking that information and giving access to it, such as advanced techniques of making libraries sources or digital collection available, new retrieval facilities (supported or not supported by expert system), modern document delivery system, automated literature research and so on. Activities and facilities in this field are growingly determining the quality of library service. Important factors for the quality of library service include: offering electronic access to online catalogues of the library itself and of other libraries, access to bibliographic files, contents, databases, CD-ROMs, full text databases, electronic journal etc. Moreover, Libraries users benefit from accessing and training in the use of new library technology. More importantly, the provision of training the librarians in modern management methods and new media technology will allow them to jump over the "paper phase" and go directly to digital library.

In addition, IDLN stands for Indonesia Digital Library Network. It is an initiative of computer Network Research Group (CNRG) and Knowledge Management Research Group (KMRG) to improve graduate education, increase sharing of knowledge a among education and research institution in Indonesia through the development of national network of digital library of final project, theses, dissertation, research report, and expertise directory (Ismail, 2001).

The theme of the strategic plan of the State University of Yogyakarta digital Libraries as obtained through the interview with the management staff showed that the first initiative of the campus strategic plan is to "create a center for intellectual pursuit." The University Library through its strategic plan supports research endeavors by providing access to a comprehensive set of information resources, regardless of format or mode of delivery. It is a repository for the scholarly output of students and faculties as well as an effective partner in providing access to science journal, education journal, documents and records of the university and multimedia (resources in the format of images, audio and video). The library strategic plan is to create mechanisms to build, fine tune and increase access to the collection of library materials. Strategies are focused on clarifying and refining collection development policies to assure that adequate library collection and other information resources and services will be available to meet current and future needs of students and

faculty. Activities include participating in the development of new academic programs, regularly assessing collections, continuously re-evaluating priorities, expanding the digital Library's role in archiving and providing access to graduate theses and projects, enhancing bibliographic control and access mechanisms, educating library users about collection strengths, and cooperatively developing collections with other libraries.

Problem Identification

The library has many sections including the electronic section. The electronic section often requires technological skills making traditional ways of managing library services and information almost irrelevant. Often introduction of such services comes with challenges which need to be faced; therefore the problem identification could be outlined as given below:
a. Lack of proper skills in using computer software in collection and proper keeping of materials
b. In adequate support facilities such as space for users
c. Lack of good management by the staff
d. Poor financial allocation by authorities
e. Users dissatisfaction with services due to lack of maximum services
f. There is always the need for regular updating
g. The total book collections are insufficient and outdated
h. The electronic library lacks the online electronic book

Problem Limitation

Based on the interview about the effective management of electronic libraries at the centre library of the State University of Yogyakarta and through the information gathered from the electronic libraries of the State University of Yogyakarta, the research. distinguishes the many problems of the running of electronic library. The present study, however, was restricted to the electronic library management task, service activities, continuous improvements and efficiency, and user perception approvals.

Problem Formulation

The study problem was directed to find out how effective the electronic library service management from input was and process components. The objective was to evaluate the management efficiency in electronic libraries, determine the effectiveness of the services in electronic libraries, get the users' perception on the services management, know which areas in the electronic library services needs an improvement, and get professional practical experiences in electronic library services management.

Significance

It was strongly hoped that the findings of this research study will be of benefit particularly in the following: Firstly, they may provide credible information about the management of the centre library of Yogyakarta State University to the management for further improvement. Secondly, they may reveal the importance of effective libraries which serves as a unique function in the University as a public forum for learning where students can connect to each other and share present information. Thirdly, they may leave a stage for other researchers or learners to further their study about the effective management of electronic libraries in order to improve the quality of electronic libraries. Fourthly, they may provide theoretical knowledge on library management information especially
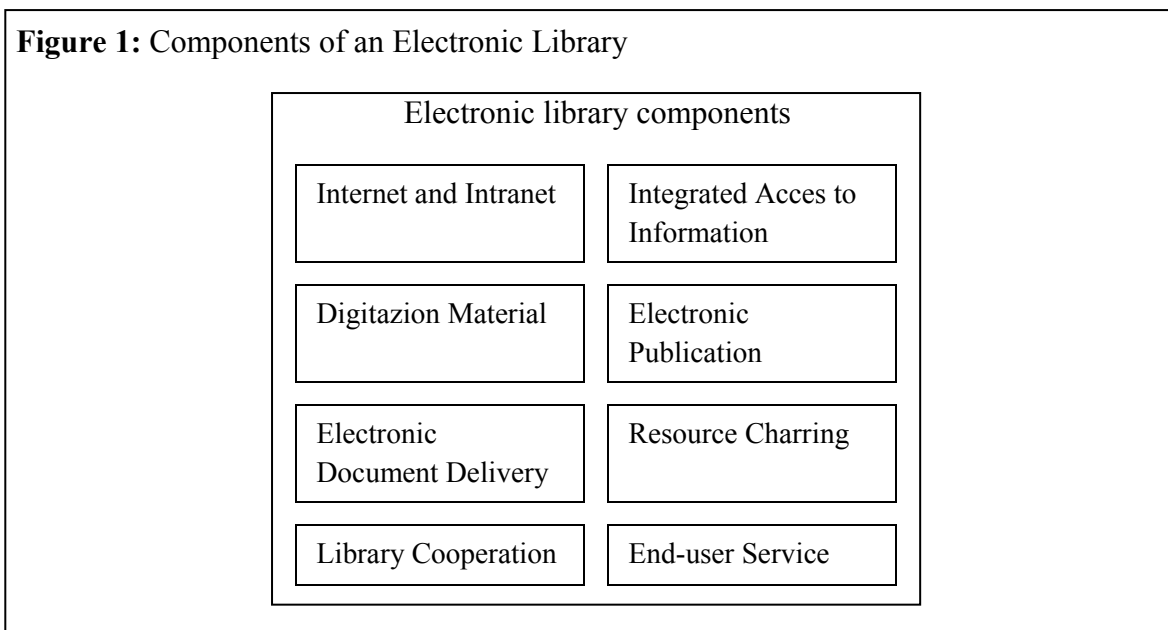
concerning with electronic libraries. Fifthly, the evaluation may provide the researcher with experiences in research undertakings.

Reviews of Theories

Components of the Electronic Library

The figure below illustrates the eight components of the library which are considered as the guiding components.

Figure 1: Components of an Electronic Library

Electronic library components	
Internet and Intranet	Integrated Acces to Information
Digitazion Material	Electronic Publication
Electronic Document Delivery	Resource Charring
Library Cooperation	End-user Service

Effectiveness is the ability to accomplish a purpose of organization. Accordingly, to function effectively means to improve one's performance by making more effective use of available resources such as funding, materials, accommodation, and staff. Anderson (1994: 1) explained that being effective means getting results, by taking an action approach to manage-ment, or the stewardship of an organization; the whole series allows people to create and develop their skills of effectiveness. This interrelated series give the underpinning knowledge based on the application of functional and generic skills of the effective manager who gets results. Key qualities of the effective manager include:
a. Function expertise in the various disciplines of management.
b. An understanding of the organization context.
c. An appreciation of the external environment.
d. Self awareness and the power of self –development.

In addition, having the power to produce an effect or effects; producing a decided or decisive affect; efficient; serviceable; operative; as, an effective force, remedy, speech; the effective men in a regiment.(Encyclopedia index, 2001).

Research Questions

In accordance with the theoretical framework illustrated above, the research questions can be indicated as follows:
a. How effective was the input in terms of the vision and mission of the electronic library centre?
b. How effective were the librarians' management strategies?

c. How efficient were the service programs at the library in terms of collection techniques of resource material?
d. How effective was the output in terms of the satisfaction by users with the services management in electronic library?
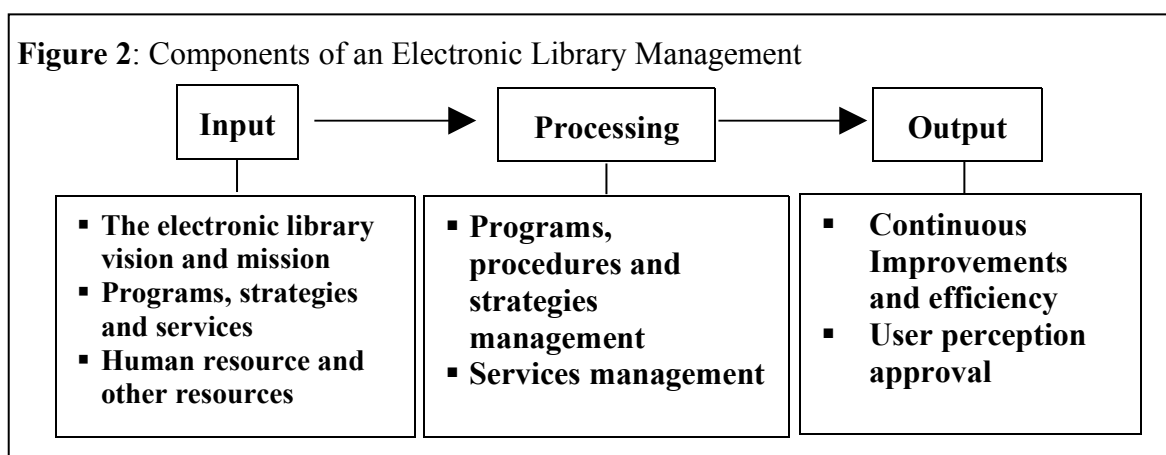
2. Method

Design

The study employed a system approach evaluation paradigm and evaluated the library context in the categories of the input, the process, and the product.

$$\boxed{\text{Input} \rightarrow \text{Process} \rightarrow \text{Output}}$$

The conceptual framework has been designed as based on the basic paradigm of evaluation studies and concepts, principles, and components of electronic library management.

Figure 2: Components of an Electronic Library Management

Input	Processing	Output
▪ **The electronic library vision and mission** ▪ **Programs, strategies and services** ▪ **Human resource and other resources**	▪ **Programs, procedures and strategies management** ▪ **Services management**	▪ **Continuous Improvements and efficiency** ▪ **User perception approval**

This research study was conducted at the Library centre State University during November 2007 to January 2008. The study took a system-approach evaluation involving combined qualitative and quantitative methods. A quantitative descriptive statistics was used with the questionnaire whereas the interview and observation employed a qualitative method. Green (as cited by Creswell, 1994: 175). The data was obtained from the setting and involved the management personnel who include the librarians/staff, as well as students who are in this case the primary users. The collection techniques involved, firstly, questionnaire which was administered to 30 librarians who are almost 100% of the staff and a purposefully picked 230 users at different times. Secondly, interview, the interview involved with key and other informants. It took an unstructured and an open ended style of interview with the management and students on aspects relating to electronic library efficiency and use. Vockell (1983:87-88) argued that an interview is designed to elicit good ideas for subsequent data collection and to provide useful information.

Thirdly, observation, the evaluator observed the setting in order to obtain an own understanding of the services and the users and management behavior. The observation method involved watching and recording activities of interest. In observations, the researcher may act as a complete participant, concealing his role, an observer as participant while his role is known, and a complete observer when the researcher observes without participating. Observation is particularly important in the beginning stages because of its role in informing us about appropriate areas of investigation and in developing a sound

research –other relationship, it is ideally continues throughout the period of data collection (Glesne & Peshkin, 1992: 39-40).

Reliability

The researcher utilized Cronbach's Alpha to estimate the reliability of a composite when we know the composite score variance and the covariance among its entire component. The consequence of analyze Cronbach's Alpha is 0.624. Where $\alpha = .60$ we can say that least 60% of the total score variance is true score variance.

3. **Findings and Discussion**

Descriptive Statistics of the Questionnaires

Findings from the Librarians

The input averages had estimation from the effectiveness of library service which was filled by 30 librarian staff working at the central library. The mean, mode, and standard deviation are showed in the two tables below:

Table 1
Average Input of Variable Categories

No	Component items	Librarians		
		Mean	Mode	Standard Deviation
1	Mission vision: formulation & target	3.59	4	0.54
2	Compilation of electronic programs	3.09	4	0.86
3	Availability of enough resources	3.04	3	0.76
	Total	3.16	4	0.791

Table 2
Average Process of Variable Categories

No	Component items	Librarians		
		Mean	Mode	Standard Deviation
1	Planning	3.37	4	0.67
2	Organizing	3.50	4	0.73
3	Actuating	3.43	4	0.65
4	Controlling	2.74	3	0.93
	Total	3.32	4	0.788

As presented in table 1, 2 above the mean of 3.0+ obtained showed an average perception. The mode 3 and 4 indicated most effective perception rating. It resulted in an impressive performance for the electronic library service delivery.

Findings from the Users

The averages were estimated for 230 sample of the user's mean and standard deviation for the service effectiveness of the library, see table below:

Table 3
Averages of per Variable for Category of services

No	Component items	Users	
		Mean	**Standard Deviation**
1	Information resource	2.65	0.62
2	Journal electronic	2.69	0.67
3	Information concerning dissertation, thesis, mini thesis	2.37	0.79
4	Accessibility	2.78	0.65
5	Officers assist	2.44	0.89
6	Visual audio services	1.67	0.60
7	Document scan services	1.71	0.74
8	Electronic library website	2.86	0.76
	Total	2.36	0.72

It can be see in table 5 above that the obtained mean of 2.0+ proved to have an effective perception rating from user's reactions of the service delivery in the electronic library.

Effectiveness of the Electronic Library System

The effectiveness of the electronic library services was evaluated on the components of input in vision mission and librarian's management strategies, process in program services by their collection techniques resource, and output in terms of the satisfaction and perception of users.

Firstly, on the component of service effectiveness of input in vision and mission as shown in the results of the descriptive statistics, the mean of 3.59 for item 1; 3.09 for item 2; 3.04 for item 3, and their total means became 3.16 which was presumed to be criteria for the most effective performance rating. The mode was too significant since having a mode of 4 and 3 for the variable items was an indication of effective performance that resulted in an impressive performance of the electronic library service delivery.

Some input items were sought wherein important management strategic approach entailed a precise sense of direction and purpose in defining clear vision for the organization. Thus, we could describe that the library's vision and mission was understandably clear when librarians' staff could respond by stating the purpose of the electronic library without necessarily referring to written materials. These signaled their knowledge on the direction of activities. Again, the interview involved a qualitative tool and was aimed to give more insight information to the data obtained through the questionnaire.

Electronic library institutions had formulated principles to manage and direct the library processes. The library operation used a hybrid of electronic and traditional services, and program tool supply were in databases and PC's. In the academic aspects there seem to have pressured to deliver more and more itinerary of study off-campus as evident from the vision and mission statement, the electronic library was ideally placed to support this. The transcript below revealed the librarians understanding of that.

"Untuk visi dan misi kami memahami tujuan dan berjalan dengan lancar, selain itu kami membuat job description untuk memudahkan dalam sevice process" (Mr. Sofyan Riyanto, librarian, Interviewed January 15, 2008)

For the vision and mission, they had fine target comprehension. Besides, this made service delivery process to facilitate job description.

Secondly, the librarian's management strategies would look into operational related issues. The evaluator used the tool of interview to obtain further data that could complement which centered on management strategies involved unstructured inquiries which did not deviate from those that were obtained in the questionnaire.

To begin with, the evaluator sought whether these main managerial functions were strictly following process of work activities. The responses obtained from the librarians centered regarding strategies related interview which were evident from the respondents' own confession that aspects of strategy formulation are done. Some of the main reasons given by librarians' respondents for developing virtual libraries strategies were to:

a. Improving or extending services.
b. Providing clients with desktop access to library resources.
c. Improving access to materials.
d. Meeting client demand for virtual libraries.
e. Providing access to materials that had become available in new formats.
f. Improving in library efficiency.
g. Raising the profile of the library.
h. A complementary existing library services through link with external libraries like UGM main and library Institution Technology of Bandung (ITB).
i. Counteract the closure of physical libraries.
j. Meeting the management requirements for virtual library development to occur.
k. Issuing library cards to all eligible users.
l. Proper recovery and follow up of unreturned materials.
m. Providing some necessary training to library staff.

A librarian had this to say in the interview transcript written below which indicated the management commitment to the activities.

> *"Management electronic library berjalan dengan baik dan lancar tidak ada hambatan kami semua sudah memahami tugas masing-masing"* **(**Ms. Masurah, librarian, Interviewed January 14, 2008)

In the electronic library, management works well without any constraints and they comprehended each duty very well.

Thirdly, Service program resource collection techniques could be seen in the result of the descriptive statistics. The mean of 3.37 for item 1 is 3.50; for item2 is 3.43; for item 3 is 2.74. For item 4, the mean total score in process of 3.32 revealed a most effective performance. An interpretation can be drawn from the above table that the four management function being studied shows that the librarians are perceived to be most effective in performance as can be seen from the mean reading of 3.0+. As regards the mode we can say that frequency is inclined towards a most effective performance.

Concerning the condition of the facilities, an extensive interview with purposeful sample of the librarians indicated the condition of the physical infrastructure of the library tools as is summarized in the table given below.

Table 4
Tools and Infrastructures of the Electronic Library

No	Facility	Condition	Numbers of facilities
1	Computer for user	Good	65
2	Computer for librarian	Good	1
3	Table	Good	66
3	Chair	Good	70
4	Scanner	Good	2
5	VCD *player*	Good	6
6	Tape *recorder*	Good	3
7	CD-ROM	Good	150
8	CD and VCD	Good	150
9	Cassette tape	Good	100

An OPAC (Open Public Access Catalogue) is now operational and is being enhanced to provide additional services. Delivery of primary documents by electronic means is not unusual. The electronic library programme (E-Lib) will itself give a boost to all these developments. On top of all this, electronic services are increasingly being delivered to the desk-top, outside the Library building and possibly off-campus. End-users may no longer require the services of either expert library staff, or access to a physical stock of materials, to make effective use of "library" services.

A library user would be able to extend a search from components of OPAC link which provides a seamless interconnection between the participating online catalogs. In view of these the management had the following to say.

"Sekarang kami dalam process berusaha untuk meningkatkan kualitas dan kuantitas electronic library dengan spesifikasi pelayanan pada E-Thisis, Disertasi ,scipsi dan micro teaching yang kami susun sendiri. Beberapa kendala teknis dalam pengadaan E-library yang harus di tanggilangi adalah (1) Ruang electronic library yang belum memadai (2) Karyawan harus meningkatkan pengetahuan tentang electronic library (3) Dana belum memadai untuk tambah pelayanan". (Ms. Hartati, Head of library, Interviewed July 24, 2007)

There are in the process of improving quality of electronic library services especially on matters pertaining to *E*-thesis, dissertations, and micro teaching. Some technical constraints in levying of *E*-Library are often experienced and must be continuously being improved. These include (1) inadequate space such as rooms (2) need to improve knowledge about library electronic programs and keeping (3) inadequate funding which causes limitations on procurement of vital resources.

The aspect on electronic documents keeping and updating were sought for as well. The results revealed that a new generation electronic library which allows an automation of all library functions, including acquisitions, cataloguing, serials management, and circulation is said to be operational too. The new system allows capturing and harvesting metadata from other sources as well as sharing metadata with other external sources. It also allows for the attachment of digital objects such as full text in PDF or MS-Word, image files, sound, video clips, etc., to catalog records. It also allowed users to view not only the metadata but also the full text of presentations, pamphlets, and audio recordings, and video tapes, contents pages of theses or dissertations online. As evidence a user had expressed as given below:

> *"E-library yang ada di UPT UNY merupakan sarana untuk meningkatkan pengetahuan dan informasi secara up to date .keberadaan E-library membantu saya dalam mencari informasi namuan seringnya error dan kecepatan browsingnya lambat. E-library seharusnya memiliki kelebihan dibandingan puskom atau warnet".* (Faculty of Biology semesters 6 Student, Interviewed December 12, 2007)

The library in the UPT of UNY represents infrastructure for increasing information and knowledge by updating. The existence of the *E*-Library assists the student in searching information instead of the manual manner which often has errors in accuracy and speed.

Fourthly, the output in terms of the satisfaction and perception of users was revealed in the result of descriptive statistics. The mean total score of 2.36 reveals an effective performance. As for items with the mean of 1.0+ which in this case are only item 2 of the 8, the means shows that these items are somewhat effective meaning a much more attention should be made in any effort to improve further the users' approval perceptions.

The evaluator further sought for the reaction of users who were, in this case, the students. The results indicated that there is a general feeling of satisfaction by the users on the new electronic services. They expressed that there is an independence and flexibility to search for books they want and then place an order immediately without filling out forms. The standard Interlibrary Loan service is still available to users. And there is a convenient request form for users to use right on their Web page. Below is an interview from a user who had this to express his satisfaction.

> *"Website E-library UNY bisa membantu saya untuk mendapatkan informasi mengenai buku dan E-journal (Proquest) atau beritaberita baru yang bisa link dari electronic library. Sebagai masukan, maskan lebih baik lagi jika sediakan fasilitas buku yang dapat dibaca atau download melalui E-Library".* (Faculty of English semesters 6 Student, Interviewed December 6, 2007**)**

UNY *E*-Library can assist students to get information and news or update especially from Proquest *E*-Journal through link of input library. There should also be book facilities to be read or downloaded.

As an Indicator of effective product, the electronic library has to demonstrate four attributes: (1) management of resources with a computer (2) the ability to link the information provider with the information seeker via electronic channels, (3) the ability for staff to intervene in the electronic transaction when requester by the information seeker," and (4) the ability to store, organize, and transmit information to the information seeker via electronic channels. An electronic library utilizes both electronic information resources and electronic means to manage and move those resources. Generally, the following organization procedures could be observed at the setting.

a. Users can look for electronic journals from web-site electronic library in *full text and full image* most useful for recently current information on a variety of topics. *ProQuest* journal literature delivers more than 80,000 original works of literature. *ProQuest* Learning: Literature--delivers more than 80,000 original works of literature and thousands of author biographies, criticisms, essays, reviews, multimedia, interviews, and more. Students can browse the more than 650 author and thematic study units; or, they can search by keywords, authors' names, nationality, texts, publication dates, literary movements, and gender. Thousands of primary source documents were not available in most school libraries and provide support for courses in literature.

b. Users can look for news services of Indonesia (KBI). The articles and news can be found in more than 43 media electronic library web-sites.

c. Information concerning required dissertation, thesis, and final reports can be obtained from web-site electronic library.
d. User /student can look for research report from electronic library website.
e. User can find the title article journal, Newspapers, that service from UNY.
f. Information bibliography data can be accessed from ***http://library.uny.ac.id***.

Moreover, the electronic library also offers services of cassette tapes, CD-ROMs and CD-ROMs interactive, *E*-mail and access to internal and international databases via the Intranet and Internet, database searches, reference services, document delivery services, management and administration, training in information management, photocopying, lending, enquiries, PC workstations, open-access areas, catalogues, and interlibrary loans. Collaboration was carried out with the Gadjah Mada University and Technology Institute of Bandung (ITB) through the development of national network of digital library efforts to share intellectual capitals in the form of final reports (S1), theses (S2), dissertation (S3), research reports, expertise directories, etc.

There are 30 workers in the library of which eight are particularly working in the electronic section. However, this is not sufficient and more are required to develop efficiency. For the library, the maintenance and development of the web sites had thrown up key management issues in terms of staffing, providing easy access, and ensuring output which are seen to be satisfactory.

4. Conclusion

The summary of the research findings in chapter IV would be presented and concluded in this chapter. Recommendation would be made by the researchers in order to effectively improve the service performance of the electronic library of the State University of Yogyakarta.
a. The electronic library input was found to have been formulated and a compilation of electronic programs and resources made available. The perception of the librarians had indicated a most effective approval rating.
b. The results of descriptive mean total statistics on the process of the electronic library indicated a most effective performance.
c. The users' satisfaction with the service was evident from their own confession in the interview. It is important to also note that output is always dependent on the effectiveness of the input and process. As a sign of continuous improvement, the librarians were observed to be energetic and organized in their work because they could be seen collaborating thus maintaining conducive environment for studying.

Recommendations

The research findings show the developing and improving of the effectiveness of services in the electronic library at the State University of Yogyakarta. With these findings, the following recommendations can be proposed:
a. The library should ensure continuous and proper plans in place on all activities.
b. The vision and mission must be posted to make everyone aware and understand their goals.
c. To achieve electronic library targets, there should be an increase in the numbers of computer and facility equipment such as scanners, printers, and audio visuals.
d. For efficiency in the collection development efforts, electronic library website should contain more collection of services, create more interesting page website, and increase frequency and up-to-datedness.

e. Ensure financial allocation of funds for updates of the electronic library.
f. Evaluation and feedback must be conducted to all the components of the electronic library.
g. Regular training must be done to the librarians to boost their skills to guarantee the effectiveness of services for higher users' satisfaction.
h. A comparative study could be conducted to other areas to investigate the relationships of each other's performances.

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