



Seminar Kebangsaan  
Teknologi Maklumat  
Di Perpustakaan  
3 - 5 Ogos 2010



**Seminar Kebangsaan Teknologi Maklumat Di Perpustakaan  
3 – 5 Ogos 2010 | Bayview Hotel, Pulau Pinang**

**Anjuran Perpustakaan Sultanah Bahiyah, Universiti Utara Malaysia**

**Kertas Kerja Sisipan**

**EFFECTIVENESS OF LIBRARIES IN SUPPORTING RESEARCHERS' INFORMATION  
NEEDS: THE IMPACT OF A DIGITAL LIBRARY**

*oleh*

*Arinawati Ayob  
Habsah Abdul Rahman*

*Perpustakaan Hamzah Sendut  
Universiti Sains Malaysia*



## EFFECTIVENESS OF LIBRARIES IN SUPPORTING RESEARCHERS' INFORMATION NEEDS: THE IMPACT OF A DIGITAL LIBRARY

### Abstract:

*As one of the supporting departments of a university, the academic library plays a vital role in providing essential information resources and services to the researchers. Changes in information technology have impacted libraries due to change in the format of information resources and the information seeking behavior of users. Technology has transformed the way researchers seek, obtain and use information. Libraries therefore need to critically examine their effectiveness and continuously support researchers in fulfilling their research needs. Research has been conducted at an academic library that is moving towards transforming traditional services to a highly digital environment. The fruition of this idea is blooming into reality with the almost completed research wing of the library. In preparation of ensuring suitable and relevant research information, the research analysed the effect and impact of digital information services existing so far. Moving from here the research hopes to further enhance facilities, services and training with special focus on academic clientele. Research results will be discussed in the course of this paper's discussion. Amongst factors studied are the relationship between demographic characteristics and the perceived effectiveness of library services among researchers.*

### Introduction

As one of the supporting bodies in a university, the academic library plays a big role in providing related information resources and services to the researchers. Today, with the proliferated information sources, researchers have varieties of choices which allowed them not to depend solely on the library for their information needs (Kuruppu and Gruber, 2006). At the same time, the rise of e-research, interdisciplinary work and cross institution collaborations have formed new challenges about how libraries should serve the needs of their researchers. As expectations have changed, libraries face growing demands from researchers for better access to research information resources and tools (RIN and CURL, 2007).

In order to fulfill the demands, libraries have to spend most of their budget on monographs and subscribing journals and databases. The size of collection, budget and expenditures only can reflect the effort and potential of the library to be positioned to meet users' needs. These input measures do not assess how well users' needs or expectations are met (Nitecki and Franklin, 1999). In this digital age, libraries should have appropriate ways to measure the effectiveness of their information resources and services in meeting researchers' information needs in order to stay relevant in their research communities. One of the best ways to measure is to get the answer from the customer themselves.

### Researchers Expectations and Digital Library

Since the introduction of electronic information sources in the form of CDROMs and access to CDROM network in early nineties, users have found that this method of information searching has improved the results and search outputs. This has been possible through the speed of searching by way of electronic format, and electronic searching techniques. At that time, this was a great innovation.

In keeping up with current technology at that point of time, the library continued updating itself with latest technologies. The subscription to web based databases came as the saviour to the cumbersome extraction of information through usage of CD network and CD towers (problems of inserting and exchanging CD ROMs due to limited space in CD ROM towers).





In the early days of CD-ROM technology, researchers have already felt the great impact when compared with the access and information extraction from printed and hard copies. Researchers felt the ease of information searching and thereby had further encouraged and motivated their appreciation and usage of electronic resources especially when much time has to be spent in writing and research. At this point of time information searching was very much a Librarian's responsibility to extract from the CD-ROMS. Training was then slowly introduced to provide searching independence.

When the liberty of searching was passed to users themselves, it was great freedom for researchers/ users of information. Greater was this impact as freedom of search provides satisfaction. With web-based options, Databases then migrated from CD stand-alone to CD towers and finally an almost seamless environment. More time-saving and speed of retrieval is being appreciated.

These are examples of the library's innovation in responding to their environment which is the needs of their users. Innovation in information technologies which had been adopted by libraries has improved a lot of library services. However, with the ever changing environment of information technology coupled with the change in information seeking behavior of our users today, the implementation of any innovation in the library should be followed by the feedback on how that innovation had effectively met the demand of our users (Zaltman, Duncan and Holbek, 1996).

### **The effectiveness of library resources and services in digital age**

Effectiveness is one of the aspects measured in performance assessment of libraries. Effectiveness may be seen as an outward-looking measure which shows whether the institution's aims or objectives have been met. This is done by comparing the aims and the outcome. One way of measuring the effectiveness of a library is to test satisfaction level of users with elements of any related services, for example by checking the availability of books and periodicals (Morgan, 1995).

Academic libraries need to critically examine the effectiveness of library services and continue the challenging task of understanding the information needs and information seeking behaviors of the communities they serve. It is equally important to understand how the library is perceived by the academic community. "Doing a "good job" is not enough; the university library needs to be seen as an active partner in teaching, learning and research and an essential part of academic life." (Kuruppu and Gruber, 2006). Webb, Gannon-Leary and Bent (2007) stated only by engaging in a dialogue with the research community and actually listening to what they say can make you understand how the library meets, or could meet their requirement. They can be great supporters and key consumers of library. Researchers play an important role in a university and their perceptions of library service may be a key factor in the way the university library is used and supported (Dilmore, 1996).

Weber and Flatley (2006) stated that libraries have to develop studies to ascertain the effectiveness of current services, strengths of collection and the direction the libraries should take concerning new information delivery systems and products. They also emphasized of the need to conduct a more in-depth open ended assessment which will allow libraries to get collective experiences and stories of many persons which at the same time will reflect the image of the library in their research community.

Libraries need to take stock of where they are now, list the services and resources they currently provide, ask users what they want from the library and combine the results of these investigations with new ideas and developments in order to provide a comprehensive and effective service to researchers. Webb, Gannon-Leary and Bent (2007).



## Research Objectives

This paper reports the research that was carried out to determine the perception of the effectiveness of an academic library in supporting researchers' information needs. Specifically it addressed the following research questions:

- 1) What is the perception of researchers towards the effectiveness of USM libraries in supporting their information needs?
- 2) What are the library resources and services that need to be improved in order to fulfill the information needs of researchers?

## Research methodology

Questionnaires with a five-point Likert-type scale was the main instrument used in this study. The design of the questionnaire was based on examples in McDonald and Micikas (1994) with some comparison with Calvert (2008). Variables of library effectiveness from these two examples were examined in order to get variables which suited the purpose of this study which was to study the effectiveness of an academic library from the perspective of researchers. Seventeen (17) variables were selected base on four( 40 major domains of effectiveness suggested by McDonald and Micikas (1994) and variables suggested by Calvert (2008).

The four major domains were:

- adequacy of information resources
- services
- library/customer interaction
- access

The survey was followed by interview sessions with a few respondents. These interviews helped in providing feedback about the results of the survey and suggestions from researchers for services and resources which they felt fell in the category of ineffective and needed further improvement

## Findings

A total of 108 researchers out of 220 selected researchers participated in this study which represented a response rate of 49%. The majority of the respondents 69.4%,( N= 75) were males while females comprised only 30.6%,( N=33). In terms of age, the highest percentage was from those who were 36-45 years old 42.6%,( N=46), followed by 46-55 , 34.3%,( N= 37), above 56 years (13.9%, N=15) and the lowest percentage was from the youngest category 25-35 years, 9.3%,( N=10).

Based on years of services the majority of the respondents were from those who had served the university more than 20 years, 29.6%,( N=32), followed by 6-10 years 22.3%,( N=23), 11-15 years 18.5%,( N=20), 1-5 years ,15.7%, (N=17) and 16-20 years 14.8%, (N=16). Senior lecturers held the highest percentage among the respondents 40.7%, (N=40) followed by associate professors 38.0%,( N=41) and professors 21.3%, (N=23).

The effectiveness of library resources and services were assessed based on the four major domains as presented in the next following discussion according to the variables.





## Adequacy of Resources

The adequacy of library resources was assessed based on researchers' opinion towards statements regarding the adequacy of books, journals and abstracts collection. 43.0% of researchers agreed that the library contained sufficient breadth and depth of books, 49.5% for journals, 49.5% for abstracts and 42.1% agreed that they always able to obtain needed materials from the library's collection.

Results of the study showed that less than half of the respondents agreed that materials needed were found to be sufficient. The ability of the library to fulfill their needed materials showed a mean value of ranging from 2.94 to 3.26. Based on this we can say that the library resources were fairly adequate in supporting researchers' information needs. Therefore in simple terms this meant that situation resources were not satisfactory and much more can be done to improve the provision of resources.

## Services

More than fifty percent of respondents agreed with the statement of seven criteria which were sufficiency of guidance provided by the library (58.6%), library opening hours (57.1%), conducive place (54.1%), courtesy of the library staff (56.0%), availability of library staff whenever help was needed (59.6%), sufficient searching tools (55.6%) and book / materials loan period (56.7%),

However, less than fifty percent of the respondents agreed with the statement related to the efficiency of processing new book titles request (37.9%), the efficiency of processing new journals title request (34.1%) and finally the promptness of Inter Library Loan service (21.6%). The mean value of this domain ranged from 2.83 to 3.62.

## Access

Differ from the earlier domains, this domain of assess show higher percentage of respondents who agree with the statement for the criteria. The highest percentage was for the easily access of databases where 82% of researchers agree. This was followed by 76% for OPAC easily access, 71.7% for OPAC easily understood and 57.4% for the statement which say "the library materials are organized so that they are readily accessible". The mean for this domain ranged from 3.56 to 3.96

The other criterion used to support the assessment of the access domain was the frequency of use of library resources and services. The result showed that among the listed resources, e-journals was the most used resources with 53.3% of researchers chosing "always" use the e-journals. It was followed by abstracts (34.6%), e-books (21.7%), printed books (11.2%), current printed journals (14.0%) and old printed journals (8.5%).

The result for frequency of use of library services on the other hand showed less percentage of researchers who always used the library services compared to the usage of library resources. Among all the services, OPAC was the mostly used service with 19.6% of researchers always used the OPAC. Three services which were the least used by the researchers were Inter Library Loan, emails from Liaison Librarian and EndNote manuscript template. The mean values of the usage ranged from 1.87 to 3.18.

## Library/Customers Interaction

The respond to the criteria in assessing the effectiveness of library in terms of its interaction with researchers showed that 52.9% of the researchers agreed that there were sufficient ways to interact with the library. The mean of this variable was 3.56.



The result on researchers' awareness of library resources and services shows that majority of researchers aware of the library resources which ranged from 95.3% to 99.1% of respondents. However, the awareness of library services showed a bigger range of percentage which ranged from 76.9% to 98.1%. Seven services which have less than 90% of respondents awareness were the bibliographic management software, EndNote, new journals and book request, A-Z journals locator, electronic alerts from subscribed databases and emails from the Liaison Librarian.

## Discussion and Conclusion

This paper tried to highlight the importance of the assessment of library effectiveness in today's digital age. The information shared in this paper is an example of how the effectiveness of an academic library perceived by researchers in supporting their research work. From the four main criteria used to assess the effectiveness of the library, the highest mean value was for the access of information sources provided by the library through the access of online databases and OPAC. We can therefore see how the advance of information technology had proven its role in contributing to the improvement and the effectiveness of the library.

In terms of adequacy of resources, the result seem to suggest that although the researchers regularly used the electronic resources as compared to printed format, their perception towards the adequacy of information resources provided by the library was just "average". In ensuring the suitability of library collection with researchers' needs, researchers can play their role in library's collection development by suggesting new titles in their research field. Majid, Anwar and Eisenschitz (2001) stated in their study that the involvement of library users in the selection of library materials is likely to result in developing library collection that are more relevant to their information needs. They also added that the consultations sought by the library to get researchers opinion in selection of library material could also create a feeling of being involved leading to enhanced perception of library effectiveness.

Therefore, as one of the ways which can be used by the library in order to improve the level of adequacy was to get the input of needed titles from the researchers. Since the report show the low respond to the frequency of use of new book and journal titles request and the efficiency of processing new book and journals title request, these can be the area that need to be improved by the library in order to improve the adequacy of its collection.

Even though the adequacy of library collections has been used as one of the criteria in measuring the productivity of a university (Fairweather, 1999), Dougherty (1991) stated that libraries should not only use the size of their collection as the indicator of their success but have to be more focus on the ability to deliver the information needed by the users in a timely manner. For this reason, the library should also look at a few related services which can support the ability of the library in fulfilling the information needs of the researchers.

Among the important service was document delivery or inter library loan service. As reported in this study, interlibrary loan service was among the least used service by the researchers. Studies on information needs of researchers have always emphasized the importance of document supply services. The easy access to online information resources was claimed as one of the cause to the decline in document delivery supply in libraries. In today's digital age, researchers have option to order the full text themselves without recourse to the library's document supply service which seems to be unnecessarily obstructive or inefficient (Webb, Gannon-Leary and Bent, 2007).

Despite a decline in transaction in recent years, CONUL national research support survey reported that three quarters of respondents considered the interlibrary loan service important to their research. They stated that their priorities are faster transaction times through online requesting and delivery (Cox, 2006).





The level of awareness of library resources and services can be used as an indicator of the effectiveness of strategies used by the library in promoting their services. These include the relationship between library and researchers and the marketing strategy used by the library which were all related to library/customer interaction. Although some libraries may have good e-content, they however may overlook the training aspects. As such their clients are deprived in terms of regular and effective use and thereby cause less impact in supporting researchers' information needs.

From the result reported in this study which shows the low awareness of some services among researchers indicate that the library should improve the way it promotes the services especially the new services. The service such as electronic alerts which can be used through the subscribe databases was one of the important services provided by the library. With this service, researchers will be alerted on any new issues related to their research needs.

Marketing of library resources and services should be a critical component of academic libraries' activities. This is a challenging task, as the library may have to compete with many other service providers in the academic setting. Pre-conceived notions and misconceptions about libraries also seemed to be the greatest barrier preventing the effective use of library resources by researchers. Since individuals have different preferences for receiving such communication, libraries have to use a variety of communication methods (printed flyers, email, phone, personal communications etc.) in order to provide news and communicate effectively with both users and non-users. To achieve the maximum effect, promotional efforts must be made in a way that attracts researchers' attention. (Kuruppu and Gruber, 2006).

Being a research-intensive university, researchers almost always require information on current / worldwide issues. As a response to these pressing needs, USM libraries have become very sensitive and concerned in ensuring that such needs are being fulfilled. The achievement of the current status-quo of USM libraries has been a result of Strategic Planning which has over the years reviewed plans and implementation continuously. The adequacy of research materials has been supported by the above findings that it is still not at a satisfactory level. However, the fact reflects a positive attitude of researchers who wish to have more; meaning, more referencing will be done and much more databases are required in the course of their research. This research can then be used as a measurement of researchers' needs to further justify more subscription. As a positive step, further consideration must be made as to subject variations and subject focus. The gap must then be filled. This reflects a great impact and shows proof of the current usage of digital resources.



## REFERENCES

- Calvert, Philip James. 2008. Assessing the effectiveness and quality of libraries Unpublished doctoral dissertation, Victoria University of Wellington.
- Cox, John. 2006. Researchers, information and libraries: the CONUL national research support survey. *Sconul Focus* 38 Summer/Autumn:51-54.
- Dilmore, Donald H. 1996. Librarian / faculty interaction at nine New England colleges. *College & Research Libraries* (May).
- Dougherty, Richard M. 1991. Needed: user-responsive research libraries. *Library Journal* January: 59-62.
- Fairweather, James S. 1999. The highly productive faculty member: confronting the mythologies of faculty work. In *Faculty productivity: facts, fiction, and issues*, edited by W. G. Tierney. New York: Falmer Press.
- Gannon-Leary, Pat, Moira Bent, and Jo Webb. 2007. Researchers and their information needs: a literature review. *New Review of Academic Librarianship* 13 (1-2):51-69.
- Kuruppu, Pali U. and Anne Marie Gruber. 2006. Understanding the Information Needs of Academic Scholars in Agricultural and Biological Sciences. *Journal of Academic Librarianship* 32 (6):609-623.
- Majid, Shaheen, Mumtaz Ali Anwar, and Tamara S. Eisenschitz. 2001. User Perceptions of Library Effectiveness in Malaysian Agricultural Libraries. *Library Review* 50 (4):176-186.
- Morgan, Steve. 1995. *Performance assessment in academic libraries*. London: Mansell Publishing.
- Nitecki, Danuta A., and Brinley Franklin. 1999. New Measure for Research Libraries. *The Journal of Academic Librarianship* 25 (6):484-487.
- Research Information Network (RIN) and Consortium of Research Libraries (CURL). 2007. *Researchers' Use of Academic Libraries and their Services*. [http:// www.rin.ac.uk](http://www.rin.ac.uk) (accessed January 6, 2009).
- Webb, Jo, Pat Gannon-Leary, and Moira Bent. 2007. *Providing Effective Library Services for Research*. London: Facet Publishing.
- Weber, Michael A., and Robert Flatley. 2006. What Do Faculty Want? : A Focus Group Study of Faculty at a Mid-sized Public University. *Library Philosophy and Practice* 9 (1).
- Zaltman, Gerald, Robert Duncan, and Jonny Holbek. 1993. *Innovations and Organizations*. New York: Wiley.