CHAPTER TWO
LITERATURE REVIEW

2. 1. Introduction

The literature on online catalogues cites many potential benefits of this system. OPAC use studies constitute a large body of literature. This study has selected more pertinent literature as defined by the scope. In this chapter, an overview of the online public access catalogue is presented. Various aspects of online catalogues have been examined two or more decades ago. This chapter reviews the literature pertaining to how are the academic library patrons using OPAC, what are the characteristics of an online catalogue, what are the users’ attitudes towards OPAC, what are the problems faced by users, and what are the errors they make in use. An investigation into the necessity of OPAC user instruction is also discussed.

Various information sources have been explored by the author to accomplish this objective. Bibliographic tools, abstracts, dissertations and theses, online databases, and online catalogues of library holdings were examined. Current researches and articles in periodicals such as *Library Resources and Technical Services, Journal of Internet Cataloging, College and Research Libraries, School Library Media Quarterly, Information Development, and Media and Methods* were consulted. Some monographs were also reviewed. The *ERIC indexes* (full-text and abstracts), *Lisa (Library and Information Science Abstracts)*, *Emerald* and Internet sources were examined to elicit the various aspects of online catalogue studies.
2. 2. OPAC

In the early 1980s, catalogues only displayed the bibliographic information for monographs and serial titles physically held in a library (Norgard et al., 1993). Now, online catalogues provide access to abstracting and indexing databases, as well as information on physical location in libraries. It is connected to the Local Area Network (LAN) and the Internet.

Baker and Lancaster (1991) noted that library catalogue use has increased and has imported two aspects. First, librarians are becoming more concerned with the evaluation of library services in general; they want to know how well the catalogue performs, what are its deficiencies, and how effectiveness can be increased. Secondly, many libraries are replacing traditional card catalogues with OPACs.

The computerized catalogue is commonly referred to Online Public Access Catalogue (OPAC) (Chen, 1991). There is no clear definition of the online catalogue (Norgard et al., 1993). It has been defined in various ways by libraries and there is little consensus about what really constitutes an online catalogue (Fayen, 1983).

The Library of Congress has defined the online catalogue as:

> An online catalogue is an access tool and resources guide to the collections of a library or libraries, which contains interrelated sets of bibliographic data in machine-readable form and, which can be searched interactively on a terminal by users (Fayen, 1983, p 4).
The National Library of Medicine’s definition is as follows:

An online catalogue provides online access to the complete bibliographic record of all of the library’s holdings with minimal access points being the same as those available in a card catalogue (Fayen, 1983. p 4).

These two definitions point out the special features of an online catalogue:

a. It contains records in machine-readable format: Machine-readable cataloguing (MARC) is the standard format used by libraries for representing library cataloguing information which is to be stored, used, or transmitted in machine-readable form (Fayen, 1983);

b. Given the nature of bibliographic records in machine-readable form, library users identify and locate materials on a computer terminal;

c. Give users more access points to a library item: OPAC gives more access points to users than the three traditional approaches such as author, title, and subject offered by the card catalogue. OPAC access points include keywords (author, title, subject, and expert keywords) and call number searching. Users can access bibliographic records easier and faster through online catalogue. In information seeking, online catalogue is more important because it allows users to access materials by keywords and Boolean searching.

d. Capable of interacting with users while users search for information at the computer terminal: The terminal displays the loan status of a library item or the
number and title of the items found using a given search term. This interactive feature enables users to modify their searches.

2. 3. OPACs in Academic Libraries

Colin (1987) defined academic libraries as ‘libraries of universities, university colleges, and other institution forming or associated with institution of higher education’.

In academic libraries, OPAC is an important component for a user’s research requirements. Alexander et al. (1991) noted that the Sterling C Evans Library in the USA has installed the OPAC system (NOTIS) in 1988. Before that, the library used the card catalogue, which was no longer updated and corrected. Signs placed on top of the card catalogue asked users to refer to NOTIS for current information. Librarians observed that users still chose the card catalogue to search for information. The reasons given for the users’ behaviors are: the users were accustomed to the card catalogue, lacking in typing skills, unavailability of NOTIS terminals. However, they also noticed that users gradually became more acclimatized to OPACs and fewer users used the card catalogue. These observations showed that users need a certain amount of time to become familiar with this new technology. The Library removed the card catalogue in late December 1989. The library notified the users regarding this through articles appearing in the campus and local newspapers. Additional terminals were placed in the area previously occupied by the card catalogue and other floors of the library.
These findings were similar to earlier surveys of students and faculty attitudes at Bryn Mawr and Swarthmore Colleges in 1984 towards a proposed online public access catalogue (Watson et al, 1986). The libraries were hesitant to implement OPAC because of negative publicity such as excessive downtime, queuing or perceived difficulty in use.

The University of Cape Town installed a new online catalogue called BORIS (BORrower Information Service) in the early 1980s (Meyer, 1991). Due largely to the networked situation the library was unable to teach all the users. Therefore, help sheets, charts, and cards were provided alongside terminals as well as help function available on the terminal itself.

Meyer (1991) noted that while editing the help function features for the online catalogue, ‘scanning’ or ‘browsing’ was more appropriate than ‘searching’. He approached a postgraduate online catalogue user to ask which word the user preferred. The user said that both would be appropriate. Later, he approached three black first-year students and asked them the same questions. They all replied that they were not sure of the meaning of ‘browse’ or ‘scan’ but they understood what ‘search’ meant. Meyer decided to stick with the word ‘search’. This is an example of one of the problems faced by the students where English is their second language.
2.4. Characteristics of the Online Catalogue

Matthews et al. (1983) mentioned that their nationwide survey has indicated that library users expressed great satisfaction with online catalogues. If online catalogues are so quickly accepted by the majority of the users, there must be some features or advantages that this technology offers that card catalogue lacks.

The major difference between an online catalogue and a card catalogue seems to be computer searching versus manual searching (Chen, 1991). The main advantages of the OPAC are the availability of more access points and the capability of Boolean searching. The structure of the database enables users to search successfully. On the other hand, they can access the information on remote systems or in-house.

Traditional card catalogue provides two common bibliographic records namely the dictionary catalogue or divided catalogue (Catlett, 1987). In a dictionary catalogue, the author, title, subject and other entries such as ‘see’ references and ‘see also’ references are interfiled in one single file (Chen, 1991). A divided catalogue has two parts such as subject catalogue and author catalogue, which is indexed alphabetically. In either case, dictionary or divided, the arrangement of cataloguing cards is predetermined by the order of the alphabet and library filling rules (Fayen, 1983).
Chen (1991) divides the information retrieval system into two kinds.

a. Pre-coordinated retrieval system: According to subject headings or other entries, where the term is catalogued and library users retrieve information by this catalogue.

b. Post-coordinated retrieval system: Library users can use a set of self-selected terms combined with Boolean operators to describe the information they are seeking.

Fayen (1983) noted that the online catalogue provides at least four features such as Boolean operators, keyword access, phrase searching and truncation. Boolean operators are mostly used for online searching. Users can retrieve information as their need dictates by either going broad or narrow. Online catalogue allows searching according to the user’s search terms.

Keyword access means that individual words within author, title, subject headings, notes and other fields of the bibliographic record may be searched as individual entities. It is an especially useful feature for subject retrieval because use of specific term to express certain concept is not required any more.

Phrase search is more effective when a user wants to find only selected items that are indicated by a given heading. Therefore, phrase searching is narrower than keyword searching. It gives more precise information.
For truncation, users are required to enter only as much of the beginning of a phrase as it is known (Chen, 1991). The system broadens the scope of the search to include all the variants that start with the characters entered by users.

2.5. OPAC Users

In the early 1980’s Hildreth (1989) carried out studies about online catalogues in academic and public libraries, and a few school media centers. He stated that the rapid increase of online catalogues in libraries has been almost matched by the growth and expansion of online catalogue research activities. Literature about OPAC has become so voluminous that by the early 1990s, citation analyses have appeared dealing with the referencing patterns and evolutionary trends within this one genre of literature (Efthimiadis, 1990).

Many researchers have discussed about OPAC users whereby one can categorize them as adult users and young users (Chen, 1991). The majority of online catalogue users are adults (Watson et al, 1986). There were a few studies done about young users (Markey, 1984; Edmonds et al, 1990).

From the introduction of OPAC until now, the usage of the online catalogue has been examined in various aspects. Some studies focused on user behavior and attitudes (Lawry, 1986; Ashoor and Kurshid, 1987; Van Pulis and Ludy, 1988; Chen, 1991 Blecic et al, 1999). Others investigated search errors or reformulation (Dikson, 1984; Dalrymple, 1988; Peters, 1991; Drabenstott, 1996).
Studies have also examined the effectiveness of training methods and training needs of online catalogue users (Kenney and Wilson, 1985; Nielsen and Baker, 1987; Kalpan et al, 1990), the correlation between search performance and type of experience (Fenichel, 1981), and the relationship between search success and searchers’ attributes (Woelfl, 1984; Teitelbaum-Kronish, 1985).

Other studies have focused on user needs and users’ problems (Brown et al, 1999), effectiveness of online searching (Slack, 1991; Peters, 1991; Cherry et al., 1994), success and satisfaction (Rachel Ann, 1996; Ciliberti et al, 1998), remote OPAC use (Lucas, 1993), and user characteristics (Connaway et al, 1998). Currently researchers tend to conduct studies on Web-based OPAC such as Web OPAC users (Rayfield, 1997; Muswazi, 2000; Torres, 2000).

The Council of Library Resources (CLR) has funded the first major research in 1981 (Matthews et al, 1983) involving five organizations, namely, the Library of Congress, J. R. Matthews and Associates, Online Computer Library Center (OCLC), Research Libraries Group, and University of California. They studied library users and online public access catalogues in twenty-nine academic, special, and public libraries, which were involved in various research projects under separate grants and contracts with one of the five sponsoring organizations. Apart from the University of California, other university libraries represented in the study were Stanford University, Northwestern University, Ohio State University, and Syracuse University. The CRL studies examined a number of OPAC users and non-users.
One of the most important findings of this national survey was the high level of success and satisfaction with online catalogues, reported by a majority of respondents (Matthews et al, 1983). Eighty percent of the users were satisfied with the results of their searches. Over ninety percent preferred the online catalogue. In the study, non-users also expressed a very favorable attitude towards the online catalogue; as they do not need more time to learn how to use OPAC.

In the study eighty-five percent of online users found relevant materials in their search, and half of them found materials which they were not looking for. Other factors which affected the users’ success are:

a. The user could not find available items;

b. The desired item is unavailable in the collection; and

c. The desired item is in the collection, but not recorded in the online catalogue.

Online catalogue searching can primarily be divided into:

a. Known item searching (author/title searching);

b. Subject searching; and

c. Keyword searching (author keyword, title keyword, subject keyword and expert keyword)

The survey revealed that most users searched by subject or topic and they preferred keyword searching. Both keyword searching and subject searching were extensively
used. Cochrane (1983) feels that the library profession must attempt to improve catalogues by subject analysis and subject access.

Another important survey was conducted by Markey (1983). She examined the users’ acceptance of online catalogues and reported users’ problems in finding the most relevant subject term to use with the online catalogue. She used the focused-group interview method to further examine the issue of subject searching. Markey (1985) listed users’ needs in the order as follows:

a. To view a list of words related to search words;
b. To search a book’s table of contents, summary or index;
c. To know if a book is checked out;
d. To print search results;
e. To search by any word or words in a subject heading; and
f. To provide step-by-step instruction.

In an experiment to improve subject access, she incorporated the Dewey Decimal Classification System (DDC) into the online catalogue. Headings in the DDC scheme and entries in the DDC index were provided in the computer as users’ assistance so that users could browse and select appropriate search terms. Markey described this subject searching with DDC as an experiment, yet it was not clear how the experiment was carried out (Chen, 1991). Hill (1984) suggested subject access enhancement through call number, which has become a standard feature for most online catalogues.
However, the early studies had not covered many aspects of online catalogue and the users. Lewis (1987) noted that the early studies (1981 and 1982) were limited to the circulation system as well as author and title access. Lewis noted that this is not true for online catalogue.

Markey (1984) noted that the CLR studies indicated that youngsters accept an online catalogue more readily than adults. Chen (1991) studied online catalogue searching behavior of high school students in a Georgia high school. In the study, she found many students could use the online catalogue to search for information successfully. When students were provided with correct author or title, the majority of them could locate information easily. But subject searching was more difficult. Markey concluded that the students could conduct known item searches more easily than subject searches.

Ensor (1990) presented a report on a study, which explored patrons’ perceptions and demographics related to keyword/Boolean searching on the Indiana State University Library User Information System (LUIS), an online public access catalogue (OPAC). She divided the results of her study into two major sections.

a. Demographic and other user characteristics of LUIS users; and

b. Characteristics of LUIS users who have conducted keyword searching.

About eighty percent of LUIS users have done keyword searching and only 2.5% say that they do not plan to do it in the future. Most users do not see themselves
performing keyword searching most of the time. Eleven percent of users felt that keyword searching was a superior search method and thirty percent said that they use it every time they use LUIS. It is noted that knowledge about keyword searching is not as wide as it should be. Only half of the users understood that subject searching uses only Library of Congress subject headings. It is suggested that more effort is required for terminal independent instruction options that are geared more towards user needs.

A study by Connaway et al (1995) investigated the user characteristics and transaction log analysis. They found thirty four percent of the users performed title (keyword) searches. A search of this type will retrieve items with the selected terms appearing anywhere in the title. In this study, 19.2% searchers used the subject browse mode. Subject browsing results in an alphabetical listing of subject terms but does not provide the number of items that have been assigned to those terms. The default presentation is a screen of seventeen subject terms.

Hsieh-Yee (1996) studied students’ use of online catalogue and other information channels. The study showed that most students prefer online catalogues than other information channels. Selected online catalogues (ALADIN- Washington Research Library Consortium) had five search methods that respondents identified and retrieved information successfully such as keywords, subject headings, author, title, and call number as the most frequent method of access.
Earlier studies, mentioned above reported that advanced features on online catalogues, were seldom used. Hsieh-Yee’s (1996) study showed that students used them but usage was low. About fifty-six percent of the students used Boolean operators and thirty-seven percent used limiters, but only twenty one percent used truncation.

Ciliberti et al (1998) examined the success of library users in obtaining materials and their satisfaction of information needs at Adelphi University. The study’s results revealed that the overall success rate for 441 OPAC searches was sixty-two percent. It comprises known-item searches (61 percent) and subject searches (60 percent).

2. 6. Problems of Searching by OPAC Users

Chen (1991) divided search problems into three categories namely unknown item search, known item search and search errors. Cochrane and Markey (1983) pointed out users problems with some online catalogue features.

   a. Increasing the search result when too little was received;

   b. Remembering what was included in the online catalogue;

   c. Finding the right subject term; and

   d. Decreasing the result when too much was retrieved.

Hildreth (1989) reported that users had navigational confusion and frustration during the search process and that they lacked fundamental understanding of today’s online catalogue capabilities such as pre-coordinated phrase searching and browsing, and post-coordinated keyword/Boolean searching.
Borgman (1986) concluded that online catalogues were difficult to use. She stated that users had difficulty performing subject searches, both selecting terms and executing search problems. She also pointed out problems such as too much or too little search results, users tend to perform simple searches using only basic search features and not taking advantage of the sophisticated capabilities of the online catalogue system.

Peters (1991) noted that the problems with the online catalogues are not directly related to the systems, the data and the users themselves. Bates (1989) pointed out that many users were interested in just a few relevant items, so the comprehensiveness of a search using controlled vocabulary subject headings is of little interest and use to them.

Many researchers described the problems as basically subject related. Fenichel (1981), Borgman (1986), and Hildreth (1989) are agreeable on this matter. Harter’s (1984) study also revealed similar results and he noted the problems as:

a. Most searchers planned their search strategies logically and followed them consistently, but were sometimes too uncritical about them.

b. Several system commands were never used and most commands were employed in fewer than half of the searches conducted.

c. Searching and printing commands made up two thirds of the commands used; the interactive capabilities of online systems were comparatively of little use.

d. Between 46% and 78% of searches were not modified after the formulation was entered into the system.
Peters (1989) examined how to classify the user problems with online catalogues. He identified fourteen categories of causes for problems with the use of online catalogues. Peters (1991) described use problems such as:

1. User behavior problems,
2. User conceptual and attitudinal problems,
3. System problems, and
4. Other problems not included in the above classes.

Nordlie (1996) investigated how patterns of interaction between public library intermediaries and users may provide insights applicable to the improvement of online catalogues for unmediated search. The findings of this study indicated that OPAC users have difficulty in applying any but the most simple search functions.

Nordlie stated that users’ query formulations are often ambiguous, do not convey the real information need and do not match the language of the system. OPAC users also seem to have difficulties in applying information from the document descriptions they do retrieve in a search to improve their search strategy for instance by choosing new subject headings or keywords. Nordlie noted that these problems might be reduced if the OPAC could:

a. Help the user in the disambiguation process, for instance by identifying, highlighting and suggesting different aspects of a topic/different topics represented in a set of retrieved documents;
b. Develop a set of disambiguating questions, based for instance on a thesaurus of classification scheme, to help the user focus the query and pose it at the right level of specific;

c. Present search results in ways that simulate the shelf browsing phase of mediated searches; and

d. Determine through input from the user which of a few factors such as language, intellectual level etc. are involved in determining the relevance of a document, and display results accordingly.

Cataloguing and locating of holdings also affect the success of online catalogue use. CRL (Center for Research Libraries)-OPAC task group (Copenhagen et al, 2001) presented the potential problems with CRL records in their report such as holdings, headings and access fields, and materials not in the catalogue. They noted that item-level holdings for monographs and serials are not always available or complete. They say problems in headings and access fields such as a number of the records are not complete cataloguing records; while the author and title information and bibliographic description may be accurate, subject headings and classification numbers may be missing. They found over half of the CRL collection is uncatalogued, and not accessible in its online catalogue.

Some studies have shown that technological fears also affect the success of online catalogue searches. Lombardo and Condic (2000) noted that in their survey some
online catalogue users fear or remain at least uncomfortable with computers and many respondents are not familiar with the Internet technology.

Dikson (1984) found that sixty percent failures in title searches and forty-nine of the failures in author searches were due to user errors. The failure in title searches was attributed to the use of initial articles in title, spelling or typographical errors, incorrect Boolean search attempts, and inaccurate abbreviation. As for author searches, common search error resulted from the wrong order of names, inaccurate surnames or middle initials, or foiled Boolean search attempts.

Dikson divided search errors into logical errors, and typing errors. Logical errors arise from using commands and this can be recognized by the system. But typing errors are errors in the commands that cannot be recognized at all. She further found that errors have a tendency to occur in clusters. She says users tended to quit immediately after receiving an error message.

Fenichel (1980) divided these errors into six categories, such as:

(a) Typographical and spelling errors;
(b) Syntactic or semantic errors in the command language;
(c) Procedural errors;
(d) Logic errors;
(e) Terminology errors; and
(f) Other errors that do not fit into any of the above categories.
The study revealed that novices made more non-typographic errors, yet overall differences in search results between novice and experienced searchers were not as large as expected.

Borgman (1986) examined the problems from mechanical and conceptual aspects. Mechanical problems are those related to the mechanical aspect of searching such as syntax and semantics of entering search terms, structuring a search and negotiating through the system. Conceptual problems concern problems of not-knowing ‘how and why’ of searching ways to narrow and broaden search results, alternative search paths, and the distinction between no matches due to a search error and no matches because the item is not available in the database.

Peters (1991) reported that the failures in users’ searching behavior included reaction to large retrieval sets, failure in context, truncation confusion, and low persistence/early session termination. He noted that the system problems also affected the success of searches. He identified the problems of availability create demand, design biases, large retrieval sets, difficulty of subject access, search session as strings of unrelated moments, and downtime and slow time etc.

Chen (1991) found various types of user errors and categorized them as:

(a) Typing and spelling errors;
(b) Errors in using system commands;
(c) Errors in using proper search terms;
(d) Errors in interpreting search problems and screen information; and
(e) Errors in recording search results.

She further described that some errors resulted from a computer-searching environment; others appeared to have been caused by respondents’ lack of understanding of the library catalogue or the classification system and their deficiency in basic English skills. A lack of experience in computer-based searching also contributed to searching difficulties. Users make more errors when required to use basic academic skills than required to understand the mechanics of the system.

Connaway et al (1995) presented a compilation of errors by type:

(a) Typographical errors;
(b) Repeated unsuccessful searches;
(c) Repeated successful searches; and
(d) Format errors.

The most common type of error is typographical whereby 52.8% of the participants were involved. The other types of errors users made were more serious and can present considerable retrieval problems for users. These errors suggest an incomplete knowledge on the part of the user of the capabilities and limitations of the system.

Drabenstott and Weller’s (1996) research was based on spelling errors in online catalogue searches. They listed the possible spelling errors in the order as follows.
a. Entered query on different topic;
b. Entered same query;
c. Quit search;
d. Corrected spelling;
e. Entered same query minus unposted word;
f. Entered same query and added new word(s);
g. Entered new query with same stem as previous query; and
h. Entered acronym or spelled it out.

The results of the analysis demonstrated that less than six percent of user queries that match the catalogue’s controlled and free-text terms contain spelling errors. They say that this percentage does not account for spelling errors in user queries that fail to match the catalogue’s controlled and free-text terms. It was difficult for the researchers to quantify spelling errors in non-matching queries because they were unable to verify certain terms and phrases. They concluded that a combination of a number of techniques - as truncation, matches on fewer than all words in queries - would probably result in matches that would lead to retrieval.

Ciliberti et al (1998) showed that the remaining failures were user errors and involved retrieval, catalogue use, bibliographic, and matching errors. They found that the user errors were thirty three percent and retrieval errors forty four percent. According to this study, due to search failure, users were unable to locate titles on the shelves. Another user error was due to catalogue use problems. Thirty-eight percent errors
were evident in OPAC searches such as known-item searches and subject searches. OPAC search errors were due to users who were unable to interpret location notes, such as ‘Annex’, ‘Reference’, or ‘Reserve’ correctly.

Most of these studies reported and calculated search types, failures, success rates, search method types, errors and problems. However, Tolle (1983) noted that the matters have not been defined or calculated consistently throughout the published literature and the data provided from each system have not been standardized.

2. 7. User Attitudes
The early studies of online catalogue use determined the acceptance of online catalogues by public users, but few studied the dynamics of actual use (Peters, 1991). But it was revealed that most users reportedly preferred the online catalogue form. However, attitudes about the OPAC can be categorized into two kinds according to users’ reaction, namely positive attitudes and negative attitudes.

2. 7. 1. Positive Attitudes
The CLR research report revealed that eighty four percent of the users were satisfied with the system (Matthews, 1983). Steinberg and Metz (1984) examined the users’ satisfaction with the Virginia Technology Library System (VTLS) in 1983 and reported that most of the users were highly satisfied with the system. Moore’s (1981) study, which was done on Ohio State University, University of Toronto, Guelph University, and Ryerson Polytechnic Institute, also indicated the same result.
Markey (1984) identified the reasons for patrons’ acceptance of online catalogue as:

a. It is more fun to use than the card catalogue;

b. Online catalogue searching saves the patron’s time; and

c. It provides a new information service.

Hsieh-Yee (1996) surveyed available information channels, in two universities and found that eighty eight percent of the respondents used online catalogues for information retrieval. This is the highest percentage among the fourteen uses of information channels in both universities. In this study, university students showed a clear preference for online catalogues. More than half of the respondents listed them as the most frequently used method. Students also consulted print indexes, teachers or citation references, but much less frequently than online catalogues. Hsieh-Yee listed six factors that may have affected students’ selection of online catalogue, such as:

(a) Convenience;

(b) Quality of data;

(c) Ease of use;

(d) Availability;

(e) Experience; and

(f) Cost.

In 1998, the Oakland University Library migrated to a new online catalogue (Lombardo and Condic, 2000). In order to investigate user’s acceptance of the new OPAC, an open-end questionnaire eliciting comments on students’ likes, dislikes and
online catalogue preference was administered. The study indicated that most students preferred the new OPAC system because:

a) It provides users with multiple search techniques;

b) It allows users to manipulate data by sorting, downloading, and e-mailing records; and

c) It permits users to search at their own convenience from their home or office.

2. 7. 2. Negative Attitudes

Before the introduction of the online catalogue, a study was conducted at the Bryn Mawr and Swarthmore Colleges in Philadelphia to identify students’ attitudes (Watson et al, 1986). In this study, students were asked to choose between a card catalogue and a computerized catalogue. The results indicated that fifty six percent of Bryn Mawr and forty nine percent of Swarthmore students preferred the card catalogue. The reason being the students is satisfied with the existing card catalogue system.

In the Oakland University’s study (Lombardo and Condic, 2000) some students disliked the OPAC or any computerized system. Their comments were, “I dislike computer”, “I don’t feel confident on any computer.” They stated that, “It is a little confusing to figure out what words to use to conduct your search.”
2. 8. The Need for Instruction on OPAC Use


Baker’s (1986) study was an empirical study in the Northwestern University Library. The purpose of the study was to identify the effect of the instruction on user performance. There were three test groups including a control group. The first experimental group was given instruction by a brochure, describing how to use the system. The second experimental group was given an instruction session lasting for fifteen minutes. The study showed that those who attended the instruction session performed better than the other test group. But the controlled group had performed better than the second experimental group.

Alzofon and Van Pulis’s (1984) study focused on instructional session. They found that systematic group instruction had no apparent effect on search success. This could be the result of the user’s familiarity, continues searching or may be because the instructions on the screen display were easy to follow.

Sager (1986) identified the difficulties, encountered by the trainees. He believed through his observation that the instruction programme has been a valuable asset for the libraries, trainees, and trainers alike.
As mentioned above, OPAC users may commit many errors. Miller (1986) said that the OPAC users, who have not used OPAC before might not type well. This could lead to misspelling during searching. He said that to use the OPAC successfully, instruction is most important. He emphasized that the online user education should serve as an integrated component of the search strategy.

McMillan (2001) stated that, “the library professional will need training to use the technology to fully improve processing time and OPAC and Internet information access.”

Analyzing the user search behavior in a case study, Lapp (1996) stated that the users have problems using the OPAC system whereby a large number of attempted searches in the OPAC are abandoned without any results. Likewise many searches have retrieved too many titles. And many subject searches results in zero retrievals. In user interviews Lapp noted that many users have problems formulating a search question and translating it into search terms. They have experienced difficulty with Boolean operators and are not familiar with search strategies. Many users lose their sense of orientation during searches: “they do not know where they are, how they got there, and what would make sense as their next step. It is the job of librarians to ease customer access to the OPAC” (Lapp, 1996). Therefore Lapp felt that the instruction is a very useful component for users. He suggested:

a. Provide printed information materials: Concise search aids should be available, as should a manual for those users who want comprehensive information;

b. Online information: Current OPAC news can be presented through the OPAC;
c. Informal help and user training in the library; and

d. Formal training.

Lombardo and Condic (2000) stated that instruction certainly affect the efficiency of OPAC use. All of the participants in their study received library instruction. Only forty eight percent felt that the new OPAC (which they were examined) could be mastered without instruction. This implies that even a user-friendly interface may require instruction, but sometimes not too much instruction. Only ten percent of the participants said that it takes a long time to learn a new online catalogue. They stated that “it appears that a little bit of instruction goes a long way in helping users to become accustomed to basic unsophisticated search and navigation skills.” However, they finally concluded that the new OPAC system could not be mastered without instruction from library staff.

Users learn to use online catalogues through various methods. Hsieh-Yee’s (1996) study found that the methods in the order, according to reaction of the students for OPAC (ALADIN) at American University (AU) and University of the District of Columbia (UDC) are as follows:

a. On-screen instruction: 60 percent of users noted that they had learned via this method. ;

b. From library staff: 44 percent had learned by library staff. ;

c. Themselves, without any help: 38 percent. ;

d. By printed instructions: 20 percent. ;

e. From friends: 18 percent.
This data suggests that the use of OPAC (ALADIN) was a fairly solitary activity. Typically a student learns to use it by reading instructions on the screen; seeking the help of library staff, if necessary; or exploring the system by him/herself. Responding students were less likely to read the printed instructions or seek help from a friend. The strong reliance on on-screen instructions underscores the importance of system interface, screen displays, and message design. Hsieh-Yee concluded that if improved in these areas it would definitely encourage usage.

2. 9. Summary

This chapter discusses the literature of online public access catalogues since the early 1980s. The chapter is divided into seven sections - online public access catalogues in general, OPACs in academic libraries, characteristics of the online catalogues, OPAC users, user attitudes and the need for instruction on OPAC use. Some researchers have focused their studies in each area. Others have done studies encompassing all aspects of the above topics.
CHAPTER THREE
METHODOLOGY

The aim of this study is to understand the foreign postgraduate students’ behaviour when using OPAC. The objectives of the study are to investigate their ability in using OPAC, to examine their knowledge about the OPAC, to discover the reasons that affect or reduce their effectiveness in using OPAC, and present some proposals on how increase users’ effectiveness of OPAC use.

The study examined several questions: why do foreign postgraduate students use OPAC, what are the common types of searches made by them, from whom do they learn on how to use the OPAC, were they given any formal training on how to use the OPAC, do professional librarians play a role in imparting OPAC use skills to them, are they aware of the facilities provided by OPAC, what are the problems faced when searching via OPAC, and what other features would they like OPAC to provide. In order to find valid answers for the research questions, foreign postgraduate students’ perceptions are relevant. Therefore, a questionnaire survey was designed in the hope to measure the foreign postgraduate students’ OPAC using behaviour.

The overview of the research design will be presented first, followed by a description of population and sample for the study, research instrumentation, data collection procedure, and data analysis.
3. 1. Overview of the Methodology

The online catalogue use studies rely heavily on research methods such as questionnaires, focus groups, protocol analysis, controlled experiments, real time unobtrusive observation, and transaction log analysis. However, the survey questionnaire remains the most popular research method for online catalogue use, not to mention most other research topics in library and information science (Peter, 1991). Questionnaires place a high value on users’ opinions.

A questionnaire survey was chosen for this study for many reasons. The most pertinent fact was the simplicity. As indicated by Bookstein (1985):

*Probably most important is its simplicity and naturalness: we are used to asking questions of others when we desire information and the questionnaire is a straightforward formalization of this process.*

The study involves the following steps:

a) Analyzing selected library and information science literature from the past two decades to obtain an overview of OPAC usage.

b) Exploring the literature to ascertain what researches have already been conducted on OPAC usage elsewhere; to establish suggested list of indicators and variables; and to gain a better understanding of the many aspects of the problem at hand.

c) Preparing a preliminary list of research questions.

d) Developing the survey instrument i. e. questionnaire.
e) Selecting the sample of foreign postgraduate students.

f) Distributing the questionnaire to the sample.

g) Collecting and checking the data for comprehensibility, reliability, and usability.

h) Analyzing and interpreting the results by coding the responses, tabulating the data and performing appropriate statistical computations.

3.2. Population and Sample

Sixty students were randomly selected from the foreign postgraduate students at the University of Malaya. They were chosen based on the number of times they come to the postgraduate computer laboratory in the UML. The questionnaire was distributed to them regardless of their country of origin, faculties, level of study, and year of study. A total of forty-two questionnaires were returned, giving a response rate was seventy percent.

3.3. Instrumentation

Data were gathered by using a structural written questionnaire (see Appendix B). Bains (1997) showed that the questionnaire as a method of data collection has proven consistently popular and it offers subjective data. A 7-page questionnaire was used as a data-gathering instrument. The questionnaire in this study is divided into two sections. Section A contained six questions asking demographic information of respondents such as name, level of study, course, faculty, and their country of origin. Section B contained twenty-five questions regarding experience
in use of OPAC. The questionnaire was designed for simplicity by asking the respondents to tick relevant answers; the limited choice of answers does not permit them to express their point of view. There were only four questions for which the respondents have to write their responses directly.

There are two strategies used in the questionnaire:

a) When respondents were asked to tick either Yes or No, they were also asked for reasons so as to enable them to express their opinions on a particular question.

b) The option of ticking Others, where appropriate, followed by please specify give the respondents a chance to indicate answers that had not been suggested in the questionnaire.

Open-ended responses should help to resolve any doubts that have about the closed-ended responses (FitzGerald, 1996). Therefore, some questions have been given to express the respondents’ point of view. Respondents were asked to suggest improvements to the OPAC interface and to express the reasons for selecting the most frequently used search option. They were also asked to comment or make suggestions about the University of Malaya Library’s OPAC.
3. 4. Data Collection Procedure

With the permission of the library management, the questionnaire was personally distributed to fifty foreign postgraduate students at the University of Malaya Main Library’s postgraduate laboratory on October 1st, 2001. Ten extra copies were given out for distribution to friends. They were given a period of fifteen days to complete the questionnaire. Forty-two respondents personally returned the questionnaires, which were coded for analysis using 15 October 2001 as the final cut-off date.

3. 5. Data Analysis

The collected data was analyzed using Statistical Product and Service Solutions (SPSS: formerly, Statistical Package for the Social Sciences) Version 10.0 for Windows.

3. 6. Summary

This chapter is devoted to describing the methodology used to conduct this study by first discussing the steps taken to carry it out. The study employed a survey research method that elicited demographic information about respondents and their OPAC using behaviour. The sample of the study was twenty foreign postgraduate students at the University of Malaya. A total of nineteen usable completed responses were received in time for tabulation. A written questionnaire, which consisted of two sections was developed covering general information of respondents and OPAC usage. The collected data were analyzed and reported using appropriate statistics using SPSS Version 10.0 for Windows.