CHAPTER – 2

REVIEW OF LITERATURE

2.0 Introduction

Review of literature is an important step in Dissertation or research design. It helps the investigator to get an overview of the areas of research. The knowledge about the issues, facts, principles, theories in research area can be ascertained through literature review. It also throws light on the various types of research undertaken by various researchers.

Today research has become a non-stop activity of man. It is an intellectual and creative activity, which continuously broadens the frontiers of knowledge. So research means a careful investigation or enquiry, especially through search for new facts in any branch of knowledge. Knowledge and literature in various fields are increasing day by day. A researcher should have up-to-date information about what has been done in a particular topic that one intends to investigate. Literature review is an attempt to identify, locate and synthesize completed research reports, articles, books and other relevant materials to the specific problem of research. By means of reviewing literature the researcher gets the maximum benefits from the previous investigations and utilizes the previous findings. Execution of research will be more effective and comprehensive after literature review.

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 the most 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 were examined two or more decades ago. This study reviews the literature pertaining to how the academic library patrons are using OPAC and Web OPAC, what are the characteristics of an online catalogue, what are the users attitudes towards OPAC and Web OPACs, what are the users perception towards OPAC and Web OPACs, what is the progress of the OPAC, what are the studies on OPAC and Web OPACs, how the
users are using OPAC and Web OPACs, how the users are using the bilingual online catalogue. Various information sources have been explored by the investigator to accomplish this objective. LISA (Library and Information Science Abstract), Emerald full text articles and full text articles from Internet sources were examined to look into the various aspects of OPAC and Web OPAC studies.

To make the presentation more meaningful the literature reviews are grouped under seven headings and under each heading the reviews are arranged in the chronological order. This chapter describes the sampling procedure employed, size of the sample, the method used to collect the data various sources of data, statistical tools used for the analysis of the data and the approaches to evaluation applied for the study

2.1 User Attitudes Towards OPAC/Web OPAC

Henry and Margaret (1987) carried out research on “OPACs and their users: a background to the Australian experience”. They noted that online public access catalogues (OPACs) are becoming available in increasing numbers in Australian Libraries and prompting an examination of user’s attitudes towards OPAC. User’s studies carried out in the USA and the UK reveal that the most part of USA and UK public see "OPAC as a positive development in the library services. Examining users study on OPACs conducted in Australian academic libraries it concludes that most of the user studies were in- house investigations.

Kalin and Sally W (1991) studied “The searching behavior of remote users: a study of one online public access catalogue”. The aim of the study was to determine the searching behavior of remote users of LIAS; Penn State’s online catalogue differed from those using the OPAC within the library. This study included more than 1000 searches done by remote users (those accessing the system via either dial access or the university’s computer network) and they were compared to more than 1000 searches done by in house users. These searches were duplicated step by step and analyzed according to a pre-determined set of criteria. The results show that remote users are the more sophisticated searchers and remote users seem to have a better conceptual knowledge of how an information system should operate and they struggle more with procedural details of how to use the OPAC.
Rodman (2000) dealt with the subject, ‘the connection between processing and access: do cataloging decisions affect user access.’ The study reveals that since the size of the library collection seems to have an effect on the OPAC display, some overall projections might be made for one year production against the size of the database. This study adopted sample methods. This examination of call number assignment and how it might be applied or not applied in processing provides some new ideas or insights. However, the study shows that from the sample group approximately 78% of the copy catalogued items fit into this library’s collection without needing any call number adjustment. It showed that 21.9% of processed items required a call number adjustment which was so slight that the unchanged call number was on the same screen or the next screen in the OPAC display. This leaves 16.6% of the items out of sequence by two or more screens, which when factored into the entire collection results in 0.16% total titles not easily found in the OPAC.

This study investigating catalogue use by science students of the University of Ilorin was conducted by Adedibu (2008). This study adopted questionnaire methodology. A questionnaire was randomly distributed to 500 users in the 2004/2005: 4:5 questionnaires were completed and form the basics of this study. This study revealed that most respondents, about three quarters claimed to know to use the catalogues – card and OPAC, while 26% of the sample still have difficulties in the effective use of the catalogues. A limited number of respondents sought the assistance of a library staff in the use of catalogue to the author / title catalogue; they still use a combination of both catalogue types. Use of the library catalogues was found to increase as the respondents’ progressed in their academic career.

A study of changing pattern of user expectations regarding the library catalogue as an information retrieval tool: a case study of Mangalore University was conducted by Kumbar and Mallaiah (2008). This study describes the efforts of Mangalore University library in developing an Online Publics Access Catalogue with the aim of increasing the information retrieval efficiency and providing easy access to the users. This case study adopted questionnaire method which was supplemented by informal discussions with the users. A sample of 415 post graduate students, 60 research scholars, and 100 teachers was selected for distributing 575 questionnaires.
In response, 69.5% duly filled questionnaires were received from 65% post graduate students, 73.4% research scholars and 86% teachers. This case study found that a few respondents felt the existing catalogue was not of much help for them and suggested improvement. Majority of researchers and teachers are regular users of library catalogue. A significant number of respondents use the catalogue through ‘author’ approach. The next in order are ‘subject’ and ‘title’ approaches and majority of the users depend on the guidance provided by the library staff in using the catalogue.

The result of the study would, therefore, help not only to strengthen the library catalogue on the basis of the user needs and preferences but also act as a guide to proceed in the right direction in future.

2.2 User Perception towards OPAC/ Web OPAC

Hildreth (2000) investigated the Accounting for users’ inflated assessments of on-line catalogue search performance and usefulness: an experimental study. This investigation focused on three areas: interactions between the independent variables and the four dependent variables; associations between dependent variables; and associations between personal characteristics and dependent variables. This investigation reveals the user- orientated approaches to information retrieval system performance evaluation assign a major role to user satisfaction with search results and overall system performance. This investigation found that Web OPACs were rated higher than text OPAC in ease of use and usefulness. Upper division students rated both OPACs easier to use than lower division students.

When considering search performance, search task level of difficulty seems to be a major determinant, but OPAC interface style may affect search performance as well. When considering perceptions of ease of use and usefulness, interface style appears to be the primary determinant. In short, Web OPAC is easier to use, and this may be a supportive factor in search success. However, the down side is this web OPACs may contribute to “false positive” I Users’ assessment of search results, and this may explain, at least partially, why users are often satisfied with poor search results.
A study by Abdoulaye (2002) conducted on ‘perception of catalogues and end users towards bilingual authority files. Investigated bilingual authority files on the OPAC in the main library of the International Islamic University Malaysia. This study adopted interview methodology. The author interviewed database developers and end users. The purpose of the interview was to identify problems faced by both groups. This study findings provided data that has contributed to the understanding of the structure and retrieval of bilingual authority files by pinpointing problems faced by database developers as well as end – users in the bilingual environment.

The findings also showed that authority files can be searched through “alphabetical or keyword” options. However, in constructing the search, user can use Boolean operators or space bar between each keyword. In addition, truncation also can be used to manipulate search. It appeared that the “Not” option of Boolean operators is not applicable with authority files, possibly because few people were using this option during their search through the OPAC.

Kani, Ghinea and Chen (2008) conducted a study on “User perceptions of Online Public Library Catalogue. The purpose of this study was to establish user suggestions for a typical OPAC applications functionality and features. They also noted that OPACs are widely used electronic library catalogue giving a wealth of remote access to library information resources. Users’ role is very important in the OPAC development process to ensure a usable and functional interface, as the integration of user defined requirements of OPACs, along with the other human computer interaction considerations. This facility offers a better understanding of user perceptions and expectations in respect of OPACs, which ultimately result in a truly user centered OPACs. An experiment was undertaken to find out the type of interaction features that users prefer to have in OPAC. The experiment study revealed that regardless of users Information Technology (IT) backgrounds, users expect OPACs to facilitate easier ways to achieve their tasks.

2.3 Use of OPAC/ Web OPAC

Cochrane, Markey, Cochrane and Atherton Cochrane (1983) presented a paper on ‘catalogue use studies –since the introduction of online interactive catalogues:
impact on design for subject access’. The paper was presented at the Resources and Technical Services Division (RTSD)/Reference and Adult Services Division (RASD)/Library and Information Technology Association of the American Library Association (ALA). Pre-conference was conducted on ‘Prospect for the Online Catalogue’ on 8th July 1982, in Philadelphia and this paper discussed the transition from card to online catalogue and methods for studying online catalogues. This presentation identifies four priority areas for study: analyzing user requirements and behavior; monitoring existing online public access catalogue: developing cost management methods and developing distributed computing and system linkages. This paper concluded that the user and the system interaction is more important than the online interaction as such.

Ashoor, Khurshid and Zahiruddin (1986) carried out survey on “Users’ reaction to the online catalogue at the University of Petroleum and Minerals Library”. This detailed survey was conducted at University of Petroleum and Minerals Library in Dhahran, Saudi Arabia. Counterpart study by the Council on library resources was compared with present survey results. This comparison shows that UPM users gave more preference to known item searches than the subject searches. The levels of satisfaction with searches were high even without an instrumental programmer or an updated manual.

Kaske (1988) studied the degree of variability in the percentage of subject searching in an online public access catalogue (OPAC) among branch libraries of one university. A full semester’s worth of transaction was analyzed and the results show that subject searching varies from a low level of 22 % to the high level of 74 % over the hours of the day. Subject search variability for the days of week ranged from 17% to 64% and for the weeks of the semester variability ranged from 12% to 70%. This valuable management information on the utilization of the OPAC within each branch library and among all the libraries is provided through numerous charts and graphs. Analysis is carried out in other libraries with OPACs to better understand how patrons are using online catalogues.
Weiming and Li (1988) studied “Users reactions to OPACs, an Australian case study”. Librarians at the New South Wales Institute of Technology (NSWIT) designed a simple form to collect user’s opinion on the gear OPAC system, which was implemented in NSWIT in May 1986 through the institute’s membership of the CLANN network. They conducted the survey on the use of gear OPAC by users. They analyzed around 400 forms collected between May to October, 1986. The result reveals that users have adapted easily to the Gear OPAC. Users liked its ease of use, the facility to search the catalogues of all network members, and the link with the circulation file which reveals the status of item retrieved. User’s operational and logistic problems suggest need for improvement in the system and the local management of OPACs and they also complained about slow response.

Rae E (1989) described in his paper “enhancement of subject access in online public access catalogues”. This paper revealed that an online public access catalogue (OPAC) plays an important part in subject access of library data. Therefore current subject facilities in OPAC’s should be accessed carefully. Phrase searching, keywords searching and class number retrieval facilities are included in OPAC. User’s reactions have been instrumental in identifying certain shortcomings in subject access to OPACs. During past decades a number of research projects were carried out on the shortcomings of OPACs. This paper highlights those aspects, which could in future improve the subject access in OPACs. It considers whether the online catalogue will ever be a perfect product or achieve the universal, familiar uniformity experienced by access of the twentieth century card catalogues. This could be achieved by either enhancing the search ability and brows ability of the OPAC or by enhancing content representation in the records within the OPACs database.

Murphy, Pollitt and White (1991) carried out a research project on “Matching OPAC user interfaces to user need”. They reported the results of a research project conducted by the school of computing and mathematics and the library of Huddersfield polytechnic on the problem of matching the user interfaces of online public access catalogues to the need of users. The project combined human computer interaction and system methods in the determination of user requirements and user centered design and prototyping sequence of design and evaluation cycles. These
evaluation applied techniques (such as a graphical user interface and mouse pointing device), human computer interaction incorporated the lesson of each evaluation to produce an OPAC user interface, ICARUS, which differs considerably in style, behavior and characteristic from those commonly used in academic and public libraries.

Gundel (1991) conducted a study on “OPAC user study: Stockholm University library”. This study involved five hundred randomly chosen library users, questionnaire and 136 responses. The aim of the study was to know the general attitude to the OPAC and to determine whether there were any differences in the attitudes and the searching behavior among different user categories.

Hufford (1991) discussed the “Use Studies and OPACs”. He also discussed the major catalogue use studies that had been conducted in the US and the UK. Then the potential to influence the construction of a new online public access catalogue was emphasized. The cumulative findings could serve as an information base which is very useful in developing an advanced OPAC.

Ensor (1992) noted the “User characteristics of keyword searching in an OPAC”. He found that keywords and Boolean searching modes are now becoming more commonly available on online public access catalogue (OPAC) and the queries had arisen on the use of both searching modes. The study was conducted at Indiana State University to determine the scale use of searching features of the NOTIS (Northwestern Online Totally Integrated System) online catalogue. They found that 73% of all questionnaire respondents had carried out keywords searches and 20% planned such searches in future. Online public access catalogue use was found to vary significantly with age, status, frequency of library use, school computer use and use of on OCLC terminal.

Pasanen-Tuomainen (1993) studied the topic in “Does access meet availability at an OPAC”. He presented a paper at the IATUL seminar in Tallinn, Estonia on ‘Universal Availability of Publication in science and technology including on the history and philosophy of grey literature’ on UAP policy and practice. The survey was
conducted at the Helsinki University of Technology Library analyzing the use of the online catalogue. This survey also covers the Internordic study on the ‘Monitoring the Online Catalogues of the Nordic Technical university libraries’. The aim of the survey was the promotion of end users accessibility to information as a part of training program. During the course on the library’s TENTTU information retrieval system, user’s search behavior was observed. This paper revealed the statistics of distribution of search elements in free text, field codes and the use of Boolean operators and also comments on software packages enabling analysis of the interaction between the system and the end user.

Lombardo and Condic (2000) studied empowering users with a new online catalog. The study showed that in June 1998 Oakland University’s library migrated to a new online catalogue. This study found that users overwhelmingly preferred the new OPAC and it was easy to use. However, they experienced some difficulty in using special features like truncation. The most popular feature of the new catalog was its remote access capability. The second generation OPACs possess features such as electronics reserves capabilities and hypertext links that are beginning to simplify the search process, but they have not yet developed into the intuitive, comprehensive systems that can empower users to seek information in new ways.

Online Library Catalogue search performance by older adult users by Sit (1998). This study provided the much-needed information on experienced older adults’ online library catalogue searching behaviour. The investigator examined the online search performance and associated errors of 54 older adult users of a representative online library catalogue system. The findings of this study support three major conclusions. First many experienced older adult online library catalogue users remain permanent novices. The majority of older adults were successful in performing simple online searches but failed to use advanced search functions successfully to perform searches. Second older adults experienced serious online library catalogue searching problems in the areas of conceptual knowledge, semantic knowledge and technical skills in entering a query. The search problems of the majority of older adults’ were at the conceptual layer of knowledge. The third online library catalogues may not be accessible to a large portion of the older adult library
population. The majority of this study’s participants were healthy, well-educated, older adult online library catalogue users. The investigator’s suggestion that there is a need for more research that explicitly examines older adults’ ability to use online library catalogue systems promises to improve these systems and to offer training for users of all ages.

Matsui and Konno (2000) reported on the “Evaluation of World Wide Web access to OPACs of public libraries in Japan: functional survey of 46 OPAC systems and a user survey of three of those systems”. The results of the survey of 46 OPACs and user survey of those systems focused on users’ accessibility to computer facilities, the quality of online public access catalogue manual, the browsing function of the indexing terms and error messages generated by the system to users in response to their queries.

Needham (2002) conducted a case study on the development of the online Archive catalogue at the University of Birmingham using CALM 2000. The study successfully resulted in the development of a full operational OPAC accessible both on and off campus via the Internet. This study revealed that to development of the OPAC of CALM, enabling online and remote access to archive catalogue records, were initiated in September 2000 and completed at the end of May, 2001. Reviews of the history of the project, its various stages and final results are found in the online Archive catalogue at the University of Birmingham which provides a significant research resource for users of information services as well as for the wider research community both nationally and internationally and may be accessed via the Internet at http://calm.bham.ac.uk/dservca/39

Mathias (2003) conducted a study on using a web OPAC to deliver digital collections. This study revealed the project, options that were considered for web delivery of images and text and reasons for choosing Innovative Interfaces, Inc.’s images management function. This study describes the data entry process as well as a review of the millennium media management products, which will be available through Innovative later this year. The primary objective of the IMLS – funded project was to make thousands of pages from early US natural science materials
available on the web. That goal has been successfully accomplished with the use of innovative web OPAC and millennium media management products.

Shridhar(2004) reported on “Subject searching in the OPAC of a special library: problems and issues” and he did comparative study of the use of the online public access catalogue and the card catalogue of the ISRO Satellite Center (ISAC) library and he also examined the steady decline in the use of subject searching by end users and the associate problems and issues. The results highlighted the negligible use of Boolean operators, combination searches, variation in descriptors, assigned to books of the same class numbers and too many records tagged to very broad descriptors. The study concludes that moving from the traditional card catalogue to a modern OPAC has not made subject searching more attractive or effective.

Guha and Saraf (2005) conducted a study which aims to examine the ‘OPAC usability: assessment through verbal protocol’. The objective of the study is to investigate how participants have interacted during the execution of Online Public Access Catalogue (OPAC) searches and whether they were satisfied or dissatisfied or confused. The study reveals that by implementing the verbal protocol method, this study developed a scheme of coding with the help of which the protocol data were analysed and proposed a generic model of online catalogue searching process flow. It is suggested that the method has a great potential in library and information science research.

The work of Bailey and Back (2006) ‘Libx a firefox extension for enhanced library access’, identified the Libx, a software module that enhances library access for users by integrating access to the online public access catalog (OPAC) and to the open URL linking server info the firefox browser. This study adopted using XML, user – interface language (XUL) and JavaScript. Libx offers library access through a toolbar user interface, through context menus, and via cues embedded into web pages. Libx can be branded for use in different libraries. The study found that LibX demonstrates the power of client – side technology in providing users with direct access to library resources while doing research on the web.
Ortiz-Repiso, Virginia, Ponsati, Agnes, Cottereau, Mario (2006) studied “How researchers are using the OPAC of the Spanish Council for Scientific research Library Network” and described that, due to the large number of electronic resources available, the importance of online public access catalogues has changed in the recent years. The aim of this study was to learn and evaluate the use of online public catalogue made by the researchers of the library network of Spanish Council for Scientific Research, the largest institution in Spain. For this study a questionnaire was drafted with questions pertaining both to the system and users. The information gathered was supplemented by data obtained from the transaction logs. The study results revealed that the users are still confronted by classic problems of information seeking, information overload, errors in subject searching and the predominant use of the systems simpler options. The results also show that the OPAC is broadly used by end users not only for obtaining printed material but also for connecting to the electronic resources subscribed to by the library.

Yushiana and Rani (2007) carried out a study about OPAC heuristic evaluation of interface usability for a web–based OPAC. The objective of this study was to investigate the usability of a Web–based OPAC user interface at the International Islamic university Malaysia (IIUM). It also looks at the applicability of heuristic evaluation in designing a user–centered WebPAC interface. This study design based on Nielsen’s ten usability heuristic principles and the study focuses on three heuristics only. The study found that three heuristics scored more than 70 percent where the heuristic aesthetic and minimalist ranked the highest (91 percent) followed by match between interface and the real world (71 percent), and heuristics visibility of interface status ranked third (70 percent). Five elements that scored 10 percent to 50 percent deserve attention from the library management. These are the heuristics properties violated by the interface.

Vandendurg (2008) noted using google maps as an interface for the library catalogue. The study reveals a proof of concept web application designed to allow users to search for library materials with geographic subject headings using google maps as the primary interface for navigation. The purpose of this study is to describe the development of an innovative tool that one library has created to provide users
with a new way to access bibliographic records. This study found that unique and valuable new methods of accessing bibliographic data can be created through the use of application programming interfaces (APIs), one of the more powerful tools available to web application developers today.

Ansari and Amita (2008) found that the OPAC system had changed the traditional concept of access to library resources. It allows simple as well as complex searches. Documents access is still one of the most important approaches of users to visit the library and a study of the effectiveness of an OPAC is useful in this respect. Regarding results, sometimes users face problems of recall and precision. However, in some searches, users are not able to find relevant documents on account of various factors. Data show that a high percentage of respondents are utilising the OPAC as a search tool for retrieving documents. Also, most of the users handle the OPAC themselves. Significantly, the satisfaction level of users was high with the OPAC facilities. Nevertheless, not many users are aware of the expert searches provided by OPAC.

‘A study on help users search, prototyping an online help system for OPACs’ by Greifeneder (2008) revealed the difference between the beginners and the experienced and how their mental models fit a particular system. Only if librarians know their users and their behaviour, they can anticipate their problems. This study found that 25 percent of the users already failed at the operating system level, and another 37% got zero results. The first part of this study describes what online help systems are spelling corrections, faceted- browsing, recommender- systems, context sensitive help avatars are only a few examples of the broad field. The second part of the study explains what stands behind the concept of use ware – engineering and how we can apply it to prototype a company independent of OAPC help system.

Prabhat Singh, Naidu and Jadon (2008) investigated the “Use of Online Public Access Catalogue in Devi Ahilya University library, Indore”. Libraries have started using advanced Information technology in providing services to the users. OPAC is one of the services that are being provided by the Devi Ahilya University Library.
The study revealed that the tool is useful and at the same time respondents felt that there must be someone near the OPAC to help in retrieving the required documents.

In Kumar and Vohra’s article “Use of Online Public Access Catalogue in Guru Nanak Dev University library, Amritsar: A Study”, a sample of 112 users was taken from various categories of users covering different disciplines such as Basic Sciences, Applied Sciences, Social Sciences and Humanities. The survey instrument was designed and distributed among the users to collect the primary data. The article focuses on various aspects of OPAC such as awareness, frequency of use, frequently used access points, satisfaction level, etc. The findings revealed that most of the users use the OPAC to locate the documents despite facing some difficulties. However, majority of the users are not satisfied with the OPAC. The study suggests that the users should be made familiar with the use and operation of the OPAC with the help of special training programmes (Kumar and Vohra, 2011).

Kumar and Vohra (2011) presented their article Online Public Access Catalogue Usage at Panjab University Library, Chandigarh. They focused on examining Online Public Access Catalogue usage by the students and faculty of Panjab University Library, Chandigarh. OPAC, an information retrieval system, has revolutionized access to bibliographic information through search capabilities such as keyword searching, Boolean searching, truncation, proximity searching, and item identity number searching. The article discusses various aspects of OPAC such as frequency of use, purpose, ease of use, satisfaction level, etc. An attempt is also made to explore the reasons for the least used search options of OPAC.

Kumar (2011) compared the effect of web searching on online public access catalogue (OPAC) users in the university libraries in India. The study adopted a questionnaire-based survey. A structured questionnaire was administered to 500 users comprising faculty, research scholars, and postgraduate students of selected university libraries to collect data regarding the influence of web search engines on OPAC users. The study found that a majority of the users in all three universities made use of the web-based resources. Ready access to information through search engines considerably increased the expectations of library users while searching OPAC. Web
searching influenced their OPAC searching process greatly, as the majority of searches were performed on OPAC-like popular search engines. Simultaneously, users did not know the difference between inner-workings of OPAC and common search engines such as Google. *This comparative study shows that* useful information about how search engines influence OPAC users in India.

The purpose of Kumar (2011) in this article is to find out the impact of internet search engine usage with special reference to OPAC searches in the Punjabi University Library, Patiala, Punjab. The primary data were collected from 352 users comprising faculty, research scholars and postgraduate students of the university. A questionnaire was designed as the data collection tool to obtain information on the impact of the web on OPAC. The study revealed that the information-searching behaviour of academicians was changing significantly in the web environment. A large number of users explored the web to garner relevant information for academic purposes. The majority were influenced by search engines because they also used OPAC, like the search engines. It is also clear from the study that internet search engines not only affected OPAC users in developed countries, but also impacted upon the less developed countries like India.

### 2.4 Characteristics of the OPAC/Web OPAC

Harmen (2000) examined ‘libraries and the web Adding value to web-OPACs’). This study reveals that web- OPACs not only offer simplified access to library holdings for end users but also enable librarians to add value to their catalogue data. One feature which has become almost a standard for new library software is including links to full – text or audio, video documents corresponding to a particular citation. This study implemented a new database view for journal issues. It is mainly meant to include TOC (table of content) services in the OPACs. So implementing this additional feature results in a maximum of three bibliographic levels in the library catalogues which can be browsed in the OPACs, journal issues and single article within an issue.

A study on ‘Bibliographic Displays of web based OPAC: Multivariate Analysis Applied to Latin American catalogues was conducted by Solana and Anegon
In this study the author focuses exclusively on so called web based OPACs. The present study evaluates Latin American OPACs against a checklist for full bibliographic display in web based OPACs development at the University of Toronto. The checklist contains four sections that cover the most important facts of the OPAC: Labels, text, instructional information and page layout. Finally, multivariate analysis methods are applied to the results. Such techniques include cluster analysis, principal components analysis (PAC) and multidimensional scaling (MDS). These techniques should be applied with caution, as their success or failure will depend on the nature and specific characteristics of the data to be analyzed.

The study by Sridhara (2004) ‘OPAC v/s card catalogue: a comparative study of use behaviour’ highlights the OPAC, as a new search tool, which has incidentally succeeded in bringing about suitable changes to the way catalogues are accessed. This study reports on the attempt made to study the use of the OPAC of ISRO satellite centre (ISAC) library and compare the results with findings of the study of use of card catalogue of the same library conducted 17 years ago. The study not only brings various aspects of user behaviour about OPAC but also depicts the differences in user behaviour vis-a-vis OPAC as well as the effects of technological changes from card catalogue to OPAC.

Oretiz-Repiso and Bazan (2006) carried out a study on how researchers are using the OPAC of the Spanish council for scientific research library network. This study adopted the questionnaire method. Objective questions were intended to contrast the user’s own opinions with the systems’ actual performance by comparing user responses with the catalogue’s own statistics. A total of 528 questionnaires were received, of which 73 percent corresponded to internal CSIC users and 27 percent were from persons external to the institution. The total number of potential users of CSIC’s library network was calculated at 5,724 response index which represents 6.76 percent of internal users. The study found the use made of the OPAC and the characteristics of the searches performed. Users are still confronted by classic problems of information seeking: information overload, errors in subject searching, and the predominant use of the system’s simpler options. The results show that the
OPAC is broadly used by end users not only for obtaining printed materials, but also for connecting to the electronic resources subscribed to by the library.

Cho (2006) made a study of the model to link the Korean University library OPAC with search portals. The study shows that the dependency on search portals as a gateway for internet navigation is increasing. This study discusses a model to link the Korean University library OPAC with search portals. Being utilized as the channel for information service for the general public, search portals are seen to have a positive effect in solving the information gap concerning high grade academic resources. This study found that the major problems from established cases are that portal search engines cover all areas so retrieval results are generally vast. Users cannot easily find a path accessing library resources through search portals without special equipment.

Lau and Gou (2006) went in search of query patterns in a university OPAC. This study analysis of the Nanyang Technological University OPAC was conducted to identify query and search failure patterns with the goal of identifying areas of improvement for the system. The finding of this study played a useful role in informing our ongoing research in the design and implementation of user–centered Information Retrieval System, including interactive query formulation using query recommending and the support for subjective relevance in information seeking. Issues investigated included query length, frequency and type of search options and Boolean operators used as well as their relationships with search failure. This study results indicate that a majority of the queries are simple, with short query lengths and a low usage of Boolean operators.

Olson (2007) wrote an article “OPAC Utility of a faceted catalog for scholarly research” whose purpose was to determine whether a faceted OPAC interface offers improvements to information discovery in scholarly research. This article considers whether faceted navigation increases the range of relevant materials that scholars discover, and is of interest to libraries which are considering adding faceted navigation and other features to their catalogue interface.
A study about ‘Visualizing OPAC subject heading’ was conducted by Papadakis et al (2008). This study introduces an innovative navigation procedure applicable to online library catalogues. According to the proposed approach, users are able to semantically navigate the digital assets within a library collection based on a dynamic, interactive graph based structure. The graph based structure is essentially an ontology that models the subject heading and the corresponding relations of the collection’s digital assets. The bilingual interface assists users that are unaware of the formal terminology that is usually employed to express the original subject heading. Moreover, the proposed application can be easily integrated to any existing OPAC system. The only requirement is that the subject headings within the ontology should be synchronized with the actual subject headings used within the OPAC.

Xiao and Fullerton (2008) made a study of ‘Developing utility tools to enhance voyager access, search and workflow automation. This study describes three utility tools developed at Texas A & M University libraries, which were designed for quick access and search of the voyager OPAC and the voyager clients. Users were satisfied with them and they improved productivity. With innovative ideas, some technical know – how, and a good understanding of the issues, librarians can turn themselves into developers of useful tools. They could come up with small, yet effective solutions by leveraging the existing system infrastructure, and combining or mixing available components. This study discusses development issues, benefits, drawbacks and user feedback.

Luong and Liew (2009) investigated the evaluation of New Zealand academic library OPACs: checklist approach. This study is to investigate the usability features of online public access catalogue (OPAC) in New Zealand academic libraries. It has made comparison of how libraries using the same library software are customizing their interface to make them useful to their users. This study identified features of 13 academic libraries OPACs in New Zealand and analyzed them using a usability inspection evaluation method. The study found that most OPACs in the study sample receive high scores in the areas of bibliographic display, text, layout, labels and user assistance. Many new features that are associated with search engines such as word cloud, faceted navigation, the most popular ranking and related items are however,
not found in the surveyed OPACs. OPACs built on the voyager library systems on average score higher in most feature categories in the checklist.

Tam and Cox (2009) studied student user preferences for features of the next generation OPACs, a case study of University of Sheffield international students. This study shows that the faceted browser, tag closed, borrowing suggestions and relevance ranking are the most desirable and useful features from the perspective of international students. Generally, the findings of this study are consistent with results from the few prior studies, i.e. users like features that can improve their search experience, relevance ranking and borrowing suggestions and dislike features with web 2.0 like RSS feeds, users’ ratings and those features which involved user participation were among the least popular.

2.5 Studies on Library OPAC/Web OPAC

Ballard, Lifshin and Arthur (1992) have carried out a study on “Prediction of OPAC spelling errors through a keyword inventory” in order to correct spelling errors in the online public access catalogue at Adelphi University New York. A usual inspection was performed of 1, 17,000 keywords and they found 1000 errors. Common words such as administration, education and commercial were found to generate many different misspellings. Most of the records were derived from bibliographic utilities, so the findings can be generalized to other OPACs. In the CD-Rom database same misspellings were found in substantial numbers. Misspellings were analyzed by the mark field in which they were found, part of speech and type of mistake.

A study was carried out on “Improving subject access in OPACs: an exploratory study of conversion of users’ queries” at the University of Toronto libraries by Cherry (1992) and observations were recoded for 100 OPAC search sessions. It reports on the analysis of these protocols and examines zero hit subject searches in particular to explore the effectiveness of various conversions of user’s queries. Although the number of zero hit subject searches analyzed was small, this exploratory study yielded findings that merit consideration in efforts to improve subject access in OPACs.
In 1992 Cherry, Clinton, Marshall studied 5 different types of online public access catalogues at 5 libraries of Ontario University. They have interviewed around 2916 undergraduates, graduates and faculty to determine their satisfaction with the computerized library catalogues. They have presented the results for the entire sample as well as the findings for each OPAC/site and made several recommendations for future research.

Large and Beheshti (1997) studied the OPACs: A research review. However, the study identifies and analyzes studies that have been published in 1990, excluding comparative OPAC reviews, system descriptions and opinion pieces. The study reveals the problem facing researchers as a result of the many variables at play in OPAC research and users. Data collection methodologies are examined, experiments, interviews and questionnaires, observations and transaction logs are studied. Researches results are considered in terms of known item searches and subject searches. Research recommendations are grouped under three headings; bibliographic record enhancement, search capabilities and interface design.

Saito (1988) conducted a study entitled ‘Study on library classification as a subject access tool in an on-line catalogue’. In this study, the author throws light upon how users’ expectations of subject access to on-line catalogues are higher than for card catalogues. The problems of word choice, broader and narrower terms, and the complexities of Library of Congress Subject Heading (LCSH) can be dealt with, but OCLC has developed a system based on Dewey Decimal Classification (DDC) as an additional approach. The system is described, it is helpful for browsing and its hierarchical notation provides a logical approach not possible through alphabetic subject access. Problems arose because DDC is used as a shelf classification and not purely for subject access. Inconsistencies between libraries are apparent considering two surveys of vocabulary control in LCSH, Library of Congress Classification and DDC. The development of end user thesauri could be useful.

Kim et. al (1999) studied the correlations between user’s characteristics and the preferred features of web based OPAC education. This study identified the correlations between user characteristics and their preferences for two selected
features of web–based OPAC systems. Although based on a small–scale sample restricted to one academic environment, this study has furthered our understanding of user aspects by discovering significant correlation between demographic variables and the preferred characteristics of a web – based OPAC interface. In this study, age was revealed as the most significant variable, followed by gender and subjects, computer skill. OPAC experience usability features included interaction style, character and image on screen, browsing and navigating style, screen layout, and ease of learning, whereas availability features attended to availability of information, quality of information and up-to date information. This study found that students placed usability and availability criteria at a high level. There is a need to investigate the HCI issue further. This study included undergraduate students and university staffs. From these observations, it seems to be suitable to recommend that system designers should makes a more considered appraisal of the user demographic characteristics in the design of the new generation of OPAC such as in user – tailored interactive web – based OAPC systems.

Yu and Young (2004) conducted a study on, ‘The impact of Web search engines on subject searching in OPAC’. This study shows the results of transaction logs at California state university, Los Angeles (CSULA) and studies the effects of implementing a web-based OPAC along with interface changes. Dion Hoe Lian (2006) brought out a study, “In search of query patterns: A case study of a university OPAC” and he conducted a transaction log analysis to identify query and search failure patterns with the goal of identifying areas of improvement for the system in the Nanyang Technology University. During the analysis he analyzed one semester worth of OPAC transaction logs and extracted 641,991 queries from the same. An issue investigated includes query length frequency, type of search options, Boolean operators as well as their relationships with search failures. Analysis results indicated that a majority of the queries were simple with short query lengths and a low usage of Boolean operators. Results of the failure analysis revealed that average users had an almost equal chance of obtaining no records or at least one record to a submitted query.
Hongfei, Deng Sai, Deyoe, Nancy (2007) carried out a study on “Dynamic map display in web OPAC: an experiment at Wichita State University libraries”. They noted that the most popular tendency in recent years is the adding of new packages to the web OPAC or making the integrated library management systems (ILMS) more compatible to external web services. Wichita State University (WSU) libraries' dynamic map project enriched the bibliographic information by displaying dynamic maps for each individual record in the web OPAC. Customized map display is provided by dynamic mapping in online public access catalogue to give library patrons directional information to the shelved items. This article gives useful information of how the dynamic map project was evolved and the pros and cons of using holding records versus bibliographic records to generate the maps. This article also describes the programming logic of the interactive direction maps to handle complex shelving situations and also describes how to transfer data from the OPAC display to a processing program and combines data from linked tables in MS Access and ILS database.

Mahmood (2008) undertook a study of Library web OPACs in Pakistan: an overview. He has analyzed the features and functions of indigenously developed web-based catalogues of academic, special and national libraries of Pakistan. The study reported that indigenous web OPACs are at an initial stage of development and only offer basic facilities to their users. They do not offer facilities offered by many OPACs in advanced countries. Their shortcomings include the absence of MARC format and Z39.50 protocol, which are indispensable for shared cataloging. The comparison of features and functions of web OPACs can be useful to understand the level of OPAC development in Pakistan. It can also be helpful for future improvements in this regard.

In 2011 Madhusudhan and Aggarwal evaluated Web-based online public access catalogues of IIT libraries in India. The study shows the various features of the web-based OPACs in six IIT libraries (IIT Delhi, IIT Bombay, IIT Madras, IIT Kanpur, IIT Guwahati, and IIT Roorkee). The study explored different features of web-based OPACs, of which page layout received the highest average scores with 93.33 percent, followed by the general features category with 90 percent. In contrast,
session filters was the weakest category with only 40.47 percent. The results indicated that some web-based OPACs reached the maximum scores for some categories. Only 50 percent of the web-based OPACs studied achieved an above average ranking, of which Indian Institute of Technology, Madras (IITM) had the highest total score (131), and the Indian Institute of Technology, Kanpur (IITK) had the lowest total score (77). Almost all of the web OPACs studied lacked federated search, adjunct thesaurus help and spell check facilities, which seems to raise many questions regarding the facilities provided in the OPAC 2.0 environment of today and hence needs to be addressed as a priority in the subsequent generations of the web-based OPACs and their development.

2.6 OPAC/ Web OPAC in Academic Library

DeHart and Matthews (1986) have researched on “The catalogue department’s legacy to OPAC subject searchers”. This research results revealed that subject searching in online public access catalogues (OPACs) in university libraries will offer more options for the fulfillment of information needs than subject searching in traditional card catalogues. The newer mode of searching by using OPACs is most likely to be introduced in the traditional library database. Thus the policies and practices of the catalogues department will present a legacy for better or worse to OPACs subject searchers. Desirable policies and practices of the catalogue department are recommended for making the user’s approach to online subject searching more manageable.

Slack (1988) surveyed “Subject searching on OPACs: a general survey of facilities available on OPACs in academic libraries in the UK” and made a report of a survey carried out in the Department of Library and Information Studies, Manchester Polytechnic. The main purpose of the research was to evaluate the help and instruction facilities available for inexperienced users of OPAC’s in British academic libraries. The questionnaires used in the survey were divided into 3 main sectors covering General information about the OPAC, Facilities for subject searching and the help facilities for OPAC. The result of the survey shows that the main trend is growth and introduction of new system and the academic libraries have been upgraded from in - house system to commercial ones. Subject is available on about
2/3 of OPACs, also supported by varied techniques as Boolean searching, string searching, phrase searching, truncation and keywords searching.

A study on “OPAC or card catalogue: patrons preference in an academic library” was done by Alexander and Barbara (1991). Since the closure of the author/title card catalogue in March 1989 in the Sterling C. Evans Library at Texas A and M University, librarians have observed a number of patrons who continued to use card catalogue, even though the NOTIS, the online public access catalogue offered more comprehensive and current access to library holdings. Librarians have prepared a questionnaire to determine the reason behind the user’s preference for an inadequate card catalogue in an environment which offers a superior OPAC. Survey results were tabulated and analyzed, revealing the underlying reasons for users’ preference for the card or online catalogue. Conclusion of this study will provide direction for improvements in users access to online catalogues.

Dennis, Carter and Bordeianu (1997) noted that many academic libraries are migrating to web based online catalogue from traditional text-based versions. Web based OPACs allow the true integration of traditional materials with electronic resources and utilize the technology to link cataloging, indexing and textual databases to provide users with enormous access to local and remote information. However, the study concluded that as library planners prepare to shift to a web based online catalogue, they face a range of complicated challenges. The coordinated efforts of staff throughout the library organization are required to implement the new paradigm. Clearly, the scope of the catalogue in expanding and its function as a locator and information delivery tool is evolving as a gateway.

A comparative study of major OPACs in selected academic libraries for developing countries-user study and subjective user evaluation by Park (1997). Examined the use of five selected OPAC systems in five academic libraries in the Austin, Texas and North Texas areas and analysed the evaluation of the five systems from the viewpoint of the Korean students at the University of North Texas. The investigator found that age of the students affects the preference for the type of OPAC system selected. System designers should prepare more specific instructions about
special, advanced and Boolean logic searching methods. While the total number of 84 users knew an average of about 60% of five searching methods, the Boolean searching method had the lowest rate. Advanced searching and special searching methods also had much lower rates than the average. System designers should focus on the design of the system menu, since the most common method of learning about OPAC systems.

Babu and Brien (2000) conducted a study on “web OPAC interface: an overview”. The study reveals that OPAC for libraries appeared in the 1980’s and web OPACs began to emerge in the late 1990. Many libraries are currently considering implementation. Six popular web OPAC interfaces in use in UK academic libraries (Talis, INNOPAC, web Cat, Vogager, Geoweb, and Aleph) have been examined with an overview of the functions offered via those interfaces. A checklist has been developed as an indicator of the important features and functions offered.

A study by Ariyapala and Edzan (2002) investigated the foreign postgraduate students and the online catalogue at the university of Malaya library. This involves their ability to use OPAC, their knowledge about OPAC and the reasons for the effective use of OPAC. Most indicate informants that there are no OPAC facilities in their home countries and if available, it is limited to university libraries. This study used the questionnaire as the research instruments and therefore, the results are rather quantitative for title, subject, author/title keyword, and author. The researchers found that most of the students did not receive any training but learnt it from the library and the majority of those who attended the training programme noted that it has been successful.

Chen, Cogan, Greene, Lowe and Elizabeth (2004) conducted a study on ‘E-resource cataloguing practices: a survey of academic libraries and consortia’. This paper reveals the current practices for the cataloguing display of electronic resources in academic/ research libraries and consortia. The survey was conducted to collect data about the cataloguing electronic resources/ Electronic resources display in OPAC. This survey was conducted in Illinois library computer systems organization. The survey questions covered a variety of areas like method of access, percentage of
total e-resources catalogue, policies and guidelines, adherence to national standards, the single record versus multiple record approach, the use of vendor records, the placement, tracking and verification of URLs and their components, persistent problems, future plans to enhance bibliographic control and the cataloging and display of electronic resources.

Kapoor and Goyal (2007) conducted a study on ‘web-based OPACs in Indian academic libraries: a functional comparison. The study highlights the web – based OPACs of Libsys, VTLS, iPortal, NewGenlib, Troodon and Alice for windows, implemented in five academic libraries in India. Their functionality was compared using criteria selected from the literature on OPAC searching. The study revealed that the web – based OPACs investigate to on offered a range of facilities for searching by author, title, control number and by keywords. This study should be a useful source of information to librarians who are planning to introduce web based OPACs and also software vendors who wish to improve the functionality of their products.

Mi and Weng (2008) conducted a study on revitalizing the library OPAC: Interface searching, and Display challenges. The study revealed that the behavior of academic library users has drastically changed in recent years. Internet search engines have become the preferred tool over the library online public access catalog (OPAC) for finding information. Libraries are losing ground to online search engines. The objective of the study is to find answers to the following questions: why is the current OPAC ineffective? What can libraries and librarians do to deliver an OPAC that is as good as search engines to better serve our users.

Mulla and Chandrashekara (2009) conducted a study on the effective use of Online Public Access catalogue at the libraries of engineering colleges in Karnataka (India). The study used and adopted a questionnaire based survey. The researchers found some of the major constraints for the use of OPAC at the libraries of engineering colleges were found to be lack of awareness between user communities. OPAC is not user friendly software; Information Technology (IT) competency between user communities was lackluster. The survey clearly concluded the need for an education programme module for users to promote the effective usage of OPAC.
2.7 Bilingual OPAC/ Web OPAC

Shirley Ann (1992) made a study of “Enhancing subject access to OPAC: Controlled vocabulary versus natural language”. He noted that experimental evidence suggests that enhancing the subject content of OPAC can improve the retrieval performance of OPAC. The aim of the research project was to investigate the alternative approach of translating natural language terms into controlled vocabulary. Interviews were taken to collect subject queries and indexing of the queries demonstrated the impressive ability of PRECIS and to a lesser extent Library of Congress to represent user’s information needs. Dewey Decimal Classification (DDC) performed poorly in this respect.

Ibrahim (2005) made a study of displays of Arabic script on web – based OPACs in GCC institutions. The purpose of this study was to evaluate the compliance of bilingual Arabic scripts web – based catalogues in the Gulf cooperation council (GCC), also this study highlights some of the challenges facing the exchanging of bibliographic records and resource sharing among Arabic script online public access catalogues. This study is restricted only to Arabic scripts bibliographic records of online public catalogues accessible via the Internet. The study was undertaken in September 2003 and in total, the surveyed catalogues amounted to ten web based OPACs. Seven of these were OPACs of academic libraries and the rest of public libraries. This study found that hypertext links in full bibliographic record displays were poor in most of the OPACs – only author and subject elements were hyperlinked. More than half of the OPACs lack hyper linking to any of the bibliographical elements.

The study revealed the absence of MARC format in over two thirds of the surveyed catalogues, the absence of networked OPACs or union catalogs, and the absence of the Z39.50 protocol. The advent of the internet into the library setting has also provided OPACs with powerful searching and retrieval capabilities at a one –stop portal. This challenge sparked strong interest in evaluating the compliance of the bilingual web –based OPAC operated particularly by some GCC University library.
A study of web OPAC in Pakistan: an overview by Mohmood (2008) had the objective of analyzing the features and functions of indigenously developed web-based catalogues of academic, special and national libraries of Pakistan. This study adopted survey and analyzed web-based catalogue accessible via the internet in Pakistan. The study found that libraries in Pakistan are at the initial stage of developing web-based catalogues. They do not offer facilities many OPACs in advanced countries already offer. Their shortcomings include the absence of MARC format and Z39.50 protocol, which are indispensable for shared cataloguing. A very few catalogues can accommodate non–roman scripts like Urdu and other local languages.

2.8 Progress of the OPAC/Web OPAC

Greenwood (1986) has carried out a research on “OPAC research in the UK”. The research reviews the online public access catalogue implementation in the UK and describes some of the most important research projects being undertaken, particularly those funded by British Library, Research and Development Department. The British Library’s own OPAC projects conclude with an examination of the value of OPAC research.

Arifield, Brown, Burton and Wallis (1995) examined the study ‘Developing a world wide web OPAC’. The study’s results revealed that the development of networked access to academic library catalogue records has been consciously slow compared with that of campus wide information systems in general. The benefits of such of facility are reflected in BLCMP’s decision to incorporate a revised plan in the forthcoming release of the commercial system.

Aruna (1998) examined the ‘Online Public Access Catalogues’. The study revealed that OPAC module of SUCHIKA falls under the second generation OPACs. Though it has some limitations, it is a fairly good OPAC package. Apart from routine operations, the libraries started developing bibliographic databases by inputting the bibliographic details of the books available in the particular library.
Lombardo and Condic (2000) carried out a study about empowering users with a new online. This study adopted the questionnaire method. A brief, two page questionnaire was distributed during library instruction sessions to five graduate education and counseling classes, and six undergraduate classes. This study found that users overwhelmingly preferred the new OPAC and found it easy to use; however, they experienced some difficulty using special features like truncation. The most popular feature of the new catalogue was its remote access capability. Second generation OPACs possess features such as electronic reserves capabilities and hypertext links, that are beginning to simplify the search process; but they have not yet developed into the intuitive, comprehensive systems that can empower users to seek information in new ways.

Babu and Tamizhcheluan (2003) made a study on, ‘An investigation into the feature of OPACs in Tamil Nadu (India)’. This investigation shows that the progress in countries which are following on in the development of library technology can accelerate quite quickly from a state of ‘no technology’, to one where OPACs are comparable in basic functionality to OPACs in Europe or the U.S.A. This investigation adopted the questionnaire methodology. Samples of 50 libraries in Tamil Nadu were selected at random, out of which 36 responded. The design and development of OPACs still need to be strengthened to provide effective access to library resources. The major findings of the investigation reveal emerging trends in OPAC.

A study on the subject searching in the OPAC of a special library: problems and issue’ was conducted by Sridhar (2004). The study examined the card catalogue of the ISRO satellite centre (ISAC) library and saw the steady decline in the use of subject searching by end users and the associated problems and issues. It presents the data to highlight the negligible use of Boolean operators and combination searches variations in descriptors assigned to books of the same class number and too many records tagged to very broad descriptors. The study concludes that moving from a traditional card catalogue to a modern OPAC has not made subject searching more attractive or effective.
Husain and Ansari (2006) conducted a study about ‘From Card catalogue to Web OPACs’. This study discussed about the OPACs and web OPACs technology in libraries and tried to explain various features, applications and advantages of web OPACs. Web OPACs improve the quality, speed and performance of the services offered by the libraries. The inter-library loan becomes easier with the use of e-mail and web. Members can see the collection and issue status of each document of the information centre.

Mercun and Zumer (2008) mention the new generation of catalogues for the new generation of users; a comparison. This study reveals the some of the problems and issues faced by online library catalogues. It aims to establish how libraries have undertaken the mission of developing the next generation catalogues and how they compare to new tools such as amazon. An expert study was carried out in January 2008 for the purpose. Six library catalogues were chosen: one traditional and five more modern. The conclusion that traditional catalogue has stayed far behind the modernized catalogues has taken two different approaches in identifying the “next generation catalogue”. Two catalogues focused on improving functionality while two others decided to introduce web/library 2.0 trends first. At this point, none of the catalogues offer as vast a range of features as amazon does, but one catalogue is managed to surpass amazon in some of the examined features.

Suhr (2009) examined ‘A web utility for OPAC searching by ISBN’. The study discussed modifying an existing bookmarklet which is a button based tool that adds functionality to a web browser. Technology modification allows an individual to search a library’s OPAC by ISBN for numbers encountered in the body of web documents such as bibliographies or book reviews. To copy highlighted text from a web page and send it to the local OPAC this process involves JavaScript. This tool gives a facility to user to check if a particular book encountered on the web is held in a local library by highlighting the ISBN tool and clicking a browser button. This utility may be useful to library patrons as a discovery tool for findings books and can be used to automate aspects of daily library operations. This process discussed adds a new way to access library’s holdings.
Sauperl and Saye (2009) conducted a study about ‘Speculations in documentation have we made any progress, catalogues of the future revisited’. The study reveals that the characteristics of four OPACs; one online bookstore and two internet search engines are analysed. The study reviews some of the changes and a direction suggested by researchers and adds some of authors own. This study found that changes are identified in the information services studied over a seven year period. Authors have pointed to a few OPACs that have taken great steps forward and there are others, but these OPACs are but a fraction of a percentage point of all library OPACs. A comparison of OPAC features 2000 and 2007, even if subjective, can provide a panoramic view of the development of the field.

Sadler (2009) conducted a study on ‘Project blacklight: a next generation library catalog at a first generation University’. This study highlights the open source online public access catalogue (OPAC) software known as Blacklight. It includes a discussion of the reasons why the University of Virginia decided to create the Blacklight project, rationale behind design decisions, an overview of the technologies used and some example of interface design and object behaviours. This study found that the Blacklight project is not yet complete, but initial usability testing is favorable. The project shows particular promise among previously underserved populations such as music researches and for previously under used collections. Blacklight has been and continues to be, a community effort by the UVA library staff. Staff members from a wide variety of departments, from both technical service of public service, have pulled together to improve access to the library’s collections by creating a better OPAC.

Denholm et.al (2009) made study on making the new OPAC seamless: dealing with the transition from “finding” to “getting”. This study reveals the process of development undertaken by the state library of Tasmania to provide a new generation OPAC – TALIS Plus. This study adopted beta testing and client consultation process. The state library learned that it had to keep the client within one system and one interface whenever possible. The end result has been an OPAC that works seamlessly and successfully for the state library’s clients. Indeed, since the final production version of TALISPLUS was introduced, at no time have any of the clients commented
on, or even appeared to realize, that they are actually using both the old and new OPACs during their transactions. The need to address both the finding and getting requirements of clients is of major importance to the state library of Tasmania which provides state-wide public leading system with one collection spread across 49 branches.

2.9 Summary

An overview of literature reveals that there exist good many works on OPAC/Web OPAC and issues relating to it. This literature organizing into eight groups:

1. User Attitudes towards OPAC/Web OPAC
2. User Perception towards OPAC/ Web OPAC
3. Use of OPAC/ Web OPAC
4. Characteristics of the OPAC/Web OPAC
5. Study on Library OPAC and Web OPAC
6. OPAC and Web OPAC in Academic Library
7. Bilingual OPAC and Web OPAC
8. Progress of the OPAC

Online Public Access Catalogue for libraries appeared in the 1980’s and Web OPACs began to emerge in the late 1990’s. The literature review has revealed that the behavior of academic libraries users has drastically changed in recent years. Many academic libraries are migrating to Web based Online Catalogue from traditional text-based versions. The literature review has examined the methodologies of studies-most of studies used questionnaire methods. It has examined the OPACs and Web OPACs technology in libraries and tried to explain various features, applications, advantages, characteristics of OPAC and Web OPAC. It has found expectation and perception of OPAC and Web OPAC users. It also found user expectation towards use of Bilingual OPAC and Web OPAC.
This literature review found that so far not a single major survey regarding the attitudes of the Law Library users towards the use of OPAC and Web OPAC in South India: a study has been reported. To that extent it is justified and found that the present study is the first of its kind and no such similar work has been reported so far.