Chapter – 2

LITERATURE REVIEW

A comprehensive survey of the related literature in the field of study has been undertaken in order to have a clear idea about the various aspects of document description vis-à-vis cataloguing as well as the past studies undertaken in this area. Little research has been done on the document description practices and uses specifically in the university libraries in North East India. Narendra Lahkar has done a research on “Prospects of Automated Catalogues in the three Universities of Assam : based on users’ satisfaction under major catalogue codes” in 1997. For this study, the review of literature covers both macro and micro documents, e-articles as well as important web sites relevant to the study have been surfed. The review of the related literature carried out for the purpose of the study has been divided in to following sections.

2.1 HIGHER EDUCATION AND UNIVERSITY LIBRARY

A review of the literature on higher education system in India during ancient, medieval and present time as well as their library system has been carried out in order to have an idea about the development of higher education and university libraries in India. The first three universities were established in India in the year 1857 at Calcutta, Bombay and Madras on the pattern of London University. The report of the University Education Commission (1948) under the chairmanship of Dr. Radhakrishnan; the Library Committee Report of UGC under the chairmanship
of Dr. Ranganathan and the Education Commission (1964-66) under the chairmanship of Prof. D.S Kothari are important literature which highlighted the importance of library in college and university education system. The survey report by *Carl M. White (1965)* on the library system of university of Delhi and the UGC report prepared under the Chairmanship of *Ranganathan (1965)* on university and college libraries have highlighted the importance of library services in the higher education system in India. University library by *Wilson and Tauber (1976)* is an important document which describes the objectives of university library and reference of this book is found in many literature published later. Other important publications are – University libraries in India by *Srivastava and Verma (1980)*, University library system in India by *Deshpande (1985)*, Libraries and societies by *Pandey (1992)*, Library and information society by *Chakraborty (1993)*, Role of university libraries in higher education by *Pradeepam (1994)*, Academic libraries by *Dhiman and Sinha (2002)*. These documents describe the various aspects of organization, management and services of university library and its importance in the university education system. *Siwatch (1999)* in the paper ‘Growth and development of Indian university libraries’ discusses the growth and developments of university libraries in India including their status and position in ancient, medieval, modern and post-independent periods. The paper explains the efforts of UGC in the development of university libraries to face the challenge of electronic information era through the establishment of INFLIBNET Centre at Ahmedabad.

Other literature reviewed for the purpose of the study, reference may be made on some papers presented in the conferences and articles published in the journals highlighting the relevance and importance of higher education in the society. *Gnanam (1994)* in his article ‘Holistic approach to reforms’ discussed the
importance of universities in the education system of a nation by giving references to our past education system and also stated the progress of higher education after independence. Another article ‘Restructuring higher educational system’ by Kapur (1994) discusses the pros and cons of higher education system in India. Alam and Jhon (2004) in their article ‘Education: an index of human development’, discussed the aim of the university in providing the leadership in the social, political, and economic development of the people living in the country. Saha (2004) in the editorial of a special issue of university news on ‘Engagement of universities with the society’ highlighted the challenges faced by the universities in India because of globalisation. He also discusses the role of the universities played for the welfare of the society through extension and community development programmes. Reddy (2004) in the article ‘New directions in the university-society interface’, discusses that universities should take the leadership role in the society. They should engaged in generation, preservation, and transmission of knowledge in the society. In the era of globalization and the massive impact of Information Communication Technology (ICT), universities should not be aloof from these new development and they should change in tune with the changing times, the paper discusses. These documents have highlighted the responsibility of the universities for promoting acquisition of new knowledge and skills for development of physical and human resources, transforming traditional values and attitudes to build a new society formed by equality and social justice and developing a climate for creative thinking and growth of individuality. Other micro literature highlighted the role and engagement of universities in the society are – Engagement of universities with society by Pundir and Singh (2004), New direction in the university society interface by Reddy (2004), Role of the universities in socio-economic development by Mukherjee (2004),
University and society: exploring ways for better collaboration by Kohli and Rahman (2004), are important literature.

Among the micro literature which highlighted the necessity of digitization of libraries of the modern age references may be given to the paper ‘Development of services in a university system through digitization: a case study’ by Ghosh (2004) and ‘Digitization of knowledge resources: the management issues’ by Kaul (2004). Ghosh in the paper discusses the digitization of library resources to provide services such as online web based reference and information services of university library and highlighted the present status of digitization of Rabindra Bharati University Library. The paper concluded that resource sharing among university libraries is possible through digitization of their resources. Kaul in the paper ‘Digitization of knowledge resources: the management issues’, discusses the digitization of knowledge in full text form that has already been undertaken by many institutions all over the world. He also highlighted the infrastructure, skill, training, manpower and managerial issues necessary to build up a digital library specially in Indian context and provided valuable guidelines and suggestions.

Murthy and Cholin (2003) in the paper ‘Library automation’ discuss various issues such as establishment of INFLIBNET and its role in automation of university libraries in India. The new initiatives taken by the UGC to establish UGC-Infonet and E-subscription for the universities provide required boost for the automation activity in the country. Babas et al (2003) in a paper ‘Automation scenario in university libraries: a study of some selected libraries’ presents an investigation in nine-university libraries of Punjab, Haryana and Chandigarh in order to have a bird eye view of automation scenario in Indian university libraries. Sinha and
Bhattacharjee (2003) in their joint paper ‘Planning, problems and solution for automation and networking of university libraries in North Eastern Region: A case study of Assam university library’ describes the concept of library automation, factors, areas, steps, problems, and solution of library automation and networking with special reference to Assam university library. Singh and Singh (2003) in the paper ‘IT application in university libraries in North East India: A study’ discusses the present scenario of higher education in North East and highlighted the IT applications of the university libraries in the state Manipur. Singh (2003) in his paper ‘Library automation: A framework’ highlights the core reason for automation and mention basic points to be considered during the process of automation and also discusses the issues related with its future maintenance and up-gradation management.


Chandrakar et al (2004) in the paper ‘Standards for creating bibliographic databases in Indian academic libraries under INFLIBNET umbrella’ discusses the bibliographic standards being used for creating databases by Indian university libraries under INFLIBNET umbrella.
Some of the important sources which highlighted the development of university education in North Eastern states are –Towards integrated development of university education in India’s North Eastern region by Ganguly (1994); Higher education in the North East: challenges by Parhar (2003) etc. The proceedings of the convention – PLANNER (Promotion of Library Automation and Networking in North Eastern Region) organized by INFLIBNET Centre are important documents which outlined the status of automation and networking of university libraries of this region and their problems and prospects. Regarding necessity of resource sharing and networking among the university libraries of this region, some authors have provided vital suggestions and proposals. Among them reference may be given to ‘Inevitability of resource sharing among the university libraries in North East India: a pragmatic approach’ by Kundu and Panda (1998); NELIBNET: A promise of prospect of North East India by Lahiri and Subramanian (1991) and Library networks with special reference to N.E India by Lahkar (1994).

2.2 DOCUMENT DESCRIPTION Vis-à-vis CATALOGUING

Document description vis-à-vis cataloguing is a process of recording, listing, describing and indexing library materials available in the collection of a library or of a group of libraries for the purpose of retrieval of information in order to make the library resources easily accessible to the users. In order to make the process of document description unique and uniform, adoption of certain rules of cataloguing is necessary to avoid inconsistencies in practice. It is for this reason catalogue codes have been designed by the librarians, information scientists, institutions, societies and conferences from time to time.
The concept of cataloguing is very old. Cataloguing under title and author’s name were first produced as early as in 17th century. The catalogue of the Bodleian library in Oxford, made in 1674, was probably the first to contain a self list, an alphabetical index of author’s name and subject. The modern cataloguing, which provides access to resources by their authorship, title, subject and form was a creation of the 19th century. As the development of modern cataloguing had taken place in the early 19th century, the literature dealing with library cataloguing was very large in quantity.

Panizzi (1841) was the first to codify rules for the compilation of an author catalogue drafted in his 91 rules ‘Rules for the compilation of the catalogue’ for the British Museum code. He defines the concept of alphabetical catalogue and brought the concept of heading. The code of Panizzi is primarily focuses on the information found on the title page for the creation of entries and it is the first code to standardized descriptive cataloguing. Jewett (1852) developed a code entitled ‘On the construction of catalogues of libraries and of a general catalogue, and their publication by means of separate stereotype titles: with rules and examples’, consisted of thirty three rules which were mainly based upon Panizzi’s code. It is the first distinct code of cataloguing rules in the United States and it influenced the development of Rules for a Dictionary Catalogue by Cutter.

Rules for dictionary catalogue by Cutter (1904) is the first code, which set out the principles of cataloguing and included a statement of objectives of cataloguing. This code is recognized as the first complete code for the preparation of a catalogue based on principles. Cutter’s code provides the rules for governing the choice of subject heading for dictionary catalogue. The work of Cutter is greatly
influenced in formulating and designing objectives and principles of cataloguing codes developed later. This code is found to be a landmark in the history of Anglo-American co-operation in the preparation of cataloguing code.

Some of the important publications dealing with library cataloguing are Cataloguing rules and principles by Lubetzky (1953); Cataloguing by Sharp (1964); Principles of Cataloguing by Jolly (1961); Cataloguing by Hunter and Bakewell (1975); the Subject approach to information by Fosket (1982); Introduction to cataloguing and classification by Wynar (1980); Subject catalogues by Coates (1960); Anglo-American Cataloguing Rules by ALA (1998); International Conference on Cataloguing Principles (1963); Classified catalogue code by Ranganathan (1964); Cataloguing a guide book by Hunter (1974); Cataloguing, theory and practice by Viswanathan (1990); Introduction to modern information retrieval system by Chowdhury (1999); Advance indexing and abstracting practice by Parekh (2000); Library technical services: millennium approach by Singh (2000); Library cataloguing strategies by Dhanwan (1997) etc. These documents dealt with the different aspects of cataloguing principles and rules. Handbook for AACR2 1988 revision: explaining and illustrating the Anglo-American Cataloguing Rules (AACR) by Maxwell (1989) is another important publication which criticized the AACR code for being based on manual system and not for contributing to the online catalogue. The author believes that the code does not fulfill the requirements of bibliographic record in the online environment.

In addition to the above mention publications, review of some important articles and conference papers dealing with cataloguing and bibliographic control have also been carried out. Osborn (1941) in his article ‘The crisis in cataloguing’
criticized the ALA (1941) code's approach towards the provision of various rules for the coverage of different catalogue codes. The article of Osborn is considered a classic within the cataloguing community and is very much cited in literature. Lubetzky (1953: 61) was a major critique of ALA (1949) code and he stated the shortcomings of the code in his article ‘Catalogue Rules and Principles: A critique of the ALA Rules for entry and a proposed design for their revision, 1953. International Conference on Cataloguing Principles (ICCP, 1963) is considered to be an important document in the history of descriptive cataloguing. The conference has had a great impact on the development of current cataloguing codes, which brought international agreement on the principles of cataloguing. Lubetzky (1963) in his working paper presented at ICCP, 1961, Paris, emphasized that the ‘literary unit’ (i.e. the ‘work’) should be as the basis for description of an item. The name of an author must be uniform to bring together all publications by that author and in terms of title, he put emphasis on entering publications under the title as found in the first publication of the work. Verona (1963) in her working paper presented at ICCP, 1961, Paris stated that the publication in hand should be the basis for description of an item. She stressed that the function of main entries are: i) to represent particular publication and ii) to bring together in the catalogue all publications by one author. Gull (1961) in his working paper ‘How will electronic information systems affect cataloguing rules?’ presented at the International Conference on Cataloguing Principles (ICCP) held in Paris in October 1961, discussed the possible effects of electronic environment on cataloguing rules and suggested that the issue should be taken in to consideration in the design of relevant cataloguing rules. However, his ideas at that time did not influence the outcome of that conference. Gorman (1978), in his article ‘The Anglo-American Cataloguing Rules’ pointed out that AACR2
could not fully take into consideration the effects of library automation because these had yet to be completely assessed and understood. AACR2 has been criticized by many cataloguing experts on the ground that it is based on manual systems and that a number of its rules are irrelevant in the online catalogue environment. 

*Shinebourne (1979)* was one of the first person to criticize AACR2 severely for disregarding the possible influence of automation on cataloguing rules. *Aures (1980)* discusses the incompatibility of the code to automated systems from the users' point of view and suggests the need for further research. *Rowley (1989)* states that the AACR code is based on the concepts of card catalogues and any further revision of the code should be in terms of OPAC oriented. *Boll (1990)* agrees with Rowley and Maxwell and states that in the context of application of computers in cataloguing a totally new environment has introduced which really demand for a new code. *Heaney (1995)*, in his article 'Object-oriented cataloguing', questions the validity of AACR2R in the new environment and stated that cataloguing rules have not evolved in parallel with developments in technology.

*Manning (1999)*, in his paper 'Anglo American Cataloguing Rules and their future' presented in the 64th IFLA General Conference, Amsterdam, August 16 – 21, 1998 briefly outlines the past, present and future development of AACR highlighting the direction provided by the 1997 International Conference on the Principles and Future Development of AACR. *Gradmann (1999)*, in his article 'Cataloguing vs. metadata: old wine in a new bottle' identifies some fundamental differences between traditional cataloguing activity and metadata in the areas of metadata production, the context of usage and the relation between metadata and the objects referenced by metadata and cataloguing records respectively. The paper argued that recognition of these differences is a fundamental requirement for a re-
definition of the role of librarians in a newly emerging and rapidly evolving information paradigm. Murtomaa (1999) in the article ‘The Net is revolutionizing cataloguing’ stated that technology is radically changing the functioning of cataloguing and in the future most cataloguing may make use of different tools such as artificial intelligence, hyper text technology etc. The article also stated the cataloguing principles and standards, ongoing international projects for cataloguing development. In another article by Gorman (2001) on ‘Bibliographic control or chaos: an agenda for national bibliographic services in the 21st century’ states the problems created by the web resources in achieving the perfection in bibliographic control. He highlighted the role played by the MARC and AACR2 format in achieving the standardization in cataloguing which has brought near-perfection in bibliographic control of traditional library materials. He also stated the development of metadata format like Dublin Core to catalogue Internet resources and at the same time he raised question on preservation of huge quantity of electronic resources growing tremendously. The paper ‘Bibliographic control and standard’ by Murthy (1999) describes the concept of Universal Bibliographic Control (UBC) and the standards developed by IFLA, ISO, UNESCO in achieving the bibliographic control. This paper described the term standard and also the initiative taken by various international organizations to achieve standardization in bibliographic record and emphasized the necessity of creation of machine-readable bibliographic record. In another paper AACR2 and the formats (1999) by the same author describe various aspects of AACR and MARC formats. The paper also described the non-MARC formats such as ISO 2709, UNISIST Reference Manual, Common Communication Format (CCF). Burrows (1995) in his paper ‘Bibliographic services in the client centred academic library’ stated that there is an urgent need to reinvent
the traditional cataloguing practice because of emergence of new technologies such as Internet, proliferation of online document delivery services through networks etc. He also mentioned the limitation of the conventional cataloguing practices and stated that traditional cataloguing practices has lost much of its professional nature as inventory list and the cataloguing department of the university libraries have been facing tremendous pressure from the user community which force them to change and re-examine their cataloguing practices.

2.2.1 Card Catalogue Use Studies

The card catalogue, which replace the printed book catalogue, gained wide spread acceptance in the early 20th century when the Library of Congress (LC) in 1902 starts selling sets of printed catalogue card for a nominal fee. The card catalogue has a number of advantages over the manually prepared book catalogues such as – i) individual card could be filed in the catalogue as soon as the item received by the library ii) filing errors are simple to correct once identified iii) changes and correction to the catalogue records can be made easily iv) card or card set can be withdrawn from the catalogue when an item is withdrawn from the collection (Mathews :1985: 7). However, in terms of fast and effective retrieval of information, the card catalogue has many limitations too. Its large size, complexity and high costs of maintenance make it more and more difficult for libraries to maintain as an up-to-date searching tool (Matthews:1985). Because of these limitations, the card catalogue undergoes a sharp scrutiny and a number of studies had been undertaken within the specific library system as well as nationally in order to assess the effectiveness of card catalogue as a information retrieval tool.
Catalogue use studies have been included in a number of literature reviews and annotated bibliographies. Markey (1980) in the research report ‘Analytical review of catalogue use studies’ summarized and evaluated the methods and scope of more than one hundred studies, varying in scope and purpose, on catalogue use. These studies specifically highlighted the subject searches in the catalogue along with other aspects such as – physical formats of the catalogue; known-item searches; card catalogue searchers’ educational level and reference assistance needed etc. These studies provided an impetus to a lot of literature.

Some of the principal catalogue use studies are – catalogue use studies conducted by American Library association (Jackson, 1958); U.K catalogue use survey (Maltby, 1973); University of Chicago card catalogue use studies, 1949 – 1965 (Montague, 1967); University of Michigan (Tagliacozzo, 1970); Yale university (Lipetz, 1970) etc. These studies outlined the types of searches instigated by the users who use the catalogue, whether their search is for a known item (author or title search) or an unknown item (subject search) and the success rate of those searches. Outcome of these studies are that only 59 percent of the library users of all types of libraries use the catalogue. Known item searches and unknown item searches (subject searches) occur almost equally 48 percent and 52 percent respectively.

The studies undertaken by Lipetz (1972) and Jackson (1958) reveal that the card catalogue users employ many types of searches such as – i) known-item search (or document search) to determine whether the library holds a work that is known by the user ii) subject search for pertinent works on a topic iii) author search to
determine what works are available from some known author iv) bibliographic search for a known item when the objective is to make use of the data from the catalogue and not to locate the physical item and v) browsing search i.e to locate in the catalogue a call number range in the book stacks with items on a particular subject in that range.

Tagliacozzo (1970b, 1970c) in a survey undertaken at the university of Michigan, General Library; University of Michigan, undergraduate library, University of Michigan, medical library and Ann Arbor public library found that over 50 percent of catalogue users consult only a single subject heading and the users of academic institutions use the card catalogue more frequently than the users of public libraries. *Malthy and Sweeney (1972)* in another survey conducted at the six types of libraries in United Kingdom (UK) found almost similar types of result. The survey reveals that over half of the users of the public libraries (Municipal public library and County public library) do not consult the card catalogue and on the other hand the users of the university, college, national and polytechnic libraries use the card catalogue more than the users of public libraries.

A survey on the card catalogue searchers educational level carried out by *Palmer (1970)* reveals that use of items in the catalogue increases as the educational level of the catalogue user rises. The study of *Malthy (1973)* reveals that the consultation of card catalogue is found higher among the users who read the formal catalogue instruction.

As many as eight studies are undertaken on the necessity of reference assistance to users while searching catalogue and findings of all these studies favour the need of reference assistance to the catalogue users. *Tagliacozzo (1970a)* in a
survey on subject catalogue conducted at the University of Michigan libraries reveals that over 50 percent of subject catalogue searchers continue their search after failing to find a single reference at the initial attempt. The study on use of controlled vocabulary for subject searches by Bates (1977) reveals that the users familiarities with the cataloguing practices and rules usually brought an improved matching with catalogue’s controlled vocabulary for subject searching. The study of Maltby and Sweeney (1972); Jackson (1958) and Lipetz (1972) reveals that the users prefer author approach more than the title or subject approach while perform known-item search in the catalogue.

Montague (1967) and Palmer (1970) had undertaken individual study on the card catalogue use in the University of Chicago and the University of Michigan library respectively and summarized the findings of the study in lengthy annotations containing information on the scopes, purposes, methodologies and findings. Swanson (1972) in the article ‘Requirements study for future library catalogs’ summarized the investigations connected with the future catalogue project at the University of Chicago. Hafer (1979), in the article ‘Type of search by type of library’ summarized the findings of catalogue use studies with respect to the proportion of known-item and subject searches according to institution and education level of the searcher. Lancaster(1977) in the book ‘The measurement and evaluation of library services’ listed the major findings of the five most substantive catalogue use studies viz. Jackson(1958); Swanson (1972); Tagliacozzo (1970,1970d); Lipetz( 1970) and Maltby (1971, 1973). Atherton (1978) pointed out that the major findings about catalogue use remain unheeded and suggests what future catalogues might entail based upon the implications of catalogue use study findings.
The findings of some of the studies reveal that users bring either written or memorized information about the search item while they perform known-item searching. This information usually varies in degree of correctness. After a number of trials in the author-title catalogue, known item searches may be delegated to the subject catalogue. Subject information has been analysed as to its degree of match to the catalogue's controlled vocabulary. Tagliacozzo, Kochen and Rosenberg (1970c), in the article 'Orthographic error patterns of author names in catalogue searches' discussed the position of error in author's surname and categorised the type of errors in names. Ayre (1968) in another article 'Author versus title: a comparative survey of the information which the user brings to the library catalogue' shows a failure analysis on users' data for author names and title words.

Tagliacozzo and Semmel (1970c), in the article 'The generation of query terms in subject searches', described the process of subject searching and categories into three phases. They presented data on a number of subject search terms generated by the users and the persistence of subject searches at the catalogue. The article of Coblenz and Tagliacozzo (1970) and Day (1968) categorized the degree of match between user generated search terms and the catalog's controlled vocabulary.

Some of the results of the above surveys are very interesting in nature. For example, many responded participated in the U.K catalogue use survey did not know that there was a catalogue, or, if they were aware of its existence, did not know how to use it (Gernert: 2003: 308). Quite a number of non-users stated that they could manage without the catalogue and some preferred to ask the staff. Little use was made of conventional bibliographical description and subject catalogues were found to be particularly difficult for the uninitiated user to handle with confidence.
The overall results of the catalogue use studies as indicated in the three major reviews of Krikelas (1972); Hafter (1979) and Markey (1983) are: i) 25 percent to 30 percent of library users use the catalogue; ii) student comprises the largest portion of the user population; iii) the catalogue is used predominantly for known-item searching and use increases with the users' educational level; iv) public library users do more subject searching than academic library users. Three common reasons given by the non-users for not using the catalogue are – a) I can manage without it; b) I prefer to ask the staff and c) It is difficult to understand (Ramalingam: 2000: 102).

2.3 AUTOMATED CATALOGUE

The automation of library operations other than cataloguing was first occurred in 1950s and 1960s (Reynolds: 1985). Computers were used in libraries mainly for housekeeping types of activities such as circulation control, acquisition and serial control. The machine-readable catalogue was begun to appear in the libraries in the 1960s. It is the MARC project that has been considered as one of the most important factors in the development of automated catalogues (Weihs and Howarth: 1984: 41). With the beginning of the MARC Distribution Service in 1969, large libraries were began to utilize MARC magnetic tapes mainly for automated cataloguing in the standard form provided by the Library of Congress (LC). The usefulness of MARC services in cataloguing along with the advances in computer technology led to more developments in automated cataloguing later. The establishment of Online Computer Library Centre (OCLC) in 1971 with an aim to provide central-cataloguing services to the small and medium sized libraries has been considered to be a significant factor in the development of automated
catalogues. With the standard cataloguing services of OCLC, libraries are able to utilize the power of computer technology in a cost effective way.

Automated cataloguing are a norm of today and by utilizing the various capabilities of computers and telecommunications, online automated catalogues are adding new features that make them totally different from the traditional catalogues. Hopkins (1993) stated that the online catalogues are now gateways to larger information systems encompassing a wide range of information tools both bibliographic and non-bibliographic.

2.3.1 OPAC and Web OPAC

Online Public Access Catalogue (OPAC) was introduced in the early 1980s in North America, Australia, Great Britain and other European countries. Hildreth (1984, 1989) and Matthews (1991), tracing the historical development of OPACs, has identified three generations of OPAC. The first generation is more or less the computerized forms of traditional catalogues with almost the same traditional features, based upon pre-coordinated information retrieval principles. The second generations online catalogues incorporated many new features such as keyword search, Boolean search, cross index search etc are the important features of second generation OPAC based on post-coordinate retrieval principles. The third generation OPAC provides subject searching, free text searching, database searching etc with possibilities of interaction with information on web, CD-ROM etc. In addition to the three generations of OPAC identified by Hildreth and Matthews, recent advances in OPAC using graphical user interfaces (GUI) has introduced a fourth generation OPAC. The web-OPAC began to appear in 1990s with having many advance
features over the traditional OPAC. Web-OPAC serves as a gateway to the resources not only held by the respective library but also to the holdings of other libraries linked through the networks.

i) OPAC Use Studies

On reviewing the literature, a number of studies on OPACs in the libraries of USA and UK and also few studies in the libraries in India have been found. A comprehensive survey was undertaken by Matthews et al (1983) in 1982 which covers about 8000 users and 4000 non-users of OPAC in 31 libraries in the USA. The result of the survey showed that over 90 percent of users liked the OPAC and that 80 percent are satisfied with the results of their search. The survey also reveal that a maximum of 59 percent users make subject or topic search (not known-item search) and users found subject searching very difficult. Regarding the difficulties in OPAC for subject searching Borgman (1996) stated that OPACs are generally criticized as being more difficult to use and less serviceable than card catalogues, and are used more often to find known items rather than seeking information or solving information based problems. O'Brien (1994) stated that subject access is the most problematic area of online catalogues. It often leads either to failure or the retrieval of too many references.

Another study of Borgman (1986) reveals that users found difficult for searching information using Boolean logic and they usually tend to perform simple searches using only the basic features. Even scientist and engineers who have expertise in logic often use ‘AND’ and ‘OR’ operator for searching information. Combination search using Boolean operators greatly help the users to find out
specific information but they make only simple searches. The study showed that the non-match subject searches ranges from 35 percent to 57 percent. Dickson (1984) found that 37 percent of all title searches and 23 percent of all author searches resulted in no-match. Borgman (1986) further stated that 39.5 percent of the no-match title search and 51.3 percent of the no-match author searches are for records that existed in the database but could not be retrieved due to user's error in searching.

Borgman (1996) stated that identifying search terms for the subject catalogue is the hardest of all as the users do not aware that the subject entries are drawn from a controlled vocabulary or thesaurus which has a unique procedure of searching. Users are usually search the catalogue using the free text keywords they know best, often on a trial and error basis. Drabenstott and Weller (1994) summaries the problems of subject searching based on the findings of the past studies. They feel that enhancing subject heading or developing menu based interfaces in OPACs not necessarily help the users in subject searching and the problems found in the earlier OPACs still exist as far as users are concerned. They proposed ‘search trees’ for subject searching after running an experiment on online catalogue called ASTUTE. Larson (1991) stated that subject searching in OPAC often retrieve too many records. On the contrary, users are looking only a few. The high recall in subject searching creates the problem of information overload and users prefer browsing the shelf rather than browsing OPAC through subject headings. Oduwala et al (2002) carried out a questionnaire based survey of 286 users on the use of OPAC at a Nigerian university. The findings of the survey is that the OPAC is used mostly for self search rather than delegated search with ‘Author’ as major access point.
percent) followed by ‘Subject’ (30.8 percent) and the large majority of users are very satisfied with the OPAC (75 percent).

The above review on OPAC use reveals that the OPACs are often fail to provide expected result specially to satisfy the subject queries of users. High recall in subject searching often discourages the users from scanning the desired document and as a result they look for alternative approaches. The search failure in OPACs are usually due to misspelling, lack of knowledge of thesauri, lack of user understanding of Boolean operators, lack of cross references, lack of online thesauri and lack of users training. The end users are not only expected to have technical searching skills, but also conceptual and semantic knowledge related to the query in the case of subject searching. Indexing quality of subject access in the OPACs cause serious concern on the retrieval of subject. Inconsistent indexing quality has made subject searching more difficult and ineffective. Larson (1991) has given few remedies to the problems of subject searching in OPACs are – to add words in the records from the table of content, indexes and blurbs of books, enhancing records with terms from classification schemes and increasing the number of descriptors per book. Other remedies are – limiting search result by Boolean intersections using additional terms or dates, automatic spelling correction or phonetic matching of terms, browsability of existing subject heading using online thesaurus etc.

A few studies on OPAC and Web-OPAC use have also been undertaken in India. Sridhar (2004) in the paper ‘OPAC vs Card Catalogue: a comparative study of user behaviour’ made an attempt to find out the use of OPAC at Indian Space Research Organisation (ISRO) Satellite Centre Library and compare the results with the findings of the study of use of card catalogue of the same library conducted 17
years ago. The paper not only brings various aspects of user behaviour on OPAC but also depicts the differences in user as well as the effects of technological changes from card catalogue (manual system) to OPAC (automated system). Sridhar (2004a) in another article compare the use of OPAC and card catalogue at ISRO Satellite Centre library and examine the steady decline in the use of subject searching by end users and the associated problems and issues. The paper highlighted that moving from a traditional card catalogue to a modern OPAC has not made subject searching more attractive or effective.

*Ramesh Babu and Tamizhchelvan (2003)* in a research survey ‘An investigation into the features of OPACs in Tamil Nadu (India)’ examines the various features provided in the OPACs of thirty six different types of libraries (academic, special and public library) in Tamil Nadu. The paper examine the features such as – nature of software used in the design and development of OPACs; number of access points provided for searching the OPACs; provision for subject access; search strategy and search technique offered in the OPACs of the surveyed libraries in Tamil Nadu. The major findings of the survey reveal the emerging trends in OPACs in Tamil Nadu.

web OPACs in India' presented in CALIBER 2002 have reported the features of fifteen web OPACs in India. *Tamizhchelvan and Ramesh Babu (2001)* in another paper 'Web OPACs in India: a study has examined the four major web OPACs in India. The study on OPACs and web OPACs in India reveals that the design and development of OPAC still need to be strengthened in order to provide effective access to library resources. It is seen from web OPAC in India that the DELNET OPAC is moving towards next stage of the OPAC development such as distributed searching over different systems (Ramesh Babu and Tamizhchelvan : 2003 : 267).

Some of the web OPACs in India permits the searchers to view the abstract. Reference may be given in this regard to the web OPAC of Indian Institute of Technology, Madras (IITM) where the abstract of the thesis can be viewed through OPAC.

### 2.3.2 EXCHANGE FORMAT

The international organization like Library of Congress (LC), International Organisation for Standardisation (ISO), IFLA, UNESCO, etc. made independent as well as joint efforts to develop a standard exchange format in order to facilitate international co-operation and exchange of cataloguing data among different national bibliographic agencies. A survey of literature deals with bibliographic exchange format is made and reviews of some important publications are discussed. ‘Exchanging bibliographic data: MARC and other international format’ by *Grendley and Hopkins(1990)*, is an important document, discusses the bibliographic record as well as its structure, exchange formats such as ISO 2709; MARC; UNISIST Reference manual; Common Communication Format (CCF) etc. Other macro literature, which dealt with structure and contents of various exchange formats are -
Among the micro literature review of some important articles, papers and Internet resources are stated here. Hopkinson (1999) in his article ‘Traditional communication formats: MARC is far from dead’ discusses that the traditional communication format such as MARC and the newly emerged recent formats such as SGML (Structured Markup Language), Metadata, Dublin Core are complementary to each other and not adversary which is often presented in the form of debate. He stated that rigidity in the structure of MARC format make it an unsuitable structure in the Web environment. He finally concluded that MARC serves a different but complementary purpose from the later generation of formats such as Dublin Core but still serves useful purpose in promoting building of catalogues.

Madison (1999) in her article ‘Standard in light of new technologies functional requirements for bibliographic records’ reviewed the scope and methodology used for the study of ‘Functional Requirements for Bibliographic Records’ commissioned by the Standing Committee of the IFLA Section on Cataloguing. The article made a comparison on the recommendation made on two standards, one standard being part of a current international cataloguing code and the other standard being an emerging international standard that is evolving quickly in
response to new electronic technology. Muriomaa (1999) in the article ‘The Net is revolutionizing cataloguing discusses the changing role of cataloguing in the Web environment and how emergence of technologies have change the concept of cataloguing. Das (2004) in his paper ‘MARC 21: the standard exchange format for the 21st Century’ discusses the history and development of MARC formats, its structure and salient features which made MARC format a set of standard for identifying, storing, and communicating cataloguing information. Other articles are – ‘towards a common international symposium on bibliographic exchange format by Dierickx (1978); Using CCF: the Common Communication Format by Simmons (1986); the Development of the MARC format by Spicer (1996)

The websites – http://www.loc.gov/marc/ have been surfed to download information on various aspects, principles and backgrounds of MARC 21 formats.

Among the conference papers presented on metadata, reference may be given on – Metadata and Dublin Core: Describing resources on the net by Sen (2004); Metadata and Dublin Core by Ajit Kumar and Rupali Kumar (2004); Musings on Dublin Core by Balasubramanian (2004). The authors of these papers have described the term metadata, its need and use for identification, description and location of growing Internet resources. They also highlighted the metadata initiative taken at the workshop held at Dublin Core to develop metadata element sets. In another article ‘Review of metadata formats’ by Heery (1996), reviewed various metadata formats and highlighted MARC formats and their progress towards international standard.
Review of some full-text Internet resources on metadata downloaded from the Internet are stated here. Tennant (2004) in his E-article ‘A bibliographic metadata infrastructure for the 21st Century’ available at: http://eprint.rclis.org/archive/00002310/01/tennant_library_hi_tech.pdf discusses that the current library bibliographic infrastructure was constructed on the days when MARC was developed before the emergence of Internet resources. The emergence of Internet resources have necessitated to develop another bibliographic metadata infrastructure that can deal with MARC with equal facility as it deals with many other metadata standards. He described the infrastructure requirements for the development of bibliographic metadata infrastructure and has given a proposal aimed at creating an environment that is welcoming to -- and effective for - metadata formats yet to be created. Other E-articles are -- ‘The Dublin Core descriptive metadata program: strategic implications for libraries and networked information access by Lynch, Clifford available at: http://www.arl.org/newssltr/196/dublin.htm; An introduction to Resource Description Framework by Miller, Eric; Extending MARC for bibliographic control in the Web environment: challenges and alternatives by McCallum (2000) etc.

From the survey of the literature made for the purpose of this study it is observed that the literature in various formats such as – printed, online and offline digital forms etc. are being produced in the area of document description and the area draws attention to the Library and Information Science professions to undertake more study and research. Though many researches have been undertaken in this area in order to make the process of document description unique and uniform but a universally accepted framework of document description is yet to be emerged for
universal bibliographic control. The newly emerged digital web resources and their enormous growth and uncontrolled production make the task of universal bibliographic control more complicated. Proper standardization of the document description process and stick adherence to a universally accepted framework for document description could provide solution to this problem to some extent. Continuous study and research in document description process is the need of the hour, which may provide a proper standard of its practice and use.