CHAPTER I

INTRODUCTION

1.0 INTRODUCTION

“A reader may know the work he requires; but he cannot be expected to know all the peculiarities of different editions, and this information he has right to expect from the catalogues.” - Antonio Panizzi

In the academic environment, libraries are still playing a pivotal role in disseminating scholarly information. Library collections are imperative to find reliable information because of its efforts in building up relevant and authentic collection in all formats to meet the demands of its parent institutions. These resources are to be organised in a systematic way for easy access and should be discoverable. The library catalogue serves as a connecting tool between the library resources and the users for centuries, thus libraries follow traditional cataloguing standards for cataloguing their collections. Catalogues have undergone various changes in different periods of time (William Denton, 2007). Many research activities are taking place to make necessary modifications in the cataloguing standards to suit the necessities of the particular period. Library professionals never relinquish their research on library cataloguing to upgrade its functionalities, but the concern is whether it is adequate or not.

At present, advancements in computer and communication technologies are influencing cataloguing research activities. In this contemporary, libraries are dealing
with multidimensional forms of information. Developments of this nature of resources were unknown and unpredictable in the early stages of the catalogues even though the core function of the catalogue is still unchanged, but improvements are to be made to handle all kind of information resources and to fulfill the expectation of the modern users (Jia Mi and Cathy Weng 2008). In the recent past, articles appearing in library journals are pressing for the need to upgrade the library catalogue.

Research on Bibliographic Records Formats has now new challenges because of the proliferation of information, a myriad number of digital resources, information seeking behaviour of users and the changing needs of users. Library users are moving away from the library for their information needs albeit libraries are dealing with a huge amount of scholarly and reliable information. Most of the students rely mainly on the Internet for their information need. An article entitled “Libraries losing students to Internet teaching & learning” published in the Hindu Newspaper on October 29th, 2008 ascertains this fact.

The library patrons need information rather than documents. Features like navigation and effortless search are attracting them towards the Internet. Now library professionals should rethink to overcome all these problems and to develop confidence among the users that they can get information from the library catalogue. Understanding the current situation and taking appropriate actions are essential for the sustainability of any fields. Libraries are not exempted from this fact. Much research has taken place on library cataloguing in all parts of the world in this direction. The Online Computer Library Center (OCLC) and the International Federation of Library Association (IFLA) are playing major roles in pursuing researches in this area. Only a
few researches have been conducted in the Gulf Cooperation Council (GCC) nations in this research area despite the fact that academic libraries are plenty in number. It is one of the prime reasons to pursue research in this area (Kalilur Rahman H and Dominic J, 2010).

1.1 THE LIBRARY CATALOGUE

Library cataloguing is the process of creating records for library collections by using any cataloguing standards, which help the library patrons to identify their requirements in an easy way from the library collection. The library catalogue is a vital tool to find the resources in the library.

The word ‘catalogue’ has been derived from the Greek expression ‘Kata logos’. It means a list, register or complete enumeration of something (Pandey D K, 2004). The New English Dictionary defines a catalogue as follows: 'A catalogue is usually distinguished from a mere list or enumeration by methodical arrangement, alphabetical or other order and often by the addition of brief particulars, descriptive or aiding identification, indicative of locality, position, date, price or the like'.

A formal definition of a library catalogue is that it is an explanatory, logically arranged inventory and key to the documents and their contents and it is confined to the documents of a particular library. Harrod's Librarians' Glossary and Reference Book 6th edition, has defined catalogue as `a list of books, maps, or other items, arranged in definite order. It records, describes and indexes (usually completely) the resources of a collection, a library or a group of libraries. Each entry bears details of class number or call number to enable the item to be found (on the shelves of the library), as well as sufficient details (such as author, title, editorship, place of
publication, publisher, date of publication, edition pages and illustrations) to identify and describe a book.

Dr. S. R. Ranganathan has defined the term library catalogue as a list of the documents in a library or in a collection forming a-portion of it. He further states, "A catalogue may be printed, or it may be in manuscript form. It may be in cards or in loose leaves. It may be in the form of a continuous book or in the paste down form with gaps for the interpolation of new entries in between existing entries". (Ch. FM, CCC, Ed 5). These definitions explain clearly what is library cataloguing.

The objective of the catalogue was described in a detailed way by C A Cutter in 1876 when he published the first edition of his book Rules for a Dictionary Catalogue. Cutter’s view is very much popular among library professionals and still relevant. As per his view the catalogue should:

1) enable a person to find a book of which the author, or the title, or the subject is known
2) show what the library has by a given author on a given subject in a given kind of literature
3) assist in the choice of a book as to its edition (bibliographically) as to its character (literary or topical).

It is applicable now for both print and digital resources.

Cataloguing standards were developed to catalogue the library collections long before. These standards have a set of rules to catalogue different types of resources and underwent continuous revisions from its primitive beginnings for attaining perfections in all aspects. After a period of time, this process became a global
phenomenon and got international attention mainly in the 19th century. British Museum Cataloguing Rules, C A Cutter’s Rule for Dictionary Catalogue, The Prussian Instructions - Rules for the alphabetical catalogues, Vatican Rule, Classified Cataloguing Code, ALA catalogue rules and the Anglo- American Cataloguing Rules are notable cataloguing standards. Another direction of change in the library catalogue was in its physical forms. i.e. the bound register form, printed book form, loose leaf form and card form.

The bound register form is one of the forms of the library catalogue. The entries were written by hand in a bound register or ledger form of library catalogue. Pages were arranged alphabetically. Each book had author, title, edition, accession number and class number information. Separate register for authors or titles or subjects were also available. These catalogues are more economical and easy to handle. The users can see many entries in one page, but it is not flexible. Entries for new books cannot be inserted at the proper places. Furthermore, the catalogues will soon become outdated.

The printed book form of library catalogue was popular in the nineteenth century. It was prepared conforming to all the standard principles of library cataloguing. Some of the big libraries like Library of Congress, British Library and National Library of Calcutta printed the book form of catalogue in the nineteenth century. This form of catalogue can be consulted easily as there are many entries on one page. The users can refer the catalogue at their work place or home. The catalogue does not occupy much space. Multiple copies were printed and sold for
price. It was also issued as per subjects. It is expensive and takes more time for preparation. This form became quickly outdated and is not flexible.

The sheaf form of library catalogue is another form of the library catalogue and is also called as loos-leaf form. In this form slips of paper are put into a loose-leaf and bound by some mechanical device into a volume, which provides the convenience for handling. In this form entries are made on a separate slip, but each slip has more than one entry. In this arrangement, new slips can be inserted in appropriate places, which was an advantage of this form. It is also possible to remove slips without disturbing the order of the arrangement. The catalogue is flexible and can be updated. It was displayed on special racks with proper labels on their spines. It was popular mainly in European countries. Libraries using sheaf catalogue cannot participate in any cooperative cataloguing scheme because of its nature. It can be used only in the library premises.

Among all these, card catalogues were very popular for many years and has since been replaced by the online catalogue after the beginning of computers dominance. In this form the bibliographical elements of every document are recorded on a single card. The cards had been arranged in card-trays with a punched hole of about half a centimeters from the bottom for inserting a locking rod. Standard size (12.5cm x 7.6 cm) cards were used all over the world. It is highly flexible and can be constantly updated. The users can handle it without any difficulties. The libraries using this form of the catalogue can take part in the cooperative cataloguing schemes (Krishan Kumar, 1993).
Online Public Access Catalogue (OPAC) in its initial stage just resembled the card catalogue and encountered various problems for its effective usage, which sought major refinements. Features to retrieve the required information effectively and other advance features were not integrated in the early stage. Spell check options and keyword options were lacking in the first generation of online catalogue. In the late 1980s second generation OPACs were developed by rectifying these impediments. Introduction of many access points and other advanced level features such as truncation of words revitalised the OPACs. Afterwards the OPACs made good progression and could be used in the web environment. Basic search option and advanced level search options were made available in the OPACs. Users can refine their queries (Rashid Husain and Mehtab Alam Ansari, 2006). But many new innovative characteristics available in search engines and Amazon-like online stores have changed the fate and put it in quandary. This situation has impacted much on the library catalogue’s future and urged a new approach for its further refinement to compete with search engines and online stores.

1.2 STATEMENT OF THE PROBLEM

Providing required information in an easy way is the responsibility of the library catalogue. The library catalogue should be designed to handle all types of information resources. The users’ expectations must be fulfilled and there must be a provision for the continuous developments of the library catalogue to meet the upcoming needs. These attributes are not fully met by the library catalogue in the current circumstances. Therefore it is necessary to conduct a comprehensive research study to address these problematic areas. The research study will be conducted on the
OPACs of selected academic institutes in GCC nations to analyse these problems and also the future challenges under the title “An Analytical Study of Online Public Access Catalogue of Educational Institutions of Gulf Cooperation Council Nations”.

1.3 NEED AND PURPOSE

As very few researches have been undertaken in this field in GCC nations despite the fact that academic libraries are plenty in number, the researcher is interested in conducting the research study to find the competency of OPACs of educational institutes in GCC nations, which will activate the refinement of the library catalogue to develop state-of-art catalogues. Huge amounts of funds are invested by the libraries to build up their collection in multidimensional formats. These valuable resources should be used by the library patrons for their information requirements. The library catalogue is the tool to connect the users with these resources and primarily has bibliographic information, but the library users approach is entirely different because of their experience in the Internet. If the catalogues are capable of handling all type of resources and able to provide information as per the aspirations of the library users, these processes could be accomplished without much complication. Therefore the library catalogues must be user friendly, intuitive and interactive. All these factors justify the inevitability of this research.

1.4 OBJECTIVES OF THE RESEARCH

The role of the libraries is still predominant in the academic environment even in the information age. All types of users including research scholars can get the necessary information from libraries. The library catalogue irrespective of its type helps to obtain information about the particular library collections. The main objective
of this research is to analyze OPACs critically, systematically and elaborately by using the following factors to find the capabilities and flaws for its effective functioning in the Google era. OPACs of major academic institutes of GCC nations have been taken as sample for this research study.

i. Fields in the bibliographic records

ii. Types of documents covered by the bibliographic records

iii. Access permission

iv. Efficiency in information searching

v. Availability of additional features to improve the functionality

vi. Content enrichment

vii. Meeting the users’ expectations

viii. Finding the current status of OPACs by comparing with the features of Amazon, Google, Google scholar and Google books

1.5 HYPOTHESES

The following hypotheses have been framed for this research study:

1. All basic bibliographic fields for books and periodicals are not present in OPACs.

2. Cataloguing different type of resources and providing links to them are not feasible in the current OPACs.

3. Accessing OPACs without any geographical barrier is not possible.

4. Key search features and newly emerging additional features are not incorporated in OPACs, but to view search results, new features have been incorporated.
5. Content enrichment process has taken place in OPACs to provide more information.

6. User participation and user profile features are to be incorporated in OPACs.

1.6 LIMITATIONS OF THE STUDY

This study was carried out in the OPACs of selected educational institutions in GCC nations, and not all educational institutions, which is impracticable. The samples taken are small in number if compared globally, but all are well-known institutions in the selected region. In addition, some of the OPACs included in the first part of the analysis were not included in the second part of the analysis because those OPACs are not available for free access.

1.7 SCOPE OF THE STUDY

This research study aspires to make “An Analytical Study of Online Public Access Catalogue of Educational Institutions of GCC Nations” for finding the latest status of OPACs. It mainly focuses on the library catalogues of the following academic institutes to find the ways to develop the OPAC as a useful and effective tool to provide information, which is the current demand:

**Sultanate of Oman**

1. Al Bayan College
2. Caledonian College of Engineering
3. Dhofar University
4. German University of Technology in Oman (GUtech)
5. International College of Engineering and Management
6. International Maritime College
7. Mazoon College
8. Middle East College of Information Technology
9. Oman Medical College
10. Sultan Qaboos University
11. University of Nizwa
12. Waljat College

United Arab Emirates

13. American University of Dubai
14. American University of Sharjah
15. Gulf Medical College, Ajman
16. Higher Colleges of Technology, UAE
17. Khalifa University of Science, Technology & Research, Sharjah
18. Petroleum Institute, Abu Dhabi
19. United Arab Emirates University, UAE
20. University of Wollongong in Dubai
21. Zayed University

Qatar

22. Carnegie Mellan University
23. Georgetown University School of Foreign Studies
24. Qatar Foundation, Academic Bridge Program
25. Qatar University
26. Texas A&M University in Qatar
27. Virginia Commonwealth University, Qatar
28. Weill Cornell Medical College, Qatar

Kuwait

29. American University of Kuwait
30. Arab Open University, Kuwait
31. Gulf University for Science and Technology
32. Kuwait University

Saudi Arabia

33. King Fahd University of Petroleum and Minerals
34. King Abdul Aziz University
35. King Saud University
36. Qaasim University

Bahrain

37. University of Bahrain

1.8 RESEARCH METHODOLOGY

“Research represents a critical and exhaustive investigation to discover new facts, to interpret them in the light of known ideas, theories and laws, to revive the current laws and theories in the light of the newly discovered facts to apply the conclusion to practical purpose” (Ranganathan S R, 1967). Research methodology is the process of planning strategies to solve the identified problem in a logical way. It
states how the research is to be carried out and constitutes appropriate methods to
perform the research proficiently. According to Goddard and Melville, answering
unanswered questions or exploring which currently do not exist is a research. In
research methodology, the researcher systematically strives to find out the solution. If
there is no methodical and planned approach there will be less prospects of finding the
final result. The researcher faces a lot of problems to explore the research questions,
which can be effectively resolved by using the correct research methodology
(Industrial Research Institute, 2010). As this research study is conducted among the
selected library catalogues, the researcher has decided to use the questionnaire method
and checklist approach method. The questionnaire for the first phase of the analysis
has been prepared based on many research papers in this field as well as the Library
of Congress OPAC. In the checklist approach method, the researcher compares the
features of Amazon and Google products with the selected samples because these two
are the basis for the new trend of information seeking behaviour. Direct access facility
of these catalogues to collect the data for the comprehensive analysis helps to carry
out the research successfully.

1.8.1 Data Collection and Analysis

The Researcher prepared the questionnaire for the data collection and sent to
40 libraries of leading educational institutions in GCC nations for the first phase of
the analysis (Appendix I). Only 16 responses were received even after sending
reminders. To overcome this hurdle, the required information has been collected from
their web OPACs. A checklist had been prepared for the second phase of the analysis,
where features of Amazon, Google, Google Scholar and Google Books were taken
into consideration (Appendix II and Appendix III). The researcher accessed all OPACs directly to make a detailed study and collected the data. Subject experts also helped to judge the relevancy factor from the retrieved results, which further strengthened this research. The collected data for both phases have been analysed in Microsoft Excel. All these factors have been analysed to pick out the strengths and weaknesses of library catalogues.

1.8.2 Statistical Method Employed

The data collected from the questionnaire method and the checklist approach method were tabulated properly. All parameters have been analysed to fulfill the objectives of the research study.

The Chi-Square test ($X^2$) was applied to compare the observed group of frequencies with the expected group of frequencies, which paved the way to obtain a conclusion for the proposed null hypothesis (Gupta S C and Kapoor VK, 2002)

$$X^2 = \sum (f_o - f_e)^2 / f_e$$

This is the required $X^2$ Value

$f_o = $ Observed frequency

$f_e = $ Expected frequency

$df = r - 1$

$df = $ Degrees of freedom

‘$r$’ = number of rows
Analysing the collected data is vital in a scientific study. The adopted statistical method helps to perform this task to arrive at the possible results. Data obtained through the questionnaire and the checklist were analysed and discussed.

1.9 ORGANISATION OF THE THESIS

Chapter 1: Introduction

The Introduction part succinctly covers the purpose, objective of the research, scope of the study, limitations and the methods employed for this research study to provide the perfect insight. In addition to this, brief information about the library catalogue has also been included to comprehend the nature of this research. The list of OPACs taken as sample has also been mentioned in this section. Research methodology describes how the research has been conducted. Information about each chapter defines the importance of these chapters and outlines their contributions. On the whole, the introduction section highlights the key themes and idea of the research. The introduction part is the roadmap of the research and as subtly as possible elucidates what is the focal point. The information given in this section can make anyone understand this research study well.

Chapter 2: Review of Literature

Review of literature enlightens the recent developments of any field and is an evaluative report related to the selected topic. What happened in the specific field should be known by the researcher to fine tune the research problem. Review literature does this job. It is the second step in the research process. Generally it is a review of relevant literature of the selected topic and permits the researcher to move in the right direction. The Review Literature section of this thesis illustrates the
developments and research activities in the field of library cataloguing under the subtopics Evolution of Bibliographic Records format, Anglo American Cataloguing Rules, Classified Catalogue Code, Machine Readable Catalogue, Online Public Access Catalogue, Functional Requirement for Bibliographic Records, Resource Description and Access, and Challenges in OPACs. Each topic speaks about the continuous developments in the library catalogue both in physical forms and cataloguing standards. The wide coverage of the literature is the foundation for the progress of this research and assists to know the background of this research.

**Chapter 3: Description of the Area of Study**

The Researcher has analysed the features of OPACs of thirty nine academic libraries in GCC nations in the first phase of the study and also performed an analytical study of twenty eight OPACs of academic libraries in the same GCC nations. For the second phase of the analysis, features of Amazon and Google products have been taken into consideration. The profiles of the selected academic institutions have also been discussed in this chapter. This gives an overview about each institution and their prominent role in the field of education in this area. Selection of these high profile institutes adds value to the research study.

**Chapter 4: Analysis and Interpretation**

This chapter has two main sections. The intention of the first section is to conduct a research study to categorize the current status of the OPACs of the selected samples. Bibliographic information in OPACs, types of documents in OPACs, access permission, information searching efficiency and availability of additional options parameters are used for this preliminary analysis to appraise OPACs. The MARC21
formats for bibliographic information and information searching features of Library of Congress OPAC are used as the basis for this preliminary analysis. A questionnaire was prepared by encompassing all these factors. The data has been collected from the OPACs of selected educational institutions by circulating the questionnaire as well as by the direct access method. The collected data has been entered in the Microsoft Excel for analysis. Different charts have been created for the evaluative study, which helped to understand the status of the OPACs to some extent. This part also elucidates the selection of these parameters for this analysis, which adds extra strength to this study. Each parameter was analysed separately in this chapter, which underpins the need of taking steps for further modifications in OPACs.

The second part of this section compares OPACs with Amazon and Google with the help of a checklist. As the significance of library cataloguing is diminishing steadily because of the influence of search engines and online stores, the study of OPACs by comparing with the features of Amazon and Google products is imperative to judge the competency of OPACs. This part of the chapter endeavours to accomplish this task. A checklist has been prepared for the same. Many research papers have been referred to prepare the checklist. Features of Amazon and Google are carefully incorporated in the checklist to understand why the library users are deviating from the library catalogue. Information searching, viewing the retrieved results, relevancy, content enrichment, accessibility, user participation, user profile and presentation, and sharing of information for revitalizing the OPACs are the major issues considered in this chapter. Each factor has many subcomponents in the checklist, for example under search functionality basic search, advanced search, spell check up, truncation, Boolean operators, search history, refine search option,
document type, similar items, relevancy factor and help option components are included in the checklist, which lead to in-depth study. Data have been collected from the OPACs of twenty eight GCC libraries. The results have been analysed and interpreted for Google and Amazon separately as some of the features are not common in both Google and Amazon. Each analysis is shown by Excel bar charts to understand the results in an easy way. This kind of analysis portrays the status of the OPACs and helps the researchers to find out why users are attracted towards other information mediation tools for their information needs.

Chapter 5: Major Findings and Conclusion

This part of the thesis has summarised the major findings of previous chapters and proposes new framework to eliminate the identified problems for developing the next generation OPAC. Available and unavailable features; and areas for further developments have been listed in this section. The framework has covered all necessary elements as per the research study and also explains the way of implementing to develop the OPAC with all required functionalities under eight categories. Justifications for including these additional features have also been covered in this chapter, which is essential for any new proposal. Most importantly, this chapter elaborates how the latest computer programming languages can be used to develop the OPACs with all required qualities and features. Suggestions have also been pointed out for future research.
REFERENCES


• Rashid Husain and Mehtab Alam Ansari (2006), From Card Catalogue to Web OPACs, DESIDOC Bulletin of Information Technology, 26(2), pp.41-47.