Background

The structure and function of any Library / Information System fully depends on what quality of information it wants to cater amongst its target groups and this basic question necessitated libraries to identify the specific needs of these target groups. Over the last five decades, it has become one of the most important and popular research areas of Library and Information Science discipline.

Nevertheless, the few basic questions which remain at the beneath of all these exercises are, how to understand, what shall be the mechanism to ascertain and how to interpret such requirements precisely. In other words, the research methods to use often remains as a basic issue of conducting research on determining the requirements of the users of information systems.

Historically, information systems research inherited the natural sciences paradigm (Mumford, 1991). Intrinsic psycho-social nature of the problem compelled the researchers to take the refuge of easily available social science research methods, primarily quantitative research methods. The quantitative models, borrowed from natural sciences suited to science laboratories, were transferred directly to information science research in an attempt to gain recognition and legitimisation. In addition to that "... the demand for accountability and assessment in its various guises has in the past led to the entrenchment of many quantitative methods of investigation" (Gorman and
Clayton, 1997). The contemplation of the philosophical underpinning and the question of appropriateness of the methods, however, not addressed properly. As a result of which, most of the researchers took it granted that the available quantitative methods are applicable in the user studies. The concept of CONTEXT in which a human being actually behaves, remained unnoticed. It is basically qualitative research methods, which handle such situations, were not utilized, though "A more qualitative approach to information issues and problems has the benefit of presenting new answers to old problems, or at least different perspectives derived from potentially richer data. The approach also might be said to provide broader insights not only into existing issues and problems, but also into so far unexamined areas of information work." (Gorman and Clayton, 1997)

In an electronic environment, Online Public Access Catalogues (OPAC) helps the librarians to look in great details at what actually happens when users try to find the desired material in a library. This study, therefore, has investigated and assessed the usability of qualitative method in contrast with a quantitative one, while observing how the users search on an OPAC.

Literature Review

The review of related literature, in this regard, has covered the following areas, summed up as below:
i) **Phases of User study methods:** Different user studies, beginning from late 1940s' till date, could be loosely divided into four phases based on the methods used –

First Phase (late 1940s' to mid 1960s') – Phase of generalization.

Second Phase (late 1960s' to late 1970s') – Phase of early systematic studies.

Third Phase (1980's) – Phase of 'cost-benefit analysis' and 'recall and precision'.

Fourth Phase (mid 1990s' to till date) – Phase of user-centred studies and emergence of Qualitative Research methods.

ii) **The Theoretical Discourses:** These treatises can be considered as serious contributions towards the development of the philosophical grounds of qualitative methods in Library and Information Science and understanding the core issues of the conflict between qualitative and quantitative methods.

iii) **Review of Literature on Verbal Protocol in LIS:** Though the use of this method in library and information studies, is still very limited, it was observed that the verbal protocol method is gaining popularity in LIS research, as its inherent nature helps to get rich data about the users' behaviour.

iv) **Review Of Literature On OPAC Studies:** Literature on different generations of OPAC and OPAC studies were reviewed and four generations of OPACs were
identified based on the features of the software systems. The latest trend in this direction is the development of Web-OPAC.

With this background, the present study was carried out to compare the findings of both the quantitative and qualitative research methods while the users' are performing their own searches on an OPAC system.

**Methodology**

The methodology adopted for the study include the following considerations:

**Objectives:** The objectives of the present study:

a. to assess the usability of qualitative research methods in OPAC use studies,

b. to ascertain that qualitative methods provide better tools to assess the performances of libraries through user studies, than quantitative ones,

c. to ascertain the suitability of Verbal Protocol method, which facilitates to interpret and analyses the needs of the users from the subjects' perspective.

**Hypotheses:** The study was carried out with consideration to the following hypotheses:

H₀: Conditions remaining the same, both qualitative and quantitative methods provide equally efficient tools to analyse and interpret the need of the users.
H₁: Conditions remaining the same, qualitative methods provide efficient tools to analyses and interpret the need of the users as compared to quantitative methods.

H₂: Conditions remaining the same, quantitative methods provide efficient tools to analyses and interpret the need of the users as compared to qualitative methods.

The Research Site

The British Council Library, Kolkata, was selected for the purpose of this study. The Library has implemented the Online Catalogue system, about three years back, with the help of an Indian library software, known as LibSys. The Library uses the LibSys software version 4.0 on SCOUNIX and hosted on DELPOWER EDGE 2300 server. It has four dummy OPAC terminals and the terminals are connected on a Local Area Network.

Sample

The users of the online catalogue station were asked if they would participate in the study. An attempt was made to minimize bias in the sample by selecting times to approach potential participants in advance, numbering the online catalogue terminals and selecting the order of online catalogue stations at which to approach people on a rotation basis. Total 32 users were approached during the period of the study, of which 18 participants had accepted the proposal. The sample size for the purpose of the study was found satisfactory, as Virzi (1992)
has suggested that approximately a sample size of fifteen is enough for this purpose. Using the Verbal Protocol method, Shaw (1995) conducted study with a sample size of ten graduate students. Branch (2001) has also performed the study with a sample size of twelve participants.

**Collection Of Verbal Protocol Data**

Participants conducted their own searches in the OPAC stations in presence of the researcher. While the users were talking aloud about their searches, notes were taken about what keys they were pressing and how they reacted to information on the screen. Search sessions were recorded on audiotape.

**Collection Of Quantitative Data**

After the search session all the participants were provided with a questionnaire, which basically asked about the same online catalogue search. Out of 18 participants two collected the questionnaire to submit later and rest all filled up the same within half-an-hour. The two questionnaires were received by post, subsequently. The questionnaire were prepared based on the Van House et al. (1990) and SUMI questionnaire (Kirakowski, and Corbett, 1993).

**Data analysis**

Quantitative and qualitative data analyses have been made using appropriate techniques and tools. The hypotheses were tested by comparing the findings of both qualitative and quantitative research methods.
Findings

To fulfil the objectives of the study and to test the hypotheses, two contrasting methods applied in the study are Questionnaire Method, under the quantitative paradigm, and Verbal Protocol Method under the paradigm of qualitative research. The finding of these two methods was analysed separately and subsequently the findings of the both the methods were compared.

The inter-correlation analysis of quantitative data of the OPAC search satisfaction and the background variables revealed that, with the improvement of educational qualification, higher professional status, and most importantly, with more experience of the OPAC, the users found the system more satisfactory and user friendly, as well as, followed the instructions, better; understood the layout, easily; retrieved thorough information, quickly. Users with higher educational qualifications and higher professional status use more online catalogues and opt for multiple libraries to fulfil their information needs. It was also revealed that the users of the OPAC feel satisfied, not only when the layout is better, but also when it is user-friendly, responsive to their search, suitable for their purpose, quick to retrieve thoroughness and up-to-dated information. However, while analysing the qualitative data, it was observed that more detailed information about the searching process could be revealed with the help of Verbal Protocol Method.
While comparing the findings of both methods, it was found that the context and user-centred approach of the Verbal Protocol Method, has helped to analyse and interpret the satisfaction, dissatisfaction and confusions of the online catalogue users, more in detail. It was observed from questionnaire data that, experience of OPAC has substantial influence on the users' satisfaction, the analysis of verbal protocol data, however, has indicated that, most of users have actually expressed their dissatisfactions while using the OPAC system.

This piece of work has reached to a conclusion that Verbal Protocol Method (Qualitative Method) is more revealing about the actual satisfaction of individual users as compared to Questionnaire Method (Quantitative Method). Therefore, it will be safe to say that Verbal Protocol Method is an efficient tool to analyse and interpret the needs of the users as compare to Questionnaire Methods. However, in order to generalize the statement more studies need to be conducted.

The main contribution of this work, is the implementation of the verbal protocol method for analyzing the OPAC users' satisfaction. While implementing the methodology, this study has developed a scheme of coding.

With the help of this scheme the verbal protocol data were analyzed and a generic model of Online Catalogue Searching Process Flow were developed. This model explains how the online catalogue users conduct their searches.
The findings of this research have academic and practical values. The verbal protocol method, which is new to Library and Information Science, has been successfully used in the field of Ergonomics, Marine Navigation, Aircraft Traffic Controlling and Human Computer Interactions. This method helps to evaluate and assess the clients or users’ need, satisfaction, problems, difficulties, etc. The library professionals are also trying to assess the same for quite a long time, by now. This method will help them to understand the library users, better.

This method offers great potential while designing library web pages, intranets and customized interfaces for various library databases.

**Suggestions**

This research suggests that further research should be conducted with the help of qualitative methods and especially with verbal protocol method, to find how people find and retrieve information on the Internet and even how do the library users locate a particular piece of information from a book, journal or other library material.

A series of research can also be conducted on different aspects related to electronic information retrieval systems, like Web-OPACs, in-house databases, library automation software and its interface aspects and a generalized model of information searching process can be developed.
It is also suggested to have, at least one, centralized laboratory in India, for this purpose, which shall be well equipped with all necessary software and hardware infrastructure. If such arrangement and series of research can be done, it will not be difficult for the Library and Information Science professional to understand and satisfy their users.

References


