3.0 Introduction

Public libraries, to a greater extent, were exclusively document oriented, manually operated systems almost till 1990s with a few cases exempted, even though the user’s expectations of public libraries were slanting towards automated digital information. According to King (2005), “Information needs and expectations were continuously changing in the rapidly changing information scenario. Libraries need to re-orient their collections, services, and facilities to keep pace with these advancements. User feedback is considered as a more reliable factor in measuring the utility and effectiveness of any library. By making user surveys a regular part of the libraries’ functions, librarians can provide a comparative snapshot of usage in various temporal contexts.” Public libraries too have been in a compelling situation to become hybrid with an increasing amount of digital collection and services supplemented by at least internet connected computer systems.

In developing countries, public libraries remain hybrid in their efforts to cater to the needs of the user population which cannot be said to have shifted to the electronic media exclusively nor sticking on to the

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traditional collections and services. In a public library a majority of users come for borrowing print materials and many a time, if not anywhere but in India, they were satisfied with print materials at least for their newspaper and materials for home readings. Moreover, public libraries do not subscribe to licensed online journal databases and other research oriented materials which do not fall within the exclusive purview of either their collection or services. Digital databases are the major domains of research information targeting the higher education audience comprising of students, research scholars and the faculty members forming the academic community. But, yet, other than this category of research information, public libraries provide internet connectivity options that open the vistas of the World Wide Web with its enormity of open access sources of information for learning anything to the users of the public library. Those users visiting the public libraries were with sufficient computer literacy which is fundamental for a higher frequency of digital information use. In the state of Tamil Nadu, Public Library system has provided Internet connectivity at the District Central Libraries all over the state. In the context of a changing information environment, it becomes essential to understand the perceptions of users and their level of satisfaction towards the collection, staff assistance and services leading to an evaluation of the performance of the District Central Library located at Madurai, the Headquarters of the Madurai District. Hence a user survey was carried out.
3.1 Choice of the topic

As far as the performance part of a public library and its evaluation is concerned, its users are the best judges as they are aware of the state of the art of the products and services of that unit they use. The investigator, as a school librarian, has been taking the students of the higher classes to the District Central Library since long. Moreover, being a native of Madurai and a continuous visitor to the District Central Library the investigator had a curiosity sparked by the library and information science background to know the inner aspects like collection and services from the user point of view of that library. Hence, is the topic, “A study of users perception and satisfaction towards the collection and services of the District Central Library at Madurai”.

3.2 Objectives of the Study

The focus of the present study is on the perception and satisfaction level of the users of the District Central Public Library located at Madurai city. The overall objective of the study is to identify the users’ perception of the District Central Library (DCL), its collection and services in the context of the changing digital environment. The major objectives of the study were as follows:

- To identify the purposes of the users' library visits;
- To find out the users’ perception regarding the resources of the DCL;
o To find out the users’ perception regarding the services of the DCL;
o To identify the use of reading materials (print/non-print collection).
o To find out users’ opinion related to library staff and their help in the use of library products and services
o To study the various facets related to the service in the context of satisfaction of users of the Madurai District Central Public Library;
o To identify the dimensions of the gap between users’ perceptions and the actual existing service; and
o To identify the problems encountered by the users of DCL during their library visits and use.

The defined objectives provide a basis for data collection with relevance and related further procedures in appropriate ways avoiding unnecessary empirical wanderings. Clarity in the defined objectives of an investigation facilitates the formulation of a set of hypotheses accordingly.

3.3 Hypotheses

Polit and Beck\textsuperscript{141} (2006) defined a hypothesis as a prediction or usually a predicted statement of relationships between variables. Normally, a hypothesis may predict, propose, suppose, explain, or test a quality, property, or characteristic of people, things, or settings. Hypothesis, being an important intellectual instrument, is vital in forming the base to any research. Hypothesis is a tentative solution to a defined

problem of investigation.” In simple terms, P.V. Young\(^{142}\) (1973) defined a hypothesis thus: “a provisional central idea which becomes the basis for fruitful investigation is known as hypothesis”.

For the purposes of fulfilling the objectives of the present study, a set of hypotheses were formulated to find out the perception and satisfaction level of the users of the District Central library at Madurai. The set of hypotheses are as follows:

**Hypothesis 1**: There exists a significant difference between the satisfaction level of the respondents with regards to library collections at the District Central Library under study.

**Hypothesis 2**: There exists a significant difference among the various factors that were rated by the respondents towards the perceived service level of the library.

**Hypothesis 3**: The respondents covered under the present study do differ with regard to the usage of internet.

**Hypothesis 4**: There is no difference between the overall actual service and the other two services namely overall minimum desirable level of service and overall expected level service.

**Hypothesis 5**: Regarding the overall minimum desirable service there exists a difference between male and female respondents.

Hypothesis 6: Regarding the overall expected level of service there exists a difference between male and female respondents.

Hypothesis 7: In the context of overall usage of the Madurai District Central Library, there exists a difference between male and female respondents regarding the overall minimum desirable level of service; overall expected level of service and overall actual level of service.

Hypothesis 8: In the context of overall usage of Internet at the Madurai District Central Library, there does not exist any difference between male and female respondents regarding the overall minimum desirable level of service; overall expected level of service and overall actual level of service.

3.4 Methods and Procedures

The monograph entitled, Research methods in Librarianship by Busha and Harter\textsuperscript{143} (1980) is one of the best sources for understanding research methods in librarianship and is found to be elaborate and exclusive for library research discussing related facets in detail. To elicit data from the users of a system in general, and a public library in particular, survey method is considered to be the best option. In the words of Trochim\textsuperscript{144} (2006), “Survey research is one of the most important


areas of measurement in applied social research. The broad area of
survey research encompasses any measurement procedures that involve
asking questions of respondents. Surveys can be divided into two broad
categories: the questionnaire and the interview. Questionnaires were
usually paper-and-pencil instruments that the respondent completes.
Interviews were completed by the interviewer based on what the
respondent says."

Survey method undoubtedly has been the most popular and the
most widely used research method in user studies. Invariably in all the
disciplines under the umbrel region Social Sciences, survey method is
often the better alternative through which opinions, interests, suggestions,
and other such data can be collected promptly. Moreover, survey method
ensures gathering of large amount data from a large number of units at a
time. When required, survey method is capable of gathering data and
facts from the entire population known as population studies (Census) or
from a portion of the units of the study when the samples are true
representatives of the larger population thereby avoiding unnecessary
duplication. The present investigation adopted simple random sampling
as it was not possible to meet all the users at a time under the same roof.
The users of the District Central Library were always at their convenience
in choosing their time for visiting and everyone need not be regular also.
Therefore, simple random sampling was found to be more appropriate
befitting the situation.
3.4.1 Data collection Method

Data collection was through questionnaire method which researchers in general use to measure knowledge, attitudes, emotion, cognition, intention or behaviour. This approach captures the self-reported observations of the individual and is commonly used to measure client/users’ perceptions of many aspects of products and services in Library and Information Services.

While developing a questionnaire, items or questions were generated that require the respondents to respond to a series of questions or statements. Participants’ responses were then converted into numerical form and statistically analysed. The items involved were reliably operationalized and the key concepts detailed within specific research questions and were found to be, in turn, relevant and acceptable to the target group. The main benefits of questionnaire method of data collection is that it is usually and relatively quick to complete, are relatively economical and normally easy to analyse. Questionnaire development was guided by existing literature and a panel of recreation service employees. LIBQUAL+ forms the base to the questionnaire. A series of meetings were held with the panel of experts and their comments were documented. These comments were then used to guide questionnaire development. Face validity of the questionnaire was established through the panel review process.
The dependent variables are the satisfaction of users. Respondents were required to rate the degree of their perception and satisfaction of the respective category of uses of the facilities, resources and services at the library by circling on the appropriate score for each of the respective questions on a scale of 1 to 5, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree of use for respective column of learning and for research. There were 7 items on satisfaction of information control, 6 items on satisfaction of library as a place and 12 items on services. Already, a good number of studies were found to have adopted questionnaire method for their data collection in their user studies as indicated in Mayank Trivedi and Anuradha Joshi\textsuperscript{145}, (2009;) though some adopted interview method either as the main or auxiliary. The present study commissioned the structured questionnaire method for the collection of data as this is found suitable for gathering data from a large number of respondents representing a population of users of a specific library system.

There are two types of \textit{modus operandi} in the questionnaire method namely (i) personally distributed printed questionnaire method and (ii) Online data collection method uploading a questionnaire on the website of either or the personal website of the investigator or the organization concerned. The latter could not be adopted because the

\textsuperscript{145} Mayank Trivedi., and Anuradha Joshi (2009), Usage of electronic journals (e-journals) versus print journals by healthcare professionals in H M Patel Centre for Medical Care and Education (HMPCME), Journal of Health Informatics in Developing Countries, 3(1). www.jhidc.org Retrieved on 21-06-2013.
official website of the Tamil Nadu Public Library system do not allow such private operations though the purpose is academic and moreover, all the users of the District Central Library may not opt online method for reasons. The generation of items during questionnaire development requires considerable pilot work to refine wording and content. To ensure content validity, items can be generated from a number of sources including consultation with experts in the field, proposed respondents and review of associated literature as prescribed in Clarke\textsuperscript{146} (1998); Priest et al.\textsuperscript{147} (1995). In view of the added advantages of the personally distributed print version of the questionnaires were used to collect the data.

3.4.2 Pilot study

In the present investigation, the first phase of the research design consisted of a pilot study conducted at the District Central Library located at Madurai city. There were two goals: (1) to refine design and methodology, and (2) to develop a framework for analysis. A draft questionnaire was prepared with LibQUAL+ as the base, a domain of research of the American Research Libraries. Copies of the draft questionnaire were distributed to a sample of 50 library users the public library and information were collected. As such, the investigator collected preliminary information through a pilot study which was undertaken in


order to assess fundamentally whether respondents can understand the questions easily and answer them without difficulty; To assess whether the questions are structured with simple and self explanatory words; To judge whether the questions were meaningful and relevant.

3.4.3 Construction of the Questionnaire

The questionnaire is defined as `a systematic compilation of answers from filled in questionnaire submitted to a sampling of population from which information is desired.' Based on the pilot study feedback, the questionnaire was constructed in consultation with the guide, and on discussions with the District Library Officer, Madurai District.

The study adopted structured questionnaire with closed end questions. The questionnaire, altogether, had five printed pages with multiple choice questions (Appendix). The respondents did not have to write anything as answers but had to simply tick or encircle a number. The questionnaire was designed in English and then translated into Tamil which is the regional language. The translated Tamil version used simple, understandable words. An experienced professor in Tamil and one of the lady Assistant Professor from the Department of Library and Information Science from Madurai Kamaraj University in translating the English version to the Tamil.
3.4.4 Administration of the Questionnaire

The investigator visited the Madurai District Central Library on various days of the week except Fridays which happen to be the weekly holiday to the libraries coming under the Tamil nadu Public Library System. The users of the District Central Library were contacted in person by the investigator at the DCL, Madurai and personally distributed the questionnaire, collected them back duly filled in. The investigator could mobilize the cooperation of the staff of the public library and the visiting users as well that helped develop a rapport with the respondents who felt at home and comfortable while filling in the questionnaire. The users were distributed with a translated Tamil version of the questionnaire unless requested by users for an English version.

3.4.5 Components of the questionnaire

The first part consists of questions regarding personal details such as gender, age, member or not, place of domicile qualification, occupation, and purpose of visiting the library.

The second part consists of question relating to satisfactory level of users using the library’s various resources.

The third part consists of questions relating to users’ expectation of minimum desirable services, expected service level and the actual level of the services offered by the library taken for the study. This part has 36 questions on various factors such as library’s collection, services,
environment, library staff and their role and the level of satisfaction of information needs of the users.

The fourth part consists of questions relating to usages of internet and its frequency, usage purposes, motivating factors and type of information searched by the respondents.

The fifth and the final part consists of questions relating to the opinion on internet services offered by the library.

### 3.5 Sample Size

Of the total 3500 copies of the questionnaire distributed to the users of the library study, 3230 respondents had filled in the questionnaire and returned to the investigator. The sample comprised of respondents belonging to both genders, different age groups, different occupations, different levels of academic qualifications with varied purposes of visiting the library. The study is based on cluster sampling. In cluster sampling the unit of sampling is not the individual but rather a naturally occurring group. Cluster sampling is used when it is more feasible or convenient to select groups or individuals than it is to select individuals from a defined population. In the present investigation the sample constitutes the users of the Madurai District Central library. The target population of the present investigation are the users of the public library. The investigator employed cluster sampling to collect data from all the available users during the investigator’s personal visits to the District Central Library.
3.6 Data processing

After the completion of the data collection, the filled up questionnaires were edited properly to make them ready for coding. After coding, the data were fed into computer and database was created. From the database, the required tables were prepared for further analysis using SPSS VER.16.0.

3.7 Framework of analysis

The analysis part employed suitable statistical techniques to the data collected and tabulated. Testing of the hypotheses has been carried out with suitable statistical tools. The SPSS ver. 16.0 package has been used for the data manipulation.

3.7.1 Statistical tools and Framework of Analysis

The analysis part of the present investigation commissioned Mean percentage score, standard deviation and ‘t’ test, chi-square test, one way ANOVA, and Friedman Test, post hoc test namely Tukey HSD as applicable to specific areas of data collected.

3.7.1.1 Friedman test

The Friedman test is the non-parametric alternative for the type of \( k \) dependent treatment groups with equal sample sizes. The null hypothesis, \( H_0 : F(1) = F(2) = \ldots = F(k) \) is tested against the alternative hypothesis: at least one group does not belong to the same population. The response vector \( y \) has to be ranked in ascending order separately for each block \( \pi j : j = 1, \ldots m. \)
After that, the statistics of the Friedman test is calculated according to Eq. 8:
\[
\chi^2_R = \frac{12}{nk(k + 1)} \sum_{i=1}^{k} Ri^2 - 3n(k + 1)
\] (8)

The linear model of a two factorial unreplicated complete block design can be written as:
\[
y_{i,j} = \mu + \alpha_i + \pi_j + \epsilon_{i,j}
\] (7) with \(\pi_j\) the j-th level of the block (e.g. the specific response of the j-th test person).

The Friedman statistic is approximately \(\chi^2\)-distributed and the null hypothesis is rejected, if \(\hat{\chi}_R > \chi^2_{k-1;\alpha}\).

3.2 Friedman – post-hoc test after Nemenyi provided that the Friedman test indicates significance, the post-hoc test according to Nemenyi can be employed. This test requires equal sample sizes \((n_1 = n_2 = \ldots = n_k = n)\) for each group \(k\) and a Friedman-type ranking of the data. The inequality 9 was taken from Demsar (2006, p. 11), where the critical difference refer to mean rank sums \(\bar{R}_i - \bar{R}_j\).

Demsar (2006) found that, when Friedman test indicates significance
\[
(\chi^2(5) = 23.3, p < 0.01),
\] it is meaningful to conduct multiple comparisons in order to identify differences between the diuretics.

Pairwise comparisons using Nemenyi post-hoc test with q approximation for unreplicated blocked data data: \(y\) for which a sample data set is provided below:

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The following are the statistical tools used in this study.

The linear model of a two factorial unreplicated complete block design can be written as:

\[ y_{i,j} = \mu + \alpha_i + \pi_j + \epsilon_{i,j} \]  

(7) with \( \pi_j \) the j-th level of the block (e.g. the specific response of the j-th test person).

Besides the above statistical applications, graphical representation includes pie charts, bar charts, stacked bar charts, stacked column charts, clustered bar charts and combo charts.

3.8 Period of the Study

The period of coverage of the present study spans between 2012 and 2013. Data collection was started during the month of September 2012 and completed in March 2013.

3.9 Limitations of this Study

The study covered the users in a particular single library namely the District Central Library located at the Madurai city, and belonging to the Tamil Nadu Public Library System. The present study was undertaken to assess the perception and satisfaction of the users regarding the various aspects of library service quality. The purpose of the

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study does not aim to reach value judgments regarding the individual library under study which includes also the occasional users other than the regular users. The study is limited by constraints such as time, travel, meeting many of the respondents. Generalisation is based on the data collected as revealed by the respondents. The units of study were approached as individuals. This study may not cover any change of policy of the Tamil Nadu Government or the Tamil Nadu Public Library System regarding any of the matters related to the system after the period of completion of data collection i.e. March 2013.

3.10 Bibliography: Rendering Style

The report format follows the Chicago Manual of Style in rendering the bibliography with slight modification regarding indic and Islamic names.