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Chapter - 4
Research Design and Framework of the Study

4.1. Introduction:

In the preceding chapter the study explored the vast gamut of problem areas of collection development, organization and services in the realm of libraries. A comprehensive review of literature was also made to find out the research gap in the referred sphere of collection development, organization and services. In the present chapter, the study proceeds to demarcate the scope and identify the objectives at the first instance. Based on the research gap, issues and relevant problems, the hypotheses of the study have been postulated. The chapter further deals with designing research methodology of the study. It presents in detail the ambit of research design giving a detailed plan of the work. The statistical tools and techniques have been used for analytically studying the whole gamut of the issues and problems that fill the gap in the existing stock of knowledge on the subject matter of collection development, organization and services.

The following paragraphs present the scope and objectives of the study.

4.2. Scope of the Study:

The time span of the study has been taken from 1985 to 2005-2006 keeping in view the introduction of IT application in the Indian libraries since 1985. The culled up data through sets of questionnaire used in the study are primary in nature. Some of the data are however secondary too. The study purports at identifying the current status of collection development, organization and services of the central libraries of UP i.e. AMU, BHU, ALU and BBRAU. It focuses mainly on the collection development policy, selection criteria of documents, collection evaluation methods, users assessment method adopted by libraries, organization of collection and different types of services provided by the libraries. The study also examines users' assessment as regards level of
satisfaction with collection development, collection organization, and library services.

The study on collection development, organization and services in fact as mentioned above is confined to select four central university libraries of U.P., such as, Maulana Azad library, AMU, Sayaji Gaekwad BHU Central Library, Varanasi, Allahabad University Library, Allahabad, Baba Bhim Rao Ambedkar University Library, Lucknow.

For the purpose of the study, four sets of questionnaire were prepared by the researcher and furnished to the respondents. The respondents have been classified into, (1) P.G. students (2) faculty members (3) research scholars. The second category is the librarians and acquisition librarian of these referred libraries. The questionnaires are purported to know the degree of satisfaction level in terms of collection, selection criteria, acquisition, organization of collection and services. The librarians of the referred libraries have been chosen to know the mode and method of policy formulation for building up need based, up to date and balanced collection and further to identify whether the policies in questions are in sync with the global changes in libraries development or not.

The data thus collected and culled up from respondents have been organized in tabular form and suitable statistical tools have been made proper use of to arrive at the findings of the study. And based thereon appropriate pragmatic suggestions and recommendations have been proferred for the planners and library organizers to make collection development organization and services to the users' improved, which is need of the hour in global knowledge economy.

4.3. Objectives of the Study:

The following objectives have been pursued for the purpose of the study on collection development, organization and services in select central university libraries of U.P.:-

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1. To bring out information regarding the collections in select central university libraries located in U.P. and also to examine the budget for printed documents as well as on-line databases/resources.

2. To examine and study in detail the collection development policy of the select referred university libraries in the terms of printed and electronic documents and revision of collection development policy.

3. To critically study the selection criteria, acquisition process and to simultaneously examine the weeding out or de-selection criteria of the documents.

4. To study at length the methods adopted by libraries for assessment of users' community needs, collection evaluation and also organization of collection.

5. To study and analyze the services provided by the libraries and level of users' satisfaction about the library collection, organization, facilities and services both traditional as well as, IT enabled services.

6. To make a comparative analysis of collection development, organization and services and also to identify the current status of collection development organization and services of the four central university libraries under study.

7. To study the application of Information Technology (IT) in collection development, organization and services in terms of house keeping activities as well as IT-based services provided to the users.

4.4. Hypotheses of the Study:

In pursuance of above-mentioned objectives the following hypotheses have been postulated and tested:

1. Ho The Null hypothesis (H0) of the study assumes that the select libraries of the whole i.e. the four central universities, AMU, BHU (old centralized) ALU and BBRAU, (newly centralized) are not perusing the collection development and organization in terms of provision of
separate budget for online and printed database and other documents, assessment of user's needs, proper collection, plan and revision of development policy for electronic and printed documents, selection and evaluation criteria and their identification, methods for acquisition, participation in resource sharing, and weeding out the documents. Whereas the alternative hypothesis (H₁) presumes that the select libraries of the whole four central universities such as, AMU, BHU, (old centralized) ALU and BBRAU, (newly centralized) are equally likely in pursuance of the above said portfolios of collection development and organization.

2. The Null Hypothesis (H₀) of the study assumes that the select libraries of the four central universities, are inadequate in providing the basic service requirements such as, specific system for classification and cataloguing, 24x7 professionals for reference desk, proper information services, reprographic, microform, Translation, CAS, SDI, Bibliography, CD/DVD ROM, online, UGC Infonet services, Interlibrary-loans, loose circulation and training for users. Whereas the Alternative Hypothesis (H₁) presumes that the select libraries are having a wide range of aforementioned service packages.

3. The Null Hypothesis (H₀) of the study assumes that the select libraries are lacking in IT and IT Enabled Service applications, such as, DVD ROM services, online service, Mini Computer, CD Drivers, OPAC terminals, Computer network, CD network, licensed operating system, licensed word collections, Broad band services, and other computerized services. The Alternative Hypothesis (H₁) nevertheless presumes that the select libraries are equally having wide range IT application.

4. The Null Hypothesis (H₀) of the study surmises that the select libraries are not pursuing the collection development pattern in terms of authority and responsibilities, participation, reporting, organizations, and policy determination etc. Whereas the alternative hypothesis (H₁)
presumes that the select libraries are adequate in enough in collection
development organizational pattern.

5. The Null Hypothesis (H₀) of the study assumes that the users of select
libraries are not satisfied with the adequacy of library collections, such
as, inadequate availability of general books, Text books, Reference
books, Periodicals / Journals / Magazines, Reports, Non-Book
materials. Patents / Standards / Specifications, Theses / Dissertations,
Seminar and Conference papers. Whereas the alternative Hypothesis
(H₁) presumes that the users of the select libraries are relatively
satisfied with the adequacy of library collections as referred above.

6. The Null Hypothesis (H₀) summarizes on the fact that the user’s
overall assessment in terms of physical facility, library collection and
organization, library human resource, services, and IT enabling, of the
select libraries are highly dissatisfied. Whereas the alternative
hypothesis (H₁) presumes that the overall assessment of the users in
terms of collection development organization, are relatively content
and satisfied. In the following paragraphs, the Researcher has dwelt at
the research design of the study.

4.5. Research Design and Methodology:

Research design and methodology is a way to systematically solve a
research problem. It may be understood as a science of studying how research is
done scientifically. In it we study the various steps that are generally adopted by
a researcher in studying his research problems along with the underlying logic.

It is necessary for the researcher to know not only the research techniques but
also the methodology. Researchers not only need to know how to develop
certain indices or tests? how to apply particular research techniques? but, they
must also know which are not, and what would they mean and indicate and
why? The researches must also understand the assumptions underlying various
techniques and they need to know the criteria by which they can decide that
certain techniques and procedures will be applicable to certain problems and
others will not be applicable. All these mean that it is necessary for the
researcher to design his methodology for his problem as it differs from problem
to problem.

There are several techniques available for collecting data, such as, (i)
Questionnaire method (ii) Interview method (iii) Observation method (iv)
Schedules (v) Interview by telephone. For the present study, the investigator has
used questionnaire, observation and interview methods in culling up the
requisite data.

4.5.1 Questionnaire Method:

Questionnaire is a tool to collect the data from a diverse large and widely
scattered group. It is called the heart of survey operation. The important step in
this method is to take care in the design of questions. Questionnaire is given to
the person concerned and the opinion or factual information is requested. The
questions are formed in such a way that the relation of one question to another
can readily be apparent to the respondent. Question sequence must be clear and
the respondents have to answer the question on their own level. In this study all
these have been well taken care of.

4.5.2 Observation Method:

Observation method is normally employed in measuring, testing, and
characterizing human behaviour by way of the investigators' own observation,
without interviewing the respondent. In this method, investigator observes
things, which are happening around. The investigator observes as to what is
currently happening and is not related to either past or future intentions of
users.

4.5.3 Interview Method:

The interview method is direct and has greater flexibility. Interview in
fact is a systematic method by which a person enters more or less imaginatively
into the life of a comparative stranger. This method is unique because the
collection of data is through direct verbal interaction between the individuals. In
this method investigator asks some questions to the users and library staff
relating to services and facilities provided by the library. In this study some of
the vital information's about libraries have been gathered through the interviewed of the referred librarians or acquisition libraries.

4.6. **Tools Used for the Study:**

The questionnaire, Observation and Interview methods have been used as tools for the study.

**Sample Population:**

4.7. Variables Taken:

In order to achieve the objectives of the study three variables are taken for user's survey and two variables are taken for librarian's survey.

1. Librarian's survey include
   a. Librarians
   b. Acquisition Librarian.

2. Library users include
   a. P.G Students
   b. Research Scholars and
   c. Faculty Members

4.8. **Pilot Survey:**

The pilot study ensures that the present questionnaires are relevant and meaningful to the average respondents and to decide which questions were relevant for the purpose of study. The investigator distributed the questionnaires among 15 users' of AMU library for the pilot study which was very helpful in modifying the questionnaire suitability. Librarian and acquisition librarian questionnaires were also tested at AMU.

4.9. **Data Collection Procedure:**

The investigator visited the referred libraries and approached the librarians seeking permission to distribute the questionnaire to the users and thus also collected back. The investigator also took the interview with the librarians as well as acquisition librarians. Besides this, the observation method
was also used to observe the overall functioning and services of the library under reference.

4.10. Data Analysis Method:

The data collected through questionnaires have been organized and tabulated by using statistical method. Statistical method of research lays stress on fact, figures and noting beyond that. Statistical methods have their own characteristics. One important characteristic is that, this method does not study any individual, but a group of individuals. Secondly it is a method, which is quantitative rather than qualitative. Statistical methods are a mechanical process designed to facilitate the condensation and analysis of a large body of quantitative data. Inferential statistics are used to make predictions to test hypotheses and to infer characteristics of a population form the characteristics as a sample.

4.11. Analytical Tools:

The common statistical tools that have been used for the analysis and interpretation are: Mean, Maxima, Minima, Standard Deviation and Coefficient of Variance Percentage, and CAGR. Considering the technical nature of certain analysis the Researcher has applied important statistical tools and thus they have been frequently repeated for better interpretations:

4.11.1 Arithmetic Mean:

It has been calculated by summing all the observations in a batch and then dividing the total by the number of items involved, i.e.

\[ \bar{X} = \frac{\sum X}{N} \]

Where, \( \sum X \) = Total value of the observations

\( N \) = Number of Observation
4.11.2 Standard Deviation (S.D.)

The S.D. is a measure of the variation in the data that have been used to determine the percentage of data values that reside within any specified distance from their mean.

\[ \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{N}} \]

Where, \( X - \bar{X} \) = Deviation taken from the actual mean
\( N \) = Number of observation

4.11.3 Coefficient of Variation (C.V.)

The C.V. is a measure of relative variation. It expresses the standard deviation as percentage of arithmetic mean.

\[ \text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 \]

Where, \( \sigma \) Standard Deviation
\( \bar{X} \) = Mean of Observation

4.11.4 Skewness:

Skewness has been used to test the hypotheses. As a matter of fact, skewness characterizes the degree of asymmetry of a distribution around its mean.

\[ \frac{N}{3} \sum_{i=1}^{N} \left( Y - \bar{Y} \right)^3 = \frac{N}{3} \sum_{i=1}^{N} \left( Y - \bar{Y} \right)^3 \]

The equation applied for skewness is defined as:

\[ \frac{N}{3} \sum_{i=1}^{N} \left( Y - \bar{Y} \right)^3 = \frac{N}{3} \sum_{i=1}^{N} \left( Y - \bar{Y} \right)^3 \]

Where \( \bar{Y} \) the mean, \( s \) is the standard deviation and \( N \) is the number of data points. The skewness for a normal distribution is zero, and any symmetric data should have skewness near zero.
4.11.5. Standard Error of Estimate:

Another important tool that has been made good use of is the standard error of estimate which is symbolized as Se and is similar to standard deviation in that both are measures of dispersion.

4.11.6 The Chi-Square Test:

The Chi-square test has been used to test the hypotheses in case of non-parametric variables. In probability theory and statistics, the chi-squares distribution (also chi-squared or $\chi^2$ distribution) is one of the most widely used theoretical probability distributions in inferential statistics, reasonable assumptions, easily calculated quantities can be proven to have distributions that approximate to the chi-square distribution if the null hypothesis is true.

The chi-square statistics for an experiment with $k$ possible outcomes, performed $n$ times, in which $Y_1, Y_2,...Y_k$ are the number of experiments which resulted in each possible outcome, with probabilities of each outcome $p_1, p_2,...p_k$ is:

$$\chi^2 = \sum_{1 \leq s \leq k} \frac{(Y_s - np_0)^2}{np_s}$$

$\chi^2$ will be larger to the extent that the observed results diverge from those expected by chance. The probability $Q$ that a-$\chi^2$ value calculated for an experiment with $d$ degrees of freedom (where $d=k-1$, one less the number of possible outcomes).

4.12. Layout of the Chapters:

The thesis has been divided into ten well structured and appropriately designed chapters. Chapter-1 deals with the historical development of university libraries in India. It further describes about the referred libraries under survey. The second chapter provides the conceptual framework with regard to collection development, organization and services Third chapter presents a comprehensive review of literature and whole gamut of issues and statement of problems.
pertaining to collection development, organization and services. Chapter further provides identification of research gap to carve out scope and objectives of the study. Fourth chapter is the research design and method of research work. It demarcates scope and objectives of the study and further goes to postulate hypotheses of the study. It also presents a detailed description with regard to usage of relevant statistical tools to test and prove the hypotheses.

Chapters Fifth, Sixth and Seventh are analytical studies based on the questionnaires. In chapter eighth hypotheses have been tested with the use of non-parametric statistical tools i.e. Chi-square test besides other tools such as, Standard Deviation, Mean, Maxima and Skewness. In the ninth chapter the research scholar has endeavored to carve out a set of strategy to deal with the policy of collection development, organization and services to compete with other developed libraries of the world. It also deals with the underlying implications in bringing about and implementing the strategies. The final chapter presents summary of conclusions, findings, suggestions and recommendations.

4.13. Importance and Need for the Study:

Collection development remains an immensely important yardstick in determining the nature and, to a considerable extent, the level of service which a library is able to provide. The availability of good documents largely depends on users' need and their satisfaction. The study relating to the collection development programme will not be complete without looking into the aspects viz users need process of selection of documents, libraries collection development policy, collection development organizational patterns of libraries and also know the status of collection development in the libraries. Though several studies have been undertaken regarding acquisition of document but there has not been so far any research which has investigated collection development, organization and services policies in academic libraries. Thus, the study intends to fill up this gap.
4.14. Limitations of the Study

In the present study the researcher has undertaken the case study of four central university libraries of UP, such as, AMU, BHU, ALU and BBRAU. As a matter of fact, in order to study the collection development, organization and services of these four referred central universities of UP only five categories of respondents i.e., librarians, acquisition librarians, PG students, Faculty Members and Research Scholars have been undertaken. The study has not considered the non-teaching staff, under graduate students and the miscellaneous users. They also form vital users of the libraries and hence, they should also be included to make study as regards their level of satisfaction regarding collection development organization and services.