CHAPTER 3

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3.0. Introduction

Research methodology is needed because it facilitate the smoothness of the research operations, thereby making research as efficient as possible yielding maximum information with minimal expenditure of effort, time and money. The methodology is used in collecting the relevant and appropriate data. It helps in using techniques appropriate for the study, keeping in view the objectives of the study and the availability of time and money. Research methodology, in fact, has a great bearing on the reliability of the results arrived at and as such constitute the firm foundation of the entire edifice of the study. In the absence of research methodology, it will be difficult for the critic to provide a comprehensive review of the proposed study as well as for the researcher to design any study, as designing a study is an integral part of research methodology.

3.1. Design of the study

A research design is a plan of the proposed research work. A research model or design represents a compromise dictated mainly by practical considerations. A research design has three phases – (a) observational design, (b) statistical design, and (c) operational design. Observational design specifies the conditions and methods of making observation. Statistical design takes into account the quantitative and statistical aspects of the design, such as the technique of study, the methods of model building, observation, experiment and so on. Operational design is related to the use of specific technique for the operation of the model already designed. These phases are not independent; they are rather interdependent.

In a research design, most authors (Koul, 1984, Gosh, 1982) agree that there are three basic categories of research methods, such as:

Historical method: which provides a method of investigation to discover, describe and interpret what existed in the past.

Descriptive method: which provides a method of investigation to study, describe and interpret what exists at present.

Experiment method: which provides a method of investigation to derive basic relationships among phenomena under controlled, conditions or,
more simply to identify the conditions underlying the occurrence of a
given phenomenon.

The selection of a method and the specific design within that method
appropriate in investigating a research problem will depend upon the
nature of the problem and upon the kind of data that the problem entails.
For the present study, the research design envisaged studying the
feasibility of assessing the school quality. This study is an exploratory
research, following survey method, categorized as the descriptive
research. According to this type of research, a meaningful and significant
description will follow with the proper analysis of the gathered data.
Descriptive research studies are designed to obtain precise information
concerning the status of the phenomena. Of course, descriptive research
goes beyond mere data collection and tabulation of data. It involves
meaningful analysis of the data and drawing out the relevant inferences
and significant conclusion (Koul, 1988).

For the present study, this method is applied to collect both factual
information as well as the perception of the teachers and the principal
about their school. This helped to find out the strengths and weaknesses
of the school so that the areas of intervention could be easily understood.
The use of this method would not only help guide to analyse, interpret
and report the status of an institution but also to motivate the institution
for future quality improvement.

3.2. Variables for the study

There is a wide divergence in the issue as to what constitutes quality or
what are the indicators of school quality. A number of researchers who
have paid their attention on this issue all over the world (Cook 1995,

From the review of previous literature pertaining to the indicators of
quality, the researcher has considered the following variables as
indicators of quality for this study:
(i) Physical infrastructure – magnitude of infrastructure, quality of
infrastructure, maintenance of the infrastructure.
(ii) Teacher’s quality – Formal educational attainment, teacher training
attainment, age, experience, specialization.
(iii) Teaching – the level of instruction offered (Pre-school, primary,
secondary etc) and quality instruction (exhibiting best teaching
practices, adapting practice to particulars of class room, successful
grouping and organization.

(iv) Effective leadership – being firm and purposeful, involving others
in the process, frequent and personal monitoring and selecting and
replacing staff.

(v) Linkage and interface communication with the environment.

(vi) Students’ participation in the co-curricular activities such as
community services, commercial activities, etc.

(vii) Office management-Support services.

(viii) Available material resources- Instructional support

(ix) Job satisfaction of the staff

(x) Examination- purposefulness and methodology

(xi) Relationship within the school.
The quality of school education is proposed to be listed along the above
said variables through various kind of tools – self prepared as well as
already available in the world of educational research.

3.3. Tools selection and construction

The procedure followed for the development and finalisation of tools
varies in the context of the nature of the study. are as follows:

Research review on methods and tools shows that different researchers
have attempted to develop different tools for assessing the quality of
schools which are broadly categorised as direct observation, personal
interview, questionnaire, projective technique etc.

In a study, where a large number of subjects would be involved, direct
observation would practically be an impossible task. Moreover, to
standardize direct observation would be a difficult proposition.

The interview method is a kind of verbal technique for obtaining data. It
is the most commonly used method of data collection in the study of
human behaviour. It is a direct method of data collection. According to
P.V. Young, “Interview may be regarded as a systematic method by
which a person enters more or less imaginatively into the life of a
comparative stranger”. This method is neither objective nor scientific. It
may be difficult to collect correct information and to verify the
information supplied in an interview.

Questionnaire method is also used in which a number of printed
questions is used for collecting data. According to Borgarding, “A
questionnaire is a list of questions sent to a number of persons for them to
answer. It secures standardized results that can be tabulated and treated statistically”.

The questionnaire method occupies an important place in educational research for various reasons, such as:

(a) The questions, which are included in the list of questionnaire, are standardized. The questions are real and create interest in the informants.
(b) This is an indirect method of collection of data.
(c) By this method, a respondent acquires some knowledge about many fields that were unknown to him.
(d) In this method, the researcher or investigator does not have to make any administrative arrangements.
(e) The method is economical.
(f) Through this method, a vast area and population can be studied easily.

In Projective Technique, the individual who is being observed or interviewed is not aware of the fact that he is being interviewed. For example, he/she may be shown some inkblots of haphazard shapes or some photos, drawing, finger paintings and so on. Then, his reaction is studied, which can be very helpful for knowing his mental attitude, alertness, intelligence, thinking power and so on. This technique can serve as the basis for studying the personality, sentiments and behaviour of individuals. To construct a standard projective test takes a lot of time. Besides, dependable objective interpretations of projective tests and techniques are very difficult to ensure when a large number of subjects are under study.

3.3.1. Questionnaire – the chosen method

Taking all the considerations together, the researcher adopted questionnaire as the tool for her study. By this method, a large sample may be drawn and all groups of people can be easily covered and contacted. The use of questionnaire is an impersonal technique. The method ensures anonymity. Information obtained through this method is more valid and reliable (Good, 1966). Thus, there has been tremendous use of questionnaire in this study, i.e., assessment of school quality.
Further, based on the review of literature, the self-assessment tools were identified and developed by the researcher in order to meet the research need.

The researcher used three instruments for her study, that is, on review, she adapted two instruments from Mukhopadhyay’s Institutional Assessment System and also used a self-made tool. Two instruments from Mukhopadhyay’s Institutional Assessment System because have been used in a number of educational institutions to be found very effective. These instruments are:

I. Teacher’s Questionnaire i.e. MIPQ (Mukhopadhyay, 2001) - It comprises eleven areas:

   i) Leadership
   ii) Teacher quality: preparation, competence and commitment
   iii) Linkage and interface: communication with an environment
   iv) Students: academic and non-academic quality
   v) Co-curricular activities: non-scholastic areas
   vi) Teaching: quality of instruction
   vii) Office management: support services
   viii) Relationship: corporate life in the institution
   ix) Material resources: instructional support
   x) Examination: purposefulness and methodology
   xi) Job satisfaction: staff morale

The MIPQ consists of 110 items: 10 items on each area of an institution mentioned above. The respondents are asked to respond in one of the five possible responses, namely, Very True (VT), Largely True (LT), Partly True (PT), Not Sure (NS), False (F). For the purpose of scoring, a numerical value of 4 to 0 is attached to each category of response. The MIPQ measures largely the perception of teachers about the selected areas of an institution.

II. The second questionnaire is for the principal (Mukhopadhyay, 2001) seeking their self-perception in areas like punctuality, relationship with teachers.

III. Another questionnaire, named as School Information Blank, was designed to collect the factual information like
• Enrolment in the institution;
• Teacher strength
• Library facility
• Physical infrastructure
• Availability of teaching aids
• Performance in the curricular activities.

3.3.2. Pre-Testing of the Questionnaire

All the tools were pre-tested to verify their appropriateness. The questionnaire was pre-tested on 10 schools’ principals, teachers and administrative staff. The researcher selected five schools each from New Delhi and Silchar for pre-tests. These schools were not included as part of the final study sample. In the process of pre-testing, many teachers felt that the questionnaire was too long. This feeling of teachers was duly considered by expressed to five experts, who reviewed the questionnaire item-wise. They found that this particular questionnaire, consisting of 110 items, covered almost all the indicators of quality and that each item of the questionnaire was simple, clear, and pinpointed, unambiguous and self-sufficient to collect the required data. Hence, the format and content of the questionnaire were retained as such.

3.3.3. Tools of the study

Table 3.1 describes, in brief, the merit and rationale in each of the tools used for the study:
Table 3.1.

Tools Used for the Study

<table>
<thead>
<tr>
<th>Tools Used</th>
<th>Rationale for use</th>
<th>Target Group/Source</th>
<th>Tool Description and Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire for principals: Mukhopadhya y Assessment system</td>
<td>-Easy to use -Elicits principal’s perception -Less time consuming</td>
<td>Principals of those schools which are selected for the study</td>
<td>This instrument measures the principal’s own perception in areas like punctuality, relationship with teachers, decision-making, accessibility, approach to management etc. 35 statements rated on a 5-point rating scale ranging from “Strongly Agree” to “Strongly Disagree”. Scoring was done by giving “Strongly Disagree” a score of 0, for “Disagree” a score of 1, for “Not Sure” a score of 2, for “Agree” a score of 3 and for “Strongly Agree” a score of 4.</td>
</tr>
<tr>
<td>Teacher’s questionnaire: Mukhopadhya y’s Institutional Profile Questionnaire (MIPQ)</td>
<td>Elicit teacher’s perception.</td>
<td>Teachers of those schools, which are selected for study.</td>
<td>It consists of 110 items - 10 items on each area of an institution. These areas are: (a) Leadership, (b) Teacher’s quality-preparation, competence and commitment. (c) Linkage and interface, (d) Students’ academic and non-academic quality. (e) Co-curricular activities. (f) Teaching quality of instruction, (g) Office management, (h) Relationship, (i) Material resources- instructional support, (j) Examination-purposeness and methodology and (k) Job satisfaction- staff</td>
</tr>
</tbody>
</table>
morale.

Out of the 10 items, five are positively keyed and five are negatively keyed. For each area, the scores in positively keyed items are adjusted against the response to the negatively keyed items. Respondent are asked to respond to each and every item by checking out one of the five possible responses, namely, Very True (VT), Largely True (LT), Partly True (PT), Not Sure (NS), and False (F). For the purpose of scoring, a numerical value of 4 to 0 is attached to each category of response – the actual value depends upon the item, whether it is positively keyed or negatively keyed.

The areas covered under this questionnaire indicate inclusion of input indicators like leadership, teacher and students quality, material resources, process indicators like leading, linkage and interface, teaching, co-curricular activities, office management, examination etc. and product indicators like job satisfaction, relationships etc. It is implicit that these are critical success factors for quality. The fundamental assumption is that an institution that is strong in all or most of these areas is a quality institution. Excellence in academic and non-academic
It would be evident that the above tools were used to measure both facts as well as perceptions of the teachers and principals of the respective schools.

3.4. Sampling

The representative proportion of the population is called a sample. It represents the population. Moreover, a population refers to any collection of specified group of human beings of non-human entities such as objects, educational institutions, time units, geographical areas etc. Some statisticians call it universe.

Most of the educational phenomena consist of a large number of units. It would be impracticable – if not impossible – to test, interview or observe a large population under controlled conditions. Thus, sampling is very important in the research studies. Sampling is the process by which a relatively small number of individuals, objects or events is selected and analysed in order to find out something about the entire population from which it was selected. For this study, all the secondary schools in New Delhi and Silchar were the universe or population from which a sample for the study was drawn.

According to scholars (Garrett, Koul, Gosh), sampling can be broadly classified into two broad categories, such as:

i) Non-probability sampling and
ii) Probability sampling

Non-probability sampling- In non-probability sampling, the units are selected at the discretion of the researcher. If he/she is to select a sample of 200 school students, he/she may exercise his judgment based on
experience for including a given student in the sample. This selected sample is called judgment or purposive sample. Such sample is used in the situations where the researcher does not want a representative sample but to gain insight into the problem by selecting only informed persons who can provide him/her the maximum degree of insight into his/her problem with comprehensive information.

**Probability Sample**- In probability sampling the units of the population are not selected at the discretion of the researcher but by means of certain procedures that ensure that every unit of a population has one fixed probability of being included in the sample. Such method is called random sampling. In the random sampling, the individuals are selected from the population in such a way as every individual of the population has the same chance of being selected. The selection is free from personal prejudice. The method is very simple to use. At the time of drawing the random sample, some precautions should be taken. In random selection, utmost care must be taken so that the conclusion drawn from the sampling is accurate and reliable. In the random selection, the units must be independent of each other.

**Stratified Sampling:**
At times, a simple random sample, particularly a small one, may by chance have undue proportion of one type of units in it and, therefore, it is necessary to make certain that the units included in the sample are selected in proportion to their occurrence in the population. When the units in a sample are proportional to their presence in the population, the sample is said to be stratified. Under this system, the universe is divided into a number of groups of strata. Then certain numbers of items are taken from each group on random basis.

There are different other types of sampling generally used in educational research. These are:

**Quota Sampling**
In this method, the entire data are divided into as many blocks. After that, the certain items are selected. This method allows freedom to the investigator.

**Multi-stage Sampling**
In this method, the items are selected in different stages at random. This method is applicable only where the universe is very large. In a sense, this method is a combination of random sampling and stratified sampling.
**Convenience Sampling**
In this method, the investigator selects certain items according to his/her convenience. No pre-planning is necessary for the selection of items. The method is applicable in those cases where the universe is not well defined, sampling unit is not clear and a complete source list is not available.

**Self-selected Sample.**
In this method, the investigator does not select the samples or units. The samples volunteer themselves for selection. This method is generally applied when the sampling is not fixed.

For the present study, the researcher had to choose a sample that is manageable. Yet it should be large enough to be dependable. It was also necessary to take into consideration the kind of respondents. The nature of study demanded inclusion of principals and teachers of the schools. Accordingly, the experts' advice was to choose about 30 schools 15 each from Silchar and New Delhi. There are in total 16 schools in Silchar. 15 are chosen for the study. This is almost the population itself. Choosing of sample in Delhi posed a different problem. The researcher had to choose 15 schools out of more than 1000 schools. It was decided to adopt stratified random sampling. In stratified sample, the universe is divided into a number of groups or strata. By this method, a representative character can be obtained. Replacement of an inaccessible case by an accessible case is easily possible. No significant or important group is left out. The method saves time and money, as most of the items or units can be geographically localized. For this study, in case of New Delhi, geographically, it is divided into five zone, i.e., north Delhi, south Delhi, East Delhi, west Delhi and Central Delhi. To begin with, the researcher selected representative samples from each stratum, i.e., from each zone on random basis. In addition, she considered another criteria in time of choosing educational institution, i.e., govt., non-govt., boys, girls, co-educational etc.

In case of Silchar town, though the town is small in comparison to New Delhi, out of 16 secondary schools the researcher selected 15 schools for her study.

Thirty schools were selected for the present study. The respondents were teachers and principals of the respective schools. Thus, the respondent sample comprised 30 principals from 30 schools and 20 teachers from each school, selected based on their age, subject specialisation, experience and gender. The total teacher-respondents were 586; they are
being 14 and 12 teachers as its full strength in two of the schools, where the entire faculty was taken in the sample. Thus with the sample-size of 30 schools, there were 616 respondents in the study.

3.5. Data Collection

Different types of tools were administered for data collection. These are-

**Questionnaire for principal** - This questionnaire was given to the principal of the institution. They were asked to check the tool for any needed clarification. Most of the participants preferred to take the tools with them for answering at leisure. They were reminded to send them back. The answered tools were collected from the participants.

**Questionnaire for teachers** - The researcher met the teachers of the selected schools. The questionnaires were administered in an informal set up during lunch break of the schools. An instruction was given by the researcher, such as: “Please do not brood over any item for long, respond quickly and record the first response that comes to your mind. Do not consult one another. You may or may not write your name, but be frank about your assessment on each item”.

The questionnaire evoked curiosity and queries from the teachers. Accordingly, the researcher clarified all the queries. Thereafter, the answered tools were collected from the teachers.

**School Information Blank** - The institutions’ heads were requested by the researcher to use the school official record in order to collect the data regarding the school.

3.5.1. Experiences During Data Collection

The overall experiences during data collection were sometimes introspective, sometimes interesting and at times, discouraging.

There were some provoking situations demanding serious introspection. Like a government school teacher commented: “In industry, if a worker works extra he gets either bonus or promotion, but in education, everything is time-bounded - so I will get my dues anyway, why should I make extra efforts?” An other teacher commented: “There is no reward for special effort. The government does not have any policy of achievement-oriented motivation package in schools; e.g. if a teacher achieves a particular target, than he or she will be awarded. If such
policies are implemented, I think efficiency will improve and automatically school qualities will also improve.”

There were other situations that were somewhat discouraging. The researcher observed that initially some government schools had no interest in these types of assessments. Also, when the researcher administered the questionnaire like School Information Blank, she experienced that the maximum school authorities were not interested in giving information like last five years’ class-wise transition rate etc., instead, all of them gave only the current data about the school.

3.5.2. Data Scoring and Coding

The data collected were coded and analysed manually with the help of scoring sheets.

- Scoring procedure for the first questionnaire, viz, the principal’s questionnaire was as follows:

There were seven sub-areas in the questionnaire, namely, Customer Orientation, Client Education, Satisfaction with Quality, Participation, Innovation, Parental involvement and Linkage with outside agencies and community. In order to ensure that the respondents’ answers actually represent an honest feedback, a number of questions were designed to elicit response in each area and there were scattered in the questionnaire. For example, in the sub-area of customer orientation, the question numbers 1, 11, 17, 23 and 30 were allotted. And the score of responses of all the five items can be summated in order to find the score of each particular sub-area. The items in the questionnaire can be responded on a five point scale, i.e.

4 points for Strongly Agree (SA)
3 points for Agree (A)
2 points for Not Sure (NS)
1 point for Disagree (DA)

(The Scoring Sheet is attached in the Appendix.)

- Scoring procedure for second questionnaire, i.e., the teacher’s questionnaire, was almost the same as in the principal’s questionnaire. In the teacher’s questionnaire, there are 11 sub-areas, and in each sub-area there are 10 questions, five are positively keyed and five are negatively keyed. And the sum of the
values of positively keyed items minus the values of negatively
texted items is the score of each sub-area. Respondents are
request for respond to each and every item by checking out one of
the five possible responses, namely, Very True (VT), Largely True
(LT), Partly True (PT), Not Sure (NS) and False (F). For the
purpose of scoring, a numerical value of 4 to 0 is attached to each
category of response.

- And the third questionnaire consists of factual information. So,
there is no need of any scoring.

3.6. Data Analysis

Both the questionnaires were quantitatively analysed. Basic statistics like
mean, standard deviation were calculated and t-tests carried out in order
to understand the mean difference of teachers’ perception of the
respective schools of Delhi and Silchar.

Each score sheet is illustrated through graphical presentation. in the next
chapter. The graphs categorically illustrate the strongest and the weakest
areas of the school and indicate their relative positions among each other.

For qualitative analysis, the third questionnaire, i.e., school information
blank is used. This questionnaire deals with factual information and data
on enrolment, performance in academic and co-curricular activities,
resources and facilities, staff strength etc.

Each sub area is tabulated and compared with one place to another.

The researcher’s observation regarding each school is given.

Further co-relation metrics is calculated to know the degree of internal
consistency of each variable measured by MIPQ.