CHAPTER - III

"RESEARCH DESIGN AND METHODOLOGY"

Research design is the third step of any scientific research. It is a mapping strategy, which is based on sampling technique. Also it is the statement of the object of the inquiry and how a satisfactory culmination to be effected. A research design is the work before getting the project underway.23

Meaning of Research Design:-

Research design is a choice of an investigator about the components of his project and development of certain components of the design.

Kerlinger asserts that research design has two basic purposes.24

1. To provide answers to research questions, and
2. To control the variance reduced to the simplest terms, "research design is a mapping strategy. It is essentially a statement of the object of the inquiry and the strategies for collecting the evidences, analyzing the evidences, and reporting the findings."25

23 Dr. R.A. Sharma Fundamental on Educational Research Page 116
24 Ibid Page 117
25 Ibid Page 117
Characteristics of this research design:-

Following are the characteristics of the research design for the present study being taken up by the researcher

1. It is kept free from bias to a maximum limit.
2. Effort is taken to maximize the reliability of the data collected and also analysis of it.
3. It provided much of the information and also an opportunity for considering the different problems.
4. This research design clearly states the kind of information relevant to the research problem.
5. It gives its own strategy in stating the approach which will be used for gathering as well as analyzing the data.
6. It is a well planned, properly timed and well budgeted research design.

In order to verify the hypothesis formulated and also to determine the appropriate or suitable method of solving the problem the researcher devised a research design for the study.

Need for Methodological Research Design:-

Just as for better, economical and attractive construction of a building an architect needs well thought out design or plan in advance, so too, about this study the researcher needed a research design or a plan in advance for data collection and analysis of the research project.

Simply, it can be stated that the research design was needed because it facilitated the smooth sailing of the various
research operations, thereby making research as efficient as possible guiding maximum information with the minimum of time, effort and money.

However researcher considered the need for methodologically designed research which is as stated below:

1. In research enquires the researcher has clear cut ideas regarding the accurate results of her study. The researcher also had an idea as to how much inaccuracy can be tolerated. Therefore, she has designed the entire research just to get assurance of useful results.

2. Research designing was also needed for advance planning of the methods to be adopted for collecting the relevant data and technique to be used in its analysis. This, however, was also done, keeping in view the objectives of the research as well as the availability of the time and money.

3. In this project, the time consumed in trying to ascertain what data means after they have been collected was much greater than the time taken to design a research whose meaning is known.

Finally it is stated that this research design helped the researcher to organize the ideas in such a way wherein it will be possible for the researcher to look for flaws and inadequacies.
Methodology of Research:-

"The systematic and scholarly application of the scientific method interpreted in its broader sense, to the solution of educational problems; conversely, any systematic study designed to promote the development of education as a science can be considered educational research."\(^{26}\)

"In education, teachers, administrators, or others engaged in ‘educational research’ when they systematically and purposefully assemble information about schools, school children, the social matrix in which a school or school system is determined, the characteristic of the learner or the interaction between the school and pupil."\(^{27}\)

Definitions of Educational Research:-

"Educational Research is the name for a type of procedure employed in answering thought answers, about education; that is questions for which answers must be manufactured by reflective thinking. This procedure is one in which the best data obtainable are used and the thinking is critical. At times a research worker may be concerned with fact questions answerable by routine clerical activities. If the answer to such questions are needed as a means of dealing with thought


\(^{27}\) Francis G. Cornell.
questions, such activities are a phase of ‘educational research’.

"Educational Research is that activity which is directed towards the development of science of behaviour in educational situations". 28

The Functions of Educational Research:-

The following are the main functions of educational research

1. To improve educational procedures through the refinement and extension of knowledge.
2. To aid to making a decision concerning the refinement or extension of knowledge in this particular area.
3. To develop effective techniques for teaching.
4. To aid educational administrators to improve the educational systems.

Types of Educational Research:-

There are different methodologies for research and these methods can be used according to the nature of the study. That the researcher takes up.

There is really speaking no absolute method by which research can be classified into mutually exclusive groups. But in practice, it is found that different researches do fall, into different types in terms of goals, search for data, interpretation, analysis, and area of application. Attempting to

28 Moroe and M.D. Engelhard
classify the educational research into various types, poses a
difficult problem. However, to systematize a method of
presentation, some pattern or the other is definitely desirable.

In fact, all researches involve an element of observation,
description and analysis of what happens under certain
circumstances generally, a rather three point analysis is used
to bring about and particularly, all studies fall under one or a
combination of the following types;

1. Historical research
2. Descriptive research or survey research.
3. Experimental research.

After a deep study of all the above methodologies of
research the researcher could very well select the
methodology for her research.
A short account on methodologies of research.

I. Historical Research:-
Descriptive "What was?" The process of research in this particular type of research involves investigating, recording, analyzing, and interpreting the events of the past for the purpose of discovering and generalizations that are helpful in understanding the past, understanding the present and to a limited extent, in anticipating the future.

II. Descriptive Research or Survey Research:-
This methodology of research describes "What is?" It involves the descriptive recording, analyzing and interpretation of conditions that exist. It also involves some type of comparison or contrast and attempts to discover relationships between existing non-manipulated variables.

III. Experimental Research:-
It describes, "What will be"? When certain variables are carefully controlled or manipulated, the focus is on variable relationships.

The researcher found the Normative Survey Method most applicable for her study. So she finally selected this particular methodology of research.

The Normative Survey Method:-
The word 'Survey' has been derived from the words 'sur' or 'sor' and 'veeir' or 'veior' which means 'over' and 'see' respectively. The term Normative actually implies the
determination of normal or typical conditions or practices. The term Normative Survey is generally used for the type of research that one intends to consider here i.e. the research, which proposes to ascertain what is the normal or typical condition or practice at the present time.

Normative survey research is thus directed towards ascertaining the prevailing conditions. It seeks to answer the question, “What are the real facts with regard to the existing conditions?”

This type of research is often called as Descriptive Research. **John Best** has preferred to use terms “Descriptive Research”, whereas in chapter V, Good prefers the term “Descriptive survey studies”.

The word Normative survey is applied in order to suggest the two closely related aspects of the study – “Survey” and “Normative”. The word survey indicates the gathering of the data regarding the current conditions and the word normative is used because surveys are frequently made for the purpose of ascertaining which is the normal or typical condition of practice.

“The survey is an important type of study, it must not be confused with the mere clerical routine of gathering and tabulating figures. It involves a clearly defined problem and defines objectives. It requires experts and imaginative planning, careful analysis and
interpretations of the data gathered and logical and skillful reporting of the findings"\textsuperscript{29}.

Importance of the Normative Survey Method: -

Every method of research has got its own importance. The normative – survey method has also got its own importance which enabled the researcher to select it as a method for her study. Following are some points of importance regarding normative survey method: -

1. It served as a stepping-stone to more precise investigations.

2. At its most elementary stage the survey was concerned with determining the immediate status of a given phenomenon.

3. Although the major purpose of Normative or Descriptive research in education is to tell “What is”, many surveys do not go beyond a mere description of the existing situation.

4. Normative type of survey was often carried out as a preliminary step, which is followed by research employing more vigorous, controlled and, objective methods.

5. It secured historical perspective through a series of cross-sectional pictures of similar conditions at different times.

\textsuperscript{29} Sukhia, Mehrotra – Elements of Educational Research (Allied publication Page 180)
6. Normative or Descriptive study served as a direct source of valuable knowledge concerning human behaviour.

7. It contributed to the advancement of knowledge in many ways.

8. Its purpose was to prepare a background for a constructive programme of educational research.

9. It suggested the course of future development and gave pertinent data to the planning for future.

   Normative Survey helps in planning various educational programmes. Keeping all the important aspects of Normative Survey Method in mind the researcher decided that it will be a suitable method for the purpose of this research and a critical study.

**Sampling:**

One of the most important problems relating to the practical formulation of research is concerned with the estimation of characteristics of universe or population and the method of selecting for studying a portion of the universe is known as sampling.

"In the social sciences, it is not possible to collect data from every respondent relevant to our study but only from some fractional part of the respondents. The
process of selecting the fractional part is called as sampling”\textsuperscript{30}.

David S. Fox.

Need for Sampling:-

1. It was difficult for the researcher to include all the teachers teaching at English medium school to primary level of Aurangabad District, therefore a small population of the total was taken as a sample. The reasons for taking sample by the researcher was as follows:-
   a) It saved time
   b) It was less expensive.
   c) It was manageable.

2. Sampling Size:-

   In this study the researcher wanted to increase the precision of the results and one way to do this was to increase the size of the sample. A larger but manageable size of the sample was taken. The researcher gave more importance on precision as a factor rather than a very large and unmanageable size.

   The sample used in this study was selected to make representation to the population. The size of sample was determined by the researcher after defining the population.

Out of this population, about 225 teachers were taken as a sample from English medium schools of Aurangabad District.

**Selection of population and sample:**

A population is any group of individuals that has one or more characteristics in common which are of interest to the researcher. The population may be all the individuals of a particular type or a more restricted part of that group.

"A population may be defined as any identifiable group of individuals or as any collection or any aggregate of comparable measure".

"Population may be either finite or infinite, real or hypothetical. A finite population is one all members of which may be counted. An infinite population is one of unlimited size"31.

A real population is that which actually exists. A hypothetical population is one that exists only in the imagination. Many of the populations involved in educational research are hypothetical; that is why, in some instances we may wish to select a sample from a real population but find it impracticable to secure an unbiased sample from that population. In that case we may use the sample that is available to us to 'construct' a hypothetical population from

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which the given sample might have been drawn at random and restrict our generalization to the hypothetical population.

A sample is a small proportion of a population selected for analysis. By observing the sample, certain inferences may be made about the population contrary to popular opinion; samples are not selected haphazardly, but deliberately, so that the influence of chance or probability can be eliminated.

‘During recent years sampling has been increasingly used in education to ascertain information necessary in answering certain questions about a specific population’.

**Types of Sampling:-**

There are several types of sampling procedures to obtain a sample representative some main techniques have been devised random, incidental, purposive, stratified, stratified random sampling.  

1. **Random Sampling:-**

   This form of device is one in which every single unit of the population has an equal chance of being selected. A random sample is drawn unit by unit. The population is numbered from 1 to N and a series of random numbers is drawn either by means of a table of random numbers. “A random sample is one selected in such a fashion that every member of the population has an equal chance to be selected.

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32 E.F. Lindquist “Statistical Analysis in Educational Research (Page2)
This means that each member must be selected independently of all others.”

It is useful also to think of a random sample as one so drawn that all other possible combinations of an equal number, of members from the population has an equal chance to constitute the sample drawn.

2. Incidental Sampling:-

Incidental or sometimes called accidental sampling is a term, which is applied when such groups are used as samples as easily available eg. Children in a school, or orphanage or a reformatory, students enrolled in particular classes etc. The number and conditions of these groups are not chosen specifically for the purpose.

Such groups are poor samples of any definable population and adequate generalizations can hardly be based upon such data.

3. Purposive sampling:-

As different from incidental sampling, purposive sampling is the device which selects a particular group or category from the population to constitute the sample because this category is considered to be a mirror of the whole with reference to the characteristic in question, for example, purposive sampling is used when the selected sample is constituted of all the newspaper editors of an area. In this type

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of selection the sample is restricted to unit considered by some one to be especially typical of the population.

4. Stratified or Quota Sampling:-

A modified form of random sampling, stratified or quota sampling. Sometimes, called controlled sampling, is a device which ensures representativeness in selecting a sample from a population composed of sub-groups or strata of different sizes. A good sample from such a population needs to contain individuals drawn from each category in accordance with the size of the sub-groups and within each subgroup the sampling is random.

In stratified sampling, the population of N units is first divided into different strata - N1, N ...... units respectively and then a sample is drawn from such stratum. The sample size within the strata are devoted by n1, n2 ... respectively.

5. Stratified Random Sampling:-

At times a simple random sample, particularly a small one, may by chance have an 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. The population is divided into a number of strata or sub groups and a sample is drawn from each stratum34.

34 Sukhiya Mehrotra, Op, cit P-195.
These sub-samples make up the final sample of the study. It is defined as, "the method involving dividing the population in homogenous strata and then selecting simple random samples from each of the stratum".

Sample in this Research:-

Stratified random sampling method is employed by the Researcher for the present study to determine the sample. There are about 92 primary schools of English medium in Aurangabad District. Approximate no. of teachers working in these schools is 577 and it can be considered as a population for this research. Out of this population round about 48 schools were taken up for the study and 225 teachers were selected randomly as a sample. The sample consisted of different categories of teacher like-female teachers of urban area (141), male teachers of urban area (48) female teachers of rural area (26) and Male Teachers of Rural Area (10).

Tool:-

There are several standardized tests available for testing teaching effectiveness but the researcher selected the present scale i.e. Kulsum Teacher Effectiveness scale prepared by Dr. (Mrs.) Umme Kulsum, Lecturer, Department of Education Bangalore University, Bangalore.

The researcher selected this scale because it is constructed on the lines of the self-anchoring striving scale of Kilpatrick and Cantril (1960).

**Description of the Scale:**

Kulsum Teacher Effectiveness Scale (KTES) in its format more or less corresponded to the one developed by Muthayya (1971). The rationale behind choosing the self-anchoring striving scale technique for the purpose of the present study was as follows

1. Investigator (Researcher) successfully used the scale to assess the general as well as the educational aspirations.

2. Conceptualization of the top and bottom anchoring points with the help of the picture of a ladder was quite familiar to the teachers, was thought to be such easier and meaningful.

3. The self-anchoring striving scale based on the first person approach was thought to be more empirical.

4. The scale did not involve 'rigidity, pre-defined dimensions, verbal categories, prepared phrases or sentences... and the like' as outlined by the originators of the scale.

5. The data collected through the scale are psychologically as well as directly comparable i.e. the scale level selected by one person or a group (average of selections) can be specifically meaningfully said to be
higher, lower or equal to the scale level of some other individual or group because the frames of reference of the replies would in fact be similar psychologically.

6. The fact that this scale would be easily understood by the teachers and their effectiveness would be elicited accordingly, was realized to be true in the subsequent try-out of the scale.

Areas of the Scale:-

The scale consisted of five areas which were finalized after exhaustive review and consultation by the investigator. The five areas were, namely;

1. Preparation and planning for teaching.
2. Classroom management, discipline, motivation, interaction, evaluation.
3. Knowledge of subject matter its delivery and presentation including Black Board summary.
4. Personality characteristics of teachers, and
5. Interpersonal relations of teachers with others.

The above five areas cover all aspects of teacher's functions and hence have the merit of adequate conceptual framework and content validity. A brief description of each of these areas is given below:–

A) Preparation and Planning for Teaching:-

This area includes statements pertaining to the ability of the teacher in preparing, planning, and organizing for teaching
in accordance with the course objectives by using different source material.

B) Classroom Management:-

This area includes statements pertaining to the ability of the teacher to successfully communicate, motivate the students and evaluate the teaching – learning process and also to maintain discipline in the classroom within the framework of democratic set-up.

C) Knowledge of Subject Matter, its Delivery and Presentation including Black Board Summary:-

This area includes statement on the ability of the teacher in acquiring, retaining, interpreting and making use of the contents of the subject he/she is dealing within the classroom situations. Delivery of course contents, and its presentation including Black Board Summary constitute essential aspect of the teaching-learning process.

D) Teacher Characteristics:-

This area includes statements pertaining to the personality make-up and its behavioral manifestations that have their own level of acceptability or unacceptability in the teaching profession. Ability to arouse, ‘ A Perceptive Mass’ and seeking active participation of pupils constitute essential demand characteristics of effective teacher.
E) Interpersonal Relations:-

The ability of the teacher to adopt himself / herself to maintain cordial relations with his/her colleagues, pupils, their parents and other persons in the community with whom he/she is to interact as part and parcel of his/her profession form the basis to have statements pertaining to this area.

Administration of the Test:-

As per the manual of the test (KTES) it was administered on the teachers and the H.M's teaching to primary level in English medium schools of Aurangabad District. The researcher personally visited the schools as listed in the following pages and administered the test on the teachers.

Table showing total number of items with their serial numbers and their distribution over different areas/dimension in the final scale after item analysis

<table>
<thead>
<tr>
<th>Areas / Dimension</th>
<th>Serial Numbers of items in the Final Scale</th>
<th>Total No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Preparation and</td>
<td>2, 6, 11, 23, 27, 33, 37, 44, 49, 54, 58</td>
<td>11</td>
</tr>
<tr>
<td>planning for teaching.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B  Classroom Management</td>
<td>3,7,12,16,20,24,28,8,45,50,51,55,56,59</td>
<td>14</td>
</tr>
<tr>
<td>C  Knowledge of Subject</td>
<td>1, 8, 14, 17, 29, 39, 46</td>
<td>07</td>
</tr>
<tr>
<td>Matter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D  Teacher Characteristics</td>
<td>4, 9, 13, 18, 21, 25, 30, 31, 34, 35, 36, 40, 41, 47, 48, 52, 57</td>
<td>17</td>
</tr>
<tr>
<td>E  Interpersonal Relations</td>
<td>5, 10, 15, 19, 22, 26, 32, 42, 43, 53, 60</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>
The researcher acquainted herself very well with the test by going through the test manual, which contained certain instructions.

**Instructions for Administering the Scale:-**

The scale is self-administrable to ensure careful understanding of the instructions, proper instructions need to be given by the tester besides the individual reading them.

There was no time limit and no right or wrong responses. Hence the teachers were quite free to express their responses.

**Scoring of items:-**

Each item elicits two responses; (1) step number on now, and (2) step number aspiring to attain in the next three years. The time dimension of the next three years was to score as a frame of reference for the 'now' (present) effectiveness, hence the step number given for each item for present time was taken as the score of the effectiveness of each of the respondent teacher. Total score of the respondent ranges from 0 to 600.
List of English Medium Primary Schools in Sample for the Present Study:-

2. St. Frances De Sales English Primary School.
3. Little Flower English Primary School.
5. St. Lawrence English Primary School.
6. St. John’s English Primary School, Jalgaon Road, Aurangabad.
7. St. John’s English Primary School, Paithan Road, Aurangabad.
12. Kendriya Vidyalaya
19. Foster English Primary School.
22. Little Star English School.
25. Talat English Primary School.
27. Oxford Public School.
29. P.D.M. Jain English Primary School.
31. Shining Star English Primary School.
32. Milind English Primary School.
33. Prime Star English Primary School.
34. New English Primary School, Daultabad.
36. St. Mary’s English Primary School. Lasur Station, Gangapur.
37. The Diosis English Primary School, Lasur Station, Gangapur.
38. St. Monica English Primary School, Vaijapur.