CHAPTER III
DESIGN & METHODOLOGY
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Research Design is basically the design of the research project, or we can say it is an arrangement of defining the research problem in manner of what, when, where, how much and by what means that focuses to answer the research questions. In other words, a research design is the organization, collection and analysis of data in such a manner that aims to define and establish the importance of research work. It is a conceptual framework or blueprint that provides standards of conducting research that involves collection, analysis and interpretation of data. In fact, it sets the guidelines what a researcher has to do right from formulation of the objectives till the final analysis, interpretation and conclusion of the research work. The basic steps of research design are as follows:

(1) What the research is about?
(2) Why is the research being made?
(3) Where will the research be carried out?
(4) What type of data is required?
(5) Where can the required data be found?
(6) What time period will the research include?
(7) What will be the sample design?
(8) What techniques of data collection will be used?
(9) How will the data be analyzed?
(10) In what style will the report be prepared?

Research methodology is a method to solve the research problem systematically. It is a science of studying how research can be conducted scientifically. In this, we can study the various steps that are mostly adopted by the researcher in studying his/her research problem along with the logic behind them. It is important for the researcher to know research method/technique along with the methodology. Researchers should know how to develop certain tests, how to apply statistical and research techniques. Not only this, but he/she should also know which of these methods or techniques, are relevant and which are not, and what they intend to imply and why. Therefore, it is
necessary for the researcher to design his methodology for his problem in such a manner that it clearly and precisely specifies his decisions to select them so that they can be understood and evaluated by others also.

The present chapter describes the design and methodology of the study. It highlights the details of the research process being followed in conducting the research. It is necessary to carry out the research study in a planned and systematic manner so as to derive accurate results. This chapter includes information regarding the population, the sample, tools used, nature and form of data, techniques used in collecting data and statistical techniques used for analyzing data.

The present study is a type of Descriptive study. **Descriptive Research** is a study designed to represent the participants or individuals in an accurate way. In simple words, descriptive research describes the individuals who participate in the study. There are three methods of doing a descriptive research and are as follows:

i) **Observational:** It is a method of observation and recording of the information about the participants.

ii) **Case Study:** It is an in-depth study of an individual or a group.

iii) **Survey:** It is a brief discussion or interview about a particular topic.

Observational and survey methods are used for collection of data for the present study. It is an exploratory type of research, which is both qualitative and quantitative in nature. The researcher used exploratory method with an objective of expanding the understanding of the topic, providing insights and possible explanations and discovering future research works. Qualitative research is concerned with qualitative phenomenon, that is, phenomena relating to or involving quality or kind or we can say non-numerical observations. Such research is especially important in the behavioral sciences where the aim is to discover the underlying meanings of human behavior. Through qualitative research we can analyze the various factors which motivate people to behave in a particular manner or which can make people like or dislike a particular thing (Kothari, 2004)

The following plan has been followed in order to answer the research questions and to achieve the objectives of the present study:
3.1 POPULATION AND SAMPLE

To study the entire population in a single research study is not possible practically. So, sample is studied instead of population to make some inferences about the population. All the items under consideration in any field of inquiry constitute a ‘universe’ or ‘population’. A population can be understood as a total of a particular characteristic for any specified group of individuals. In statistical terms, it can be defined as any well specified and identifiable group of individuals. A population can also be real or imaginary. A real population can be understood as the one that exists in reality while an imaginary population is the one that exists only in imagination. A population can also be finite and infinite. A finite population is the one in which the individuals can be easily counted whereas an infinite population is the one which is unlimited and hence cannot be counted. In a general sense, it is not possible to study the entire population and there are two common reasons for it: i) as the population is very large, it is not possible to study the whole population in a single research study ii) when it is possible to acquire dependable results in studying a small portion of population i.e., sample, then there is no use of wasting time, money and energy in studying the entire population.

A sample may be defined as any selected number of individuals from a population (Singh, 2010). Generally, the process of sampling refers to the method of selecting a small part or specimen of a large population or universe of individuals. So, it can be said that sampling is a method of determining how many individuals or elements are to be sampled and how they are to be selected as sampling is one of the most fundamental aspects of the methodology followed in any research study.
Details of the sample:

The population of the study consists of all the Principals and Teachers of all the government and private schools of western Uttar Pradesh. The sample consists of 731 Teachers and 60 Principals from the 42 schools of the four districts of western Uttar Pradesh, namely Aligarh, Etawah, Hathras and Muzaffarnagar which includes both the Private and Government schools. For collecting data, purposive sampling method is used. Purposive sampling is mostly used in qualitative research and this technique helps the researchers to carefully identify subjects according to their research’s purpose with an expectation that each participant can provide unique and rich information valuable for their study.

The details regarding the sample are herewith depicted in the form of tables:

**TABLE 3.1: SAMPLE OF PRINCIPALS (DISTRICT WISE)**

<table>
<thead>
<tr>
<th>No. of Principals</th>
<th>Aligarh</th>
<th>Etawah</th>
<th>Hathras</th>
<th>Muzaffarnagar</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>15</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>7</td>
<td>12</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.1 represents the district wise distribution of Principals taken in the sample. A total sample of 60 Principals was taken from the western Uttar Pradesh. 32 Principals and Vice- Principals/Head-Master/Head-Mistress were taken from Aligarh district in which 17 principals belong to private schools and 15 principals belongs to government schools. Similarly, 07 were taken from the district of Etawah out of which 02 were private and 05 were government school principals. From Hathras, 12 principals were taken out of which 9 were private and 3 from government schools. Sample from Muzaffarnagar consists of an aggregate of 9 principals with 5 and 4 as private and government school principals respectively.
### TABLE 3.2: SAMPLE OF TEACHERS (DISTRICT WISE)

<table>
<thead>
<tr>
<th>No. of Teachers</th>
<th>Aligarh</th>
<th>Etawah</th>
<th>Hathras</th>
<th>Muzaffarnagar</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pvt.</td>
<td>212</td>
<td>161</td>
<td>10</td>
<td>42</td>
<td>731</td>
</tr>
<tr>
<td>Govt.</td>
<td>129</td>
<td>49</td>
<td>50</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>341</td>
<td>210</td>
<td>60</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

Out of 731 teachers, 341 belongs to Aligarh out of which 212 are from private and 129 are from government schools. Similarly, 210 teachers are from Etawah, out of which 161 are from private and 49 are from government schools. Out of 60 teachers of Hathras, 10 belongs to private and 50 belongs to government schools. In the same way, out of 120 teachers of Muzaffarnagar, 42 and 78 belongs to private and government schools respectively.

### TABLE 3.3: SAMPLE REGARDING TYPE OF SCHOOLS

<table>
<thead>
<tr>
<th>Name of the District</th>
<th>Name of the School</th>
<th>Type of the School</th>
<th>No. of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aligarh</td>
<td>1. Aligarh Public School</td>
<td>Private</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>2. Range Hills Sr. Sec. School</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>3. Brilliant Public School</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>4. Dharam Samaj Bal Mandir</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>5. Shantiniketan World School</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>6. Ayesha Tarin Modern Public School</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>7. Heritage International School</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>8. Raghubeer Bal Mandir</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>9. Saraswati Vidya Mandir</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>10. Zakir Hussain Public School</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>11. Woodbine Floret Public School</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>12. Teeka Ram Girls High School</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>13. Government Girls Inter College</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>14. Chiranjeelal BalikaVidyalaya</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>15. Raghuvir Sahay Inter College</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>16. Heeralal Barahsain Inter College</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>17. Gopi Ram Paliwal Inter College</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>18. S.M.B. Inter College</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>
Table 3.3 represents the Private and Government schools of the four districts taken as sample from the Western Uttar Pradesh with their school codes allotted by the researcher herself for the easy interpretation of the data.

### 3.2 DEVELOPMENT OF RESEARCH TOOLS

As there was no suitable tool available for collecting the required information for the present study, the researcher herself developed three tools for the acquisition of the data. Initially, five tests were made by the researcher but afterwards they were merged in three tests. A pilot survey was conducted on 4 schools and 100 teachers of Aligarh district. Pilot survey was conducted to get essential information about the actual field settings and for checking the weaknesses of the tools.

The following three tools were used by the researcher for data collection:
1) Information Schedule to assess the implementation of Right to Education Act, 2009 (for Principals/ Head Masters/ Administrators)

2) Information Schedule for Teachers

3) Observation Schedule for Researcher

A brief description of the tools is given below:

1) Information Schedule for Principals/ Head Masters/ Administrators:

In order to assess the implementation of Right to Education Act, 2009 the guidelines of Right to Education Act, 2009 were thoroughly read and understood by the researcher. The statements were framed accordingly and then experts’ opinions were taken and then items were made accordingly.

Seven categories were made in the tool according to the guidelines of the Right to Education Act, 2009. The first category was regarding personal information of the respondents which includes the name, experience and qualification of the respondent. Respondents were assured by the researcher for keeping their information strictly confidential and used only for research purpose. It consists of 5 items. In second category 6 items were framed which seek information about level, nature etc. of the School. To check the awareness level of the respondents about the RTE (2009), third category was framed of 3 items. Fourth category was comprised of 7 items about the management and administrative policies. It tends to elicit the information about the admission process and the provisions that are followed. Fifth category consists of 6 items related with teacher’s eligibility criteria and their teaching whereas 13 items related with the curriculum are included in the sixth category. The last i.e. seventh category included 8 items about the functions of the School Management Committees. In the end there is an open-ended question which seeks suggestions for the effective implementation of RTE. Useful suggestions given by the experts was incorporated. The tools were then modified and discussed with the experts again.

Validity

In the words of Anastasi (1968:99), “The validity of a test concerns what the test measures and how well it does so.” Validity is the utmost criteria for the effective usage of the test. A test is said to be valid if it collects the same information that it claims to measure. For establishing the content validity of the tool, it was checked by the supervisor and experts from Aligarh Muslim University (Aligarh), National
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University of Educational Planning and Administration (Delhi) and National Council of Educational Research and Training (Delhi). In the opinion of all the experts, this tool has high content validity.

Reliability

According to Anastasi & Urbina (1997:85), “Reliability refers to the consistency of scores obtained by the same individuals when re-examined with test on different occasions, or with different sets of equivalent items, or under other variable examining conditions.” In other words, reliability is the reproducibility of the scores. For estimating the reliability of the tool, test-retest method of reliability was used by the researcher.

In the test-retest reliability, the same test has to be administered twice on the same respondents with a reasonable time gap. After 3 months, the researcher administered the tool again on the same respondents. Then the responses given by the respondents in the second administration of the same test were compared with the responses given in the first administration of the test and then correlation was calculated. Reliability of the test is calculated by using Cronbach’s Alpha and that was found to be 0.71.

Scoring

The items are of different nature and have different number of responses so scoring was done accordingly. Some items have two options and some have three and some are open ended and in some respondents only have to tick on the relevant statement. Coding was given to the responses and then the data was analyzed by using the SPSS software.

2) Information Schedule for Teachers

Almost same items are included in this Information Schedule meant for teachers as were in the Information Schedule meant for principals. Same steps were followed in the construction of this Information Schedule also as were used in the Information Schedule meant for principals. Validity and reliability were also established in the same way.
Validity

This Information Schedule was also checked by the same reviewers and some of them were modified according to their suggestions. According to the expert judgment of all the reviewers, this tool has high content validity.

Reliability

For the Information Schedule of Teachers also the reliability of the test was found by using test-retest method of reliability. The reliability was found as 0.84 which is quite high, by using Cronbach’s Alpha. Scoring and coding of the responses were also done by the same method as was done for the Information Schedule which was meant for Principals.

Scoring

The scoring of the items was done in the same way as for the Information Schedule meant for Principals. The items of the schedule are of different nature and have different number of responses. The respondents were asked to tick mark the item that they find as most suitable in their opinion.

3) Observation Schedule for Researcher

In order to observe the functioning of the school in accordance with the norms of the Right to Education Act, 2009 an Observation Schedule was constructed by the researcher which consists of only two categories, one is, information about the school and second, information about the infrastructure. The first category consists of 4 items about the name, address, district and location of the School. The second category consists of the information regarding the infrastructure of the School with 16 items. The last item is open-ended regarding the specific comments of the observer for the causes of the non-implementation of RTE.

Observation is that technique of data collection which involves observation of behaviour of other people without manipulating and controlling it. This also involves recording of the findings in such a way that allows analytical interpretation and discussion on it. In the words of Kothari (2004), in social sciences, mainly the observation is of two types-

i) Participant Observation- If the observer makes observation by making himself a participant or we can say, a member of the group he is observing so
that he can experience what the group members’ experience, then this type of observation is termed as the participant observation.

ii) **Non-participant Observation**- When the observer makes observation without participating in the group and without any attempt on his part to experience through participation what others feel, the observation of this type is known as non-participant observation.

According to Singh, A.K. (2010) observation technique involves the following features:

1. A person’s behaviour is studied in a natural and social context is observation i.e. observation usually occurs in natural settings although it can also be used in contrived settings of laboratory experiments and simulations.
2. Observation captures those significant occurrences or events that affect the relations among people being studied.
3. Observation also identifies important recurrences and regularities in social life by comparing and contrasting the data obtained in any specific study with those obtained in the study of various natural settings.

The Observation Schedule was filled by the researcher herself after observing the infrastructure, pupil-teacher ratio, enrollment etc. of the schools. According to the need, short conversations were also made from the various employees of the school and based on researcher’s observations, specific points of consideration were noted by the researcher.

### 3.3 COLLECTION OF DATA

Data was collected by using two information schedules made separately for the Principal and Teachers (as shown in appendices A & B). A permission letter for visiting various schools was requested by the researcher to the Chairman of the department and accordingly it was issued by the Chairman of the Department of Education. The researcher along with that permission letter visited the schools and completed process of data in collection in about ten months (November 2014- August 2015) took the consent of the school authorities. The researcher met with the respondents in each school and then they were explained clearly the purpose of data collection. They were also assured of the confidentiality of their responses and that the results extracted out of their responses would be used for the research work only. Then they were given the tools to be filled by them on their own. Any queries raised
by the respondents were clarified by the researcher to elicit useful information from them.

**Ethical Considerations**

All ethical issues were kept in consideration while conducting the research. A prior permission was taken from the school authorities for collection of the data which was used for research work. The personal identity of every respondent was kept confidential along with the name of the school. The following ethical guidelines for the research study were followed:

i) Sharing the motive of the research with all the people concerned.

ii) Taking consent from all the participants of research study.

iii) Conducting research work without harming anyone’s emotions.

iv) Maintaining the anonymity of the respondents.

**3.4 ANALYSIS OF DATA**

The analysis of data involves organizing the data, sequencing, breaking them into manageable units, searching the patterns, discovering the important material. The collected questionnaires were then checked in the field itself to ensure the comprehensibility, completeness and consistency of the responses. Then the data entry of collected questionnaires was done with the help of MS Excel and SPSS (Software Package for Social Sciences ver. 17.0). The coding and initial headings were written and entered in the Excel. For estimating the reliability of the test, SPSS was used.

According to the objectives of the study, tabulation plan was prepared and graphical representation was done based on the responses. Both qualitative and quantitative questions were evaluated. Further, data was analyzed by using percentage to get suitable results.

**Statistical techniques for analyzing data**

The statistical techniques used for analyzing data are given as under:

1. Frequencies/Percentages

2. Graphical representation

3. t-test