Chapter 3 : Methodology and Design of the study

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3.0.0 Introduction

In the previous chapter, the importance of review of related literature, the review of the past researches along with the historical background, the analysis of findings, the research gap and the rationale of the study were discussed at length.

After finding the research gap, the methodology and the design of the study is discussed in this chapter. This chapter deals with the origin of the problem, population, the sample, the tools and classification of data along with its analysis.

3.1.0 Origin of the problem

Education plays an integral part in the overall development of a personality. Moreover, education is a much needed critical input in human resource development that is essential for the country’s economic growth. It is also accepted that, education plays a vital role for advancement of a country.

Education begins from the birth and it continues for a life time by learning from informal, formal and non formal situations. Primary education forms the foundation of students’ life & plays a significant role in molding their future.

According to Mahatma Gandhiji -

• “Education is an all round development of mind, body and soul”\(^1\).

• “Education is a process of comprehensive development of the best things (points, parts) lying in the mind and soul of children or men and bringing them out”\(^2\).

• “The ordinary meaning of education is knowledge of letters. To teach boys reading, writing and arithmetic is called primary education”\(^3\).

According to Swami Vivekanad -

• “Education is the manifestation of the perfection already in man”\(^4\).

• “The basic purpose of education is the total development of human personality including intellectual and moral development”\(^5\).
According to Shri Aurobindo –

- “The true basis of education is the study of the human mind, infant, adolescent and adult”\(^6\).

According to Rabindranath Tagore -

- “The highest education is that which does not merely give us information but makes our life harmony with all existence”\(^7\).

With a view to cover the above concepts of education, goals were defined under Universalization of Elementary Education (UEE). Main goals were – Universalization of Entrance availability, Universal Enrollment, Universal Retention and Qualitative Education to all Primary students.

In accordance with the Constitutional commitment to ensure free and compulsory education to all children up to the age group of 14 years, provision of universal elementary education has been a salient feature of national policy since independence.

The government has come up with unique steps to make primary education compulsory to all. Presently, Right to Education Act, 2009\(^8\) has been enacted and implemented countrywide to achieve these goals.

A number of schemes and programs were launched in pursuance of the emphasis embodied in the National Policy of Education (NPE - 1986) and Program of Action (POA - 1992) as – Operation Blackboard (OB - 1988), Non Formal Education (NFE – 1977-78), Teacher Education (TE - 1987), Mahila Samakhya (MS - 1989), National program of nutritional support to primary education (MDM - 1995), District Primary Education Program (DPEP - 1994) and state specific basic or need based educational projects.

Central level agencies like MHRD, NCERT, NCTE & RIE and state level agencies like State Council of Educational Research and Training, Sarva Shiksha Abhiyan Mission, Directorate of Primary Education, Text Book Board are striving for adopting new trends, innovations, various techniques & methodologies, teaching learning materials, tools along with necessary infrastructural facilities at school level, in the primary and upper primary education, to achieve the goals of UEE. The Gujarat government and other governments in the Country have put many efforts to achieve the goals of universalization of elementary education.
One can say that, the country has made impressive achievement in the elementary education sector; But still, there are some problems related to drop-out rate, low levels of learning achievement, low participation of girls, tribal & other disadvantage groups, inadequate school infrastructure, poorly functioning schools, teacher absenteeism, teacher vacancies, quality of education and inadequate funds.

So, the Country is yet to achieve the elusive goals of universalization of elementary education (UEE), which means cent percent enrollment, retention of children with schooling facilities in all habitations and quality education too.

Social justice and equity are by themselves a strong argument for providing basic education for all. It is a fact that, basic education improves the level of human well-being especially with regard to life expectancy, infant mortality, nutritional status of children ...etc. Studies like – “Education quality and economic growth”, “Education and economic growth: from 19th to 21st century” and “Education and economic growth” have shown that universal basic education significantly contributes to economic growth.

Consequent to several efforts, India has made enormous progress in terms of increase in institutions, teachers and students in elementary education. To scale the level of Gujarat in elementary education with its neighboring state – Maharashtra, this study is carried out. The proposed study aims at covering multiple educational variables for Gujarat and Maharashtra. This will give indication to frame educational policy in more desirable manner.

### 3.2.0 Population

Various definitions of population are –

- The set of individuals, items, or data from which a statistical sample is taken called population or universe.

- A group of individuals of the same species occupying a particular geographic area considered as population.

- Statisticians define a population as the entire pool from which a statistical sample is drawn.
The “population” in statistics includes all members of a defined group that we are studying or collecting information on for data driven decisions & a part of the population is called a sample. It is a proportion of the population, a slice of it, a part of it and all its characteristics.

In our Country, there are total 28 states and 07 union territories. Out of this, elementary education of all the states of the country is considered as population for the proposed study. Elementary education comprises of variables related to districts, blocks, clusters, population, literacy rate, school, enrollment, achievement, teacher and other miscellaneous features.

3.3.0 Sample

A sample is a scientifically drawn group that actually possesses the same characteristics as the population.

Population is any set of people or events from which the sample is selected and to which the study results will generalize. A sample is a group of people or events drawn from a population.

Population is a complete set of elements (persons or objects), that possess some common characteristic defined by the sampling criteria established by the researcher & Sample is the selected elements (people or objects) chosen for participation in a study.

Sometimes, a study involves the entire population of interest, but more often it involves only a small portion of the students, employees, families, schools, communities, or other “units of analysis.” Sampling serves three purposes:

- It reduces the costs and time required to do the research;
- It often improves the quality of information by allowing more intensive data collection than would otherwise be possible; and
- It reduces the burden on respondents.

A research study is carried out on a sample drawn systematically from a population. The goal is to be able to find out true facts about the sample that will also be true for the population. In order to the sample for truly reflection of the population, you need to have a sample that is representative of the population.
Sample is a smaller representative of a larger or whole population. A good sample is representative of all characteristics and sufficient in size to ensure reliable results. The purpose of sampling is to enable researchers to estimate unknown characteristics of the population.

Methods of selecting sample are mainly divided into two types as – probability sampling and non-probability sampling. Probability sampling is based on the theory of probability which implies that, each member of defined population has an equal and independent chance of being selected for the sample; But in case of non-probability sampling, selection of members of a defined population depends upon the judgment of the researcher. There is no sound theoretical basis, rather human judgment plays significant role in selecting a sample arbitrarily. Incidental sampling, Purposive sampling and Quota sampling come under non-probability sampling.

In the present study, out of 28 states of the country, Gujarat state and its neighboring states were selected as a sample for the study. There were four neighboring states namely Gujarat, Madhya Pradesh, Maharashtra and Rajasthan. At the time of proposal, elementary education in Gujarat comprises of education imparted to class of standard I to standard VII.

Here, the selection of sample was done by purposive sampling technique. So the states which were having same pattern of elementary education considered as a sample for the study. Although, Gujarat and Maharashtra were having same pattern of elementary education. i.e. elementary education in standard I to VII, while Madhya Pradesh and Rajasthan were having elementary pattern in standard I to VIII. (At the time of submission of research report, the patterns have changed.)

A non formal interview was done with A. C. Mehta, NUEPA, New Delhi at the time of proposal to determine the status of elementary education in the neighboring states of Gujarat. After the discussion, it was decided to consider Maharashtra as the neighboring state of Gujarat because; it had the same pattern of elementary education. Another meeting with A. C. Mehta was done in April, 2011 during the pilot study of Gujarat on data capture format for standalone institute under All India Survey of Higher Education. The discussion on study took place.
Different variables related to elementary education were examined. The growth and development of selected variables of Gujarat and Maharashtra were studied.

Moreover, the trend of enrollment of students, educational achievement, teacher position and their qualifications, school condition and infrastructural facilities & other miscellaneous like schools, classroom, teachers, students related variables were determined under this study. Hence, the variables were selected by stratified randomized technique.

### 3.4.0 Research Method

The present study deals with the various facilities available in the states of India. The study was aimed to find out present status of elementary education of Gujarat and its neighboring state, Maharashtra. The survey method provides the present status of the situation. In such situation, survey method particularly documentary survey method was used to study the problem.

### 3.5.0 Tools

This study was a documentary survey type study. The study examined status, growth, development, rank, trend and rate of trend (increasing or decreasing) for schools, students and teacher related variables of Gujarat and its neighboring state, Maharashtra.

Selecting of appropriate research tools is the most important & also difficult under the research methodology. Research tools possess unique characteristics and the researcher should be familiar with the data gathering tools. Commonly used tools in the field of educational researches are –

- Observation
- Interview
- Sociometry
- Psychological tests
- Inquiry forms

For the present research, schedules and records were found to be the best tools for data collection. Moreover, interviews and visits were used during the study.
3.6.0 Collection of data

As we know that, collection of data is most important stage for any study. In the proposed study, the relevant data was collected mainly from primary source which included “State Report Card”, NUEPA, New Delhi document of elementary education in India\(^\text{12}\).

The information collected from the state report card of Gujarat and Maharashtra for the last five years, i.e. data for the years 2003-04, 2004-05, 2005-06, 2006-07, 2007-08 were collected from the “state report card” of respective states.

3.7.0 Classification and analysis of data

Most of the data were quantitative in nature. The aim of the research was to compare the status of Gujarat and its neighboring states. For that, average, percentage, ratio, rank and rate were computed by using MS Excel. To make comparison more fruitful and to make more simple to understand for common man, graphs were plotted for visual analysis.

Statistical analysis can be fairly concerned. However, there are some common mathematical techniques that can make our data more understandable called descriptive statistics. It helps to describe raw data in-

- Frequencies or numerical counts
- Percentage
- Measures of central tendency (mean)
- Measures of variability (range)

The data collected from the “State Report Card” of Gujarat and its neighboring state, Maharashtra for 53 different variables categorized into 08 main categories for the years 2003-04, 2004-05, 2005-06, 2006-07, and 2007-08. The detail is as stated as under.

<table>
<thead>
<tr>
<th>Main Categories</th>
<th>No. of Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>10</td>
</tr>
<tr>
<td>School</td>
<td>03</td>
</tr>
<tr>
<td>Enrollment</td>
<td>07</td>
</tr>
<tr>
<td>Achievement</td>
<td>08</td>
</tr>
</tbody>
</table>
Tables were formed and related data were entered using MS Excel. To compare the data, various techniques were available. Here, descriptive statistics was applied, i.e. percentage, average, rank, trend and rate. Collected data were analyzed by computing average, rank, rate and also graph for visual vision.

The structure of tables and related graphs for different variables were prepared. Analytical method, descriptive statistical method and visual analysis were used to analyze the data.

Total 41 tables covering 53 variables were structured. Data for the last five years (2003-04 to 2007-08) were entered into these tables. Data were classified into four school structures as primary only, upper primary only, primary with upper primary & all schools for the Gujarat state and its neighboring state - Maharashtra.

Moreover, data were classified standard wise as standard IV and standard VII for boys and girls of Gujarat and Maharashtra. Average and also average along with rate for some variables (where data was in the form of frequency) were calculated among all the 41 tables, for Gujarat and Maharashtra.

The histograms were plotted for each table by using data of respective tables. 41 graphs were prepared related to 41 tables.

Statuses of variables for both the states were interpreted from the tables and the graphs. Within the state and between the states comparisons of data for the five years were also made. The trend and the rate of the trend for both the states were also compared. The status of average value was also narrated and compared for each table under the analysis. The comparison was also made among the different school structures, standards, boys & girls ...etc.
### 3.8.0 Conclusion

In the chapter titled “Methodology and design of the study”, several aspects like origin of the study, population and samples were discussed. Further, tools applied for the study, collection of data were incorporated in this chapter. Classification and analysis of data were clarified in detail.

In the next chapter, classification of data, its analysis and interpretation would be carried out.
References (Endnote) -

1 http://wiki.answers.com/Q/what_is_Mahatma_Gandhi’s_definiion_for_eductaion
2 http://www.mkgandhi.org/articles/basic_edu.htm
3 http://www.mkgandhi.org/towrds_edu/chap01.htm
6 http://www.ncte-india.org/pub/aurobin/auro_0.htm
8 http://en.wikipedia.org/wiki/Right_of_Children_to_Free_and_Compulsory_Education_Act
9 http://www.thefreedictionary.com/population
10 http://www.science.yourdictionary.com/population
11 http://www.investopedia.com/terms/p/population.asp