

**Chapter 3**  
**Research Methodology**

## Chapter 3

### DESIGN AND METHODOLOGY

#### 3.1. Introduction

A well planned and well executed educational research needs proper research design. In fact, research is a systematic and refined technique of thinking and reasoning, utilizing specialized tools, procedure and statistical analysis in order to obtain a fruitful and valid solution of the problem. Therefore, appropriate methodology was planned to achieve the objectives of this study. This chapter discuss the methodology that was used for the study and focuses on method, population, sample and sampling technique, tools used in the study, data collection procedure and data analysis.

#### 3.2. Method

Descriptive survey method in view of its suitability has been employed for this study. Therefore, the present research can be called as descriptive survey research. "Descriptive research seeks to find answers to questions through the analysis of variable relationship." (Best and Kahn 2008 Pg.120)

According to Best and Kahn (2008), descriptive research involves some type of comparison or contrast and attempts to discover relationships between existing non manipulated variables. In present study, an effort was made to describe the present status of the variables of study and to find out relationships among these variables. To add more to objectives of the study informal conversational interview was also used.

#### 3.3. Population and Sample

According to Best & Kahn (2008) a population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. In this study, population consisted of students of Class IX and Political Science teachers teaching in Class IX of CBSE schools situated in

Bokaro Steel City (Jharkhand). A sample is the small proportion of a population selected for observation and analysis. A sample is the group of individuals, who are selected from within a large population by means of a sampling procedure. The sample represents the subjects the researcher would want to deal with because they bear the same characteristics as the target population. In this study, sample constituted of 80 students of Class IX and 20 Political Science teachers teaching in class IX of CBSE schools situated in Bokaro Steel City (Jharkhand).

#### Sampling Technique

- In many research situations, it is not feasible to include all members of the population under study. In this study also, it was not possible to access information from each and every individual of the target population. Therefore, it was considered inevitable to draw a sample from the population. Purposive and within it, incidental sampling technique was employed to draw a sample. In selecting sample from the population, 5 CBSE schools situated in Bokaro district were selected purposively. While selecting these schools it was assured that multimedia was used in the classroom of these schools for teaching Political Science subject as use of multimedia was one of the variables of the study. 100% of the students studying in Class IX were selected by incidental sampling method. Investigator got sufficient number of student sample (about 80) from five schools. All the Political Science teachers teaching in class IX in these schools were included in sample.

#### Break Up of Sample

As already stated above that the sample consisted of 80 students of class IX as well as 20 Political Science teachers teaching in these classes. School wise break—up of the sample of students and teachers is given below in tabular form.



**Table 3.1.***School wise break up of Student Sample*

Sr. No.	Schools	Number of Students			Total
		Class	Male	Female	
1.	Dayanand Anglo Vedic Public School Sector IV	IX	8	8	16
2.	Guru Gobind Singh Public School, Sector V	IX	8	8	16
3.	Delhi Public School Sector IV	IX	8	8	16
4.	The Pentecostal Assembly School Sector XII	IX	8	8	16
5.	Holy Cross School, Balidih	IX	8	8	16

**Table 3.2.***School wise break up of Teacher Sample*

Sr. No.	Schools	Number of Teachers		Total
		Male	Female	
1.	Dayanand Anglo Vedic Public School Sector IV	2	2	4
2.	Guru Gobind Singh Public School, Sector V	2	2	4
3.	Delhi Public School Sector IV	2	2	4
4.	The Pentecostal Assembly School Sector XII	2	2	4
5.	Holy Cross School, Balidih	2	2	4

### 3.4. Tools Used in the Study

The selection of tools depends most prominently upon various considerations such as (a)

- a. the objectives of the study
- b. the period of time at the disposal of the researcher
- c. availability of suitable test material
- d. personal competence of the investigator to administer, score and interpret the test results.

Moreover, for data to have any interpretability, the tools thus selected should possess up to a satisfying mark the characteristic of

- a. reliability
- b. validity
- c. sensitivity
- d. appropriateness
- e. objectivity
- f. feasibility and
- g. ethical standard (Fox, 1969)

Taking these factors into consideration, the following tools are constructed to collect data from teachers and students for the present study –

#### 3.4.1. Political Sciences Content Checklist

To fulfill the first objective of the present investigation a check list of Political Sciences was prepared on the basis of NCERT Democratic Politics I text books for class IX. At first researcher studied the steps of development of checklist. Then he went through the Political Sciences text book of Class IX exhaustively. Hence, he divided each chapter into several sub—headings and tried to incorporate all important points. Further, he mentioned different components of multimedia package against each sub—heading so that it can

be ascertained the type of components of multimedia used for teaching that part. Thus, he developed the Checklist.

**Table 3.3.**

*Checklist for Political Science Text Book Contents*

Sr. No.	Class	Name of the Book	Number of Chapters Included	Number of Sub-headings included
1.	IX	Democratic Politics I	5	19

**Table 3.4.**

*School wise Teacher Distribution*

Sr. No.	School Name	Allotted Expert Teacher
1.	Dayanand Anglo Vedic Public School Sector IV	Avash Tripathy
2.	Guru Gobind Singh Public School, Sector V	Puja Mishra
3.	Delhi Public School Sector IV	Nidhi
4.	The Pentecostal Assembly School Sector XII	Mukesh Kumar Choudhary
5.	Holy Cross School, Balidih	Nikhil

3.4.2. Multimedia Package Teacher Opinionnaire and Awareness

3.4.2.1. Selection of Dimensions for the Multimedia Package Opinionnaires



This involved assembling and selecting the dimensions of multimedia package which were relevant to the present study. After a thorough study the following dimensions were selected for the evaluation of multimedia package opinionnaires -

- 1) Educational Effectiveness (EE)— EE means the components of multimedia that make the teaching – learning process effective.
- 2) User Friendliness of Technology (UFT) – UFT means teachers and learners can operate multimedia package with ease.
- 3) Integrity of Multimedia Components (IMC) – IMC means components of multimedia package are used together to deliver presentation.
- 4) Students Edutainment (SE) – SE means learners gains knowledge with interest.
- 5) Content Availability (CA) – CA means content of Political Science for which multimedia package is available for teaching and learning.

**Table 3.5.**

***Summary Table for the Distribution of Items in Teacher Opinionnaire and Awareness***

Sl. No.	Dimensions	Number of Items
1)	EE	6
2)	UFT	5
3)	IMC	6
4)	SE	5
5)	CA	5
	Total	27

These 27 items were jumbled up in MPTOA to avoid the set response. This MPTOA is given in Appendices.

**3.4.2.2 Validity of MPTOA**

To determine validity of the Multimedia Package Teacher Opinionnaire and Awareness (MPTOA) investigator measured the content validity. The tool was given to the foremost experts of Faculty of Education (RIE B) and Social Science Teachers. The expert agreed that the items in the awareness opinionnaire are relevant and worthwhile for collecting the data from the sample.

#### 3.4.2.3. Reliability of MPTOA

According to **Kerlinger (1973)**, to be reliable, a measuring instrument should be relatively free from errors of measurement, thus being both accurate and predictable. Predictability or stability of the scale “refers to the extent to which a measuring device yields consistent results upon testing and retesting” (**Freeman, 1965**). In order to establish reliability of MPTOA test—retest reliability was established. After reliability analysis reliability was found to be 0.74.

#### 3.4.3. Multimedia Package Student Opinionnaire and Awareness

**Table 3.6.**

*Summary table for the Distribution of Items in Student Opinionnaire and Awareness*

Sr. No.	Dimensions	No. of Items
1)	EE	7
2)	UFT	4
3)	IMC	4
4)	SE	4
5)	CA	3
	Total	22

These 22 items were jumbled up in MPSOA to avoid the set response. This MPSOA is given in Appendices.



#### 3.4.3.1. Validity of MPSOA

To determine validity of the Multimedia Package Student Opinionnaire and Awareness (MPSOA) investigator measured the content validity. The tool was given to the foremost experts of Department of Education (RIE B) and Social Science Teachers. The expert agreed that the items in the awareness opinionnaire are relevant and worthwhile for collecting the data from the sample.

#### 3.4.3.2. Reliability of MPSOA

According to Best and Kahn (2008) reliability is the degree of consistency that the instrument demonstrates. Reliability of test means the extent to which or the precision with which the test measures what it has been construed to measure. According to Kerlinger (1973), to be reliable a measuring instrument should be relatively free from errors of measurement, thus being both accurate and predictable. In order to establish reliability of MPSOA test—retest reliability was established. After reliability analysis reliability was found to be 0.81.

### **3.5. Procedure for Data Collection**

The researcher made his best effort to gather the reliable and valid data for the study. The data had to be collected from students and teachers of class IX, which was a long drawn and tedious job. Since all the tools were self administrable, the researcher explained each teacher and to students of each class included in the sample about his intention and the way in which they were expected to respond to the opinionnaire. The students were requested and encouraged to respond honestly to all items by assuring them that their replies would be kept confidential and will be used only for research work. Effort was made to collect opinionnaire distributed on the same day. However, in some cases students could not complete it on the same day because of their busy schedule in the school, so they were asked to return it on the next day after completing it in their home. The opinionnaire of the

Political Sciences teachers who teach these students were also collected. Researcher interviewed 1 Political Sciences teacher of each school to gather more information related to the use of multimedia package in concern subject.

### **3.6. Statistical Techniques Used**

Present study is quantitative in nature. The data was obtained in the form of frequencies and then for the purpose of analysis it was converted into percentage. Thereafter, chi-square test was used to further analyze the data related to the opinionnaires.

### **3.7. Coding**

Before data organization, number codes were provided for each personal variable of students and teachers. The number codes for personal variable are given below in brackets –

Gender – Male (1) Female (2)

Category of Response – Each item of the tools MPTOA and MPSOA used two responses, as

- Yes
- No

### **3.8. Data Analysis**

The quantitative data collected through MPSOA and MPTOA were analyzed by using 22<sup>nd</sup> version of SPSS. Content analysis was used to study “Multimedia package of Political Science” and text books of political

science, following steps were applied as provided by Festinger & Katz (1953) –

- Specify the needed data – Social science text books content of Class IX. –
- Mapping out plan for tabulation – Each statement of the sub—subject and chapters are arranged in tabular form.