

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

# Chapter - 3

## Research methodology

This describes the conceptual framework of the plans and procedures which are in order to achieve the objectives of the study. It consists of a statement of variables, method to measure them, description of the sample, process of standardization and validation of the test prepared and procedure for measuring the understanding of biological science concepts chosen for the study.

### 3.1 Variables of the study :

These are the variable of the study:

#### **3.1.1 Independent variables**

- (a) Study groups: Experiment and Control
- (b) Activity based Methods of teaching

#### **3.1.2 Dependent Variables**

The achievement of students in political science test formed is the dependent variable.

### 3.2 Definitions of the terms Used:

#### **3.2.1 Activity based Teaching: -**

In simple words, activity based teaching is defined as teaching through activity. It makes the teaching more interesting to the kids and encourages more participation. The children participate in every activity with curiosity and narrate the whole events in the school as well at home.

Activity based teaching is also defined as an activity which is in accordance with the maxims of teaching namely —From concrete to Abstract. The students observe the actual events conduct experiment, and thereby they feel happy and satisfied resulting in their learning more successful and meaningful.

#### **3.2.2 Academic Achievement:-**

Academic achievement of an individual student can be defined as the marks obtained by him in a particular subject of study.

In an educational institution, academic achievement is awarded with a system of marks or grades. It has been strongly argued that marks are necessary to give guidance for effective teaching-learning.

The Academic achievement mainly depends on intelligence and aptitude of the pupils towards the subjects of study. The other factors that appear to be associated with achievement are curiosity, ability to apply knowledge, to know situations, memory, insight into subject and skills in learning and learning atmosphere of the pupils.

### **3.3 Activities Used While Teaching**

To teach about the democracy election of monitor was conducted, this helps students to learn about representatives and electoral process. How any government is built and what are their roles, this was taught by role play method by giving them a role of particular representatives. Also discussions, debates were conducted.

### **3.4 Hypotheses**

Following hypotheses were formed:

1. There is no significance difference between the Mean scores of the experimental group and control group on Pre – test in achievement in Political Science
2. There is significance difference between the Mean scores of the experimental group on the Post – test in achievement in Political Science

### **3.5 Design of the study**

The research was conducted by experimental research. In the current study Pretest-Post test Non-equivalent group design was used - In the Pre test-Post test Non-equivalent groups design there is an experimental group that is given a pre-test, receives a treatment, and then is given a post-test. But at the same time there is a non-equivalent control group that is given a pre-test, does not receive the treatment, and then is given a post-test. Mean value of achievements was compared.

### **3.6 Population of the study**

A well defined collection of objects, units, events, individuals or things, which are of unique interest to a research investigator, is called a population. The population of the present study consisted of all the students studying in 9<sup>th</sup> standard in the secondary schools of Ballia city.

### **3.7 Sample of the study**

Sample is that unit of population which possesses all the characteristics of the group from which the sample is drawn.

The sample of the present study includes 48 students of 9<sup>th</sup> standard to whom Political science subject has been taught at St. Xaviers School Dharahra Ballia by using conventional method of teaching as well as Activity-based methods of teaching.

### **3.8 Sampling Technique and Sample Size**

The school for the experiment was selected on the basis of feasibility and willingness to cooperate on part of the school authorities. First we made the list of the schools which were willing to cooperate in this process. Then from that list we selected the school randomly. Thus, random sampling was used.

Selection of non-equivalent group: - The section A and section B of Std. 9<sup>th</sup> of St. Xaviers School Dharahra Ballia were selected. Thus, purposive sampling was used.

**Sample size:** - control group consisted 22 and experimental group consists of 26 students Std. 9<sup>th</sup>.

### **3.9 Tool for collecting data: -**

The term research instrument refers to any tool that may be used to collect or obtain data, measure data and analyze data that is relevant to the subject of any research.

The format of a research instrument may consist of questionnaires, surveys, interviews, checklists or simple tests. The choice of which specific research instrument tool to use depends on the nature of the study. It will also

be strongly related to the actual methods that will be used in the specific study.

The present study aimed at investigating the development of understanding of concepts of political science of standard 9<sup>th</sup>. Some researchers conducted research for activity based teaching but no tool was available for measuring the understanding of particular these topics which are part of study. Therefore it was felt necessary to develop a test for measuring the achievement of Political science concepts in 9th grade students. A test entitled '**Political science concepts achievement test "PSCAT"**' was constructed and standardized by researcher himself and has been used as a tool in this study.

### **3.9.1 Need of Political science concepts achievement test "PSCAT"**

There are many available tests but they were not suitable for the local context and also syllabus was limited. Development of understanding of Concept among students may be contextually different. The same situation may convey different meaning to different people. Different investigators have use test based on different concept to measure understanding at different levels. Only a few studies have been conducted in this area. For measuring understanding of concepts in political science of 9<sup>th</sup> standard students a valid and reliable tool was needed. Thus Investigator decided to construct such a tool.

Understanding of concepts is the main factor for success of students in the discipline of knowledge. Thus development of instrument to measure the development of understanding of Concepts is justified.

### **3.9.2 Areas selected in the test**

This is this was a short study so it was not possible to include every area from the Political science. Also limitations were there. So researcher included only three areas from the political science subject. These are

1. Democracy in the Contemporary World
2. What Is Democracy Why Democracy
3. Electoral politics

### **3.9.3 Format of the test**

The format of **Political science concepts achievement test "PSCAT"** was that of multiple choice type items. Each question consists of stem and

four alternatives. Out of four alternatives one was the correct answer of the question and rest 3 were the distracters, which attract or distract the respondents and also belong to different type of concepts.

### 3.9.3.1 Definition of the multiple choice items

The item which has one stem in the form of a question or incomplete statement premise which is generally followed by a set of 4 answers of options.

In these questions there is a stem in the form of question and four alternative answers are given and the student is required to select the most correct answer or option.

### 3.9.3.2 Advantages:

1. They are suitable for measuring knowledge, comprehension, application, analysis and synthesis.
2. They are suitable due to little training in testing field

**Table 3.1 Test area and no. of items**

S. No.	Area from the Political science	No of items
01.	Democracy in the Contemporary World	04
02.	What Is Democracy Why Democracy	09
03.	Electoral politics	07
	<b>Total</b>	<b>20</b>

### 3.9.4 Validation of the test

Content and criterion validity of the test were estimated and established. This help in collecting sufficient evidences of the test.

### 3.9.5 Administration of the political science concepts understanding test

Test was administered in classroom in group. After taking the written permission from the principal of the school, Test was done in groups in the class. General introduction of was given by researcher himself and told them

to go through the instruction and then start responding. For responding to values 30 minutes were given to them.

### **3.9.6 Scoring**

Scoring of test is very easy simply one mark is given for each correct response and zero is wrong responses. After the sum of all correct responses were added to get the total marks obtained by a student in test.

### **3.9.7 Data sheet**

Along with the instructions, items of test and answer sheet, personal data sheet is also given to the students in order to get information about Name, Gender location, family background etc.

### **3.10 Data Collection And Entry**

Data collection is a very important step in conducting research and can influence results significantly. As described a test was administered and responses of students were collected. Researcher checked all the responses and assigned one mark of each correct response. After checking the test papers the data of different students was stored. The detailed description of data is presented in next chapter.

### **3.11 Data Analysis**

Data analysis is a necessity for making well-informed and efficient decisions. Data analysis is important in education to understand problems facing an organization, and to explore data in meaningful ways. Data in itself is merely facts and figures. Data analysis organizes, interprets, structures and presents the data into useful information that provides context for the data.

Collected data is analyzed in this way. Firstly mean score and standard deviation of different separate groups were calculated. With help of mean score and standard deviation, t value is found. T value was compared with critical P values and then researcher concluded the difference in scores of different groups whether it is significant or not.

### **3.12 Feedback form**

After administering the achievement test a feedback form was given to students of experimental group.

#### **Description of feedback form**

It was a 5 point rating scale, with 7 items. Maximum points for an item were 5, in this way feedback form was having 35 points for a single student.

Point's description is given in table

<b>Strongly Agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Strongly Disagree</b>	<b>Disagree</b>
<b>'5'</b>	<b>'4'</b>	<b>'3'</b>	<b>'2'</b>	<b>'1'</b>

If students will get points more than 80 %, it will be clear that activity based learning is better.