Chapter 3
Research
Methodology

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This describes the conceptual framework of the plans and procedure which are in order to achieve the objectives of the study. It consists of statement of variables, method to measure them, description of the sample process of standardization and validation of the test prepared and procedur for measuring the understanding of biological science concepts chosen for th 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 throug activity. It makes the teaching more interesting to the kids and encourag more participation. The children participate in every activity with curiosi and narrate the whole events in the school as well at home.

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

3.2.2 Academic Achievement:-
Academic achievement of an individual student can be defined as tl 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 marksare necessary to give guidance for effective teaching-learning.

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

3.3   Activities Used While Teaching

To teach about the democracy election of monitor was conducted, thi 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 currer study Pretest-Post test Non-equivalent group design was used - In the Pr test-Post test Non-equivalent groups design there is an experimental grou that is given a pre-test, receives a treatment, and then is given a post-test. Bi at the same time there is a non-equivalent control group that is given a pr test, does not receive the treatment, and then is given a post-test. Mean valu of achievements was compared.

3.6   Population of the study

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

3.7   Sample of the study

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

The sample of the present study include 48 students of 9th standard t whom Political science subject has been taught of St. Xaviers Schoc Dharahra Balliaby using conventional method of teaching as well a Activity-based methods of teaching.

3.8   Sampling Technique and Sample Size

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

Selection of non-equivalent group: - The section A and section B of St 9th ofSt. Xaviers School Dharahra Balliawereselected. Thus, purposiv sampling was used.

Sample size: - control group consisted 22 and experimental grou consists of 26 students Std. 9th.

3.9 Tool for collecting data: -

The term research instrument refers to any tool that may use to colle or obtain data, measure data and analyze data that is relevant to the subject (any research.

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

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

The present study aimed at investigating the development o understanding of concepts of political science of standard 9th. Som researchers conducted research for activity based teaching but no tool wa available for measuring the understanding of particular these topics which ar part of study. Therefore it was felt necessary to develop a test for measurin the achievement of Political science concepts in 9th grade students. A tes entitled 'Political science concepts achievement test "PSCAT" wa constructed and standardized by researcher himself and has been used as 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 loca context and also syllabus was limited. Development of understanding c Concept among students may be contextually different. The same situatio may convey different meaning to different people. Different investigato have use test based on different concept to measure understanding at differer levels. Only a few studies have been conducted in this area. For measurin understanding of concepts in political science of9th standard students a vali and reliable tool was needed. ThusInvestigator decided to construct such tool.

Understanding of concepts is the main factor for success of students i the discipline of knowledge. Thus development of instrument to measure th 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 ever area from the Political science. Also limitations were there. So researche included only three areas from the political science subject. These are

1. Democracy inthe Contemporary World
2. What Is Democracy Why Democracy
3. Electroral 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 ar

four alternatives. Out of four alternatives one was the correct answer of th question and rest 3 were the distracters, which attract or distract th 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 incomplet statement premise which is generally followed by a set of 4 answers c options.

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

3.9.3.2 Advantages:

1. They are suitable for measuring knowledge, comprehension, application analysis and synthesi

2. They are suitable due to little training in testing fiel

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
	Total	**20**

3.9.4 Validation of the test

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

3.9.5 Administration of the political science concepts understanding test

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

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

3.9.6 Scoring

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

3.9.7 Data sheet

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

3.10 Data Collection And Entry

Data collection is a very important step in conducting research an
caninfluence results significantly. As described a test was administered an
responsesof students were collected. Researcher checked all the respons
and assigned onemark of each correct response. After checking the te
papers the data of differentstudents was stored. The detailed description (
data in presented in next chapter.

3.11 Data Analysis

Data analysis is a necessity for making well-informed an
efficientdecisions. Data analysis is important in education to understar
problems facingan organization, and to explore data in meaningf
ways. Data in itself is merelyfacts and figures. Data analysis organize
interprets, structures and presentsthe data into useful information th
provides context for the data.

Collected data is analyzed in this ways. Firstly mean score ar
standarddeviation of different separate groups were calculated. With help (
mean scoreand standard deviation, t value is found. T value was compare
with critical P values and then researcher concluded thedifference in scores (
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

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
'5'	'4'	'3'	'2'	'1'

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