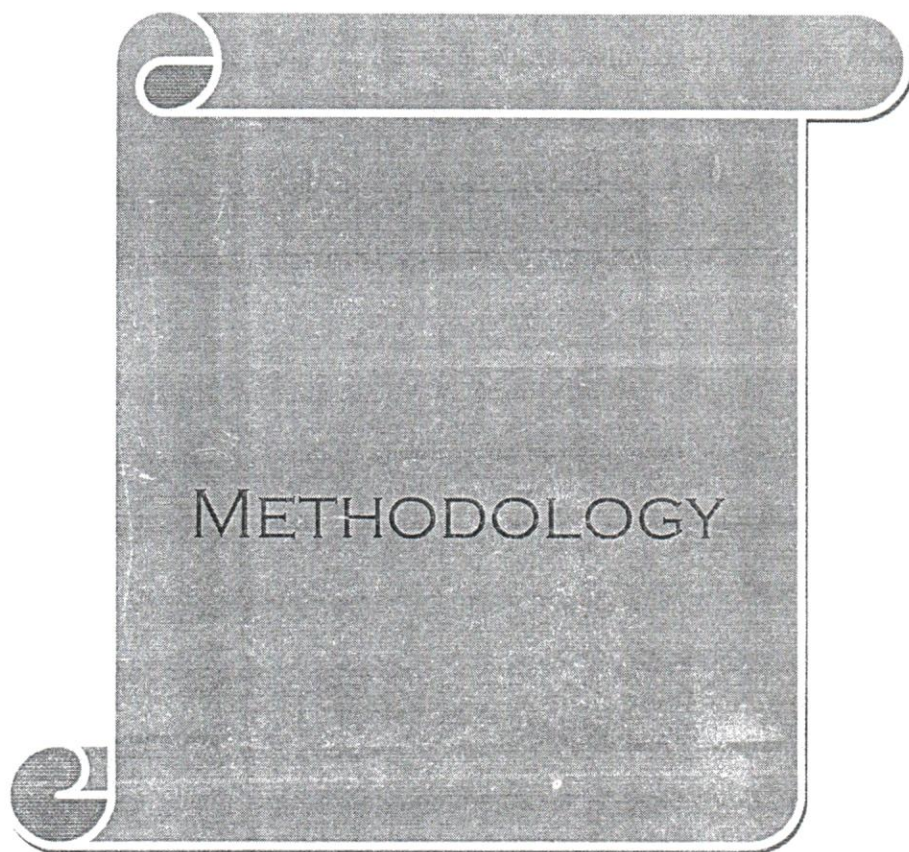


CHAPTER-3



METHODOLOGY

CHAPTER -3

METHODOLOGY

3.1 Introduction

This chapter describes the research design of the study. Specifically, the research design, research questions, selection of population, data gathering procedures, and data gathering instrument and data analysis with respect to student achievement are outlined in this chapter.

3.1 Research Design

The research design is the detailed plan of an investigation .In fact it is the blue print of the detailed procedures of testing the hypothesis and analyzing obtained data. The research design may be defined as a sequence of those steps taken ahead of the time to ensure that the relevant data permits objective analysis of the different hypothesis formulated with respect to research problems.

3.2 Design of Study

The basic design of this part of the study employs quantitative methodology. Therefore, using quantitative methodology an examination of the mathematical achievement during the academic years 2019-2020 of

middle school students in a st mary public school was conducted. Mathematics achievement of the eighth grade students who completed the indicated academic school year .This is the experimental study . The eighth class student group are choose for completing the further study.

Experimental study on a group

Intitial stage	Pre-test
Experimental component	Remedial teaching
Final stage	Post test

3.4 The variables used in research

A **variable in research** simply refers to a person, place, thing, or phenomenon that you are trying to measure in some way. The best way to understand the difference between a dependent and independent **variable** is that the meaning of each is implied by what the words tell us about **the variable** you are using.

A variable is a characteristic or feature that varies, or changes within a study. The opposite of variable is constant: something that doesn't change. In math, the symbols "x" , "y" or "b" represent variables in an equation, while "pi" is a constant. In an experimental example, if a study is investigating the differences between males and females, gender would be a variable (some subjects in the study would be men, and others would be women). If a study has only female subjects, gender would not be a variable, since there would be only women. If a study includes both males and females as subjects, but is not interested in differences between men and women - and does not compare them, gender would not be a variable in that study.

Independent Variables

In experimental research, an investigator manipulates one variable and measures the effect of that manipulation on another variable. The variable that the researcher manipulates is called the **independent, or grouping variable**. The independent variable is the variable that is different between the groups compared: all the members of one group will have the same **level** of the independent variable, a second group will have a different level of that same variable, and the same for a 3rd or 4th group, if present.

Dependent Variables

The **outcome variable** measured in each subject, which may be influenced by manipulation of the independent variable is termed the **dependent variable**. In experimental studies, where the independent variables are imposed and manipulated, the dependent variable is the variable thought to be changed or influenced by the independent variable.

Independent variable in research:-

Remedial teaching

Dependent variable in research:-

Student's achievement

Demographic variable in research:-

Girls-Boys Student

3.5 Sample and Sample Selection

In **research** terms a **sample** is a group of people, objects, or items that are taken from a larger population for measurement.

The **sample** should be representative of the population to ensure that we can generalise the findings from the **research sample** to the population as a whole.

In the sample taking, the st. mary convent school Selected for sampling. The 8th class is selected .

In this, the total 40 out of 50 students are selected for The sampling purpose.

Purposive sample:-

A **purposive sample**, also referred to as a judgmental or expert **sample**, is a type of nonprobability **sample**. The main objective of a **purposive sample** is to produce a **sample** that can be logically assumed to be representative of the population. ... In nonprobability **sampling**, the population may not be well defined.

Purposeful sampling is a technique widely used in **qualitative research** for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002). ... Nevertheless, **sampling** must be consistent with the aims and assumptions inherent in the use of either method.

Now, 40 students are selected for the research work.

Table No.-2

Study Model

S.No.	Name of the School	boys	girls	Total
1	St. mary convent school,bhopal	24	16	40

3.6 Tools and Techniques:-

Case Studies, **Checklists**, **Interviews**, Observation sometimes, and **Surveys** or **Questionnaires** are all tools used to collect data. It is important to decide the tools for data collection because research is carried out in different ways and for different purposes.

The tools used by the researchers in this research is Achievement test.

Selection of Population

Twenty-one of those schools and just over 3,000 middle school- aged students' test scores were used in this study. Fifteen of the schools are middle schools, grades six, seven, and eight, two are schools housing grades , one is an elementary/middle school combined and the remaining three are middle/high school combinations. This school system was chosen to conduct the research because of the newly implemented standards based mathematics program, Connected Mathematics Project. These schools were selected based on the attendance of middle school aged children and the implementation of the standards based curriculum Connected Mathematics Project.

The twenty-one schools used in this study are geographically dispersed throughout this public school district. Three are considered urban, eight are considered suburban, three are considered rural and seven are

classified as magnet schools by this public school district's standards as defined by federal guidelines.

Data Gathering Procedures

To obtain permission to conduct the study in the public school district, an e-mail was sent to the assistant superintendent's office, outlining the purpose of the research study. A letter granting permission to conduct the research in this district using existing student data was obtained. These data included student demographic information, i.e., gender, ethnicity, participation in the free or reduced lunch meal program and TCAP mathematics test scores. The data then was entered into the SPSS statistical program with careful checking for accuracy. Students were identified by student identification numbers.

Data Gathering Instrument

Assessment Program is a state mandated exam administered annually to all students in grades third through eighth with the purpose of measuring student growth and comparing the growth to the larger population. This instrument is traditional, standardized, and a multiple-choice assessment.

According to the Education publication (September 2001), the primary goal of the Achievement Test is to provide a measure of knowledge and application skills in reading, vocabulary, language, language mechanics,

mathematics, mathematics computation, science, social studies, spelling and word analysis.

3.7 Mathematics proficiency based paper

The syllabus of the mathematics is included the chapters are Rational Numbers, Linear equations in one Variable, Understanding Quadrilaterals, Practical Geometry, Data Handling, Squares and Square Roots, Comparing Quantities, Algebraic Expressions and Identities,

Visualising Solid Shapes, Mensuration, Exponents and Powers, Direct and

Inverse Proportions, Factorisation, Introduction to Graphs, Playing with Numbers.

Table No.3

Proficiency Statement

S.No.	Proficiency	Total no. of Questions	Total Marks
1	Understanding quadrilaterals	5	5
2	Data Handling	5	5
3	Visualising Solid Shapes	5	5
4	Mensuration	5	5
5	Playing with Numbers	5	5
	Total	25	25

Table No.4
Proficiency Statement

S.No.	Type of Questions	Number of Questions	Total Marks
1	Objective Type Questions	25	25
	Total	25	25

3.8 Compilation of supplies/Data collection

Firstly the test is prepared and applied on the 50 students in St. mary convent School, Bhopal. The test applied on the 50 students of the class VIII. **Pretesting** is the stage in survey research when survey questions and questionnaires are **tested** on members of target population/study population, to evaluate the reliability and validity of the survey instruments prior to their final distribution. After it identify the problems faced by students while solving The questions like arithmetic problems, problem solving, Problem in calculation and formulae memorization. The 40 students selected for the post test after giving remedial teaching through the mathematics kit. The remedial teaching given for the students on the topic of data handling, Playing with numbers, Mensuration, visualizing solid shapes, Understanding Quadrilaterals etc.

Table No.5

S.No.	Test	Boys	Girls
1	Pre-test	30	20
2	Remedial Teaching	24	16
3	Post-test	24	16

3.9 Statistics Used

The statistical methods are used are:-

1. Mean
2. Standard Deviation
3. Relationship
4. 't' ratio
 - Correlated sample
 - Independent sample

Summary

Chapter III presents the methodology used in the study. It includes: the research questions, population to be used in the study, data gathering procedures, data gathering instrument, and how the data sources will be used to answer the questions. The findings of the study will be reported and discussed in Chapter IV. In Chapter V, the summary, conclusions, implications, and recommendations will be discussed.