CHAPTER:III
METHODOLOGY

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RESEARCH METHODOLOGY

3.1 INTRODUCTION

In the first chapter, researcher presented with an introduction to the problem, stated the problem and brought out the rationale of the problem. Further researcher formulated objectives of the study and also framed research question that guided the research work. At the end researcher has mentioned limitations of the study.

In the second chapter, brief review of researches conducted by various researchers has been mentioned.

In the present chapter, the methodology of the present study is elaborated. This chapter is an important and central to the present study. This is the portion that deals with all the strategies implemented to gather data and methodological procedures this research work has been conducted by the researcher.

Research methodology involves the systematic procedure by which the researcher starts from initial identification of the problem to its final conclusion. The role of methodology is to carry on the research work in a specific and valid manner. A good deal of objectivity and reliability of a research report depends upon the method used for investigation. They indicate the various steps of the plan, which are to be adopted in solving a research problem. It is, therefore very important that a researcher must have a thorough understanding of all research methods- their strengths, limitations, applications and appropriateness.

The present chapter concerned with the details of the techniques adopted in the study. It describes the methodological aspects of the study. It elaborates

1) Research Design
2) Population

3) Sample

4) Variables

5) Tools

6) Administration of tool

7) Statistical Techniques

3.2 RESEARCH DESIGN

The research design for the present study was descriptive survey design. Data was collected by descriptive survey method which is used as a research tool.

The present study focuses on investigating preferences of students on perceived career choices. A tool was used to gather data on attitude towards mathematics . Tool was prepared by the Martha Tapia and it was a 5 point scale and career choice is a questionnaire with different question where students were free to fill their own choices. Henceforth, the study adopts quantitative research methods that would complete each other makes it an intensive study for attitude towards mathematics and perceived career choices.

3.3 POPULATION

Population or universe means the entire mass of observations which is the group from which a sample is to be formed. In the present study, the students of class IX studying in schools of Bhopal form the population the study.

3.4 SAMPLE

According to Kerlinger, "Sample is a part taken from the population which represents   the   population   wholly   and   truly." For conducting the present research study keeping in view the limitation and resources available with the researcher, the method of purposive sampling (qualitative data and quantitative data) has been used for sample selection.

PURPOSIVE SAMPLING - Subjects are selected because of some characteristic. Patton (1990) has proposed the following cases of purposive sampling. Purposive sampling is popular in qualitative research.

- **Extreme or Deviant Case** - Learning from highly unusual manifestations of the phenomenon of interest, such as outstanding success/notable failures, top of the class/dropouts, exotic events, crises.

- **Intensity** - Information-rich cases that manifest the phenomenon intensely, but not extremely, such as good students/poor students, above average/below average.

- **Maximum Variation** - Purposefully picking a wide range of variation on dimensions of interest...documents unique or diverse variations that have emerged in adapting to different conditions. Identifies important common patterns that cut across variations.

- **Homogeneous** - Focuses, reduces variation, simplifies analysis, facilitates group interviewing.

- **Typical Case** - Illustrates or highlights what is typical, normal, average.

- **Stratified Purposeful** - Illustrates characteristics of particular subgroups of interest; facilitates comparisons.

- **Critical Case** - Permits logical generalization and maximum application of information to other cases because if it's true of this once case it's likely to be true of all other cases.

- **Snowball or Chain** - Identifies cases of interest from people who know people who know people who know what cases are information-rich, that is, good examples for study, good interview subjects.

- **Criterion** - Picking all cases that meet some criterion, such as all children abused in a treatment facility. Quality assurance.

- **Theory-Based or Operational Construct** - Finding manifestations of a theoretical construct of interest so as to elaborate and examine the construct.

- **Confirming or Disconfirming** - Elaborating and deepening initial analysis, seeking exceptions, testing variation.

- **Opportunistic** - Following new leads during fieldwork, taking advantage of the unexpected, flexibility.

- **Random Purposeful** - (still small sample size) Adds credibility to sample when potential purposeful sample is larger than one can handle. Reduces judgment within a purposeful category. (Not for generalizations or representativeness.)

- **Politically Important Cases** - Attracts attention to the study (or avoids attracting undesired attention by purposefully eliminating from the sample politically sensitive cases).

- **Convenience** - Saves time, money, and effort. Poorest rational; lowest credibility. Yields information-poor cases.

- **Combination or Mixed Purposeful** - Triangulation, flexibility, meets multiple interests and needs. (Patton, 1990)

In purposive sampling, the researcher collected sample with a purpose in mind. That is, the researcher has certain predefined group in mind. The researcher had selected the school based on the type of board one was CBSE and other was State Board (M.P. Board). Purposive sampling can be very useful for situations where we need to reach the targeted sample quickly. Purposive sampling allows the researcher to select those participants who will provide the richest information.

Table:3.1, The sample of the present study

SCHOOL	CBSE	STATE BOARD
GIRLS	21	16
BOYS	35	18
TOTAL	56	34

3.5 Variables

According to D'Amato (1970), "any measurable attribute of objects, things or beings is called variable."

A variable is any characteristic or quality that varies among the members of a particular group. Several kinds of variable are studies in educational researches, the most common being independent and dependent variables. An independent variable is a variable presumed to affect or influence other variable. When independent variable is directly manipulated by the researcher it is called as Type E independent variable whereas when independent variable is not manipulated experimentally by the experimenter, rather, it is manipulated through selection, it is known as Type S independent variable. Dependent variable is a variable about which the investigator makes prediction. It is a variable presumed to be affected by one or more independent variables. There are two variables in this study.

Independent variable: Attitude towards mathematics

Dependent variable: Career choice

3.6 TOOLS AND TECHNIQUES

Keeping in view the nature of the problem, researcher has used tools. Researcher has developed a tool for keeping in the view the research question. The tools of the study were:

To study the attitude towards mathematics, an inventory that is developed by Martha Tapia in 1976, has been used. The test was "Attitude towards mathematics inventory." Inventory contains 40 items, based on 5point scale. The scale for inventory was A- Strongly Disagree, B- Disagree, C- Neutral, D- Agree, and E- Strongly Agree. Students' best describes their feeling.

To study the student's perception about their career choices, Career choice survey questionnaire was developed. The students were free to fill options according to them. These questions were made to find out the students perception about their career. In this questionnaire 25 questions were to find out students opinion for their perception regarding career.

3.7 PROCEDURE TO DATA COLLECTION

1. Firstly schools like D.M.S. and Indira Priyadarshini Hr. Sec. School were selected by the researcher as former has CBSC curriculum and latter the State Board of Madhya Pradesh

2. Attitude towards mathematics inventory test was administered on the students.

3. Career choice questionnaire were filled by the students.

4. Discussion about the attitude towards mathematics, need of mathematics in life and about different career options has been done with the students.

Before conducting, the test students were taken into confidence. They were assured that the data collected is only for the dissertation purpose and none of their data would be disclosed to anyone.

3.8 DATA ANALYSIS

Analysis of data is done according to objectives / hypotheses. Firstly test conducted on students for attitude towards mathematics. Than data for perceived career choice was gathered with the help of questionnaire which was constructed by the researcher. Studying the relationship between attitude towards mathematics and perceived career choice is very much pertinent for this study. To see the significant difference between males and females attitude towards mathematics, t-test was used by researcher. The student's attitude towards mathematics was measured by percentage, student's attitude broadly categorised into three categories: positive attitude, neutral attitude and negative attitude. To see the significant difference of type of school on attitude towards mathematics and its interaction calculated by the using **ANOVA**. The relationship between attitude towards mathematics and perceived career choice was analysed through the percentage. Henceforth, this study proposes to use quantitative method to arrive at the conclusions that are unknown that would answer the hypotheses and the research question of the proposed study.

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