

CHAPTER-3
RESEARCH METHODOLOGY

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3.1 Introduction

The theoretical background of the study is presented along with the significance and objectives in chapter 1. A review of related literature along with research findings and rationale of the study is written in the previous chapter. The present chapter is devoted to the description of the methodology given in the present study. In this chapter, the discussion will be in detail about the variables, population, sample, tool used for collecting the data, steps for tool construction, the procedure of the data collection, and statistical techniques used for the given study.

3.2 Research Method

The research method is basically supervising the research in a specific manner so that the problem can be solved effectively and efficiently. It is a format through which the investigator is aware of how to proceed with the research problem and arrive at the result. It includes the entire process that is involved in the research part from the initial process of planning, execution, drawing interpretations and promulgating the results.

The present study is a Content analysis. To achieve the objectives of this research, quantitative as well as qualitative data was used therefore the mixed method is used. The data collected through online mode wherein a structured questionnaire and Achievement test was created through Google Forms. The main agenda is to describe the relationship that exists between the variables.

3.3 Research Design

The research design is done for the purpose of the following conditions

1. Collection and analyzing the data in a manner that aims to merge it in a proper manner.
2. It is a decision-making process as the plan of action is prepared by the investigator before taking over any study.
3. It is an arrangement of the conditions for collecting and analyzing data in a well-organized manner.

4. It is a conceptual framework within which the research is conducted and it constitutes the blueprint for the collection, measurement and analyzing data in a meaningful and structured way.
5. It enables the investigator to save a great deal of time, resources and labor.

The main aim in the present study is related to identifying the easy and difficult concepts of Chemistry for XI standard students.

3.4 Variables in the Study

Variables are basically the periphery in the research part. It is basically the entity that can take any value and can vary. The dependent variable is the factor that is measured to determine the effect of the independent variable. It is on which the research is being studied. A dependent variable is one on which an investigator makes a prediction on. Here in this study Difficulty level is taken as a dependent variable and different targeted concepts of Chemistry are taken as independent variables.

3.5 Population

It is a group of individuals that share common characteristics which distinguish them from other groups. In the present study, the population comprises 11th standard students of the Prayagraj district.

3.6 Sample

Data collection is essentially an important part of the research process as only on the basis of data the analysis and interpretation is done which ultimately makes a researcher able to reach out to the result and conclusion of the study. For the data collection process, the investigator needs to take the sample from the population. The process of obtaining information about the entire population by examining only a part of it is referred to as sampling.

The sample of this research is taken from 11th standard students of one schools i.e. Maharshi Patanjali Vidya Mandir located in Prayagraj district. The sample size of the study is of 38 students.

3.7 Tool Used

In research, data gathering tools are called research tools. The advantage and importance of research are totally dependent on the relevance of the tools used to extract the information from the sample population. The tool should be relevant, reliable and valid.

As the study deals with identification of easy and difficult concepts of Chemistry. The tool for the present research was-

1. Questionnaire developed by Rana Rishabh Pratap Singh in the form of checkbox to identify the reasons of easiness and difficulty of targeted concepts.
2. Achievement test in Chemistry for the targeted concepts

3.8 Data Collection Procedure

Data were collected from XI standard school students using both the tools. The investigator collected all the data individually via google forms. Samples were requested to answer each statement freely without hesitation and ensured confidentiality of their responses. Before data collection, information was shared to all the samples about the study and its purpose. The respondents were requested to give honest responses. The respondents were also assured that the data provided by them will be kept entirely confidential and will be used for research purposes only. The investigator tried his level best to make the process of data collection easy, convenient, and stress-free for students.

3.9 Analysis of Data

After administering the data, the next step was to analyze the information obtained from the samples. The data were analyzed by simple mean and mode statistical techniques.