

CHAPTER 3
RESEARCH
METHODOLOGY

3.1 Research Design

The study was based on a survey research design. A survey research design is a procedure in quantitative research in which a survey is administered to a sample or to the entire population to describe attitudes, opinions, behaviours or characteristics of the population.

In this study, a scientific attitude scale consisting of 26 questions was distributed to the sample via Google Forms. The responses were collected, scored and statistically analysed to describe the level of scientific attitude of science pupil teachers.

This study used a cross-sectional survey design and collected responses from three groups of science pupil teachers:

1. B.Ed.-M.Ed. final year students
2. B.Sc.-B.Ed. final year students
3. B.Ed. final year students

The responses of the survey were analysed to test the following hypotheses:

1. There is no significant difference in the mean scores of scientific attitude of science pupil teachers of B.Sc.-B.Ed., B.Ed.-M.Ed. and B.Ed. courses.
2. There is no significant difference in the mean scores of scientific attitude of male and female science pupil teachers.

3.2 Outline of research

The present study unfolded in the following manner:

PHASE 1	Identification and selection of problem
PHASE 2	Selection of tool
PHASE 3	Selection of sample
PHASE 4	Distribution of tool
PHASE 5	Collection of data
PHASE 6	Analysis and interpretation of research findings
PHASE 7	Writing of thesis

Table 3.1 Outline of the study

3.3 Population

This research aimed at studying scientific attitude among science pupil teachers of Regional Institute of Education, Bhopal. The population was categorized into three distinct groups based on the following courses:

1. B.Ed.-M.Ed. Integrated
2. B.Ed.
3. B.Sc.-B.Ed. Integrated

3.4 Sample

The sample of the study was confined to a total of 90 science pupil teachers with 30 pupil teachers belonging to B.Ed.-M.Ed. Course (Final year), 30 pupil teachers belonging to B.Ed. Course (Final Year) and 30 pupil teachers belonging to B.Sc.-B.Ed. Course (Final Year). The sample comprised of 42 males and 48 females.

S.No.	Course	Year	Number Of Students		Total
			Male	Female	
1	B.Ed.-M.Ed.	Final (III)	12	18	30
2	B.Ed.	Final (II)	11	19	30
3	B.Sc.-B.Ed.	Final (IV)	19	11	30

Table 3.2 Constitution of Sample

The academic year of sample and the number of candidates in each group were selected through purposive sampling technique.

3.5 Tool

3.5.1 Description of Tool:

Scientific Attitude Scale (SAS) developed by N.N. Shrivastava was used as the tool to measure scientific attitude of the sample selected. The scale consisted of a total of 26 items assessing the following components of scientific attitude:

- Rationality
- Curiosity
- Open-mindedness
- Aversion to superstition
- Objectivity- intellectual honesty
- Suspended judgments

3.5.2 Distribution of Tool

Owing to the pandemic, it was not feasible to reach out to pupil teachers physically. Hence, the tool was converted into a Google form and was distributed to pupil teachers through various WhatsApp groups, email and other social media platforms.

3.5.3 Instructions:

There were 26 statements in the scale. Every statement had three alternatives, 'Agree', 'Indefinite' and 'Disagree'. The candidates had to select 'Agree' if they agreed to the statement, 'Indefinite' if they were not sure about the statement and 'Disagree' if they did not agree to the statement.

3.5.4 Scoring:

Scoring of the statements was done according to the table below:

ANSWER	MARKS
Agree	2
Indefinite	1
Disagree	0

Table 3.0.3 Scoring of Statements

According to the table, total score of all respondents was calculated.

3.5.5 Interpretation of Scores:

The scores obtained by the respondents through Google Forms were calculated and interpreted using the following table provided the Scientific Attitude Scale Manual:

CLASSIFICATION OF SCIENTIFIC ATTITUDE	SCORE
Very high	60 and above
High	52-59
Moderate	44-51
Low	36-43
Very Low	35 and below

Table 3.0.4 Interpretation of Scores

3.6 Data Collection

Data for the study was collected over a span of 1 month. Responses to the Scientific Attitude Scale were received via Google form. The data obtained was organized as raw data in Microsoft Excel sheet and then analysed using the same software.