Chapter- 3

Methodology

3.1 Research Methodology

Introduction

Research is a systematic investigation resulting in some formal record of procedures and the report of conclusions and results. Research has been defined as "a formal systematic and scientific method of analysis". Research as proved to be an essential and powerful tool in leading humanity towards progress. There would have been very little progress if not no progress in the world but for a systematic research endeavor. Research has originally drawn its spirit and pattern from the Physical Sciences-wherein constant efforts were made to understand the physical world around us. Research marks the use of rigorous and structured type of analysis of observed phenomena. The secret of cultural development has been research, pushing back the area of discovering new truths, which in turn lead to better ways of doing things and better products and conveniences to live and enjoy life at large.

3.1.1 Meaning of Research

The term research consists of two words "Re" and 'Search'. "Re" means again and "Search" means to find out something new. Thus, research is a process of which a person observes the phenomena again and again, collects data and he draws some conclusions based on data through a process of systematic analyses. Research in common parlance refers to a search for knowledge.

One can also define research as a scientific and systematic search for pertinent information on a specific topic. In fact, it can be said that research is an art of scientific investigation. The purpose of research is to discover answers to questions through the application of scientific process. The main aim of research is to find out the truth, which is hidden, and which has not been discovered yet. Another objective is to test a hypothesis formulated based on a causal relationship between variables.

3.1.2 Nature of Educational Research

Educational research is a "prominent key" which is essential to the opening of new doors and vistas in education. Educational research must be aimed at finding solutions to unsolved problems; at devising new media to meet certain functional needs which have never been met before; at finding better process and contents that there currently are in vogue.

3.2 Phases of the Study

After finalizing the research problem, the variables were conceptualized, and the operational definitions were made. The research begins with review of related literature the tools were constructed with the reference of standardized tool prepared by renowned professor. The sample for study was selected and the constructed tools were administered to collect the data, then the data were analyzed, and the framed hypotheses were tested, educational implications and conclusions were given based upon the obtained results.
The design of the whole study is condensed and presented in a flow chart form.
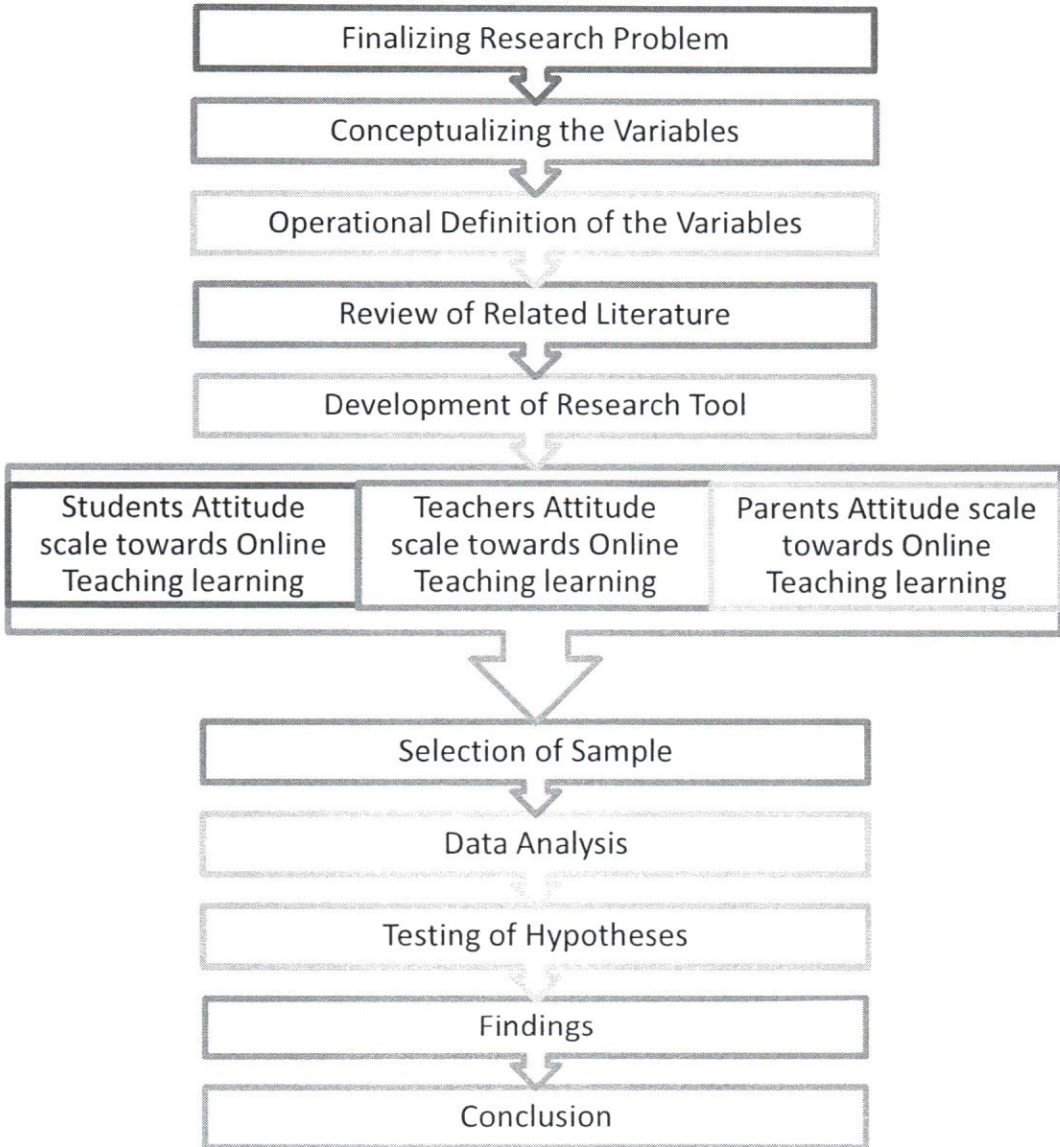
RESEARCH DESIGN

Finalizing Research Problem

Conceptualizing the Variables

Operational Definition of the Variables

Review of Related Literature

Development of Research Tool

| Students Attitude scale towards Online Teaching learning | Teachers Attitude scale towards Online Teaching learning | Parents Attitude scale towards Online Teaching learning |

Selection of Sample

Data Analysis

Testing of Hypotheses

Findings

Conclusion

Figure 3.1: Flow chart of showing Research Design in steps

3.3 Variables selected for the study

Students

A person formally engaged in learning, especially one enrolled in a school. In this study Pupils who are studying at secondary level (9th standard) of Delhi and Bhopal city.

Teachers

A teacher is a person who provides education for students. In this study Teachers who are working at secondary level (9th standard) of Delhi and Bhopal city.

Parents

Parents are the caretakers of a child. It refers to a father or mother or both. In this study parents refer either father or mother (or) both belonging to the students of secondary level (9th standard) of Delhi and Bhopal city.

Attitude

Attitude is an expression of favor or disfavor toward a person, place, thing, or event. In this study it refers the attitude of students, teachers and parents towards online teaching learning at secondary level (9th standard) of Delhi and Bhopal city.

3.4 Research Design of the Study

The present study belongs to descriptive survey research design, as it was intended to measure the level of attitude towards Online teaching learning process of, students, teachers and parents and regarding their management of school of secondary level. The variables involved in this study were attitude of students, teachers, and parents towards online teaching learning process. The background variables used in this study were type of schools.

The investigator has chosen samples in the classification of 40 students, 30 teachers and 55 parents respectively from the population from Delhi and Bhopal cities by using convenient sampling, the stratified random sampling technique. The investigator used three types of tools with different dimensions for students, teachers and parents. Type of tool was self-

prepared by the investigator for knowing attitude of the students, teachers and parents towards online teaching learning for the secondary level.

The collected data were analyzed by applying single factor ANOVA and t-Test-Two-Sample Assuming Unequal Variances to find out the results of the present study.

3.5 Tool used for data collection

1. The attitude scale for the students towards Online Teaching Learning at the secondary level is validated by the investigator.
2. The attitude scale for teachers towards Online Teaching Learning at the secondary level is validated by the investigator.
3. The attitude scale for the parents towards Online Teaching Learning at the secondary level is validated by the investigator.

3.6 Description of the tool

The scale of Students, Teachers and Parents attitude towards Online Teaching Learning at the secondary level is self-prepared by Researcher with reference of Scientific Attitude by Dr. N.N. Shrivastava Professor, Govt. Institute of Science Education Jabalpur; in order to assess the level of Students, Teachers and Parents attitude towards Teaching Learning, whose children Studying in the Secondary level schools in Delhi and Bhopal city.

3.7 Administration of Tool

The tools were prepared, and statements were constructed in Google forms separately for Students, Teachers and Parents and approached through online mode to different type of schools' head. Total 60 of each students, teachers and parents were approached through two private and one government schools from which one government and one private school with total 125 respondents (40 students, 30 teachers and 55 parents) responded to the survey research in this pandemic situation. And links of Google forms survey were sent through Whats App and Telegram App groups to different stakeholders according they responded.

3.8 Data collection procedure

- **PROCEDURE**

  The scales comprise of 20, 22, 24 items for Students, Teachers and Parents respectively having three alternative answers via; 'Always', 'Sometimes', and 'Never'. The subject is asked to choose an alternative for each item which best characterizes for his or her attitude. Detailed instructions given at the beginning of the scale are as follows:

- **INSTRUCTIONS**

  Read each item carefully and answer them by selecting one alternative always (1), sometimes (2), never (3). Every statement has three alternatives - 'Always', 'Sometimes', 'Never'. Please select the statement put the tick (√)on the circle on the option which is appropriate for you. If you are agree in making a decision about the given statement is correct for then put the tick on the circle of 'Always' and if you are not sure with the statement put the tick on the circle of 'Sometimes' and, if you are strongly disagree then put the tick on the circle 'Never'. I request all the participants try to complete it as soon as possible.

3.1.1.1 Table-Different Dimensions with Items

SCORING KEY FOR SCALE OF STUDENTS,TEACHERS AND PARENTS ATTITUDE TOWARDS ONLINE TEACHING LEARNING

Scale	Always	Sometimes	Never
Rating for Positive Statement	1	2	3
Rating for Negative Statement	3	2	1

Table 3.1: Scoring key for Attitude Scale

The constructed scale for assessing the level of Students attitudes towards Online Teaching learning consists 20 items with 5 different dimensions.

Each one is unique and has three options as 'Always', 'Sometimes', 'Never'. The scale consists of 20 statements. Which is classified into 13 positive items and rest of the 7 items were negative. The subject must choose any one out of three, which is considered, is his/her answer. The questionnaire is used for testing the level of attitude towards Online teaching learning.

Student

S. No.	Dimensions	Items	No. Of items
1	ICT Awareness	10, 15, 20	3
2	Internet Facilities	3, 14	2
3	Psychological State	1, 4, 5, 6, 9, 11, 19	7
4	Level of Interaction	7, 8, 16, 18	4
5	Financial State	2, 12, 13, 17	4
	Total		20

Table 3.2: Different Dimension for Students' Attitude Scale

The constructed scale for assessing the level of Teachers attitudes towards Online Teaching learning consists 22 items with 6 different dimensions. Each one is unique and has three options as 'Always', 'Sometimes', 'Never'. The scale consists of 22 statements. Which is classified into 11 positive items and rest of the 11 items were negative. The subject must choose any one out of three, which is considered, is his/her answer. The questionnaire is used for testing the level of attitude towards Online teaching learning.

Teacher

S. No.	Dimensions	Items	No. Of items
1	ICT Awareness	11, 20	2
2	Internet Facilities	21, 22	2
3	Computer based Evaluation	8, 16, 17,	3
4	Psychological State	5, 12, 13, 14,	5

		19	
5	Level of Interaction	6, 7, 9, 10, 15, 18	6
6	Management Instructions	1, 2, 3, 4,	4
	Total		22

Table 3.3: Different Dimension for Students' Attitude Scale

The constructed scale for assessing the level of Parents attitudes towards Online Teaching learning consists 24 items with 6 different dimensions.
Each one is unique and has three options as 'Always', 'Sometimes', 'Never'. The scale consists of 24 statements. Which is classified into 14 positive items and rest of the 10 items were negative. The subject must choose any one out of three, which is considered, is his/her answer. The questionnaire is used for testing the level of attitude towards Online teaching learning.

Parents

S. No.	Dimensions	Items	No. Of items
1	ICT Awareness	9, 11, 14	3
2	Internet Facilities	12, 13, 17, 20	4
3	Psychological State	1, 2, 3, 18, 22	5
4	Level of Interaction	4, 6, 7, 8, 16, 19, 24	7
5	Financial State	21	1
6	Physical Health	5, 10, 15, 23	4
	Total		24

Table 3.4: Different Dimension for Students Attitude Scale

3.9 Validity of tools of Students, Teachers and Parents Attitude Towards Online Teaching Learning

Validity of a test is defined as the degree to which the test measures what it is intended to measure. Thus, validity means truthfulness of the test. In this

test the investigator has tried to establish the validity of the tools of students, teachers and parents' attitude towards Online Teaching Learning Process.

Validity of the given test appears (or) seems to measure what it is to measure. The constructed scale for finding the level of students, teachers and parent's attitude towards Online Teaching Learning Process satisfy their criteria and hence validity was established.

3.10 Sample for the study

In the sample method the information is obtained only from a small part of the population and based on this inference is drawn for the entire population. Sampling is thus a study of the part of the urban areas of Delhi and Bhopal. Some population is so large that their study would be expensive in terms of time, money, and effort and manpower. Sampling is the process by which a relatively small no. of individuals or measures of individuals, objects or events is selected and analyzed in order to find out something about the entire population from which it was selected. It's often desirable to reduce expenditure, save time and energy, permit, measurement of greater precision and accuracy.

To make the study viable the sample size for this survey research confined to 40 students, 30 teachers and 55 parents total from one government and one private school. Sampling procedure provides generalizations based on relatively small portion of population in the form of sample. In this study researcher used the random sampling method. In random sampling method, each unit of the population is given an equal chance of being selected.

3.11 Data collection procedure

Data is collected by the survey method through distribution of questionnaire in Google form link by online mode because of Pandemic situation. The study used a self-prepared questionnaire as research instruments in order to triangulate its results. Due to the problems resulted from the pandemic of COVID-19 in 2020, most of the schools and Colleges adopted online teaching-learning instead of in-class learning so that they can avoid infection among the students. In order to find out the attitude of students, teachers and parents towards online teaching learning the questionnaire was distributed to

40 students, 30 teachers and 55 parents who were the part of the study, through their What's app numbers and Telegram group.

3.12 Scoring and Consolidation of data

Scoring was done as per the reference scale scoring scheme used for the tool. The sample was obtained from different management of school a final sample of 40 students,30 teachers and 55 parents were combined in Google form later it was analyzed by filtering into MS Excel for calculation convenience. After scoring, the data was tabulated for variables with respect to the type of management of school of the students, teachers and parents. This consolidated data was used for statistical analysis.

3.13 Statistical techniques used

The data obtained from the questionnaire items were analyzed by using One-way Analysis of Variance (ANOVA). The mean scores of students, teachers and parents' attitude were calculated and One-way ANOVA and t-Test: Two-Sample Assuming Unequal Variances were used in a sequence to show whether there were any statistically significant differences between the means of students', teacher' and parents' responses to the questionnaire items.

This figure summarizes what needs to be calculated to perform single-factor ANOVA.

Analysis of Variance(ANOVA)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares (MS)	F
Within	$SS_w = \sum\limits_{j=1}^{k}\sum\limits_{j=1}^{l}(X-\bar{X}_j)^2$	$df_w = k-1$	$MS_w = \dfrac{SS_w}{df_w}$	$F = \dfrac{MS_b}{MS_w}$
Between	$SS_b = \sum\limits_{j=1}^{k}(\bar{X}_j - \bar{X})^2$	$df_b = n-k$	$MS_b = \dfrac{SS_b}{df_b}$	
Total	$SS_t = \sum\limits_{j=1}^{n}(\bar{X}_j - \bar{X})^2$	$df_t = n-1$		

Figure 3.2: Analysis of Variance Table

Conclusion

The investigator used the tool – 'Attitude Scale' to measure the variable 'Attitude' involved in the study. Above mentioned the methodology discussed in this chapter, the investigator could arrive at the results which are discussed in the later chapters.