Chapter III

Procedure of the Study

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3.0 INTRODUCTION

The past researches related to non-verbal communication have been reviewed in previous chapter. The present chapter covers the procedure adopted in the present study like, the description of sample, the tools used and the steps taken in carrying out the present study. It also reports systematically about the tool construction and administration. An elaborated detail of the actual procedure adopted by researcher in the present study is as follow.

3.1 TYPE OF THE STUDY

The present study is experimental in nature, where the quasi-experimental design was followed to conduct the study. The researcher employed descriptive observation method in the process of the experiment due to the nature of non-verbal communication as stated according to O'Hair & Ropo (1994), that non-verbal cues are often natural and, reflexive occurrences take place during normal communication actions. In the teaching process also, instructors subconsciously use many non-verbal cues to deliver message to their students. Moreover, the greater percentage of non-verbal communication is visual and requires receiver presence during the communication exchange. Therefore, when measuring the non-verbal cues in the communication process, the receiver must have a presence in the communication environment. These points made it ideal to use descriptive observation method to answer the research questions of the present study. Also, Merriam (1998) (as cited in Anderson, 2001) states that descriptive observation is the best way to collect data in

the participants' natural field setting and represents "a firsthand encounter with the phenomena of interest rather than a secondhand encounter of the world obtained in an interview".

3.2 DESIGN OF THE STUDY

The Quasi-experimental research design was used in the present study. In order to achieve the objectives of the study, pre-test- post-test control group design was used. The design of the study is shown in the figure 3.1

Experimental Group
(10 student-teachers)

Control Group
(10 student-teachers)

Pre-programme observation
In simulated setting
(Pre-Testing)

Pre-programme observation
In simulated setting
(Pre-Testing)

↓

↓

General Pedagogy of teaching +
Programme on Non-verbal Communication
(Experimentation)

General Pedagogy of teaching
(No Experimentation)

↓

↓

Process Observation
During Practice Teaching
With Feedback

Process Observation
During Practice Teaching
With Feedback

↓

↓

Post-programme observation
(Last Two Blocks of Practice Teaching)
+ Reaction of B.Ed. student-teachers
(Post-Testing)

Post-programme observation
(Last Two Blocks of Practice Teaching)
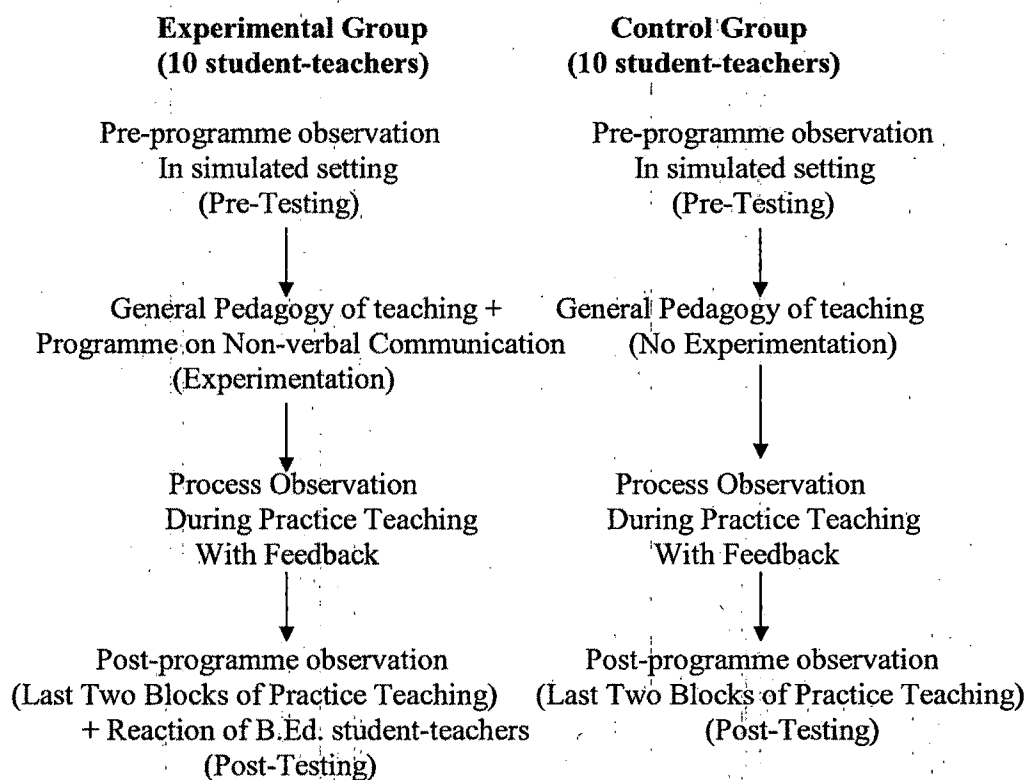(Post-Testing)

Figure 3.1 *Design of the Study*

The quasi-experimental design in the present study comprises of pre-test for experimental group and control group, experimentation and post-test for experimental group and, post-test for control group with no experimentation. The present research

is carried out considering the nature and procedure of teacher training programme. Pre-testing, experimentation and post-testing were arranged according to pre-decided phases of teacher training programme. The pre-testing or the pre-orientation phase was in the form of observation of one lesson of each student- teacher of experimental and control group in simulated setting and is called as pre-program observation in the present study. The lessons taught by experimental group and the control group in pre-programme observation were video recorded with the purpose of its use in the training programme developed for the use of components of non-verbal communication in classroom transaction. Both the experimental and control groups were exposed to the general pedagogy of teaching. The experimental group was exposed to the training programme on non-verbal communication along with the general pedagogy of teaching. This marked the onset of experimentation for the experimental group, whereas, there was no experimentation for the control group. As per the procedure of teacher training programme, both the groups gave lessons in real classroom as part of general practice teaching programme and this marked the onset of post-orientation phase of the present study. The post-orientation phase was divided in ten blocks. Randomly selected one lesson from four lessons constituted one block. In the post-orientation phase, during practice teaching programme, both the groups were observed in one scale and accordingly given the feedback on the basis of their knowledge and orientation. The control group was given feedback related to general pedagogy of teaching to which they were exposed. The experimental group was given feedback focused on non-verbal communication along with the usual feedback. The feedback to both the groups was given for eight blocks i.e. 32 lessons of 35 minutes each. This phase of post-orientation is called as process observation in the present study. Both the experimental and control group were exposed to post-testing for the

last two blocks i.e. eight lessons of practice teaching. The reaction scale prepared by researcher was administered to the experimental group which is based on theory and practice on non-verbal communication. This phase of post-testing is called as post-program observation in the present study. The different phases of study are shown in figure 3.2
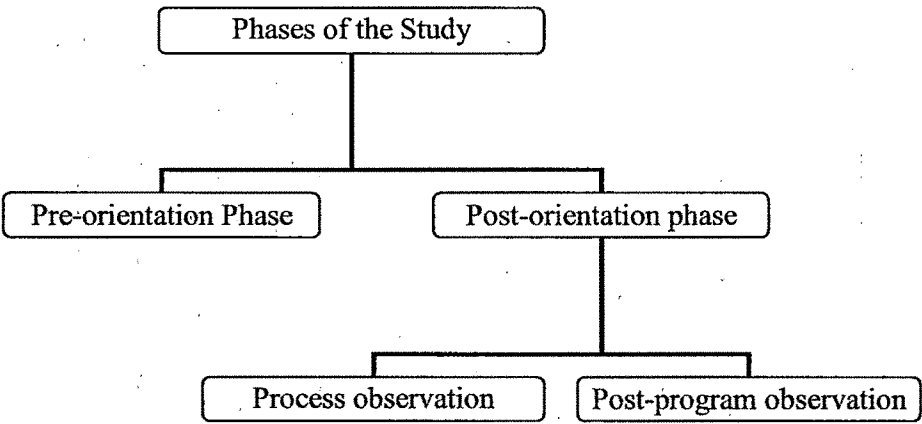

Figure 3.2 *Phases of the Study*

3.3 POPULATION AND SAMPLE

Pre-service B.Ed. (one year duration) student-teachers in India constituted the population of the present study. The sample was selected purposively objective wise as shown in table 3.1. For the first objective i.e. to identify the components of non-verbal communication used by teachers in classroom teaching learning process, fifteen secondary school teachers with good reputation from schools of Agra were selected purposively. The teachers with good reputation were selected on the basis of information collected from the principals of schools. The schools were selected purposively for this objective. For the third and fourth objectives of the present study i.e. to orient B.Ed. student-teachers on the skills of non-verbal communication for classroom transaction and to study the impact of the non-verbal communication used

by student-teachers on classroom transaction, Faculty of Education, Dayalbagh Educational Institute, Deemed University, Agra was selected purposively as sample. Further, 20 student-teachers were selected randomly from this selected sample as the sample element. From these selected 20 student-teachers, 10 student-teachers each were assigned randomly to control group and experimental group. After selection of the sample, the next requisite was to select the appropriate tool for the collection of data.

3.4 CONSTRUCTION OF TOOLS

As there was no readymade tool available in accordance with the objectives of the present study, the researcher prepared four tools; the precise description of each of these tools is given as follow.

(i) Observation Schedule: Observation schedule was prepared by the researcher to identify the components of non-verbal communication used by secondary school teachers in classroom teaching-learning process.

(ii) Scale to Observe Non-Verbal Communication Behaviour: A five-point Likert type equal appearing interval scale to observe non-verbal communication behaviour was prepared by the researcher to examine the occurrence of components of non-verbal communication in the behaviour of B.Ed. student-teachers during classroom transaction.

(iii) Scale to Observe Classroom Transaction of B.Ed. Student-Teachers : A five-point Likert type equal appearing interval scale to observe classroom transaction of B.Ed. student-teachers was developed.

(iv) Reaction Scale: A five-point Likert type equal appearing interval reaction scale was prepared by the researcher to measure the reaction of student-teachers about the training programme on non-verbal communication.

All these tools were prepared for administration on different sample group which represents different objectives. For the clarity of tools according to sample and objectives, table 3.1 is given as follow.

Table 3.1 *Tools According to Sample and Objectives*

Objectives	Sample	Tool
Objective 1 : To identify the components of non-verbal communication used by teachers in classroom teaching learning process.	5 Secondary Schools of Agra ⇓ 15 secondary teachers from 5 schools of Agra ⇓ 30 periods of 35 minutes each observed of 15 teachers selected.	Observation Schedule
Objective 3: To orient B.Ed. student-teachers on the skills of non-verbal communication for classroom transaction.	20 B.Ed. student-teachers of Faculty of Education, DEI University, Agra ⇓ ⇓	
Objective 4: To study the impact of non-verbal communication used by student- teachers on classroom transaction.	Experimental Group (10 Student-Teachers) Control Group (10 Student-Teachers)	• Scale to Observe Non-Verbal Communication Behaviour • Scale to Observe Classroom Transaction of B.Ed. Student Teachers • Reaction Scale for Experimental Group

Construction of Observation Schedule to Observe Non-Verbal Communication Behaviour of Secondary School Teachers

The observation schedule was prepared in accordance with the objective to identify the non-verbal cues used by teachers in classroom transaction. The schedule had the general information like, the class observed, name of the teacher and duration of observation and the components of non-verbal cues as identified by the literature review. The non-verbal cues were identified by literature review and these were included in the observation schedule include kinesics, paralinguistics, haptics, olfatics, posture, appearance and artifacts. The observer had to observe the occurrence of these components of non-verbal communication as used by the teacher in the classroom transaction and their detailed descriptions. The tool is given in Appendix-I.

Construction of Scale to Observe Non-Verbal Communication Behaviour of B.Ed. Student-Teachers

Constructing the rating scale is a very technical job and requires great care, skill, efficiency and experience. A five point Likert type equal appearing interval rating scale was prepared for the present study. For the preparation of the scale the researcher followed the following steps as follow.

(i) Collection of Items

Items for the scale of non-verbal communication were identified from - (a) literature review of studies related to non-verbal communication and (b) classroom observation of non-verbal cues used by secondary school teachers in classroom transaction. The components of non-verbal communication thus identified and considered for the inclusion in the rating scale were kinesics, proxemics, chronemics,

paralinguistics, artifacts, haptics, olfatics, facial expressions, posture and physical appearance.

(ii) Selection of Items

The components included in rating scale were examined and analyzed. The sub-components of each component were categorized and the first draft of the scale was prepared. Each of these components was categorized for the three phases of classroom transaction – (i) Introduction phase (ii) Presentation phase (iii) Revision phase. The first draft of the scale was given to eight experts consisting of distinguished and experienced personnel in the field of Education, non-verbal communication, language and psychometry. Their opinion and suggestions were considered for giving the final shape to the tool. Then, the tool was tried out on five video-recorded teaching sessions by the researcher and an observer. On the basis of the try out and considering the feasibility of the observation of non-verbal communication behavior, required changes were made in the tool. The components and sub-components of non-verbal communication included in the final draft of the tool are mentioned in table 3.2.

Table 3.2 : *The Components & Sub-Components of Non-Verbal Communication Included in the Scale to Observe Non-Verbal Communication Behaviour*

S.No.	Components	Sub-Components
1.	Oculesics (Eye contact)	Eye contact while asking questions
		Eye contact during explanation
		Use of eye contact to maintain discipline
		Eye contact while receiving answer
2.	Paralinguistics (Vocalics)	Tone
		Pitch
		Loudness (volume)
		Rate of speech (speed)
		Word flow
3.	Proxemics(Distance)	Movement in the class
4.	Facial expressions	Use of Frowns / Warning Expression
		Use of Smile
		Change in Facial Expression
5.	Kinesics(Gestures)	Head movements
		Hand movements
6.	Chronemics (Use of Time)	Pause after questions to allow students time to think of an answer.
		Pauses during explanation
7.	Artifacts	Style of dressing
		Professional appearance
8.	Posture	While standing
		While walking
		While working on blackboard

(iii) Rating of Items

The use of sub-components of each component were rated on five points in the scale viz. (a) most appropriate (b) appropriate (c) satisfactory (d) inappropriate (e) most inappropriate. These ratings were defined on the basis of appropriateness of

its use in the classroom transaction as given in table 3.3. The final draft of tool is given in Appendix II.

Table 3.3: *Description of Each Rating in the Rating Scale*

S.No.	Rating	Description
1.	Most Appropriate	The use of non-verbal cues which enriched the communication among students and, teacher and reinforced the learning consistently i.e. throughout the observed phase was rated as 'most appropriate'.
2.	Appropriate	The use of non-verbal cues which although enriched the communication among students and, teacher and reinforced the learning but lacked consistency of its use to some extent during the observed phase was rated as 'appropriate'.
3.	Satisfactory	The use of non-verbal cues which did not enrich the classroom communication much but was not even barrier to classroom communication was rated as 'satisfactory'.
4.	Inappropriate	The use of non-verbal cues which was barrier to classroom communication at some events during the observed phase was rated as 'inappropriate'.
5.	Most Inappropriate	The use of non-verbal cues which was barrier to classroom communication throughout or most of the times during the observed phase was rated as 'most inappropriate'.

Construction of Scale to Observe Classroom Transaction of B.Ed. Student-Teachers

A rating scale was prepared to observe classroom transaction of B.Ed. student-teachers. This rating scale was attached with the scale to observe non-verbal communication behavior of B.Ed. student-teachers wherein the general information like, the class observed, name of the student-teacher and subject taught was sought. Hence in the scale to observe classroom transaction, information was not sought again. The observer had to rate the classroom transaction by B.Ed. student-teacher focusing on the five factors (i) Discipline in the classroom (ii) Attention of students in the classroom during classroom transaction (iii) Classroom interaction (iv) Interest of the students (v) Classroom environment.

The first draft of the scale was given to four experts consisting of distinguished and experienced personnel in the field of Education, language and psychometry. Their opinion and suggestions were considered for giving the final shape to the tool. Then, the tool was tried out on five video-recorded teaching sessions by the researcher and an observer. The factors related to classroom transaction as discussed above were rated on five points in the scale - (a) Very Good (b) Good (c) Satisfactory (d) Poor (e) Very Poor. The tool is given in Appendix-III.

Construction of Reaction Scale

A five-point Likert type equal appearing interval rating scale was prepared for the present study to know the reactions of B.Ed. student-teachers of experimental group towards the training programme on non-verbal communication. In the first draft, 30 items were prepared in the form of statements stating the reaction of student-teachers to the program of non-verbal communication. The first draft of the scale was

given to five experts consisting of distinguished and experienced personnel in the field of Education, non-verbal communication, language and psychometry. Their opinion and suggestions were considered for giving the final shape to the tool. After the suggestions of the experts, required changes were made. The statements which communicated the same meaning were deleted. In the final draft, a total of 25 items were selected. The rating scale has five ratings viz. (i) Strongly Agree (ii) Agree (iii) Neutral (iv) Disagree (v) Strongly Disagree. The reaction scale is given in Appendix IV.

3.5 VALIDITY AND RELIABILITY OF TOOLS

The validity and reliability of the tools developed for the present study is discussed as follow.

Validity of Tools

The content validity of the rating scales was determined on the basis of experts' opinion. Items of the highest agreement i.e. with 85% agreement or above were included in the tool.

Reliability of the Tool

The inter observer reliability was measured to find the reliability of scale to observe non-verbal communication. The classroom transaction by B.Ed. student-teachers was observed by the researcher and an observer who was trained for this purpose using a five-point rating scale. Correlation between the ratings of the observers and the researcher was used to find the inter-observer reliability.

The observer was trained by following the general guidelines articulated in observation materials that included the communication-behavior rating scale and content used for this study (Borg & Gall, 1979; Anderson, 2001). The observer was given the opportunity to learn and become familiar with the scale and the observation protocol by completing a five-step process prior to collecting the data. Completing the five-step process promoted consistency, content understanding, observation accuracy and reliability of the collected data. The five-step process involved understanding the definitions of non-verbal cue/behavior, reviewing examples of the categories of non-verbal cues, viewing pre-recorded video-taped teaching sessions and rating these cues using the rating scale. To further assist in inter-reliability, other safeguards implemented to ensure the development of a reliable recording instrument and observer were:

1. Observer training: The terms of non-verbal communication were clarified and the interpretation of each component was discussed with the observer followed by viewing, observing and rating the pre-recorded teaching sessions using the tool as mentioned in the above section.

2. Observer trust: The observer who had classroom experience, from a student perspective, and had interest in the study was asked to serve as an observer.

3. Reliability estimates taken throughout the testing period: The observer was constantly monitored to ensure consistency and reliability of the data recording. This helped from the outset to identify the factors that might influence observer reliability. The observer was checked for reliability at various stages of the study.

3.6 ADMINISTRATION OF TOOLS

After establishing the reliability and validity of tools, these were administered for the required purpose. The observation schedule to identify the components of non-verbal communication used by secondary school teachers in classroom teaching-learning process was administered in the pre-programme observation phase on secondary school teachers. It was administered on 15 secondary school teachers to observe two periods of 35 minutes for each teacher. The purpose of observation was not revealed to school teachers as it might have made them conscious to the use of non-verbal communication which in turn would have affected the observation. For administering this tool, the permission was sought from the principal of the schools.

After identification of non-verbal components used by teachers in the classroom and after the review of literature, a training programme on non-verbal communication was developed for experimental group. The scale was prepared to observe the non- verbal communication behaviour of experimental group and control group. It was administered in two phases – (i) Pre-orientation phase i.e. Pre-programme observation, where scale was administered in the simulated settings (ii) Post-orientation phase included two sub-phases of observation (a) Process observation, where scale was administered in the real classroom (b) Post-programme observation, where scale was administered in the real classroom during the last phase of practice teaching. In the post-orientation phase, lessons were observed in blocks. Randomly selected one lesson from four lessons constituted a block. There were total ten blocks in post-orientation out of which first eight blocks constituted process observation and last two blocks constituted post-program observation. The purpose of administration of the scale was not revealed to the control group. The experimental

group knew that the purpose of observation was to give feedback to them on the use of non-verbal components. Along with the scale to observe non-verbal communication behavior of B.Ed. student-teachers, a scale to observe classroom transaction of B.Ed. student- teachers was also administered on both the groups.

At the end of the experiment, the reaction scale was administered on B.Ed. student-teachers of experimental group to know their reactions to the program on non-verbal communication. The purpose of administration of all the three tools was different. Hence different scoring procedure was adopted for these tools, which is discussed in the succeeding section.

3.7 PROCEDURE OF SCORING

The observation schedule used to identify the components of non-verbal communication was descriptive in nature; hence no scoring system was used. The union of all the components and their sub-components as observed in 30 observation sheets was enlisted to identify the components of non-verbal communication used by teachers. Here the union refers to mathematical union which was used to prepare the list of common components and uncommon components of non-verbal communication in observation schedule of different teachers.

The scoring pattern for the scale to observe non-verbal communication behavior of B.Ed. student-teachers, scale to observe classroom transaction of B.Ed. student-teachers and the reaction scale was same. The maximum rating in all the scales was scored by five and minimum rating was scored one. The better clarity of scoring of the scales is indicated in table 3.4.

Table 3.4. *Scores of Descriptive Terms in Scale to Observe Non-Verbal Communication, Scale to Observe Classroom Transaction and Reaction Scale*

	Descriptive Term in			
S.No.	Scale to Observe Non-Verbal Communication	Scale to Observe Classroom Transaction	Reaction Scale	Score
1.	Most Appropriate	Very Good	Strongly Agree	5
2.	Appropriate	Good	Agree	4
3.	Satisfactory	Average	Neutral	3
4.	Inappropriate	Poor	Disagree	2
5.	Most Inappropriate	Very Poor	Strongly Disagree	1

3.8 TRAINING PROGRAMME ON NON-VERBAL COMMUNICATION

A training programme on the use of components of non-verbal communication for classroom transaction was developed using the components of non-verbal communication identified from the observation of classroom transaction of selected teachers, theoretical background of non-verbal communication and review of studies related to non-verbal communication. The training programme included the components of non-verbal communication skills related to the components like, kinesics, oculesics, proxemics, paralinguistics, chronemics, facial expressions, artifacts and posture. It covered the theory about the skills of non-verbal communication, and the guidance to use these skills with sufficient examples. The training programme was of 10 hours duration including introduction to components of non-verbal communication (four hours), self & peer evaluation of use of components of non-verbal communication (three hours) and practice of use of components of non-verbal communication in experimental settings (three hours). The programme took 10

working days with approximately 60 minutes per day for implementation excluding pre-orientation recording of lessons in simulated settings. Ten hours training programme was followed by continuous feedback on use of non-verbal communication for 32 lessons to the experimental group. The training programme is given in detail in Appendix V.

3.9 IMPLEMENTATION OF THE DEVELOPED TRAINING PROGRAMME

The training programme developed on use of non-verbal communication in classroom transaction was implemented on the experimental group in the three phases which are discussed as follow.

(i) Introduction to components of non-verbal communication: On the first day of the training programme, B.Ed. student-teachers of the experimental group were introduced to the concept of communication and its types. The importance of non-verbal communication in teaching was then discussed with them. On the second day, B.Ed. student-teachers observed the video recordings of teaching sessions to identify the components of non-verbal communication used in classroom teaching. This was followed by preparation of list of components of non-verbal communication as identified in video recorded teaching session. The comprehensive list of components of non-verbal communication was thus prepared. On the third day, the meaning & appropriate use of oculesics, proxemics, chronemics, paralanguage was discussed with the student-teachers. On the fourth day of the training programme, the meaning & appropriate use of kinesics, facial expressions, posture and artifacts was discussed with the student-teachers.

(ii) Self & peer evaluation of use of components of non-verbal communication: The student-teachers were shown the video recordings of lessons taught by them in

simulated setting in the pre-programme observation phase. This was followed by intensive feedback and reflective discussions focused on the use of non-verbal communication in the form of (i) self-feedback by the student-teacher, (ii) feedback from the researcher, trained observer and peer group. This was continued for the fifth, sixth and seventh day of the training programme.

(iii) Practice on the use of components of non-verbal communication: From the eighth day to the last day i.e. tenth day of training programme, student-teachers practiced the use of components of non-verbal communication in experimental settings. The experimental settings here meant the simulated settings wherein the each student-teacher practiced the appropriate use of components of non-verbal communication for classroom transaction.

Each day the training programme was continued for one hour duration. The implementation of this ten day training programme was followed by focused feedback on use of non-verbal communication, to experimental group for 32 lessons given by them during real classroom practice teaching, by the researcher and trained observer using the scale to observe non-verbal communication behaviour and observation schedule to observe the classroom transaction of student-teachers. At the end of practice teaching programme, reactions of the experimental group on the training programme were taken using the reaction scale prepared by the researcher.

3.10 DATA COLLECTION

The data reported in this study were collected through a descriptive observation method that involved observation and noting the teacher's non-verbal communication behaviour. The data was collected using the four tools as described in the preceding sections.

3.11 PROCEDURE OF DATA ANALYSIS

The data was analyzed qualitatively where intensity index and graphical representation was used for analysis of data. The techniques used for the analysis of data are presented in accordance with the tool in the table 3.5.

Table 3.5. *Techniques Used for Analysis of Data Collected Through Different Tools*

S.No.	Tool Used to Collect Data	Techniques Used for Analysis of Collected Data
1.	Observation Schedule to observe non-verbal communication of secondary school teachers	Union of sets of data
2.	Scale to observe non-verbal communication of B.Ed. student-teachers	Intensity Index[a]
3.	Scale to observe classroom transaction of B.Ed. student-teachers	Intensity Index[a]
4.	Reaction Scale to measure the reactions of experimental group towards the training program on non-verbal communication	Intensity Index[a]

[a] Intensity Index is the average of the intensity of ratings for each sub-component of different components of non-verbal communication.

The procedure of data analysis and its interpretation is presented in detail in Chapter Four.