# Chapter 3

# Methodology of the study

# CHAPTER III

## METHODOLOGY OF THE STUDY

### 3.0. INTRODUCTION

This chapter on methodology of the study contains the information about the design, sample, instruments and the procedures of data collection and data analysis, so that any other readers or researchers could replicate the study if they wish. In the design subsection the researcher has described the experimental design under which the research was carried out, including the factors such as sample, the methods, time of data collection, classification of variables, instruments used and as such full description of the procedure.

### 3.1. DESIGN OF THE STUDY

The goal of any study is attained only if the research is conceived and executed in such a manner that the information collected is accurate and relevant directly to the problem posed. Therefore by carefully designing the study, the research can reduce the sources of error and get an answer to the research question without any distortion. As the experimental research increases the applicability of educational practice in specific situation and further it also helps in generating better insight into the instructional process, the investigator selected the following design. Looking at the nature of the present investigation, which is an intervention study and the approach is developmental, the investigator employed the Pretest –Posttest control group design. In this design the investigator involved two groups, experimental group and control group, both of which were formed by random assignment and were administered pretest of the dependent variable, one group received the special treatment and then both the groups were post tested. This design diagrammatically can be represented as follows:

RANDOMIZATION  GROUP  PRETEST  TREATMENT  POSTTEST

R  → EXPERIMENTAL  →  T1  →  X  →  T2
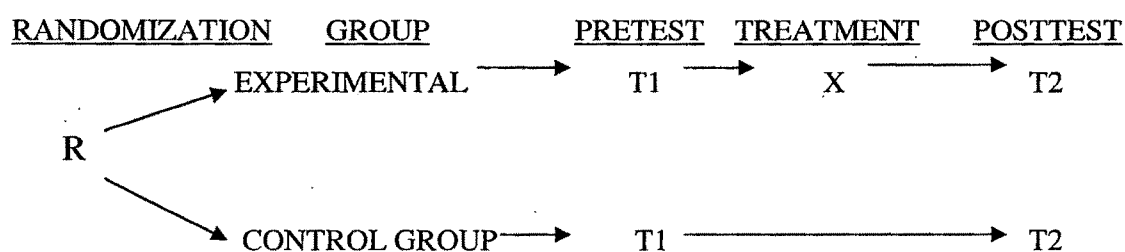
↘ CONTROL GROUP →  T1  →  T2

Figure 3.1.: Pretest – Post test Control Group Design

The combination of random assignment and the presence of a pretest and a control group served to control all sources of internal invalidity. Specifically the eight classes of extraneous variables identified by Campbell and Stanley (1963), namely, History, Maturation, Testing, and Instrumentation, statistical regression, diffusion of treatment, experimental mortality and selection- maturation interaction, were taken care to ensure internal validity of the experimental design. Also the external validity was considered in this design. To ensure the validity of the design the investigator took the following measures.

The investigator ensured that there is no occurrence of any other event except for the intervention programme given to the experimental group. The principals of the experimental group and control group were requested for this matter and they cooperated with the investigator. The intervention programme was held continuously for three months and except the regular B.Ed. classes, there was no such programme that could affect performance on the dependent variable. The two groups were randomly assigned and analysis of covariance was employed, which took care of the threat of selection and statistical regression. There were time gap of three months between pretest and posttest; therefore pretesting had no impact on the subjects. Also the nature of the inventories was such that there was no question of becoming 'Test – wise'. Another threat to internal validity related to testing is, instrumentation. This was taken care by not changing the instruments used for data collection. Standardized instruments were used. Also there was same observer from the beginning till the end of the intervention programme. Usually, if at all, any drop out is there in the B.Ed. Programme, it is in the beginning of the B.Ed. session. The research programme was conducted during the second part of the academic year and there were no dropouts of the subjects during investigation.

The experimental group and the control group never came in contact with each other, as the two groups were assigned from two different B.Ed. colleges situated 75 kms (approximately) apart from each other. If one looks for the external validity, the subjects used in the investigation had the characteristics, which represent the population therefore in the generalization of the result, there is no dilemma. The physical condition and environment for research had no effect on the test because the

subjects were not considered themselves as only the subjects in research but they took the intervention programme and inventories seriously as a measure for their own personal growth. They were happy with the opportunity they got to learn about themselves and they did not feel forced to participate in the research programme.

## 3.2. POPULATION AND SAMPLE

Selection of a 'good' sample is a very important step in conducting a research study. And a 'good' sample is one that is representative of the population from which it is selected. Since the design employed to the present study is Pretest –Posttest control group design, the investigator selected a Random sampling method for the selection of a sample, which takes care of the internal validity of the design.

The population of the present study was the group of interest to the researcher, the group to which one would like the results of the study to be generalizable. The population for the present study comprises of all the B.Ed. student-teachers of the colleges of Jharkhand state. These colleges are, Ursuline Women Teachers' Training Centre, Lohardaga, Loyola B.Ed. (Men) College , Jamshedpur, Bethesada Women Teachers' Training (B.Ed.) College, Ranchi, Government Teachers' Training College(men) Bariatu, Government teachers' Training College (Women) Bariatu, Hazaribagh Government teachers' training college and Deoghar Government teachers' Training college and few other colleges. Out of these, the first three are run by private institutions, affiliated to Ranchi University and recognized by NCTE. And other colleges are government colleges run by the state government and affiliated to Ranchi University, Binova Bhave University, Hazaribagh and Sidhoo – Kanhu Murmu University, Dumka, respectively. All these colleges have same B.Ed. syllabus run for one full year, and the student- teachers of these colleges come from urban and rural areas of Jharkhand state with two or three exceptions, having different socio-economic status and ethnic group but basically similar cultural background. Recently, that is, in the academic session 2005-2006, NCTE has given recognition and permission to 12 colleges in the state to start the B.Ed. courses; one college in Ranchi University, five colleges in Sidhoo Kanho University and six colleges in Binobha Bhave University. These colleges are S.P. College Dumka, A.S. college Deoghar, K.K.M. college Pakhur, Sahebganj college, Godda college, St. Colombus college , Hazaribagh, Bokaro Steel city, SSLNT college Dhanbad, RSP college Jharia, JJ

college Jhumritilaiya, Chatra college and Karim city college, Jamshedpur. (Figure) Therefore the students-teachers of these colleges are also included in the population of this study, though at the time of selection of the sample, these student-teachers did not exist in the field.

# MAP OF JHARKHAND



FIGURE 3.2 : MAP OF JHARKHAND

SOURCE : Adapted from Vinay Prakashan, Palamu, Jharkhand (2001)

The appropriate sampling technique to select the sample from such population would be to draw samples at different stages. For the purpose of the present study, the investigator took the two stage sampling technique. Selecting the sample at two different stages independently is called **two stages sampling** (CASE, 2002).In this situation B.Ed. colleges and student-teachers were two independent sets of units. In order to select a sample through this two stage random sampling method, the investigator wrote the names of all the B.Ed. Colleges of Jharkhand state, as mentioned above, on separate slip of papers and placed them in a container. After ·shaking the container well, two slips were picked up. It was decided earlier that the first slip would be for experimental group and the second one for control group of the sample. In this process the first name appeared was, Bethesda B.Ed. College , Ranchi and the second name , Ursuline B.Ed. College Lohardaga. College in separate slip of papers and twenty slips were picked up randomly to form the experimental group for the present study. In the same way all the 100 roll numbers of student teachers of Ursuline B.Ed. College were written on the separate slip of papers, from where again 20 slips were picked up randomly to form control group.

Both the colleges are private institutions, established and administered by groups of different denominations of the Indian Church, under the fundamental rights guaranteed by Art.30 of the constitution of India. Bethesda B.Ed. College is situated in the heart of Ranchi city, established in 1980. There are 80 seats granted by NCTE. Ursuline B.Ed. College is 75 kms. away from Ranchi, situated in Lohardaga district. This college is granted 100 seats. The criteria for the selection of the student teachers are based on merit, entrance test performance and the interview taken after qualifying the entrance test. Weightage is given to master's degree holder and the method subjects, which the colleges offer. But many students come for this course after their graduation. The student teachers fall under the age group 22- 28 years. The medium of instruction is English but the students are given freedom to express themselves in English or Hindi, during examination and interaction. The duration of the B.Ed. course is one year starting from the month of July to May.

## 3.3. DESCRIPTION OF THE TOOLS USED

Keeping in mind the nature and the objectives of the present study the following tools were used to collect the necessary quantitative and qualitative data.

The qualitative data were used as an accompaniment to the quantitative data for the richness of the study and to test all the hypotheses of this study in an adequate manner. In the present study the tools used can be divided into three categories.

I – Tools used before and after the intervention programme.

    (a)    Emotional Intelligence Scale (Schutte)

    (b)    EQ Map questionnaire

    (c)    Reaction Scale for feedback of the intervention programme.

II- Tools used as an accompaniment of the data collected.

    (a)    Casual observation

    (b)    Anecdotal Records

    (c)    Interview schedule for the student teachers.

III- Tools used during the intervention programme as part of the educational programme.

    (a)    Enneagram Triad Personality Indicator

    (b)    Enneagram questionnaire

    (c)    Enneagram Personality Portraits Inventory and Profile.

    (d)    Family Script Interview.

## 3.3.1. EMOTIONAL INTELLIGENCE SCALE (SCHUTTE et al., 1998)

The Emotional Intelligence scale is a 33- item self –report measure of the ability to adaptively recognize emotion, express emotions, regulate emotion, and harness emotions (Schutte, Malouff, Hall, Haggerty, Cooper, Golden & Dornheim,1998). The authors used Salovey and Mayer's (1990) model of emotional intelligence to generate an initial pool of 62 items. On the basis of Factor analysis, the final 33 scale items were selected. (Appendix A) These items represented all dimensions of Salovey and Mayer's (1990) model.

Items assess the ability to adaptively recognize, express, regulate, and harness emotion in the self and in others. Respondents use a 5-point scale on which '1' represents "strongly disagree" and '5' represents "strongly agree" to answer each item. Items 5, 28 and 33 are reverse coded. The sum of all items comprises the total scale score, which can range from 33 to 165. Higher scale score indicate greater emotional intelligence. Test –retest reliability over two-week interval of this scale is 0.78. and as a part of predictive validity study emotional intelligence scale

significantly predicted grade point average at the end of the year, r =0.32, p< 1.01, (Schutte et al., 1998.)

### 3.3.2. EQ MAP QUESTIONNAIRE

As a result of combined effort of Cooper, Sawarf and a group of their colleagues (1997) an introductory version of the EQ Map was developed. This Instrument is extensively researched, nationally norm- tested, statistically reliable that enables the individuals to begin charting their relative strengths and vulnerabilities across a wide range of characteristics related to emotional intelligence. This EQ Map has been pilot-tested on thousands of executives, managers and professionals in United States and Canada. Modified versions of the EQ Map are being developed for other nations and regions of the world. (Appendix.B)

The EQ Map helps the individuals in guiding their exploration of emotional intelligence by plotting a sampling of their personal performance strengths and vulnerabilities to identify individual and interpersonal patterns for success. The EQ Map questionnaire assists in the assessment of the various components related to EQ and its inherent competencies. This version assess 21 components related to EQ and for the present study, the investigator has taken only 17 components of EQ, which serves the purpose of the study. At the end of the questionnaire an EQ Map Scoring Grid is attached, which visualizes the map of ones personal performance, creating a personal snapshot of ones current EQ strengths and vulnerabilities.

The respondents complete each scale by encircling the provided number (3, 2, 1, 0) in each column which best describes their response to each statement. After completing each scale, they add the value of the numbers they have circled in each column. And this value later, they plot on their EQ Scoring Grid. This will tell of confirm things; individual have long sensed about himself/herself and it may also remind of the talents and inherent capabilities, one has forgotten and that call for renewed attention. It will help to concentrate on one or two areas or scale of the EQ Map where the score indicates a possible vulnerabilility. It can prove just as important to continue deepening and developing areas of strengths across the full range of emotional intelligence attributes, and counting on them as assets in ones life and work. The description of each component used for this study related to EQ has been discussed in Chapter I.

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### 3.3.3. REACTION SCALE FOR FEEDBACK OF THE INTERVENTION PROGRAMME

In order to get the views, opinions and reactions of the subjects of the Experimental group regarding each module of the intervention programme in terms of feedback, the reaction scale was developed by the investigator. There are fifteen statements, which were rated by the subjects in terms of four responses i.e., to large extent, average, to some extent and not at all. (Appendix C)

### 3.3.4. CASUAL OBSERVATION

The investigator used casual observation technique as an accompaniment to other procedures of collecting data. One of the purposes of using this technique was to help the investigator in the conduction of the scheduled programme and get the feed back in terms of any behavioral and attitudinal changes taking place in the student teachers during intervention. An observer, who has the knowledge of Enneagram system and was available full time during the intervention programme, did casual observation. It was done without prearranged categories or a scoring system. It just referred to eyeball inspection of what was happening. The observer was informed well about the intervention programme in the beginning and was asked to note down the occurrences, actual behaviors of the subjects, interactions between the investigator and the subjects. She was also told to observe the non-verbal behaviors and actions of the subjects. Thus a continuous observation was done, which provided the detailed confidential record of the whole programme and a brief narrative of the behavior of the subjects.

### 3.3.5. ANECDOTAL RECORDS

Anecdotal records are generally based on teacher observations and involve descriptions of behavior that the teacher considers typical. Though this type of observation is more likely to be subjective and biased but in many instances the very subjectivity of the observation may be of value to the investigator. Therefore the investigator maintained a record book to narrate, concise and short descriptions of the observed incidents and about each subjects of the sample.

### 3.3.6. INTERVIEW SCHEDULE FOR THE STUDENT TEACHERS

An unstructured interview was conducted on the student teachers by the investigator to help them in the understanding of their own teaching style. Also it was

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meant to assist in predicting the characteristics of each teaching style in the process of connecting empirical data obtained of emotional competencies and teaching style. To ensure that all interviews were conducted in the same manner and keeping in mind the specific study objective, an interview guide was prepared by the investigator. (Appendix.D) This guide contained eleven open- ended questions with absolute freedom of responses. Additional prompting and probing were done in order to clarify the questions and get proper responses. Points of reference were given during interview and confidentiality assured. This was done at the end of the intervention programme: The student teachers had already finished their one-month practice-teaching and their B.Ed. syllabus. After each interview the investigator used to record the responses of the interviewee.

## 3.3.7. ENNEAGRAM TRIAD PERSONALITY INDICATOR

This inventory was first designed by Janet Levine (1997) to help educators to understand their basic pattern of behaviour – How they think and how they feel. This vital information underlines what motivates the teacher, why they make their decisions they do, what sort of educators they are, why they interact with others the way they do. This inventory was tested initially on over 1,200 educators at all levels. The present inventory is the refined form, which directs accurately to one's Enneagram strategy. (Appendix.E). There were nine questions for which three categories of answers are given. The respondent has to choose one that fits him/her the closest. The majority of the choices made by the individual will indicate the personality modality.

## 3.3.8. THE ENNEAGRAM QUESTIONNAIRE

This test was designed by Joseph (2002) to identify an individual's Enneagram Type. The test is comprised of 180 statements. The respondents have to put a tick mark in the space provided against the statements, if the statement is true for them. If it is only a wish, it is not true. If the statement does not apply, they may ignore it by leaving the space blank. After completing, the respondents have to move to the key score page. There are nine columns, containing the numbers of the statements. They encircle the numbers, which they have tick marked and count the number of encircled statements for each column and write the totals. The high score in one column compared to other columns indicates that type of the person. (Appendix F)

### 3.3.9. THE ENNEAGRAM PERSONALITY PORTRAITS INVENTORY AND PROFILE

This inventory and profile was prepared by Patrick J. Aspell and Dee Aspell (1997), which offers a way to find out more about oneself and how one can enhance his/her interactions with others. There are 72 items in this inventory that describe behaviors or feelings. For each sentence stem, the respondents have to choose whichever of the two completion statements comes closer to describing how they usually behave or feel. Although both statements may be somewhat true for them, but they have to choose the one that is more like them. Then they have to determine the extent to which the statement fits them and write the letter and number chosen on the blank space at each item. After completion, the respondents transfer their responses to scoring matrix. Once it is transferred, the numbers are added in each of the nine columns to determine a total score for each. The highest score determines the Enneagram type of the person. (Appendix G)

### 3.3.10. FAMILY SCRIPT INTERVIEW QUESTIONS

The purpose of this interview was to identify the essential or core personality type and its wing. It offers an entry to the Enneagram by identifying the dominant passion and the personal stance. The personal stance is a summary of script decisions. The family script is a directed reflection or a sharing which results in an analysis of early family relationships. It contains clues to present problems and how to work with them.

The sources of this Family Script Interview Questions are from the books "The Enneagram and NLP" by Anne linden & Murray Spalding (1994) and "The Nine Managerial Styles of the Enneagram" by P.T. Joseph (2002). This interview is an interactive process, i.e. it is not a linear question – answer process, but a cybernetic process in which the interviewer builds on the responses. This process was carried on in a group where each subject shared her family script based on the questions given to them. Family Script Interview Questions contains twenty one questions, but the interviewees were free to use all of them in their sharing. The investigator recorded the significant responses of each subject. The interview questions are enclosed in Appendix H

## 3.4. EXPERIMENTAL PROCEDURE

In experimental method, the most demanding part is to plan and conduct the experiment well so that the soundest evidences concerning hypothesis could be obtained. The present study is an experimental study in which it studied the comparison between the experimental group and control group with respect to the effects, if any, of the intervention programme applied. To test the hypotheses formulated and as per the objective of the present study, the investigator carried out the experimental procedure in two important phases, (i) Development Phase & (ii) Implementation Phase. EQ tests were administered to the student-teachers selected for both the experimental group and control group. And the experimental group only was subjected to the treatment as per design of the study described in this chapter earlier.

### 3.4.1. DEVELOPMENT PHASE

The main focus during this phase was to frame and develop the intervention programme. In the beginning of this phase the investigator visited the two colleges of the sample and got permission from the authorities to conduct the intervention programme and EQ tests. On the basis of the available situation and the time allotted by the authority, the intervention programme was framed and developed. This developed package was sent to two experts in this field for validation. (The approval letter is enclosed in the appendix) The whole package is presented in Chapter IV. In developing this educational package, the focus was on identification of Enneagram personality types and its application in the teaching process. Simultaneously, interview guides, reaction scale and observation points were also constructed. Some time during this phase was utilized in the selection of proper inventories and its translation into Hindi. All the inventories taken for the present study are standardized and reliable, prepared by the scholars of the field. The investigator translated the various questionnaires used for the study, into Hindi to facilitate the student-teachers of the sample for better understanding of the statements. The intervention period was spread over five modules and twenty three sessions, totaling to thirty four hours, all together in three months. The Course framework and programme design of Intervention is presented here below. (Table 3.1.)

# TABLE 3.1. COURSE FRAMEWORK

| MODULE | I | II | III | IV | V |
|---|---|---|---|---|---|
| NO OF SESSIONS | 4 | 8 | 4 | 3 | 4 |
| DURATION | 4 Hours | 8 Hours | 10 Hours | 7 Hours | 5 Hours |
| TITLE | Orientation on the Programme | The Enneagram Intelligences | Family Script Method & Factors influencing Personality | Transformational Enneagram Workshops | Synthesis of the programme and Goal-setting. |
| CONTENTS | 1. Self-introduction<br>2. Introduction to Enneagram<br>3. Emotional Intelligence, Emotional mind<br>4. Relationship between reason and Emotion. | 1. Background to the Enneagram system<br>2. Enneagram Triads<br>3. Working with Enneagram<br>4. General Description of Nine Personality Types | 1. Family Script Sharing sessions<br>2. Factors influencing types:<br>a) Wings of each personality type<br>b) Stress and security<br>c) Self-awareness Exercise | 1. The Enneagram: A tool for transformation<br>2. Personality types and communication<br>3. Enneagram and Time-management | 1. Attention Practices<br>a) Exercise for self-awareness<br>b) Triads Attention Practices<br>c) Awareness Practices for each E-type<br>2. Developing Appreciation and Love<br>a) Stroke awareness Exercise<br>b) 10 - step Curriculum for Emotional Wisdom<br>3. Goal Setting Session<br>4. Evaluation Session |

| | | | | | |
|---|---|---|---|---|---|
| **PURPOSE** | To provide the participants with the necessary orientation and skills to deepen their self-knowledge and give an exposure to prepare a platform for emotional enhancement. | To provide the participants full knowledge of Enneagram and skills to identify one's personality type. | To enable the participants to understand the history of their own personality type and the factors which influences our basic personality types. | To enable the participants to bring transformation into their personality and improve their communication and Time-management. | To provide the participants various attention practices so that Enneagram becomes an integral part of their professional and personal lives. Also to evaluate the whole Enneagram Educational program and set the goals for future life. |
| **METHODOLOGY** | • Games<br>• Lectures<br>• Discussions<br>• Workshops<br>• Group Sharing | • Lectures<br>• Structured Learning Exercises<br>• Sharing<br>• Discussions<br>• Self-Directed Study | • Group Sharing<br>• Self-reflection<br>• Lectures<br>• Awareness exercises<br>• Discussions | • Lectures<br>• Workshops<br>• Self-directed study<br>• Group exercises | • Workshops<br>• Games<br>• Exercises in group & individually<br>• Sharing<br>• Lectures<br>◦ Discussions and interactions |

## 3.4.2. IMPLEMENTATION PHASE

In the beginning of this phase the investigator spent few hours, forming a good rapport and getting familiar with the Experimental Group so that intervention programme could be carried out smoothly. The pre tests were administered for both the groups; Experimental and Control. Then the intervention was given to the Experimental group only according to the course framework designed during development phase. No treatment was provided to the Control Group. They were only tested and retested on the same inventories. The implementation of the intervention programme went on for three months and the duration of each session was one hour approximately. During this programme, interviews, group sharing and feedback sessions were also conducted. The observer continuously recorded all the occurrences, activities, reactions of the subjects, behavioural and attitudinal changes marked by the observer during the various sessions. At the end of the intervention programme posttest was administered for both, the experimental and control groups.

Thus the data collected during this phase were analyzed with the help of appropriate qualitative and quantitative techniques. The manner in which the actual intervention programme was carried out has been spelt in the next chapter.

## 3.5. DATA ANALYSIS PROCEDURES AND TECHNIQUES

Analysis of data means studying the organized material collected, during the data collection process, in order to discover inherent facts. It refers to studying the data from as many angles as possible to explore the new facts and establish relationship among variables. The data collected for the present study is both quantitative and qualitative in nature and therefore analyzed quantitatively and qualitatively.

The data collected included:-

(i)     Data obtained through the administration of Emotional Intelligence Scale (Schutte)

(ii)    Data obtained through the administration of EQ Map Questionnaire.

(iii)   Data obtained through Casual Observation and Anecdotal Records.

(iv)    Data obtained through the unstructured interview.

(v)     Data obtained through Reaction Scale for feedback.

Data obtained through the administration of Emotional Intelligence Scale and EQ Map Questionnaire was subjected to Quantitative analysis with the use of statistical techniques. Mean of all the scores were computed and Analysis of Covariance (ANCOVA) were used to determine the effect in the final scores and to correlate the initial and final scores. Analysis of Covariance is a statistical technique that permits the investigator to attribute means change scores to the effect of the experimental treatment rather than to differences in initial scores. This fulfils the objective of experimental design in general, that the result observed is attributed to the treatment variable and to no other casual circumstances. With the application of ANCOVA technique, the influence of uncontrolled variables is usually removed by simple linear regression and the residual sum of squares is used to provide variance estimates which, in turn, are used to make tests of significance. The mean scores of the data were also represented on the Bar- graph, which shows the differences between pretest and post test scores, between experimental and control group at a glance.

Data obtained through casual observation, anecdotal Records and unstructured interview were content analyzed to examine the effectiveness of the intervention programme in terms of emotional intelligence components taken for this study and to check the result whether it is in the line with the result of quantitative analysis of the data obtained by Emotional Intelligence scale and EQ Map. And also to test the hypothesis $H_{19}$, formulated earlier, the data were analyzed qualitatively. In any communication process "content" occupies the central position. It represents the means through which people communicate with each other. According to Kerlinger (1964), Content Analysis is a method of observation, instead of observing people's behaviour directly, asking them to respond to scales or interviewing them. According to Fox (1969) content Analysis is a procedure for the categorization of verbal or behavioural data for the purpose of classification, summarization and tabulation. The purpose of content analysis is to provide knowledge, new insights, a representation of facts and practical guide to action. Content Analysis can be done at two levels, (a) Manifest level and (b) Latent level. At manifest level content analysis of what the respondent said strictly bound by the response with nothing added to that or with nothing assumed about it; it is simply a direct transcription of the response in terms of

some code. At latent level it is exactly contrast to the first one. At latent level researcher attempts to code the meaning of the response or the underlying dynamics motivating the behaviour described at this level. The researcher has to go beyond the transcription of what was said directly and seeks to infer what was implied or meant. In this study content analysis has been carried out at manifest as well as latent level by keeping in mind the objective of the study. Responses, reactions and feedbacks given by the participants were categorized according to their personality types and were analyzed and interpreted in terms of the applicability and effectiveness of the enneagram educational programme for the student-teachers. Also the responses and reactions were content analyzed to get the perception of the student-teachers on various teaching styles related to personality types and to find out the common elements of their teachings and interactions in the classroom of a particular personality type.

The raw scores obtained by each participant through Reaction Scale for the feedback of the intervention programme were subjected to percentage analysis. For each statement in the scale a separate percentage was calculated. The percentage value indicates the depth and usefulness of the enneagram educational programme in the enhancement of the emotional intelligence of the participants.