CHAPTER 3
METHODOLOGY OF THE STUDY

CHAPTER-3

METHODOLOGY OF THE STUDY

3.1. INTRODUCTION

The present chapter deals with the process and method of the research and highlights the procedure in detail followed by the researcher while conducting the present study. A good researcher always follows a sound methodology and procedure, otherwise the findings of the study may not be useful for the purpose of generalization of the facts (Sidhu,1984). It is an essential part of any educational research. Research methodology includes the research design, defining population and sample, sampling techniques, selection of tools, detail description of the tools, process of data collection and the different statistical techniques used by the researcher to analyze the collected data.

The study was planned to examine the teacher effectiveness of secondary level teachers of Sonitpur district of Assam in relation to their emotional intelligence, teaching aptitude and sense of responsibility feeling. Research methodology gives a clear picture about the means and ways to be adopted by the researcher to complete the study. In this chapter the research methodology is discussed followed by research method adopted by the researcher, methodological chart based on the objectives of the study, population and sample, sampling procedure, tools employed, detail description of the tools, method of data collection, scoring procedure and the statistical techniques used by the researcher.

3.2. RESEARCH METHOD:

The selection of proper method has an immense importance in any type of research activity and if the method is not properly selected, the data obtained from it would not yield any fruitful conclusion. Research method is the technique or strategy which is select by the investigator to collect the relevant data for analysis. But the selection of any research method is not based on the wish of the researcher, rather based on the purpose of the investigation and the conditions on which the research has to be conducted. There are various methods and procedure which are commonly used in educational research such as descriptive method, historical method, experimental method, correlational study

etc. However, the selection of appropriate research method depends on the nature and purpose of the study.

Descriptive survey method is used to carry out the present study, as the present study focused on the prevailing conditions of teacher effectiveness and its various determinants such as- emotional intelligence, teaching aptitude and sense of responsibility feeling among the secondary school teachers of Sonitpur district of Assam. The researcher also examine the relationship of the above mentioned variables on teacher effectiveness.

The descriptive survey method refers to that research approach which uses surveys to gather data and focus on current state or 'what exists' without emphasing to establish cause-and-effect relationships. According to Aggarwal, Y. P. (2008) descriptive research is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation. This type of research method helps in proper analyses of facts, interpretation, comparison and relationships.

Table 3.1: *Methodological Diagram of the Study undertaken in accordance with the Objectives of the Study*

Objectives	Nature of data	Tools	Statistical technique
1.To study the teacher effectiveness of secondary level teachers in relation to their gender, locality and stream.	Primary	Teacher Effectiveness Scale (developed by the Researcher)	Z-score, Percentage, Mean, Standard Deviation & t-test
2. To study the emotional intelligence of secondary level teachers in respect to their gender, locality and stream.	Primary	Emotional Intelligence Scale (EIS-HPD) (2002) developed by Anukool Hyde (Indore), Sanjyot Pethe (Ahmedabad) and Upinder Dhar	Z-score, Percentage, Mean, Standard Deviation & t-test

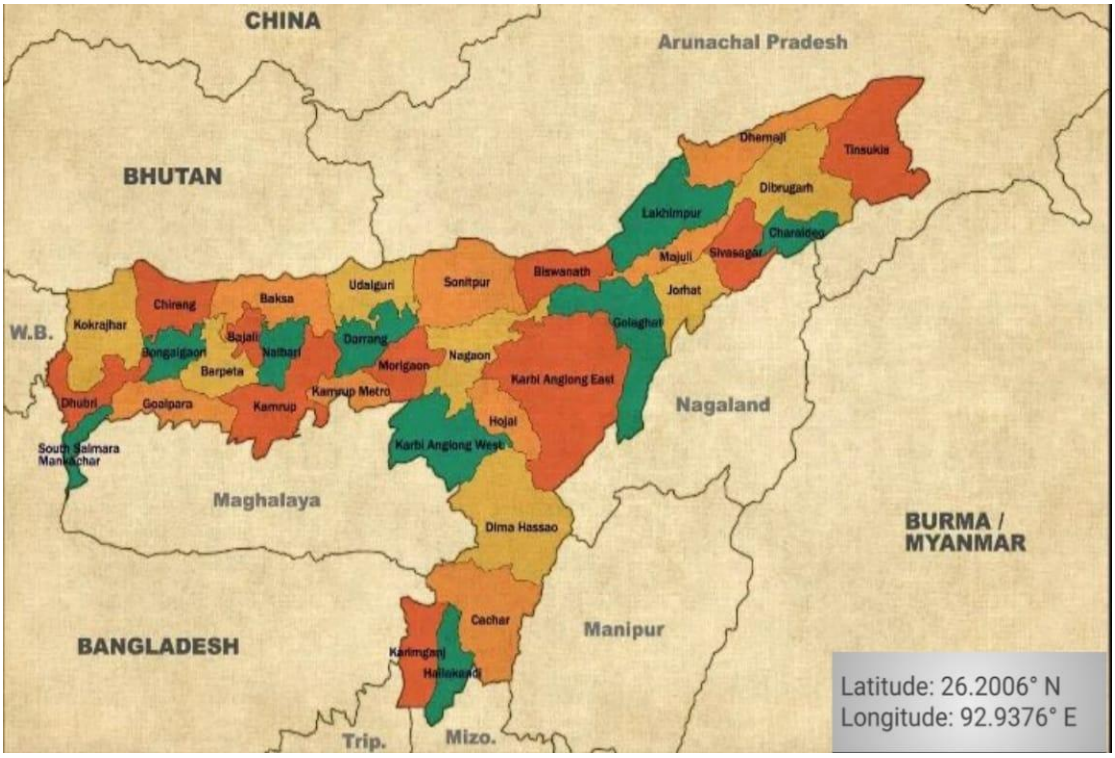
		(Ahmedabad)	
3. To study the teaching aptitude of secondary level teachers in respect to their gender, locality and stream.	Primary	Teaching Aptitude Test developed by Dr. S. C. Gakhar (Chandigarh) and Dr. Rajnish (Fazilka) in 1971	Z-score, Percentage, Mean, Standard Deviation & t-test
4. To study the Sense of Responsibility feeling of Secondary level teachers in respect to their Gender, Locality and Stream.	Primary	Responsibility Feeling Test (developed by the Researcher	Z-score, Percentage, Mean, Standard Deviation & t-test
5. To study the relationship between Emotional Intelligence and Teacher Effectiveness of secondary school teachers in respect to their Gender, Locality and Stream.	Primary	Emotional Intelligence Scale (EIS-HPD) (2002) developed by Anukool Hyde (Indore), Sanjyot Pethe (Ahmedabad) and Upinder Dhar (Ahmedabad) Teacher Effectiveness Scale (developed by the Researcher)	Pearson Product Moment Co-relation Method
6.To study the relationship between Teaching Aptitude and Teacher Effectiveness of secondary school teachers in respect to their Gender, Locality and Steam	Primary	Teaching Aptitude Test developed by Dr. S. C. Gakhar (Chandigarh) and Dr. Rajnish (Fazilka) in 1971 Teacher Effectiveness Scale	Pearson Product Moment Co-relation Method

		(developed by the Researcher)	
7.To study the relationship between Sense of Responsibility Feeling and Teacher Effectiveness of secondary school teachers in respect to their Gender, Locality and Stream.	Primary	Responsibility Feeling Test (developed by the Researcher) Teacher Effectiveness Scale (developed by the Researcher)	Pearson Product Moment Co-relation Method

3.3. RESEARCH DESIGN ADOPTED IN THE PRESENT STUDY

The research design adopted in the present study is correlational research design. Generally, a correlational research design is used to determine whether the relationship exists between two or more variables and it also measures the strength and direction of that relationship. In the present study correlational research design was employed to explore the relationship among the identified variables. This research design is employed here as all these constructs are psychological and behavioural in nature, and thus it is best examined through their relationships. Emotional intelligence, teaching aptitude, sense of responsibility feeling and teacher effectiveness are non-manipulable naturally occurring qualities. It is ethically and practically impossible to manipulate these qualities in an experimental situation (Creswell, 2012). Correlational research design enables researchers to study their relationship with each other. The primary aim of correlational research design is to determine and quantify the strength and direction of relationships between variables.

Map 3.1: Map of Assam



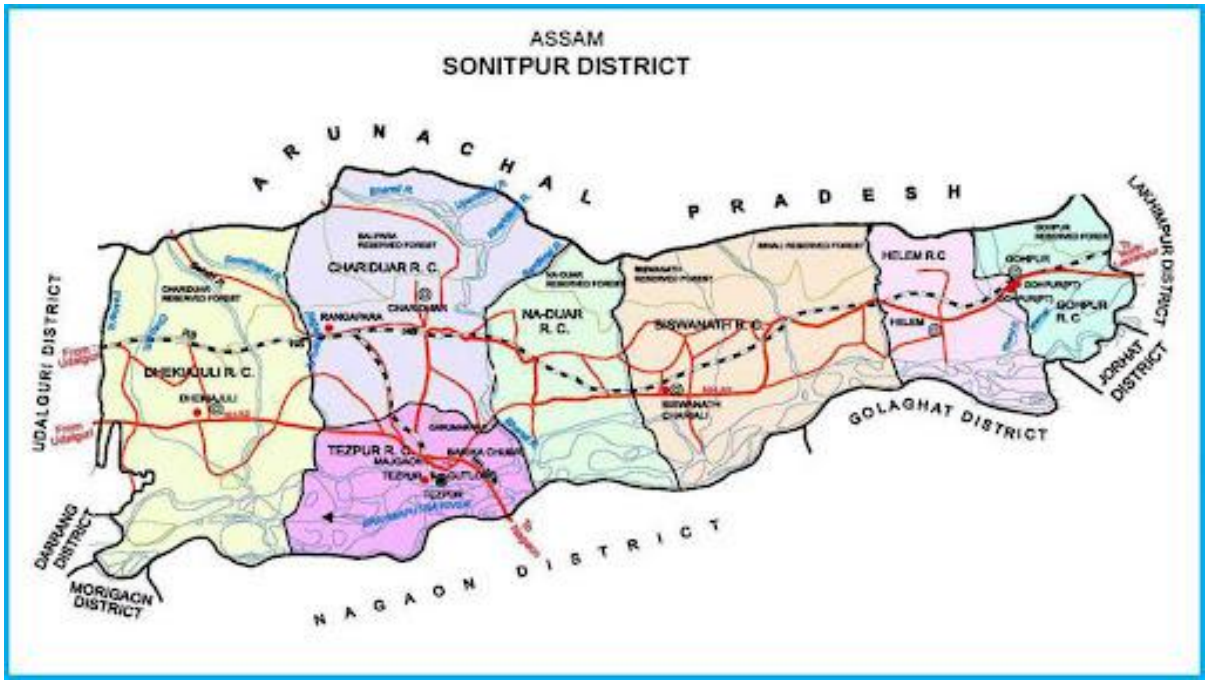
3.4. Description of Assam

Assam is a state in India which is adorned with beautiful grasslands, a chain of hills and rivers. The state is popularly known as the gateway to the North-East India. Geographically the state is situated in 26.2006 degree N Latitude and 92.9376 degree East Longitude between the foot hills of Eastern Himalayas and Patkai and Naga Hills Ranges. The assimilation of various races, tribes, and ethnic groups make Assam glorified and rich. The state is famous for its tea and silk weaving. It is known as the hotspot of biodiversity, home to different flora and fauna. Kaziranga National Park which is renowned for its high density of one-horned rhinoceroses and the Charaideo Maidam which is renowned for the burial grounds of Ahom Kings and Queens, both are also listed on the UNESCO World Heritage Site.

The education of the state is free upto the secondary level and compulsory for the children between the age group of 6 to 14 years. Approx. 4,529 secondary schools are running under the Govt. of Assam. Government colleges and universities are located in the larger cities like Guwahati, Dibrugarh, Jorhat, Tezpur, Silchar etc. The Indian Institute of Technology (IIT) Guwahati, is one of the 23 institutes set up by the Central

Government with the purposes of excellence in research, training and also the development of science and technology.

Map 3.1.1: Map of Sonitpur district, Assam



3.4.1. Description of Sonitpur district

Sonitpur district is located on the Northern Bank of the river Brahmaputra in Assam. The district is rich in cultural heritage for which it is considered as the cultural capital of Assam. The district is the second largest district of Assam covering an area of 5,324 square kilometers. It is the land of ancient monuments like Agnigarh, Mahabhairab Temple, Bamuni Hills, Da Parbatia and Bhairabi Temple which showcasing its rich history and cultural heritage. The cleanliness and the greenery of this place along with the famous historical monuments always attract the visitors to this place. During March to June the city witnesses a mild summer and this time the city receives a considerable footfall of tourist. Whereas in the monsoon the whole city remains drenched because of regular rain. From the month of November, winter season with dry weather begins, which makes it the best time to visit the district. The economy of the district is Agricultural based. Both Rabi and Kharif cropping is done in the district. The most important features of the economy is the tea gardens of the district. Approx. 73 tea gardens are in the district. Monabari near Biswanath Chariali is the Asia's largest tea

garden. The major industry in Sonitpur district is Tea processing, Cane products, Timber sawing etc.

Regarding the higher educational institutions Tezpur Central University and more than seven govt. colleges are there in the district. 200 secondary schools are in the district which are running by the govt. of Assam.

3.5. POPULATION OF THE STUDY

The other name of population of research work is known as Universe. It refers to the entire group of individuals, objects, events, institutions and geographical area that the researcher is interested to study. According to **Pandey (2005),** "A population is usually defined as all the members of any well-defined class of people, events or objects. It represents a census or complete enumeration method in which all the units are reached. The merit of such a concept is that results obtained are representative, accurate and reliable and hence question of error becomes almost insignificant."

According to **Best, J. W. (2007),** "A population is any group of individuals who have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of a particular type or a more restricted part of that group".

In the present study who teaches both class-IX and class-X students in different government schools of Sonitpur district under (SEBA) of Assam constituted the population.

3.6. SAMPLE AND SAMPLING PROCEDURE

Sample is the representative proportion of the population in the study. It is called as a small version of the entire group from which the unit is taken. It can be understood as the replica of the universe which bears all the characteristics of the universe.

In the present study the sample consisted of 311 secondary school teachers who teaches both class-IX and X students in different government schools of Sonitpur district under (SEBA) of Assam.

Sampling procedure provides the generalization on the basis of relatively small number of portion of the population.

In the opinion of **Francis G. Cornell (1960),** "Sampling is a technical and statistical problem of importance in most questionnaire investigations and in many other descriptive-survey studies. The literature on application of sampling theory to practical survey problems has appeared primarily since 1940, with leadership provided in the areas of opinion-polling, market, research and cans operations."

Kulbir Singh Sindhu (2005) describes that sampling is the process of drawing a sample from the population. For this purpose, the population is divided into a number of parts called sampling units.

In the words of **Fred N. Kerlinger (2007), "**Sampling is taking any portion of a population or universe as representative of that population or universe".

Based on the pilot survey before selection of the sample, it was found that there are 200 government secondary schools in both the sub-division named Tezpur and Biswanath Chariali in Sonitpur district and approximately 836 secondary level teachers are working in these school who teaches both class-IX and X students. The researcher has selected randomly 30% of schools from both the sub-division such as- a total of 31 schools from Tezpur and a total of 29 schools from Biswanath sub-division as the sampled schools for the study. The researcher has also considered the locality of the schools while selecting the sample schools. The researcher has taken 30% schools from urban and 70% schools from rural areas of both the sub-division for selection of the schools as most of the secondary schools are in rural areas. Thus, from the Tezpur sub-division 21 schools are selected randomly from rural areas and 10 secondary schools are selected from the urban areas. Likewise, 20 secondary schools are selected from rural areas and 9 secondary schools are selected from the urban areas in Biswanath sub-division. By using stratified random sampling technique, the researcher has taken 311 secondary school teachers as the respondents. Among the 311 respondents 218 are from rural areas and 93 secondary school teachers are from urban areas where 150 are male 161 are female and 210 from Arts background and 101 from science background secondary school teachers. The researcher has selected 210 secondary teachers from Arts background and 101 secondary teachers from the Science background to ensure adequate and balanced representation of

teachers from the major subjects in secondary schools of Assam. In the context of Assam, the secondary schools offer 4 Arts related subjects and only 2 Science subjects. At the time of data collection it is seen that some secondary schools are run by one single science teacher who teaches both the subjects in both the class IX and X. That is why the researcher has adopted a less number of secondary teachers from the Science background as a sample for the study.

Table 3.2: *The list of selected schools from rural/urban areas of Sonitpur district of Assam (under tezpur sub-division).*

Name of the School	No of teachers from which data collected	Locale of the school
Parbatia High School	5	Rural
Pachmile Girls' High School	5	do
Bhojkhowa High School	5	do
Dekargaon High School	5	do
Bihaguri High School	6	do
Gamani High School	5	do
Dipota High School	5	do
Jamuguri Higher Secondary School	5	do
Khanamukh High School	5	do
Singri H. S. School	5	do
Haleswar High School	5	do
Bindukuri High School	5	do
Jugal High School	6	do
Besseria H. S. School	5	do
Panpur High School	5	do
Chengelimara High School	5	do
Khelmati High School	5	do
Omeo Das H.S. School	5	do
Kadamtal High School	5	do
Kabilabad High School	5	do
F.A. Ahmed High School	6	do

Lokanayak Omeo Kumar Das High School	6	Urban
Tezpur Academy H.S. School	5	do
Govt. Girls' H.S. & MP School.	5	do
Sonitpur Bidyapith	5	do
Mission Chariali Girls' High School	5	do
Dhekiajuli Girls' High School	6	do
Jamuguri H.S. School	4	do
Tezpur Collegiate High School	5	do
Rastra Bhasha Vidyalaya	5	do
Balipara H.S. School	5	do

Table 3.3: *The list of selected schools from rural/urban areas of Sonitpur district of Asaam (under Biswanath sub-division)*

Name of the School	No. of teachers from which data collected	Locale of the School
Chatia Higher Secondary School	5	Rural
Nehru Higher Secondary School	5	do
Kari Bill High School	6	do
Pub-Buroi High School	5	do
Teton Pukhuri H.S. School	6	do
Dakshin Nagsankar High School	5	do
Dekorai High School	6	do
Pavoi High School	6	do
Balijan Girls' High School	5	do
Behali H. S. School	5	do
Borgang High School	6	do
Dipara High School	5	do
Lohitmukh Girls' High School	5	do
Kalabari H.S. School	5	do
Chengamari High School	6	do
Gamirighat High School	6	do
Monabari High School	6	do

Krishnapur High School	6	do
Dubia Girls' High School	5	do
Kalabari Girls' High School	6	do
Biswanath Girls' High School	5	Urban
Dakhin Nagsankar High School	6	do
Chariali Girls' H.S. School	5	do
Gyan Bikash Academy (Chatia Girls' H.S. School)	4	do
Biswanath High School	5	do
Gohpur Collegiate High School	4	do
Gohpur H. S. School	4	do
Howajan H.S. School	4	do
Joymati High School	5	do

Total no of selected schools (urban & rural): 60 311

3.7. RESEARCH TOOLS EMPLOYED

The total number of four tools were employed to conduct this study, in which two were standardized tools and two were developed by the researcher herself under the guidance of her supervisor and experts. The following tools were used by the researcher for collection of the required data.

- Teaching Aptitude Test (TAT-GR) (1971) developed by Dr. S.C. Gakhar (Chandigarh) and Dr. Rajnish (Fazilka) to investigate the teaching aptitude of the secondary school teachers.
- Emotional Intelligence Scale (EIS-HPD) (2002) developed by Anukool Hyde (Indore), Sanjyot Pethe (Ahmedabad) and Upinder Dhar (Ahmedabad) to investigate the emotional intelligence of the secondary school teachers.
- Teacher Effectiveness Scale developed by the researcher under the guidance of her supervisor to investigate the teacher effectiveness of secondary school teachers.

- Responsibility Feeling Test developed by the researcher under the guidance of her supervisor to investigate the sense of responsibility feeling of the secondary school teachers.

3.7.1. DESCRIPTION OF THE TOOLS

A. Teaching Aptitude Test (TAT-GR) (1971)

Teaching Aptitude Test is a standardized tool developed by Dr. S. C. Gakhar (Chandigarh) and Dr. Rajnish (Fazilka) in 1971. The tool consists of 35 items in the form of questions which are divided into I, II, III, IV,V and VI sections with 4 options for the respondent in every item. All the items provided with 4 options have only one correct answer. The questions are encompassing teaching aptitude relating to teaching interest and other academic activities, knowledge based questions, maturity measurement, responsibility towards the teaching profession, attitude towards students and teaching, emotional intelligence, problem solving ability, societal position, social relationship, co-curricular activities, relation with parents of the students, teaching aids related questions, ethics in the teaching profession, and questions related to Teachers' Union. In the present study the tool is used to study the teaching aptitude of secondary school teachers in Sonitpur district of Assam. In the present study to determine the level of teaching aptitude of secondary school teachers and also how it is interrelated to teacher effectiveness is one of the main objectives of study. After reviewing various literature and tools the researcher came to know that the dimensions embraces in the tool developed by Gakhar and Rajnish are appropriate to study the teaching aptitude in connection with teacher effectiveness. Because to be an effective teacher the teacher must have to developed interpersonal relationship, job involvement, initiative and enthusiasm, classroom management, evaluation and feedback, professional values and innovativeness etc. The tool developed by Gakhar and Rajnish included all such dimensions related questions in their tool. Therefore, the researcher used this tool to study the level of teaching aptitude of secondary school teachers and its interrelatedness with teacher effectiveness.

A (a). Dimensions of the tool

The preliminary draft of 120 statements were divided in to six categories such as (i) Teaching profession, (ii) Interest towards students, (iii) Social contacts, (iv) Innovations regarding activities of the school, (v) Professional ethics and (vi) Teaching potentialities and current knowledge. The draft was administered on a sample of 40 B. Ed trainees. Finally, 75 statements were divided into six categories.

A (b). Scoring

The scoring procedure of the tool is easiest. Every correct answer carries 1 score and every incorrect answer carries 0 score. So the total scores in the tool were 35. Therefore, every teacher has the opportunity to score 0-35 in the test.

A (c). Reliability

The final try out was administered to 400 B. Ed trainees selected randomly from four colleges of Education in Punjab. With the Test-Retest method administering to 40 B. Ed trainees the reliability co-efficient was found as 0.76 which was the indicator of moderate positive correlation.

A (d). Validity

The validity for the test was found out by correlating the scores of teaching aptitude test on the sample of 40 trainees. Thereby, the validity co-efficient was found out 0.68.

A (e). Norms

To establish z-score norms, the researcher administered the tool to a group of 45 secondary level teachers who teaches in both class IX and X of 9 different secondary schools of the district under the SEBA. To interpret the raw data score received from the test, statistical calculations were done to find the mean and standard deviation so that norms could be prepared. The mean and standard deviation are:

Mean: 26.21 **SD:** 3.01 **N**: 45

Based on the above statistics, z-score norms and for interpreting the levels of teaching aptitude are prepared which is given in Table 3.4.

Table 3.4: *Norms for interpretation of Z-score for Teaching Aptitude of secondary level teachers.*

Range of Raw-Scores	Range of Z-scores	Level
34 and above	+2.01 and above	Very High
31-33	+1.26 to +2.00	High
28-30	+0.51 to +1.25	Above Average
25-27	-0.50 to +0.50	Average
22-24	-0.51 to -1.25	Below Average
19-21	-1.26 to -2.00	Low
18 and below	-2.01 and below	Very Low

B. Emotional Intelligence Scale (EIS-HPD) (2007)

Emotional Intelligence Scale is a standardised tool developed by Anukool Hyde, Sanjyot Pethe and Upinder Dhar. This scale is developed with 34 statements to measure the emotional intelligence. The statements are developed on ten various aspects-(1) Self-awareness, (2) Empathy, (3) Self-motivation, (4) Emotional stability, (5) Managing relations, (6) Integrity, (7) self-development, (8) Value orientation, (9) Commitment and (10) Altruistic behaviour. In the present study the tool is used to study the emotional intelligence of the secondary school teachers of Sonitpur district of Assam. Because this tool emphasizes the interpersonal skills along with emotional management –both are regarded as crucial factor for classroom management, student engagement and effective communication. On the other hand, the classroom management, student engagement and effective communication are also regarded as most important elements to become an effective teacher. In the present study as one of the main aim is to study the relationship between the teacher effectiveness and emotional intelligence its relevance to interpersonal, emotional and behavioural competencies makes it a sound tool for exploring the relationship between teacher effectiveness and emotional intelligence.

B. (a) Dimensions of the tool:

(i) **Self-awareness:** This dimension refers that one is being aware of himself. It measured by 4 items i.e. 6, 12, 18, 29. The correlation of the factor with total score is 0.66.

(ii) **Empathy:** It is the feeling and understanding the other person and this measured by 5 items i.e. 9, 10, 15, 20 and 25. The correlation of the factor with total score is 0.70.

(iii) **Self-motivation:** This refers that someone is being motivated internally and this consists of 6 items i.e. 2, 4, 7, 8, 31 and 34. Its correlation with total score is 0.77.

(iv) **Emotional stability:** It refers to experiencing someone's subjective stable feelings which may have both positive and negative values to the individuals. This measured by 4 items i.e. 14, 19, 26 and 28. The correlation of this factor with total score is 0.75.

(v) **Managing relations:** It refers the healthy relationship with others and this measured by the items 1, 5, 11 and 17. The correlation of this factor with total score is 0.67.

(vi) **Integrity:** This refers to one's awareness of their weaknesses, strength and beliefs and it measured by the items 16, 27 and 32.

(vii) **Self-development:** It refers to one's attitude and knowledge towards themselves and this measured by the items 30 and 33.

(viii) **Value orientation:** This refers to one's ability to maintain the standards of honesty and integrity and also to confront the unethical actions in others. This measured by the items 21 and 22.

(ix) **Commitment:** It refers to one's ability as well as the internal interest to meet the promises and the carefulness to do their work in an organized manner. Commitment is measured by the two items i. e. 23 and 24.

(x) **Altruistic behaviour:** This refers one's ability to encourage people for the welfare of another and the ability to handle conflicts around themselves. It measured by the 2 items i. e. 3 and 13.

Table 3.5. *Dimension wise distribution of items of EIS*

Dimensions	Item serial no.	Total no. of items
Self-awareness (SA)	6, 12, 18, 29	4
Empathy (EM)	9, 10, 15, 20, 25	5
Self-motivation (SM)	2, 4, 7, 8, 31, 34	6
Emotional Stability (ES)	14, 19, 26, 28	4
Managing relations (MR)	1, 5, 11, 17	4
Integrity (IN)	16, 27, 32	3
Self-development (SLD)	30, 33	2
Value orientation (VO)	21, 22	2
Commitment (CO)	23, 24	2
Altruistic behaviour (AB)	3, 13	2
	Total items	34

B. (b) Scoring of the Scale: Emotional Intelligence Scale (EIS) is a five point scale and the scoring categories are strongly agree by assigning score of 5 and assigning score 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree respectively.

B. (c) Reliability: The reliability of the scale is determined by calculating reliability coefficient on a sample of 200 subjects. The split-half reliability coefficient is found to be 0.88.

B. (d) Validity: Besides face validity, the scale has high content validity. In order to find out the validity from the coefficient of reliability (Garrett,1981) is 0.93 which indicate high validity of the scale.

B. (e) Norms: To establish z-score norms, the researcher administered the scale to a group of 45 secondary school teachers of 9 different secondary school of Sonitpur district under SEBA. To interpret the raw scores received from the scale, statistical calculations were done to find out the mean and standard deviation so that norms could be prepare. The mean and standard deviation are:

Mean: 142.42 S.D: 10.62 N: 45

Based on the above statistics, Z-score norms and norms for interpreting the levels of teachers emotional intelligence are prepared which are given in the Table 3.5.

Table 3.6: *Norms for interpretation of Z-score for Emotional Intelligence of secondary level teachers.*

Range of Raw Scores	**Range of Z-scores**	**Level**
165 and above	+2.01 and above	Very High
155 to 164	+1.26 to +2.00	High
145 to 154	+0.51 to +1.25	Above Average
135 to 144	-0.50 to +0.50	Average
125 to 134	-0.51 to -1.25	Below Average
115 to 124	-1.26 to -2.00	Low
114 and below	-2.01 and below	Very Low

C. Teacher Effectiveness Scale (Self developed):

The Teacher Effectiveness Scale is developed by the Researcher under the guidance of her supervisor. It is a tool to measure the effectiveness of the secondary school teachers in different aspects of the profession. The dimensions of this tool are -(a) Teaching, (b) Interpersonal relation, (c) Classroom management, (d) Assessment and Evaluation, € Professional development (f) Personality characteristics and (g) Administrative abilities. All the dimensions are selected on the basis of the model developed by Cheng and Tsui (1996) as this model provides a comprehensive and multidimensional view of teacher effectiveness. It recognizes that the effective teachers are not only mastery of subject content and instructional strategies rather they must have the ability to build positive relationship with students and colleagues. This model emphasizes that teaching does not occur in a vacuum. Teachers work in complex and social and cultural environments. This model acknowledges the influence of these contexts on their practices as well as outcomes. Thus, by considering all these dimensions a list of 70 items were developed by the researcher which were discussed with the supervisor for further improvement of the scale. Among these 11 items were eliminated, some were modified and 5 new items were included. Thus, 64 items were developed under the following dimensions in the five point Teacher Effectiveness Scale.

C. (a) Dimensions of the Scale:

(i) **Teaching**: In this dimensions 13 items are developed related to preparation of the lesson, mode of transaction, activities introduces in the classroom, discussion in the classroom etc. Here among the 13 items 3 are negative items.

(ii) **Interpersonal Relation**: In this dimension 8 items are developed which is related to the relationship of teacher's with colleagues, with students and parents etc. Here, 2 negative items are developed.

(iii) **Classroom Management**: In this sections 7 items are developed based on the use of audio-visual aids, classroom discourse, management of disruptive and problematic behavior of the learners etc.

(iv) **Assessment and Evaluation**: Here 8 items are developed which are based on the different assessment techniques adopt by a teacher and their attitude towards the student's evaluation. Two negative items are developed under this dimensions.

(v) **Professional Development**: In this dimensions 11 items are developed where 2 are negative items. All the items are based on basis of professional development, acquisition of skills and professional ethics.

(vi) **Personality characteristics**: It consists 8 items and the items are related to personal characteristics like-discipline, emotional maturity, communication, patience etc.

(vii) **Administrative ability**: Under this dimensions 9 items are developed where 4 are negative. Items are related to the teacher's participation in the administrative affairs for the development of the school.

Table 3.7: *Dimensions wise distribution of Items*

Part	Dimensions	Item wise serial no.	Total no. of Item
1	Teaching	1.(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)	13
2	Interpersonal Relation	2.(a), (b), (c), (d), (e), (f), (g), (h)	8
3	Classroom Management	3.(a), (b), (c), (d), (e), (f), (g)	7
4	Assessment and	4.(a), (b), (c), (d), (e), (f),	8

	Evaluation	(g), (h)	
5	Professional Development	5.(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)	11
6	Personality Characteristics	6.(a), (b), (c), (d), (e), (f), (g), (h)	8
7	Administrative ability	7.(a), (b), (c), (d), (e), (f), (g), (h), (i)	9
		Total	64

C. (b) Scoring of the tool: As the tool is a five point scale the items can be responded by Strongly agree, Agree, Undecided, Disagree and Strongly disagree. Thus, for the positive items for strongly agree the respondents will get 5 and for the strongly disagree the respondents will get 1 whether for the negative items for strongly agree it will be 1 and for strongly disagree it will be 5. The total scores in this tool are 320 and the every teacher will have the opportunity to score from 64-320 in this tool.

C. (c) Reliability of the tool: The prepared items of the tool were given to a sample of 45 teachers for testing the reliability of the tools. After three days the data were collected from them. By maintaining a gap of four weeks, the tools were again given to the same teachers and the same were taken back. The obtained scores of the respondents in both set-1 and set-2 scores were correlated which resulted the reliability co-efficient in terms of Teacher Effectiveness Scale was 0.87. So, it can be interpreted that in terms of the test it is positively highly co-related between the two sets of scores.

C. (d) Validity of the tool: For the content validity of the tests all the items were discussed and analyzed with the Supervisor and after finalize it the tool was send to the expert in the field. After receiving the expert opinion some items were modified by the researcher.

C. (e) Norms of the tool: To establish Z-score norms, the researcher administered the scale to a group of 45 secondary school teachers of 9 different secondary school of Sonitpur district under SEBA. To interpret the raw scores received from the scale, statistical calculations were done to find out the mean and standard deviation so that the norms could be prepare. The mean and standard deviation that are found as-

Mean: 257.18 SD: 10.25 N: 45

Based on the statistics, Z-score norms and the norms for interpreting the levels of teacher effectiveness are prepared which is given in the Table: 3.7.

Table: 3.8: *Norms for interpretation of Z-score for Teacher Effectiveness of secondary level teachers.*

Range of Raw Score	Range of Z-Scores	Level
280 and above	+2.01 and above	Very High
270 to 279	+1.26 to +2.00	High
260 to 269	+0.51 to +1.25	Above Average
250 to 259	-0.50 to +0.50	Average
240 to 249	-0.51 to -1.25	Below Average
230 to 239	-1.26 to -2.00	Low
220 to 229	-2.01 and below	Very Low

D. Responsibility Feeling Test (Self-developed):

The Responsibility Feeling Test is developed by the Researcher under the guidance of her supervisor to measure the sense of responsibility feeling of the secondary school teachers of Sonitpur district of Assam. For this the researcher had developed 50 items which were again scrutinized critically and choose 40 from them. The edited statements were discussed again with the supervisor and some items were again eliminated and the languages of some other items were changed to fulfil the objectives of the test. And finally the researcher has decided to keep 35 items in the test which are arranged under six different dimensions. To select the different dimensions of this test the researcher has reviewed the Teacher Responsibility Scale (TRS) which was developed by Lauermann and Karabenick (2013). In this scale they developed 13 items which represent the four areas of responsibility. The areas they included that responsibility for student motivation, student achievement, relationship with students and teaching. The items were rated on a seven-point Likert scale which is ranging from 0 (not at all) to 6 (completely). Along with this scale the researcher also reviewed the test developed by Boli (2017).In this test the researcher has identified the different dimensions such as teaching; innovation and co-curricular activities; planning, administration and management, counselling and

problem solving; professional; examination, evaluation and research and other aspects. After reviewing both of the tools and the different models of responsibility feeling the researcher felt the following dimensions of those tools are appropriate for the present study. But the researcher has included more items in every dimensions to make it more comprehensive for the present study.

D. (a) Dimensions of the tool: The dimensions of the tool are identified as-

(i) **Teaching (Section-1):** This section consists of 9 questions related to the important component of teaching, methods of teaching, bases of preparation for teaching, skills of teaching, conduct discussion among students, factors affecting the better performance of teacher, role of teacher when student's face educational problems etc.

(ii) **Co-Curricular activities (Section-2):** This section comprises 4 questions which are based on how the teachers encourage their students in participating in the co-curricular activities and how the teacher perform their duties when co-curricular activities are going on in the school premises.

(iii) **Administration and Management (Section-3):** This section comprises 6 questions which are on how the teacher perform their administrative responsibilities, how they deal with their students as an administrator, how they manage their classroom environment, what they do when majority of students are inattentive, how they bring their students to the nearer of the community etc.

(iv) **Professional proficiency (Section-4):** This section consists of 5 questions based on essential qualifications of successful teacher, condition for professional development, how they keep themselves up-do-date, how they give academic leadership to students, professional ethics etc.

(v) **Examination and Evaluation (Section-5):** This section comprises of 5 questions related to objectives to conduct examination, uses of different evaluation techniques, how they make gradation, how they encourage their students in increase achievement etc.

(vi) **Guidance and Counselling (Section-6):** This section consists of 6 questions which are on objective to provide guidance, how they extend their guidance

program, how they perform their duties as a counsellor, why they keep the school records of students etc.

Table 3.9: *Dimensions wise distribution of Items*

Section	Dimensions	Item wise serial no.	Total no. of Items
I	Teaching	1, 2, 3, 4, 5, 6, 7, 8, 9	9
II	Co-curricular activities	10, 11, 12, 13	4
III	Administration & Management	14, 15, 16, 17, 18, 19	6
IV	Professional Proficiency	20, 21, 22, 23, 24	5
V	Examination & Evaluation	25, 26, 27,28, 29	5
VI	Guidance & Counselling	30, 31, 32, 33, 34, 35	6
Total			**35**

D. (b) Scoring of the tool: In this tool, every question carries 5 responses. The responses are arranged in a sequential order on the basis of the weightage of the item. There is no any right and wrong answer of the questions. The teachers have the opportunity to select any one response among the 5. Thus, if a teacher will select the first response, will be provided 4 marks, second will be 3 marks, third will be 2 marks, fourth will be 1 marks and fifth will be 0 marks. Therefore, every teacher has the opportunity to score from 0 to 140.

D. (c) Reliability of the tool: The prepared items of the tool was given to a sample of 45 teachers for testing the reliability of the tool. After three days the data were collected from them. By maintaining a gap of four weeks, the tools were again given to the same teachers and the same were taken back. The obtained scores of the respondents in both set-1 and set-2 scores were correlated which resulted the reliability co-efficient in terms of Responsibility feeling test was 0.91. So, it can be interpreted that in terms of the test it is positively highly co-related between the two sets of scores.

D. (d) Validity of the tool: For the content validity of the tests all the items were discussed and analyzed with the Supervisor and after finalize it the tool was send to the expert in the field. After receiving the expert opinion some items were modified by the researcher.

D. (e) Norms of the tool: To establish the Z-score norms, the researcher administered the test to a group of 45 secondary school teachers of 9 different secondary schools of Sonitpur district under SEBA who teaches in both class IX and X. To interpret the raw scores received from the scale, statistical calculations were done to find out the mean and standard deviation so that the norms could be prepare. The mean and standard deviation that are found as-

Mean: 100.56 SD: 10.91 N: 45

Based on the above statistics Z-score norms and for interpreting the levels of sense of responsibility feeling of secondary school teachers are prepared which is given in the Table: 3.9.

Table: 3.10: *Norms for interpretation of Z-score for sense of responsibility feeling of secondary level teachers.*

Range of Raw Score	Range of Z-Scores	Level
130 and above	+2.01 and above	Very High
120 to 129	+1.26 to +2.00	High
110 to 119	+0.51 to +1.25	Above Average
100 to 109	-0.50 to +0.50	Average
90 to 99	-0.51 to -1.25	Below Average
80 to 89	-1.26 to -2.00	Low
70 to 79	-2.01 and below	Very Low

3.8. PROCEDURE FOR COLLECTION OF DATA:

The process of collection of data was carried out in a systematic order. First, the data were collected from the selected Govt. secondary schools of Sonitpur district under Tezpur sub-division and after that the researcher had visited the selected Govt. secondary schools of Biswanath sub-division.

To collect the data from the respondents the researcher was first made ready the photo copies of all the tools i. e. the self-developed tools-Teacher Effectiveness Scale and Responsibility Feeling Test as well as the standardized tools i.e. Emotional Intelligence Scale and Teaching Aptitude Test. After that the researcher had visited personally to the sample schools of both the sub-division. On reaching the schools, first the researcher had visited the Principal/ Head Masters of the respective schools and showed her personal identity card and explained the purpose to visit the school. After receiving the permission from the Head of the respective schools, the researcher was assisted by the Head in some schools, and in other schools some senior teachers and the non-teaching staffs in the process of collection of data. As in the leisure time of the schools all the teachers were available in the staffs' room so the researcher had entered with the Head teacher (in some cases with the other senior teachers) on that particular time in the staff's common room in most of the schools. After entering the staffs' room the researcher was introduced by the Head teacher to all the other teachers who mainly teaches in both class IX and X that were available in the staffs' common room and also told them the purpose of her visit to the respective schools. Then, quickly after that the researcher had given the instructions and distributed the tools to those teachers introduced by the Head of the schools as the teachers who teaches in class IX and X in the particular schools. The researcher remained in the staffs' rooms for the purpose of clearing the doubts of the tools. In most of the schools the respondents had handed over their filled up questionnaire on the same day. But in some cases because of the busy scheduled the teachers were allowed to hold the tools for one or two days. That particular schools were revisited by the researcher to collect the questionnaire from the respondents. This way the researcher had collected the data and displaying thanks to the teachers for their gratefulness as they had given their valuable time to fill out the questionnaire provided by the researcher. Thus, in realistic situations and in natural settings the researcher had obtained all the relevant data.

The researcher had also faced several hurdles such as busy scheduled of the teachers, vacations of the schools, negative responses of the teachers towards the situations, incomplete responses etc. while collecting the data. But, in most of schools the Heads of the schools were very welcoming and had assisted the researcher satisfactorily. Thus, in spite of that hurdles, the researcher had collected the relevant data successfully from the respondents.

3.9. SCORING OF THE COLLECTED DATA

The researcher had administered four tools to collect the relevant data from the respondents. Among the four tools two were developed by the researcher and the other two were the standardized tools. The self-developed tools were the Teacher Effectiveness Scale which was developed to study the effectiveness of the secondary schools teacher of Sonitpur district and the other was Responsibility Feeling Test which was developed to investigate the sense of responsibility feeling of the secondary school teachers of the same district. As the Teacher Effectiveness Scale was a five point scale the items were responded by Strongly agree, Agree, Undecided, Disagree and Strongly disagree. Thus, for the positive items for strongly agree the respondents had given 5 and for the strongly disagree the respondents had given 1 whether for the negative items for strongly agree it had given 1 and for strongly disagree it had given 5. In this way the total score of the tools were calculated separately. Unlikely, the In the Responsibility Feeling Test, every question carried 5 responses. The responses were arranged in a sequential order on the basis of the weightage of the item. There was no any right and wrong answer of the questions. The teachers had given the opportunity to select any one response among the 5. Thus, if a teacher had selected the first response, they had provided 4 marks, second had given 3 marks, third had given 2 marks, fourth had given 1 marks and fifth had given 0 marks. Thus, the scoring procedure was completed separately for every respondents.

The standardized tools that administered by the researcher to collect the relevant data from the respondents were Emotional Intelligence Scale tool developed by Anukool Hyde, Sanjyot Pethe and Upinder Dhar and Teaching Aptitude Test developed by Dr. S. C. Gakhar (Chandigarh) and Dr. Rajnish (Fazilka) in 1971. Emotional Intelligence Scale (EIS) was a five point scale and the scoring categories were strongly agree by assigning score of 5 and assigning score 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree respectively. This way the total scores of the tool were calculated separately. And the scoring procedure of the Teaching Aptitude Test for every correct answer the respondents had given 1 score and every incorrect answer they had given 0 score. Thus, the total scores in the tool were 35. Accordingly, the scoring procedure had completed keeping all these consideration in mind.