

Chapter: III

Procedure and Methodology

1.0. Introduction

What to do and how to do? are some common questions at the beginning of a research work. Research methodology answers these questions. Research is a systematic approach that demands accurate observation and description to ascertain knowledge. Research methodology is one of the important parts of research. It is a way of explaining how a researcher intends to carry out his study. Koul (1999) has defined “Research methods are of utmost importance in a research process. They describe the various steps of the plan of action to be adopted in solving a research problem, such as how the problems are formulated, the definition of items, the choice of subjects for investigation, the validation of gathering the tools, the collection, analysis and interpretation of data, and the process of inferences and generalization”. A research methodology is a logical plan for the action to study the problem in a systematic way to get not only a new conclusion but also to generate a new theory. It is the “Blue Print” of research that provides scientific findings. A sound research methodology allows the readers to understand the methods and approaches of the research.

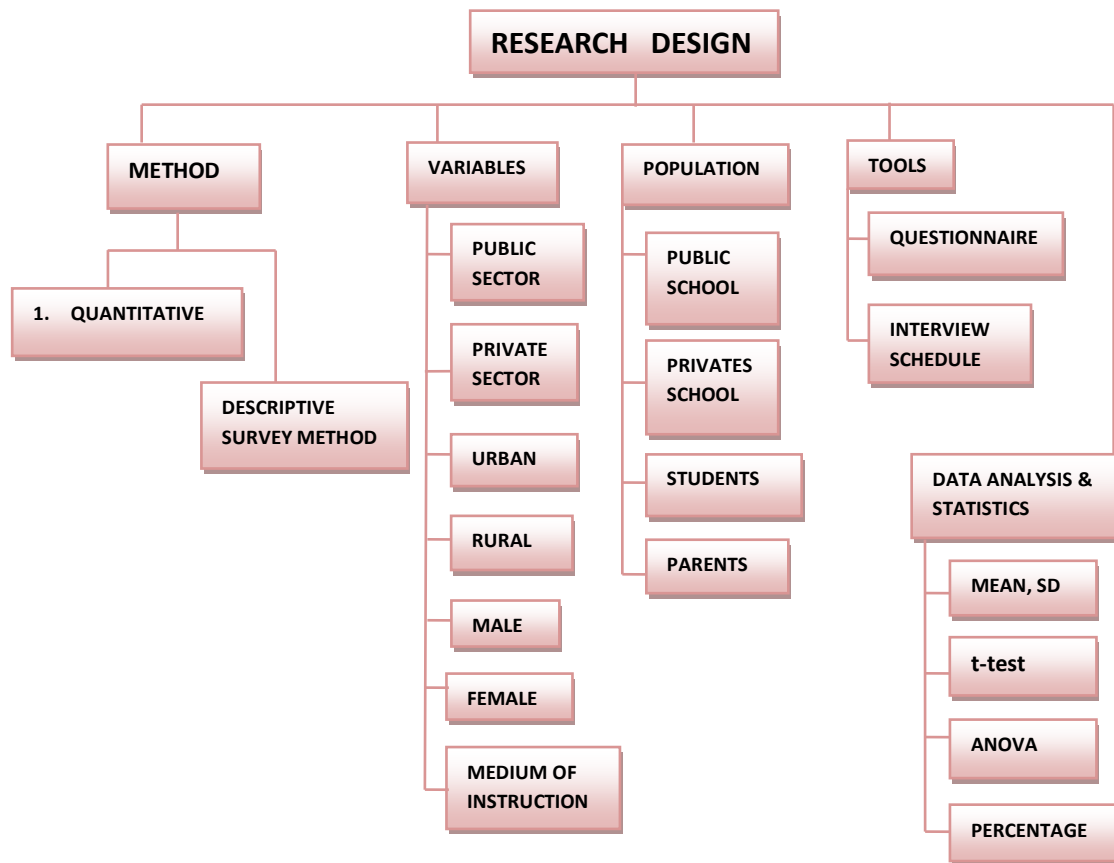
In this chapter, the investigator has explained the procedure and methodology used in examining the research problem. The study has emphasized on the internal equity and efficiency of elementary education.

3.1. Research Design

Considering the nature and need of the study, Descriptive Survey Method is considered for the study. The problem of the study is based on the primary and secondary data

collected through various tools. Primary data are collected from various sources through a stratified random sampling technique. A diagram of the structure of the research design is shown below:

Figure 3.1: Research Design



3.2. Measuring Equity

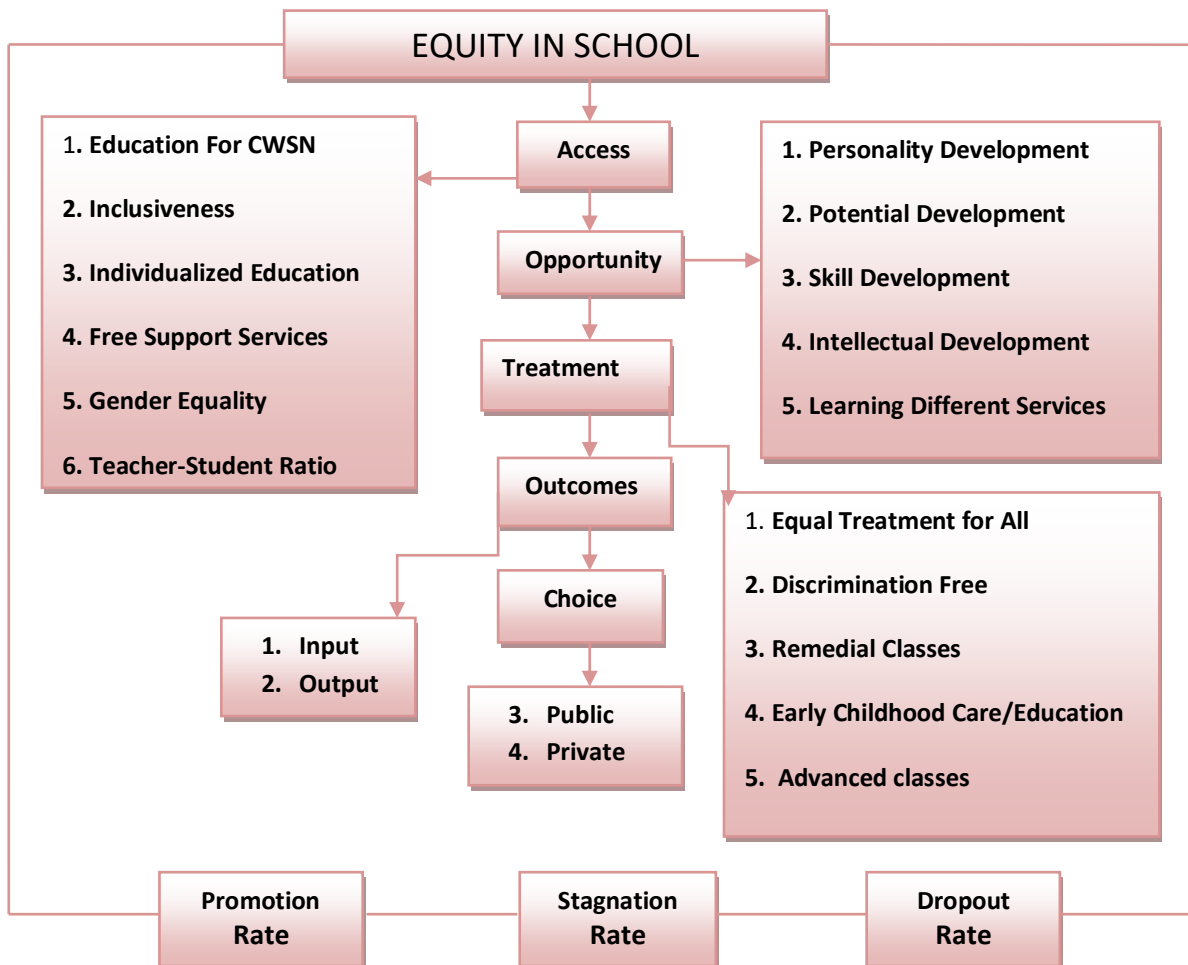
Equity in education refers to the advantage of Education and Training in terms of Opportunity, Access, Treatment and Outcomes (Equity Report, European Union 2006). Generally receiving whatever they deserve is equity. In this study, to find out the equity in both public and private sector schools the investigator has developed a comprehensive Equity Model (Figure 3.2).

Although equity is generally measured by access and fairness with dimensions like GER, NER, Dropout Rate, Transmission Rate etc., but in the present study these are

taken as general dimensions. The study emphasizes on the comparison between Public and Private elementary schooling and the outcomes of education in both the sector of schools.

In the present study, equity is measured by taking five dimensions i.e., **Access, Opportunity, Treatment, Outcomes and Choice of School** along with other general dimensions. Out of these dimensions, the investigator has selected sub specific indicators for each dimension. The Equity model developed for the study is provided below:

Figure 3.2: Model for Measuring Equity

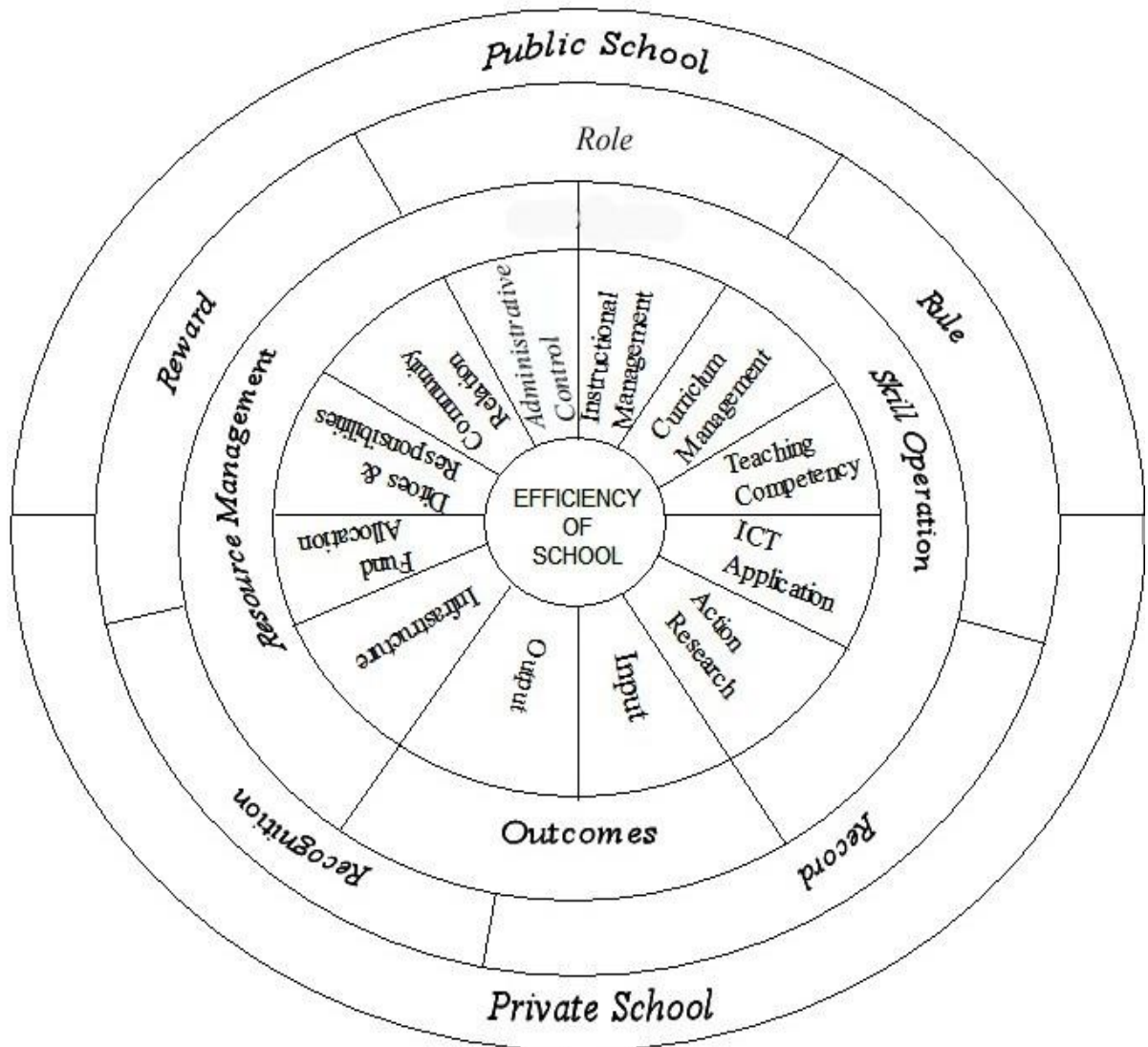


Source: Designed by Investigator

3.3. Measuring Efficiency

The efficiency hub model containing five concentric circles around the hub are shown below:

Figure 3.3: Model for Measuring Efficiency



Source: Designed by Investigator

There are five concentric circles around the hub, i.e., **Role, Rule, Record, Recognition** and **Reward** of the school. The efficiency of both public and private school is measured on the perspective of three main dimensions:

1. **Skill Operation**
2. **Resource Management**
3. **Outcomes**

Each of these dimensions has sub-specific indicators which strengthen the assessment of efficiency in public and private schools.

3.4. Variability of the Study

Depending on the purposes and objectives of the research two main variables are taken. These are **Public** sector and **Private** sector schools. Based on the need of the study certain variables are considered. Such as:

1. Location of schools
2. Medium of schools
3. Nature/ Type of schools
4. Gender of students

3.5. Population

Population in research means the aggregate or totality of individuals or objects regarding the inferences are to be made in a sampling study. It means all the people or documents etc. that are proposed to be covered under the research study. A population is thus any group of individuals that have more or less common of interest to the research.

In the present study, school itself is the population of the study. The individuals associated with schools' work are the respondent behaviour of the school. The specified population of the study is given below:

- i. The entire LP and UP schools of Chirang district are the populations of the study.

- ii. LP and UP schools amalgamated with high or higher secondary schools are also included in the study.
- iii. Both public and private elementary school students are considered as a population of the study.
- iv. Parents of the sample students are also considered as the population.

Statistical figures for the public sector elementary schools in Chirang district is shown in the following table.

Table 3.1: Public Elementary School in Chirang District

No. of Public Elementary Schools				
District	No. of Educational Blocks	No. of Schools (LP)	No. of Schools (UP)	Total
Chirang	2	821	98	919

Source: SSA, Chirang, 2019

Apart from the public-funded school, around 300 private-sector elementary schools are available in Chirang district (www.school.org.in). There are quite a good number of schools running privately in the district but many of them are not registered and are under other schools' registration. The accurate data of private schools functioning in the district are unavailable in the concerned office or websites. On the official website, it is recorded that around 300 privately funded schools are functioning in the district (Retrieved on 25th March, 2023).

3.6. Sample and Sampling Technique

The sample is a small portion of the population selected for the study. It is a collection of the population consisting of similar characteristics which is selected to express the responses on behaves of the whole population. In research which covers a large population it may not be possible to study the whole population in such cases it is very

essential to select a sample unit to draw a valid and reliable inference which can be generalized among the entire population unit.

Accordingly, 10 per cent of the total population is taken as the sample of the study. Thus 92 out of 919 public sector schools and 50 out of 300 (approximate) private sector schools are selected as the sample of the study. The sample has been selected through the Stratified Random Sampling technique. Since, comparative study between public and private schools is one of the objectives of the study. The number of samples from private school is increased up to 50 from 30 (10% of the 300 private schools) to establish a fair comparison. The samples selected are given below:

A. Schools: A total of 142 schools in Chirang district are selected randomly through the Stratified Random Sampling technique. The head of the institution (principal/ head teacher) responded to the questionnaire on behave of the schools. Distribution of sample schools is displayed in the following table.

Table 3.2: Distribution of Sample

Chirang District							
Medium of School	Type of School	Category of School	Medium of School				
			Assamese	Bodo	Assamese & Bodo	English	Total
Borobazar	Public	LP	12	15	8	0	35
		UP	2	2	1	0	5
		Amalgamated	3	0	12	0	15
	Private	LP	0	0	0	0	0
		UP	0	0	0	0	0
		High/HS	9	15	0	6	30

Continued

Sidli	Public	LP	5	15	8	0	28
		UP	0	2	0	0	2
		Amalgamated	0	0	7	0	7
	Private	LP	0	0	0	0	0
		UP	0	0	0	0	0
		High/HS	2	12	0	6	20
Total			33	61	36	12	142

Table 3.3: Area-Wise Distribution of Sample

Name of Block	Type of School	Category of School		Total
		Urban	Rural	
Borobazar	Public	8	47	55
	Private	9	21	30
Sidli	Public	0	37	37
	Private	0	20	20
Total		21	121	142

B. Students: Total numbers of 1005 students were selected through Stratified Random Sampling technique from the sample schools to administer the basic competency test. A maximum number of 5 students from each class without respecting any variability participated in the test. Distributions of students are shown below:

Table 3.4: Distribution of Students Participant

Chirang District											
Name of the Block	Type of the School	Category of School	Medium of School								Total
			Assamese		Bodo		Assamese & Bodo		English		
			G	B	G	B	G	B	G	B	
Boro bazar	Public	LP	25	25	29	30	43	35	0	0	187
		UP	9	6	9	9	12	15	0	0	60
		Amalgamated	32	19	32	24	31	31	0	0	169
	Private	LP	0	0	0	0	0	0	0	0	0
		UP	0	0	0	0	0	0	0	0	0
		High/HS	23	22	30	30	0	0	23	28	156
Sidli	Public	LP	18	22	30	30	40	40	0	0	180
		UP	8	6	6	6	7	7	0	0	40
		Amalgamated	14	15	24	14	38	18	0	0	123
	Private	LP	0	0	0	0	0	0	0	0	0
		UP	0	0	0	0	0	0	0	0	0

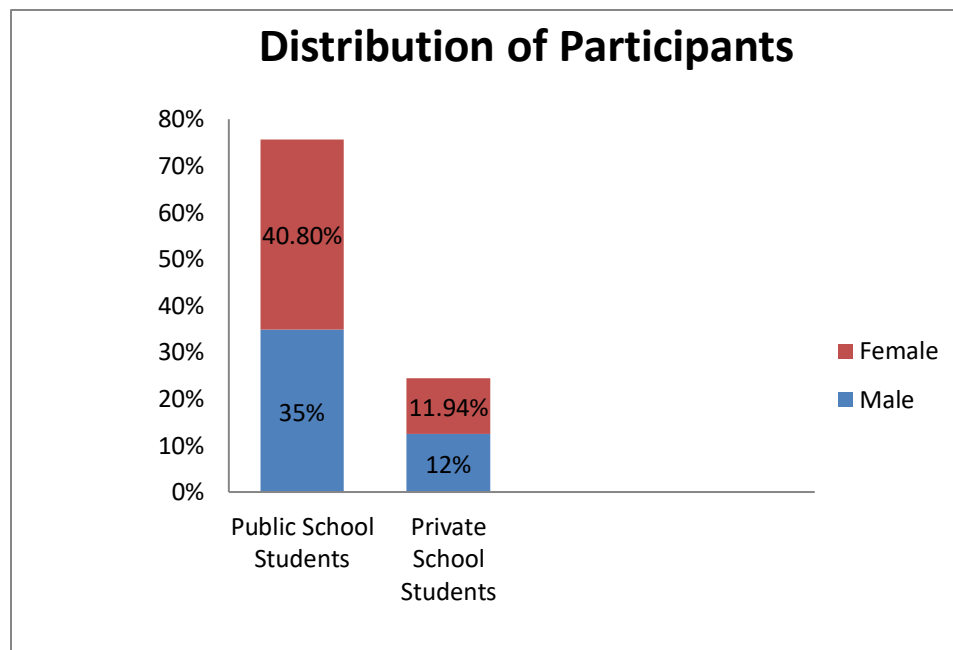
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		High/HS	10	9	15	18	0	0	20	18	90
Total				139	124	175	161	171	43	46	1005

G: Girls, B: Boys

The distribution of participants in the special performance test is shown in percentage in the following diagram.

Figure 3.4: Distribution of Student Participants



C. Parents: 100 parents of the sample students were selected randomly as the sample of the study.

3.7. Tools for Data Collection

Various tools were developed by the investigator for the collection of data. The following tools are used in this study:

- i. Questionnaire:** Most of the primary data for analyzing both Equity and Efficiency are collected through a questionnaire. The questionnaire consisting 50 questions divided

into three major sections **A**, **B** and **C** which contain general information about the school, and questions for equity and efficiency respectively. The questionnaire is provided to the schools; where Heads of the institutions have responded on behalf of the schools. The items in the questionnaire are followed by three options answer YES, Partially YES and NO. The respondents have to put a tick on any one of the given options.

ii. Interview Schedule: A simple interview schedule is used to collect primary data from the parents. In the interview schedule certain questions regarding the utilization of funds, parents' choice of school, treatment from school and causes behind low outcomes were included. The interview was administered by the investigator through face to face and via phone.

iii. Basic Competency Test: School outcomes and overall performance of the school is an important part to study equity and efficiency in both public and private schools. The main goal of the school is to make the learners capable of being knowledgeable to the level of education required at the concerning chronological age. The education system can be considered Equitable if it can provide desirable education to the learner. Similarly, it will be efficient when it can achieve the learning objectives. For this purpose, a special test is conducted by the investigator to the students of sample schools. This test has been termed as **Basic Competency Test**. It has aimed to test the students' basic learning capacity of Reading, Writing and Reasoning or solving Simple Arithmetic. The test is conducted in Class **I**, **IV** and **VII** in three different subjects-

1. English Language (Class I, IV and VII)
2. General Knowledge (Class I, IV and VII)
3. Simple Arithmetic (Class I and IV)
4. Mathematics (Class VII)

Each questionnaire comprises 25 items carrying 1 mark each. The questions are objective and multiple-choice type. Generally, questions were prepared in the English language. However, the question of General Studies and Simple Arithmetic/

Mathematics is translated into Bodo and Assamese language for Bodo and Assamese medium students respectively.

3.8. Data Analysis

The nature of the study is a quantitative research. Quantitative analysis has been done through statistical techniques. The value of the schools is found out through **Percentage**, **T-test** and **ANOVA** to measure the variables of different types of schools and to test the hypotheses.

3.9. Pilot Test of Tools

The questionnaire consisting of 25 items was prepared earlier to collect information from the respondents. Firstly, the questionnaire was distributed to 100 samples requesting them to read out the instruction carefully and to cooperate with the investigator. Finally, some of the questions were removed and some were merged after analysis of the items. The result of the item analysis is illustrated in the following table.

3.9.1. Tryout of Equity

Table 3.5: Reliability on Equity Items

Reliability		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.829	.834	18

Source: Cronbach's Alpha Reliability test

Table 3.6: Item Analysis on Equity

Items	Mean	Std. Deviation	N
1	4.6600	.66999	100
2	4.2200	1.05006	100
3	4.2600	.74698	100
4	3.9400	.34289	100
5	3.4900	1.25122	100
6	4.3800	.87363	100
7	3.8900	1.13614	100
8	4.3300	.56951	100
9	2.7000	1.30655	100
10	3.2500	.95743	100
11	3.6500	.80873	100
12	2.9500	1.09521	100
13	2.9600	1.14521	100
14	3.5400	.89239	100
15	3.9000	.90453	100
16	4.1100	.72328	100
17	3.4600	.82168	100
18	2.0300	.68836	100

Source: Cronbach's Alpha Reliability test

The first equity tool item was administered on 100 samples. After analysis of the items, the reliability value has been shown at **Cronbach's Alpha 0.83**, which is highly reliable. Therefore, the tool has been found suitable for the final data collection.

3.9.2. Tryout of Efficiency

Table 3.7: Reliability on Efficiency Items

Reliability Test		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.850	.862	19

Source: Cronbach's Alpha Reliability test

Table 3.8: Item-Total Statistics

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
i1	77.8600	92.485	.165	.828
i2	78.3000	89.424	.190	.829
i3	78.2600	98.053	-.124	.834
i4	78.5800	94.973	.096	.829
i5	79.0300	85.605	.259	.827
i6	78.1400	85.940	.391	.823
i7	78.6300	77.044	.585	.816
i8	78.1900	84.236	.741	.819
i9	79.8200	101.967	-.206	.844
i10	79.2700	78.623	.644	.816
i11	78.8700	81.124	.654	.817

Continued

i12	79.5700	80.268	.494	.820
i13	79.5600	80.249	.470	.820
i14	78.9800	86.464	.359	.824
i15	78.6200	86.198	.364	.824
i16	78.4100	90.042	.273	.826
i17	79.0600	87.471	.349	.824
i18	80.4900	106.172	-.538	.841
i19	79.1300	91.387	.175	.828

Source: Cronbach's Alpha Reliability test

The tool on efficiency having 19 items was administered on 100 samples. The **Cronbach's Alpha** value has been found as **0.85** which is highly reliable. Accordingly, the entire tools were developed and finalized for the final data collection.

3.10. Procedure of Data Collection

Collection of data is one of the important tasks in research. In this study data collection was the most difficult task. It was facilitated by the personal request of the investigator after visiting the selected sample schools. The data were collected through previously developed questionnaire and interview schedule. The collection of **primary data** took a longer period of time to complete due to the imposition and restriction on the outbreak of COVID-19.

Accordingly, the investigator designed the sample after learning the total number of public and private elementary schools in Chirang district. The total number of public elementary schools in the district is 919 and approximate 300 private schools are functioning in the district. The investigator visited the sample schools after taking prior permission from the concerned school authority. Firstly, the investigator established rapport with the respondents by giving a self-introduction, the purposes and objectives of the survey. The respondents were convinced to respond for the questionnaire and to respond each item without any fabrication. Maximum schools responded the questionnaire in the presence of the investigator. However, some of the respondents

provided their responses via e-mail and WhatsApp. A pleasant attitude toward the investigation was provided by almost all of the respondents. Certain data were recorded by the investigator through interviewing the Head of the institutions. Maximum 5 students in each class (class I, IV & VII) from the sample schools were assembled in a room of the schools to appear in Basic Competency Test. They were given 1 (one) hour to complete the questionnaire. The investigator met the parents of the sample students and convinced to respond for the choice of school for their children.

Furthermore, **Secondary data** were collected accordingly from the concerned district authorities.