CHAPTER FOUR
RESEARCH DESIGN

4.1. Introduction

Review of related literature helps to learn how others compose their studies and gives useful examples and models for our own research (Creswell, 2015). One of these examples for researchers is the research design. The research design is a set of rules and procedures to guide researchers against which appropriate tools are developed, data can be collected systematically from appropriate sources and variables can be evaluated accordingly. This will give a structure of enquiry for deducing conclusions (Miller & Brewer, 2003). Review of related literature provides mechanisms whereby understanding is created, conceptualized, theorized and abstractions are made using the techniques or methods that we utilized to assemble and analyse information.

It is very important to think about the design and techniques one chooses which are part of a broader package that can be generated from review of related literature. They are the roadmaps for the researcher. The methods should be as clear and precise as possible. If the methods are evidently stated and the map is vividly outlined, even others can take over and herald the research enthusiastically.

4.2. Research Design and Approaches

The research was basically planned to understand the existing school climate, school community trust and their impact on the academic achievement of primary school students in two regional states of Ethiopia, i.e. ANRS & SNNPRS. Within these, it addressed only full cycle (grade 1-8) government primary schools in two zones and 4 districts having rural and urban composition of schools. In due process, the school climate, school community trust and their impact on students' achievement was confined to students' annual marks based on the records of schools with reference to grade four and eight completing students' of 2015/16 academic year (2008 E.C.).

4.2.1. Research Paradigm

The researcher followed a mixed (pragmatic) approach with the pursuit of maintaining maximum advantages from different sources of data that can contain elements of both the quantitative and qualitative approaches (Vos, 2005). Thus, it is now more a trend to conceptualize the contrast and show that `quality' and `quantity' buttress each other which is

verbal reasoning and numerical reasoning (Scott, 1996). At one level, `numbers' and `meanings are interrelated, often requiring each other or being implicit in each other (Miller and Brewer, 2003). This gave an opportunity for the application of multiple tools that generated more evidences, increase validity and gave more chances for triangulation. Henceforth, the researcher used different tools pertinent to each respondent. Over all, the researcher followed a pragmatic paradigm or mixed approach including both the quantitative and qualitative approaches that can give more chances to the researcher in triangulating the data and the research findings.

4.2.2. Type of Research

This study followed a survey research method more specifically cross-sectional survey in which "the researcher collected data at one point in time" (Creswell, 2015, p.377) and analysed the data for describing recent attitudes to statements, research questions and hypotheses. Survey with descriptive purposes has been followed to observe the status of the phenomenon. Survey research helps to gather information at a time, summarize, present and interpret it in line with the objectives set to explore, describe and explain behaviour of respondents. For these, feedbacks on the research questions, demographic data and students' achievements were collected from respondents and school administrations for further analysis.

4.2.3. Types and Sources of Data

The researcher collected data from different sources: primary data were collected from principals, teachers, students, parents and supervisors using pertinent questionnaires, schedules and interviews appropriate for each respondent and secondary data were generated from school records on the annual mark of students focusing on student's marks / achievements of the 2015/16 academic years

4.3. Population, Sampling and Samples

The research was done in Ethiopia. Ethiopia, as a Federal System of Governance, has nine Regional States and two City Administrations. Amhara National Regional State (ANRS) and Southern Nations, Nationalities and People Regional State (SNNPRS) of Ethiopia were selected for this study purposively as these are the biggest regional states where Amharic, the national language of the country is the working language and medium of instruction in the target school as well. Moreover, these regions follow the same

curriculum where same subjects are taught at primary school level, (especially in the target zones) with same medium of instruction (Amharic).   In these States, South Gonder Zone from ANRS (with sample districts of Libo Kemkem and Fogera) and Gurage Zone from SNNPRS (with sample districts of Abeshege and Walkete district) were selected in a simple random sampling technique.

Table 4.1.Teachers in the Target Schools

#	School	Teachers				Principals			
		Population			Addressed	Population			Addressed
		M	F	T	Total	M	F	T	Total
1.	Abebayen	25	26	51	17(33%)	2	0	2	2
2.	Addis Zemen	23	31	54	24(44%)	1	1	2	2
3.	Bura Lideta	13	13	26	24(92%)	2	0	2	2
4.	Yefage	23	22	45	19(42%)	1	1	2	2
	Sub total	**84**	**92**	**176**	**84(48%)**	**6**	**2**	**8**	**8(100%)**
5.	Dudmegn	31	53	84	26(31%)	2	0	2	2
6.	Nora Mender	14	11	25	24(96%)	2	0	2	2
7.	Woreta	43	73	116	41(35%)	2	0	2	2
8.	Work Meda	19	27	46	14(30%)	1	1	2	2
	Sub total	**107**	**164**	**271**	**105(39%)**	**7**	**1**	**8**	**8(100%)**
9.	Fikado	16	3	19	16(84%)	2	0	2	1
10.	Lay Fenta	8	15	23	19(83%)	3	0	3	3
11.	Ras Z Selassie	28	32	60	19(32%)	3	0	3	3
12	Selamber	36	52	88	19(22%)	2	1	3	3
	Sub total	**88**	**102**	**190**	**73(38%)**	**9**	**2**	**11**	**10(91%)**
13	Darge 1	28	14	42	23(55%)	3	0	3	3
14.	Holle Millennium	10	9	19	14(74%)	2	0	2	1
15.	Kullit 2	7	6	13	12(92%)	2	0	2	2
16.	Tedle Fete	10	11	21	20(95%)	0	2	1	1
	Sub total	**55**	**40**	**95**	**69(73%)**	**7**	**2**	**9**	**7**
	Total	**334**	**398**	**732**	**331(45%)**	**29**	**7**	**36**	**32(89%)**

The schools were selected in a simple random sampling after stratified sampling of schools considering full cycle schools and rural–urban distribution.   Thus, it had been decided and considered 16 schools (8 from each region).   This was decided to have a distribution of 2 rural and 2 urban schools per district for the sake of comparison as well. In the target regions, the average number of teachers per school was not more than 25 (FMoE, 2015b). Thus, the researcher decided to consider 400 teachers for this study as the number was manageable. However, in the actual situation, the number of teachers extremely varied

in the sample schools from 13 in Kullit 2 full cycle primary school to 116 in Woreta full cycle primary school. In schools, there are morning and afternoon shifts, so the researcher selected the shifts where the newly enrolled grade four complete (grade five students) and grade eight complete (grade nine students) are available and there distributed questionnaires for teachers to all who are available in the shift and volunteer as well. To control the effects of the new academic system and management, data were collected at the first month of the new academic year.

As indicated in Table 4.1, a good number of questionnaires (331 from teachers and 32 from principals) were collected where 45% of the total teachers and 89% of the total principals had participated.

With regard to students, it had been decided to consider simple random sampling (from both gender) to get 10 students from each grade (grade 4 and grade 8 completed) per school for schedule interview, with a total of 320 students. Likewise, it had been decided to consider   160 parents (10 parents in each school) for scheduled interview using convenience sampling especially those who are in the periphery of the school and nearby areas. The overall number of respondents addressed had been summarized in Table 4.2.

Table 4.2. Stratification of Respondents per Region/Zone and District

#	Respondents	SNNPR/ Gurage Zone		Amhara /South Gonder Zone		Total
		Abeshege	Walkete	Libo Kemkem	Fogera	
1.	Principals	6	10	8	8	32
2.	Teachers	69	73	84	105	331
3.	Students	79	80	81	90	330
4.	Parents	39	37	42	41	159
5.	Supervisors	2	1	4	2	9
	Total	**195**	**201**	**219**	**246**	**861**

Supervisors were taken on available sampling for an interview since there is only one supervisor for each cluster where the target school belongs.

The researcher reviewed annual academic records of students for grade four and Primary School Leaving Certificate Examination results (PSLCE) of grade eight in the academic year of 2015/16 (2008 E.C.). Grade four and eight are the last grades for each cycle with in full primary school. The researcher considered one-section students' result (averagely 50 students per school) for each grade and in schools where more than one section of the same grade is available, random sampling of a section was done.

4.4. Visual Representation of the Method

The overall flow of the research has been sketched diagrammatically starting from the main topic to the instruments and respondents' level so that it can give a mental picture of the work. This has been portrayed in Figure 4.1.
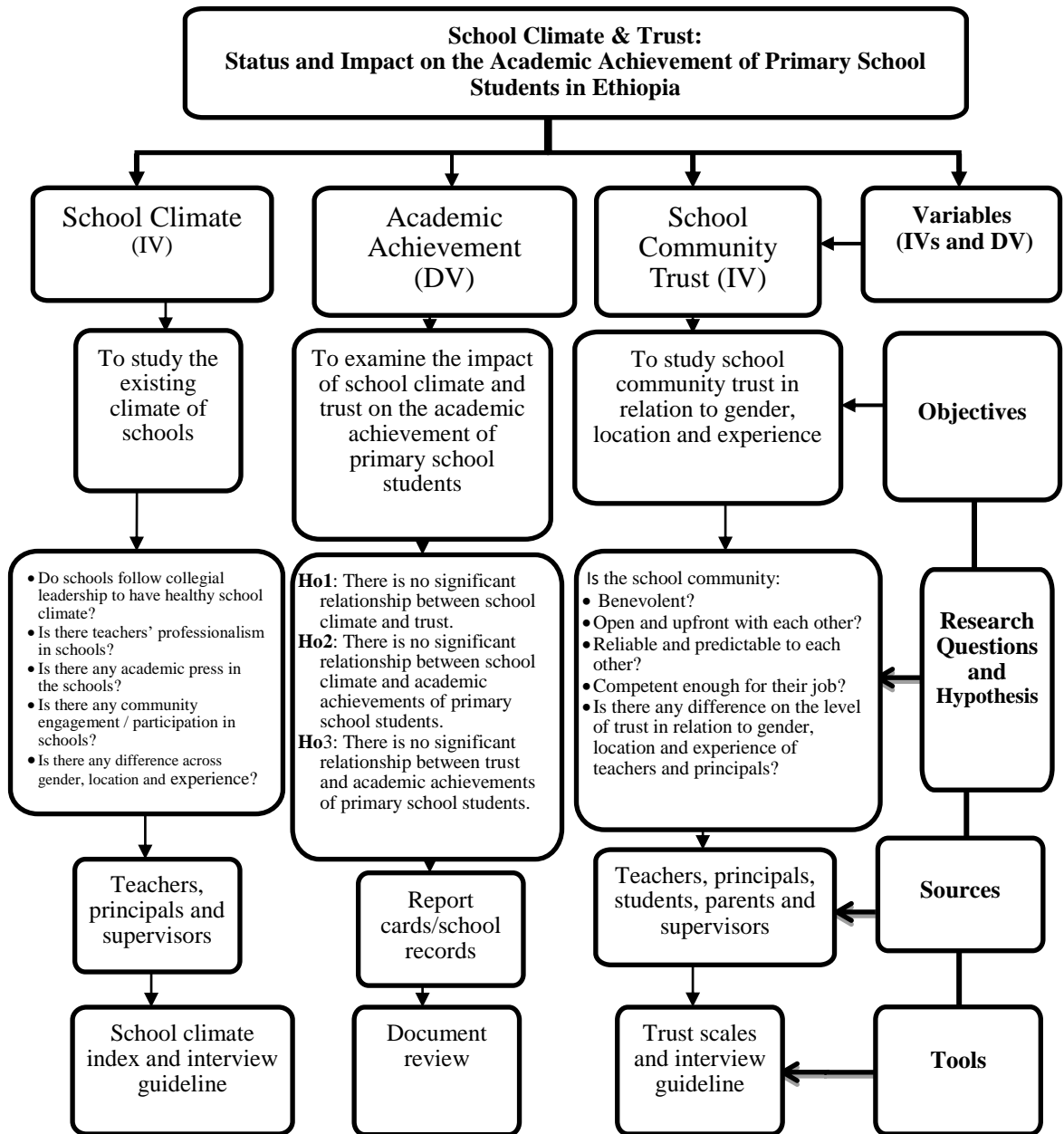
4.5. Instruments

A multiple of instruments were used for this study. This was considered with the current trends and transition of the pragmatic approach as a paradigm shift of going from the use of only one basic scientific method to the use of a variety of methods for the validity,

truthfulness and triangulation of data (Vos, 2005). Hence, both qualitative and quantitative data were collected using several instruments. The instruments were standardized instruments. However, to confer the contextual and cultural relevance of the tools, try out /pre-piloting was done in India, translation of the tools to the local language of Ethiopia (Amharic) and piloting of the translated instruments was again done in Ethiopia. For the use of the standardized instruments, written permission from the authors of the instruments had been secured. Others like students' and parents' schedule are free for academic purposes which are available on the site (Adams & Forsyth, 2009). The instruments have both positively and negatively phrased items, hence reversely coding was used for data capturing and analysis.

In all the instruments, the researcher added questions related to demographic factors like State/ Zone, district, school, gender, age, qualification/ educational level and experience. The following instruments were used in collecting both primary and secondary data which are discussed in the succeeding paragraphs.

4.5.1. School Climate Index (SCI) for Teachers and Principals

The school climate index has 28 items and it had been standardized to measure the four basic dimensions of school climate (collegial leadership, teachers' professionalism, academic press and community engagement) (Hoy & Tschannen-Moran, 2003). The tool has a reliability of high for each dimension that was Collegial Leadership (.94), Teachers Professionalism (.88), Academic Press (.92), and Community Engagement (.87) with its validity being confirmed in factor analysis where items loaded strongly on each of the theoretically predicted dimension. The scale goes from strongly disagree (1), disagree (2), undecided (3), agree (4) to strongly agree (5). Each item of the tool was clustered or distributed to the dimensions of school climate as indicated in Table 4.3.

Table 4.3. Items Clustering Per School Climate Dimension

SN.	School Climate Dimension	Items in the Scale	Total Items
1	Collegial Leadership	7, 8, 16, 17, 23, 24, 25	7
2	Teachers Professionalism	3, 4, 11, 12, 13, 18, 19, 20	8
3	Academic Press	5, 6, 14, 15, 21, 22	6
4	Community Engagement	1, 2, 9, 10, 26, 27, 28	7
Total			**28**

4.5.2. Trust Scales

The trust scales used in this study are standardized instruments that are appropriate to the target respondents. These subsume trust scales of teachers; students; parents and principals (Hoy & Tschannen-Moran, 2003).

2.2.4.1. Teachers' Trust Scale /TTS/

The **TTS** consists of 26 items, which has high alpha coefficient of reliability of .98 for principals, .93 for colleagues and .94 for clients (students and parents) (Hoy & Tschannen-Moran, 2003). The validity was confirmed using factor analysis with items loading from .83 to .97. The scale goes from strongly disagree (1), disagree (2), undecided (3), agree (4) to strongly agree (5). It was designed to address teachers' trust in principals, students, colleagues and parents. This has been exhibited in Table 4.4.

Table 4.4.TTS Items Clustering per SC

SN.	SC	Items in the scale	Total Items
1	Principals	1, 2, 3, 4, 5, 6,7 & 8	8
2	Colleagues	9,10, 11,12,13,14,15 & 16	8
3	Students	19, 23, 24, 25 & 26	5
4	Parents	17, 18, 20, 21 & 22	5
Total			**26**

Besides to this clustering, the items had been designed to address the 5 constructs of trust which Hoy and Tschannen-Moran (2003) call them elements of trust as "benevolence, reliability, competence, honesty, and openness" (p.183). This has been demonstrated in Table 4.5.

Table 4.5.TTS Items Clustering Per Dimensions of Trust

SN	Facets of Trust	Items in the scale	Total Items
1.	Benevolence	2,4,7,12,13,15,19,21, 23	9
2.	Honesty	6,11,14, 22	4
3.	Reliability	1, 3, 9.18, 20, 25	6
4.	Competence	8,16, 17,26	4
5.	Openness	5, 10, 24	3
Total			**26**

2.2.4.2. Principals' Trust Scale /PrTS/

Principals' trust scale consists of 20 items having a reliability of .87 (Tschannen-Moran, 1999). Like TTS, its validity was confirmed using factor analysis, with items loading from.45 to .84. This scale is designed to address trust of principals with teachers, students

and parents. The scale goes from strongly disagree (1), disagree (2), undecided (3), agree (4) to strongly agree (5). This has been portrayed in Table 4.6.

Table 4.6.PrTS Items Clustering per SC

SN	Members	Items in the scale	Total items
1	Teachers	1, 4, 6, 8, 9,12, 13, 17, 18	9
2	Students	3, 5, 7, 10,11,19	6
3	Parents	2, 14, 15,16, 20	5
Total			**20**

Furthermore, PrTS can be categorized based on dimensions of trust to know which dimension of the principals' trust is more prevalent and which dimension of trust is staggering. Thus, these 20 items have been grouped in to five basic dimensions of trust as indicated in Table 4.7.

Table 4.7.PrTS Clustering per Dimensions of Trust

SN	Facets of trust	Items in the scale	Total items
1.	Benevolence	3,6, 9,11,17,18	6
2.	Honesty	4, 7,12, 14	4
3.	Reliability	2,5,13,15,19	5
4.	Competence	8,10, 20	3
5.	Openness	1,16	2
Total			**20**

2.2.4.3. Students' Trust Scale (Schedule)

This tool consists of 13 items set in five-point scale (strongly disagree to strongly agree with revision before piloting) having reliability of Cronbach's alpha .896 (Adams and Forsyth, 2009). All of them addresses the student- teacher relationships like, teachers at this school are good at teaching, teachers always do what they are supposed to do, etc. Adams and Forsyth (2009) have given permission to use the instruments freely for academic purpose.

The tool was tried out in India, Assam (Sonitpur District), in two schools on May 2016 by the researcher. In the try out, it was found very difficult for students to understand the meanings of the statements. It was unthinkable for Ethiopian grade four and eight students to understand and rate them independently. Thus, the researcher found it very important to translate to the local language, pilot it and change it to schedule where the researcher supported them in contextual understanding of the statements. Thus, it was a rating schedule used to obtain opinions of students over statements on student- teacher

relationships. The schedule has the same structure of a questionnaire with set of questions but the enumerator reads and fills the questionnaire.

2.2.4.4. Parents' Trust Scale (Schedule)

The Parents' Trust Scale is a tool prepared by Forsyth et al. (2011) having 15 items. The reliability was established using the internal consistency measure of Cronbach's alpha coefficient which was .962. To test the construct validity, a factor analysis of this measure was used.

Like the students' trust scale, parents' trust scale was found very difficult for Ethiopian parents, especially rural parents since most of them are illiterate. Thus, the researcher again translated and made it a rating schedule.

4.5.3. Interview

In the Ethiopian education system, primary schools are clustered based on their geographical proximity where 4 or 5 schools are clustered as one unit. For this, one supervisor is assigned to lead the cluster. The cluster supervisor is an experienced teacher who can support the principals and teachers in each school. Thus, the supervisor has access and know- how on the management and academic issues of each school, relationships in the school and overall impression of students' results as well. She/he has the chance to share the experience of at least four schools being neutral to the school community. For this purpose, cluster supervisors of the sample schools were included for an interview. The nature of the interview was semi structured, and items were designed to address key dimensions of trust and school climate and future strategies to have positive, healthy and trustworthy schools.

4.5.4. Report Cards

Report cards were sources of information for the students' academic achievement. These were the annual average students' results/marks gained in the academic year of 2015/16 for grade four and eight completions. Considering school as a unit of analysis, the results of each grade and school were summed up to get the average mark for each grade per school.

4.6. Scoring

The feedbacks of respondents on each item of the scales were recorded on the five-point scale for both school climate index and trust scales. The negatively stated statements were reversely coded. The analysis took the form of strongly disagree (1; unhealthy school

climate and no trust), disagree (2; existence of minimal healthy school climate and very minimal trust), undecided (3; at medium level), agree (4; healthy school climate and there is trust) and strongly agree (5; very healthy and high trust) which can be put as a range indicated in Table 4.8. The qualitative feedbacks of respondents were captured in a narrative form. The school records (marks) were interpreted as they are in the roaster or students' report cards in percentage.

Table 4.8.Scoring of Quantitative Feedbacks

Rating	Ascribed Meaning	Range	Decision	Implication
1	Strongly Disagree	< 1.49 (30%)	Very low	• Unhealthy school climate • No trust
2	Disagree	1.50(30%)- 2.49 (49.8%)	Low	• Minimal healthy climate • Minimal trust
3	Undecided	2.50(50%) - 3.49(69.8%)	Moderate	• Moderately healthy climate • Moderate level of trust
4	Agree	3.50(70%) - 4.49(89.8%)	High	• Healthy climate • There is trust
5	Strongly Agree	>4.50(90%)	Very high	• Very healthy climate • High trust

4.7. Ethical Issues

The study of school climate and trust is equated with the study of the roots of a delicate plant (Tschannen-Moran, 2014) because unwise examination and administration will bring a more devastating effect, as these are delicate and sensitive issues. Thus, it should be done curiously, and the information needs to be handled with due care following ethical principles.

The ethical standards to be adhered in administering the survey instruments need curious attention. It should be administered anonymously, and the results should be summarized at school level (school as a unit) so that no individual student, teacher, parent, principal or supervisor suffers any penalty or traced back.

The researcher followed and ensured the key ethical principles as fundamentals (Marczyk, et al., 2005) of the research as:

a. **Respect for Persons:** respected the autonomy of participants, made informed decisions based on their interest, comprehension and voluntariness.

b. **Beneficence:** the context of not making them vulnerable, doing no harm, minimize risk for both teachers, principals, supervisors, students and parents was done in due care.

c. **Justice:** relates to fair and equitable distribution of burdens of research, fairly selection of respondents with scientifically and ethically justifiable procedures. In line with this, participants were selected in a simple random sampling except those considered with purposive/ convenience sampling, even these respondents were informed why they were part of the study and they had also given their consent and voluntariness to be part of it.

Besides to these, the respondents were informed about their voluntarily participation and the need for their **full consent.** and they were advised to skip any questions where they found it uncomfortable. They were also informed that their feedback is **confidential,** and it is for academic purpose where **anonymity** will be kept as well. At the very beginning, the researcher introduced the purpose of the research, why and how they are selected and brief background of the research, the researcher and projected outcomes so that trust was developed. Furthermore, the researcher had taken permission from district offices, schools and again further permission from respondents themselves to take photographs and videos as needed. The information about all these points were given to respondents in lay terms that can be easily understood (Miller and Brewer, 2003). Finally, the researcher acknowledged their participation in terms of their time, experts and how important it was of their genuine feedbacks as well.

4.8. Administration

The administration of questionnaires (for students and teachers) was done on break time where all the teachers come to the common room. In this time, a uniform briefing was given to all at a time. The researcher oriented the respondents on the purpose of the research, profile of the researcher, confirmation on voluntariness, how to score the questionnaires; doing it independently and the need for giving filled questionnaires to the researcher directly for confidentiality. They were also informed about the possibility of omitting any of the item or the whole questionnaire wherever they are not comfortable. The researcher facilitated the students' schedule himself. He was reading and explaining each question being at the centre of the group and they were circling the numbers based on their agreement.

The parents' schedule was read and marked by the researcher for those illiterate parents. The parents' schedule was done on home to home, in schools where the parents are coming for their personal issues, whenever they are in meetings, etc. School report cards were compiled from record offices and in areas where copy was not available (rural schools); the researcher took a hand-written notes and photos of the documents. In addition, the researcher copied some of the records from the district education offices as well. Some of the school records especially all grade eight students' results of Gurage Zone were collected in soft copy from the zone itself.

4.9. Pilot Testing

Piloting is the miniature survey of the study by administering the final tool of the questionnaire or interview schedule to a small number of respondents to ensure that errors of whatever nature can be rectified immediately at little cost (Miller & Brewer, 2003; Vos, 2005). Piloting was done with the suggestion of, "whether it is a new questionnaire written to meet a set of specific objectives or a set of questions that have been used before and adapted or arranged for a new study, testing it out before committing to a large-scale study is an essential precaution" (Brace, 2004, p. 163). Likewise, Schreiber and Asner-Self (2011) reminded that "whether you create your own instrument or choose to administer a previously developed one; you need to pre-test or pilot test the instrument and the administration procedures you will use" (p.135).

Questions that seem easy for us may not to our participants /respondents. Thus, the feedback from the piloting reminds measures to be taken at the earlier stage for the quality of our data and saving of future resources, stresses and fallacies. Thus, piloting had been considered as a prerequisite for this study.

Piloting was done with good reasons of addressing some of the concerns on the soundness of the questions, meaningfulness, inclusion of any ambiguous or double-barrelled questions and their clarity. Are the response codes sufficient enough to provide directions, and discrimination? How long the interview will take? have mistakes been made? do we know how to manage the data? etc. were the imperatives for the pilot study (Brace, 2004).

Based on these theoretical assumptions, the researcher had done try-out of the instruments (school climate index and trust scales) both in India and Ethiopia. The purpose of these try outs were to see respondents' level of understanding about questions /items, instructions, the degree of sensitivity of each item, time needed, any gaps that respondents

need to be supported, trial on the data capturing and analysis as a simulation for the researcher.

i. Try-Out: India

Try-out 1 was done in India in two schools accommodating a total of 28 teachers and 102 students. The intent of the try out was to check the simplicity of directions, any typographic or conceptual errors, create practical exposure to the administration of the questionnaires, time needed, technical supports and share the field observations to the supervisors before leaving India for the actual field work (Ethiopia) as it is a very far place to get any immediate support from supervisors. It also helped in demonstrating how the data was going to be captured and analysed, and how the write up was going to be compiled. Based on the observations of the first try out, students and parents trust scales were changed to schedule. Besides to these, the try-out had reminded the need for translating the instruments to the local language of the research area (Amharic, Ethiopian National Language) where all the questionnaires were translated.

ii. Translation of Questionnaires

The original questionnaires that were developed in English were translated by the researcher and distributed via email and in person for experts, teachers and principals. These were experts who can comprehend the protocols of a research and the position of taking the impression rather than a verbatim paraphrase. The translated questionnaires (Amharic versions) were sent with the original English versions for their comments on the contextual meanings with reference to ethnicity, religion, gender, culture and other related features of research questions. This is because accurate translations are, of course, essential and critical in maintaining the intended meanings (Brace, 2004). Based on the reflection of these experts, the researcher made the instruments ready for piloting in Ethiopia. This was the approach followed   with the purpose of confirming the face validity of the instruments. However, the back- translation had been left as it is quite possible to be omitted since the questionnaires have been used before (Brace, 2004).

iii. Pilot Test: Ethiopia

Try out 2 (piloting) was done in two-schools of Ethiopia where the actual study took place. For this purpose, two schools from the target zone, Gurage Zone of SNNPR were selected randomly. In this process, one school from rural setup and one school from urban setup were randomly considered. This was designed to have information on the language

aspect, gender, religion, and related socio-cultural factors, as the terms included are sensitive that needs ethical considerateness. This gave insights on how to administer the instruments. The result has been presented in Table 4.9.

Table 4.9.Pilot Study Respondents

Pilot Study Instruments	Total	
	Distributed	Returned
School Climate Index	43	40
Teachers' Trust Scale	39	33
Principals' Trust Scale	4	4
Students' Trust Schedule (Grade 5)	20	20
Students' Trust Schedule (Grade 9)	20	20
Parents' Trust Schedule	20	20

During piloting, it had been observed that some of the students were confused with the age range put as a choice for them (less than 10, 10-15, 16-20 and above 20). Hence, the researcher advised them to write simply their age. Likewise, very few teachers seem to be sceptic about the topic and few are bored. So, they avoided us not to fill the questionnaires. Overall, 43 School Clime Index questionnaires were distributed and 3 did not return or some returned blank sheets. Similarly, 39 teachers' trust scale were distributed but 6 did not return or some returned blank sheets. All the principals' trust scale; students' and parents' schedules were returned.

Researchers need to judge the quality of their instruments. He/she must establish indicators that provide evidence about the information generated in the research about the trustworthiness and credibility of the information generated. For these, the most prominent measures for judging the quality of quantitative research instruments include validity and reliability.

a. **Validity**

Validity is one of the qualities of research instruments that demands "the development of sound evidence to demonstrate that the items match their proposed use" (Creswell, 2015, p.159). In line with this, the researcher tried to keep the face validity of the instruments in confirming that the items on the measurement instrument appeared relevant to the life experiences of the target respondents in relation to the already formulated objectives (Mertens, 2010).

Though the instruments were standardized, it was important to check the translations in relation to the contexts. Face validity had been confirmed in the process of tool

translation (Perecman & Curran, 2006) as described in 4.9. ii. Besides to this, content validity had been confirmed in a question of, do the items measure the contents they are intended to measure (Mertens, 2010), especially related to the conceptual frameworks, objectives and hypotheses formulated.

b. Reliability

Reliability is the consistency of responses when a tool is administered at different times (Creswell, 2015). It is the stability of the values and its measurement. Depending on the time, situation and nature of the instruments, researchers can use several approaches to determine the reliability of instruments. The most common approaches in reliability involve the use of repeated measures (e.g., test-retest and parallel forms), split half method and calculation of internal consistency (coefficient alpha) (Mertens, 2010). For this, the researcher argued to use internal consistency that demands only one-time administration of an instrument. According to Mertens (2010), it is appropriate to use Coefficient Alpha for only one-time administration of an instrument.

Schreiber and Asner-Self (2011), when data are collected from a one-time administration, the evidence collected can have the internal consistency score. For this, Cronbach's Coefficient Alpha can be used to examine the internal consistency. Based on this rationale, the instruments piloted had been analysed using the technique of Cronbach's Alpha for confirming their reliability.

The School Climate Index with 28 items was administered for 43 respondents (4 principals and 39 teachers) of two target schools; however, 3 teachers did not return the questionnaires. As a result, the reliability of the scale was calculated based on the feedbacks of 36 teacher respondents and it was found to be .930.

The Teachers' Trust Scale with 26 items was calculated based on the feedbacks of 33 teachers of two target schools. As a result, the reliability of the scale had been found .830. Likewise, the Students' Trust Scale with 13 items was administered for 40 students of two target schools. As a result, the reliability of the scale was .820. Besides to these, the parents' trust scale (for 20 parents) with 15 items was found with reliability of .904. Most acceptable reliability coefficients start from.75 (Mertens, 2010). Hence, the tools were found acceptable to be used for the study.

4.10. Data Analysis and Presentation

The data one collects from a survey can tell very little by themselves, as the concern is more on finding patterns and summarized results, regularities, features and finally conclusions. For these, we need to be engaged in analysis. Thus, analysis is partly of constructing patterns, generalizations and explanations. Zikmund (1997), "analysis is the application of logic to understand and interpret the data that have been collected about a subject" (p.57). This is again dependent on several factors such as type of variables, nature of variables, shape of their distribution, and study design (Singh, 2007). The choice of the analysis technique is just as important as all the other components of the research design. Therefore, the   method of data analysis must answer the research questions raised in the design and test hypotheses formulated.

The use of parametric or nonparametric approaches also affect the analysis part which highly depends on the normality of the data, sampling and size of the respondents. However, Singh (2007) reported that, "in the case of sample size of 50 or more than, it is very unlikely that serious bias would occur due to sampling and in case of sample size of more than 100, researchers should not worry about normality assumptions" (p.147). Thus, the researcher decided to follow the parametric approach.

The study had collected both quantitative and qualitative data pertinent to the objectives of the research.   The qualitative data were transcribed and analysed using narration and content analysis technique based on the already defined objectives, set research questions and themes for both school climate and trust.

In the analysis, imputation (replacing missing values) was done via the average imputation approach of seeing the average value (mean) of the responses from the other participants to fill in the missing value (Brace et al., 2012; Singh, 2007) as there were small number of missing values which was less than 5%, being considered in statistics as inconsequential (Schafer, 1999).

Overall, the quantitative instruments were in a Likert scale where items were created by calculating a composite score (sum) from several questions. In Likert scale, series of items are combined to a single composite score that can provide   quantitative measure for a character.   The sets of variables; school climate, trust and academic achievement were both portrayals of the properties of the sample school or aggregates for each instrument. Having this in mind, the data of this research had been analysed using the following statistical techniques.

a. Frequency Count and Percentage

This was used for analysing the nominal data like gender, location, experience, age and bipolar (summing up top boxes/bottom boxes) for healthy /unhealthy or agree/disagree sum for climate and trust.

b. Mean and Standard Deviation

The mean was used to describe the central position within that set of data as measure of central tendency. On the other hand, standard deviation was used as a measure of dispersion to indicate variability of the data.

c. Pearson Correlation (r)

This is a simple analysis of confirming any linear association /relationship between two variables where we don't have any causation, dependent and independent variables. Correlation was used to see the simple relationship of overall school climate, dimensions of school climate, overall trust, and dimension of trust and academic achievement using Pearson correlation coefficient(r).

d. t-Test

t-Test was used to see any mean differences across the binomial data (two- levels) of gender (male /female), regions/ zones (Amhara/SNNPR States, South Gonder/Gurage Zones) and location (rural /urban) in terms of respondents' perception about the level of school climate, trust and the academic achievement of students. It is used to check whether there is a significant difference between the means of two groups, assumeing the dependent variable has a normal distribution.

e. Analysis of Variance (ANOVA)-F test

Analysis of Variance (ANOVA) as a statistical tool was used to analyse and compare means for variables with more than two levels like districts, schools, teachers' experience, age and qualification. For the exact prediction of the level where difference lies (if any), the HSD (Honest Significant Difference) had been used. It is the measurement of distance between individual distributions on given variables.

f. Regression

This is a statistical tool that allows prediction of one variable, usually dependent variable (the criterion variable) from the other independent variable (the predictor variables) (Brace et al., 2012). It allowed predicting students' score or achievement because of the predicting variables (school climate and trust). In this case, the academic achievement (as

dependent or criterion variable) was regressed on the independent variables (school climate and trust) as predictor variables.

g. Content Analysis

The content analysis was used to categorize the verbal or behavioural data collected from cluster supervisors via interview. It helped to categorize, summarize and tabulate the feedbacks as per the key variables and objectives of the research. It helped to make sense of the data collected and highlight the important messages, and suggestions in line with the quantitative results.

All the data were computed with the support of SPSS version 21 (Statistical Package for Social Science). Finally, the report of the findings was compiled in a narrative form, tables and figures as deemed necessary to make the report clear and informative.

4.1. Limitations

- Students' and parents' perceptions of school climate; parents' and students' trust in principals were not addressed in this study that needs further attention. Thus, we suggest further researches to validate the soundness of these variables.

- This study has addressed the social/emotional and academic dimensions of school climate but not the physical dimension/physical environment which needs to be examined in similar researches.

- The study was conducted in the tense hours of the academic semester where public demonstrations were taking place in the research area especially in Amhara region and the school communities were curious about visitors. The researcher suspects that the turmoil might have an impact on the responses of the school community as the points raised (trust and school climate) were sensitive.