CHAPTER I

INTRODUCTION

Background of the Study

Mathematics is the backbone of our civilization in the world. Mathematics is very important subject in the school. Mathematics has development of various Subjects vocational and technological. It is a Science which is still playing an important role in various ways of life. Mathematics is taken as the science of all science and arts of all arts (Sapkota, 2008). It is also known as the queen of science. Mathematics is the science of numbers, quantity and space. According to John lock, "Mathematics is a way to settle in mind a habit of reasoning."

According to Oxford Dictionary, "Mathematics is the science of number and space. "Mathematics arose from the needs for organized society of people. Mathematics is the discipline that deals with concept such as quantity, Structure, Space and change.(Pandit,2054)

Mathematics is also a powerful learning tool. Mathematics is highly intellectual discipline, without it we cannot imagine any other field. Mathematics has faced the presents challenging problem which are shown by the different civilization in course of solving problem and need.

The main purpose of the teaching mathematics is to develop the understanding reasoning and analyzing power which are necessary to various aspects of human civilization and developments so far the formal teaching of mathematics in Nepal is concerned. According to NESP (1971 - 76) the 30%, 20% and 12% of school hours

are given to mathematics at primary, lower secondary and secondary level respectively. This fact clearly indicates that understanding of mathematics has been accepted as fundamental component of literacy. Actually the formal education of Nepal was started from durbar school in 1910 established by Jangabdr. rana. This school was opened especially for royal family firstly. At that time basic mathematics at lower level and Algebra and geometry at upper level are taught. Now day's mathematics was introduced as compulsory subject for each class of each level of school curriculum.

Kelly and Ladd (1986) write, "It is not certain who first had idea of trying to prove a mathematical rule by reasoning rather that by testing it in different way ". The word "Geometry" is taken from the Greek word "Geo"(earth) and "metry"(measurement) or 'measurement of earth'. It is the branch of mathematics without which the development of other areas of mathematics is incomplete. Provide a strong foundation for the science and similarly come into existence and provide a strong foundation for the science of geometry"(Butler, Wren and Banks 1970).

Geometry is the study of the properties of shapes. The important and essentiality of geometry was felt with the development and utility of geometrical concepts, which is proved in the fourth century BC by the great and popular Greek philosopher Plato (427 – 347BC) who ordered a carved of inscription "Let no one ignorant of geometry enter my doors."(K.C, 2009)

Geometry is the study of space and special relationship. Geometry comes from the physical world, involves patterns can be applicable in the world (Ministry ofEd. 1971). According to historical evidence, geometry was developed faster than other

mathematics. Mathematic curriculum of lower secondary level emphasized on Euclidean geometry. The shape, size and other properties of figures are the area of geometry. It deals with the measurements and relationship of lines, angles, surfaces and solid. Geometry is the science of space. School mathematics curriculum of Nepal has given emphasis on geometry learning from the beginning of schooling. The curriculum have aimed to develop students understanding of intended geometric concepts at primary, lower secondary and secondary level. Similarly geometry is the one of content standards of school mathematics curriculum. Geometry is regarded as the core content area of school mathematics curriculum. It is the most important and integral part of the school mathematics curriculum. A school mathematics curriculum of Nepal has given emphasis on geometry learning from the beginning of schooling. The curricula have aimed at developing students understanding of intended geometric concepts at primary, lower secondary and secondary levels (Luitel, 2005).

Mathematics teaching learning situation in Nepal is to be very poor. The problem to geometry learning affects the achievement in teaching of mathematics. This is the great challenge to the mathematics teacher. Some problems of learning geometry in students directly are related to the teacher's academic, background of the students, classroom practice, school management and others (Paudel, 2009) .Teachers are the important agent for the successful implementation of mathematics curriculum. Only by hard work of the teachers the mathematics curriculum can be successfully implemented. There are various researches about student's problems. Many government and non-government official research indicates the investment of huge amount of time and money to find the problem of students. But the researcher decided

to make a systematic study on the topic "Problems faced by students in geometry at lower secondary level."

Nepalese school totally based on textbooks since the textbook have been written in formal Nepali language. It is more difficult for those students who have other language speaking background than Nepali. A large number of students are packed in small classroom. Thus the crowed classroom is one of the major problems of the mathematics classroom. Classroom is not well lighted and well ventilated physical facility such as teaching materials, mathematics lab; low cost and cost free materials etc. are not organized properly by concerned agencies.

Statement of the Problem

The new curriculum of mathematics (Geometry) in lower secondary level has been implemented in Nepal since 2055 B.S. (NESP, 1971-76). This study mainly concerned with the problem faced by students in Geometry at lower secondary level Because In the lower secondary level many students were not interested in learning Geometry. Researcher thinks that why the students were drop the mathematicsclasses in teaching geometry at lower secondary level. Researcher also raise the question about what type of problem faced by students in rural and urban area school related to learning geometry at lower secondary level.

Many students were absent in mathematics class and many students were not interested in geometry class.Textbook and teaching materials were not available in time, there were lack of trained teachers and lack of economy of parents also students were involved in housework many time were some problems in Kailai district. So it is well appropriate to discuss about the teaching and learning problems facing by

students to scope of geometry. It also included what problem would be faced students in Geometry at lower secondary level. Furthermore this study tried to answer the following questions such as:

- What are the current problems faced by students in geometry at lower secondary level?
- Do the problems faced by rural school students differ from the problem faced by urban area school students?

Significance of the Study

Mathematics is an essential part of school curriculum of Nepal. It had been thought as compulsory subject for students at all level of school education program. So every student should read math subject at lower secondary level. But most of the students feel that the mathematics is harder and boring then other subject. In math subject many student feels hard in geometry. So there were various reasons behind this research work as lack of physical facilities which are essential for teaching learning activities, unavailability of experienced and trained teachers (Upadhaya, 2010). In various school Unavailability of textbook in time, lack of instructional materials, heterogeneity of students. In lower secondary students are not perfect toSolvequestions in geometry (Paudel, 2007). But students should face so many problems in geometry.

In Nepal many students faced problem in geometry at every level. In lower secondary level students have not idea to solve mathematical questions. Students think that the geometry is harder than other topic this is the main problem for lower secondary level students. Thus most of the students are weak in mathematics (geometry).

According to NCTM, The school mathematics curriculums of Nepal have given emphasis on geometry (Bhattarai, 2005). In this research the learning problem being faced by the mathematics students is the main focus of the study. So, this study is concerned on the problem facing by students at lower secondary level in geometry.

The significance of this study states in the following points:

- This study would provide information about the students facing what types of problem in geometry at lower secondary level.

- It would also help to teachers, students and parents to create better environment and teaching learning process.

- It would provide the main causes of facing problem in geometry at lower secondary level.

- To promote the solution about problem facing by students in geometry at lower secondary level.

- It would explain about the problems being face the mathematics students in rural and urban area school.

Objectives of Study

The main objectives of the study were to identify the problems faced by students in geometry at lower secondary level. Specifically the objectives of this study are as follows:

- To identify the problem faced by students in geometry at lower secondary level.

- To compare the problems faced by rural school students and urban area school students related to geometry.

Delimitation of the Study

Due to the constraints of times, expenses and other related factors the researcher did not overcome the entire field. i.e. it had some limitations which were as follows:

- This study was limited at kailali district.

- The sample school of this study was included only 10 (5 from rural and 5 from urban) public lower secondary schools.

- Only 10 students and one teacher from each school were selected for this study.

- The variables such as age level, environment of the classroom, location of the school area etc. of sample affecting the problem was not be controlled.

- This study was concerned with only the problem faced by students of grade VIII in learning geometry.

Hypothesisof theStudy

The hypothesis formulated for this study was as follows:

Null hypothesis: There is no significance different between the problem faced by urban and rural area lower secondary level school students.

i.e. H_o : $\mu_1 = \mu_2$

Alternative hypothesis: There is significance different between the problem faced by urban and rural area lower secondary level school students.

i.e. $H_1 : \mu_1 \neq \mu_2$ where, μ_1 and μ_2 are the average problems faced by rural school students and urban school students respectively.

Definition of Related Terms

Students: The Students who were studying at lower secondary level.

Teachers: Teachers who was teaching mathematics at lower Secondary level.

Geometry: The science that treats of the shape and size of things. The science of properties and relation of lines and Solids at lower secondary level.

Curriculum: Mathematics curriculum which has been implemented at presents at lower Secondary level.

Problems: These statements which were included in the Statement of the Problem related to lower secondary level.

CHAPTER II

REVIEW OF RELATED LITERATURE

Review of related literature is research task, calling for a deep insight and clear prospective of the overall field. It would helps to conduct the new research in a systematic manner by providing the general outline of the research study and avoids the necessary duplication. It would provided that the strong knowledge about the related topic. Researcher need to review the related literatures written in text book, journals, research report, some reference book to get idea and guidelines for his/her research. It would help researcher for initiating and concluding relevancy of his/her research. Among the literatures reviewed some were in related to problems faced by students in geometry in learning mathematics.

The researcher was tried to find out the literature on the topic that related to problems faced by mathematics students in learning geometry.The researcher was received some related literature as follows:

Empirical Literatures

Chhetri (2015) conducted his thesis on the titled "A Study of the problems faced by students in learning arithmetic at secondary level in Kathmandu district." He takes 300 students (150 students from public and 150 from private school students) of secondary level of Kathmandu district as the sample for this study. He adopted the descriptive survey research design for this study. He used questionnaire form and interview schedule for this study. Weightage mean and t-test were used to determine to the problem faced by students in learning arithmetic at secondary level. The major findings of this study were calculated that the large number of students in the

classroom, irregularity of students. He also found that the problem related to practicing about arithmetic, abstract vocabulary used in arithmetic, lack of effective teaching learning strategies.

Sah (2016) studied on a titled "The problems of teaching and learning mathematics in geometry at grade-IX". Two mathematics teachers, five students, one head teacher and five parents of shreeRajajiTulshilalJonchhejanata higher secondary school of Saptaridistrict were selected as the sample for this study by sample random sampling method. This study was adopted qualitative research design. The data of this study was in descriptive from rather than numerical or inferential. The main tools used in this study were observation and interview form. Collected data were analyzed and interpreted by descriptive method. The major findings of this study were calculated that the teaching learning environment of home and school, pre-knowledge of students, learning achievement seem to be exam oriented rather than practical oriented, poor evaluation techniques, lack of appropriate teaching method and materials, pre-knowledge about geometry. Complex and larger syllabus in secondary level mathematics curriculum, careless of school administration and non-affective learning management were also the problems for the students.

Bhattarai (2016)Concluded in a study titled "Problem faced by lower secondary level students in learning mathematics". The researcher adopted descriptive survey method. This study was based on qualitative and quantitative research design. In this study 50 schools (Five schools from urban and five schools from rural area) were selected as the sample by random sampling approaches. Tools of the data collection were used as the questionnaire, observation form and interview schedule

for this study. The collected data were interpreted and analyzed by percentage and mean weighted.

The major findings of this study were as follows:

This study concluded that the Learning mathematics in lower secondary level is affected by many factors such as illiterate parents, low economic status, poverty and lack of encouragement from parent to their child for the study. Similarly, the gap of weak and talent students, unavailability of teaching materials, lack of trained teacher, insufficient furniture and classroom management also the lack of good administration and insufficient budget for school.

Lama (2016) conducted on a thesis titled "A study of problems faced by students in learning geometry at secondary level". The nature of the study was the qualitative. This study was follows descriptive survey design. Researcher was selected 20 schools of sarlahi district. Among them ten schools were private and ten were government schools. From each private school six students and from each government school nine students were selected for the data collection for this study. A set of questionnaire and interview schedule were used to collect the data for this study. The collected data were tabulated, interpreted and analyzed with the simple mean, percentage, weightedmean and t-test. The major findings of the study were illiterate parents, poverty of parents, lack of encouragement, lack of trained teachers, distance between home and school, spending more time on household work and lack of sufficient budget for school.

Joshi (2018)concluded that the study on the topic "Problems faced by primary level students in geometry". The Research was based on mixed research design. This study

was mainly based on survey type. The researcher was selected 180 students on which 30 students from each school out of six from Kathmandu district. Achievement test, class observation, checklist and interview schedule were used to collect data for this study. The collected data were analyzed by calculating mean, S.D., and t-test. The significant problem was associated with learning geometry in content, instructional material, classroom management and learning activities. The major findings were the completion course in time, receiving the book in time. Also the problem were found to the teacher's discrimination to the weak and talent students, availability of mathematics lab in school, Friendly class room environment.

The above reviewed related literatures showed that there were so many problems in learning mathematics and in its different subject matters. Above various researches have been made regarding the problems faced by students in mathematics, problems faced by students in arithmetic, problem related to primary students, problem related to secondary level students and so on. There is very few researcher has worked on problem faced by students in geometry at lower secondary level at lower secondary level. Above researches, no research has been conducted to identify the problems faced by students in teaching geometry at lower secondary level in Kailali district.

The collected data through class observation and interview schedule were analyzed and interpreted on the basis of the framework that the researcher developed in the interview of the related literature section. i.e. the information were categorized in the broader themes area that are economic crises of school, lack of proper classroom management, lack of motivation, lack of encouragement, lack of appropriate teaching method and materials, lack of trained teacher, lack of facility and

large class size. Then they were analyzed along with triangulation among the source observation, interview and questionnaire. The researcher tried to interconnect with previous finding and the way of analysis in the similar context.

Theoretical Literature

Two Dutch educators Dina and Pierre van Hiele suggested that children may learn geometry along the lines of a structure for reasoning that they developed in the 1950s educators in the formers soviets union learned of the Van Hiele research and changed their geometry curriculum in the 1960s. During the 1980s there was interest in the United States in van Hiele's contribution of national Council of Teachers (1989) brought the Van Hiele model of learning closer to implementation by stressing the importance of sequential learning and activity approach.

The five level of geometry thought (Numbered levels 1-5) do not correspond with student's age. The mental development levels of instruction was suggested by the van Hiele theory of geometrical thinking are given below (Hiele; 1999)

Level 1**:** Visualization

The objectives of thought at level 1 are shapes and what they "look like". In this of level thinking students only need to identify figures by their shapes, not be able to name attributes. Students recognized figures as total entity (triangle, square) but do not recognize properties of these figures (right angle in a square).

Level 2:Analysis

The objectives of thought at level 2 are classes of shapes rather than individual shape. Students analyze component part of the figure (opposite angle of parallelograms are congruent) but interrelationship between figures and properties cannot be explained.

Level 3:Informal Deduction

The objectives of thought at level 3 are the properties of shapes. Students can establish interrelationship of properties within figures (In a quadrilateral, opposite sides being parallel necessities opposite angles being congruent) and among figures (a square is a rectangle because of has all the properties of a rectangle) informal proofs can be followed but students do not see how the logical order could be altered not do how to construct a proof starting from different or unfamiliar premises. They should also be able to discriminate from relevant and irrelevant attributes of geometrical figure.

Level 4**:** Deduction

The objectives of thought at level 4 are deductive axiomatic system for geometry. At this level the significance of deduction as a way of establishing geometry theory within axiom system is understood. The interrelationship and role of undefined term, axioms, definitions, theorems and formal proof is seen.

Level 5:Rigor

This level of geometric thinking most applied to collage level geometry classes. Where the students use formal logic to compare abstract systems without concrete model. Students reason formally about mathematical system. The product of their reasoning is establishment, elaboration and comparison of axiomatic systems.

Conceptual Framework

The conceptual understanding design by the researcher is to identify the problems faced by students in learning geometrical at Kailali district. For the study of related literature above, the researcher made the framework for this study. So,the following framework sketch has presented below:
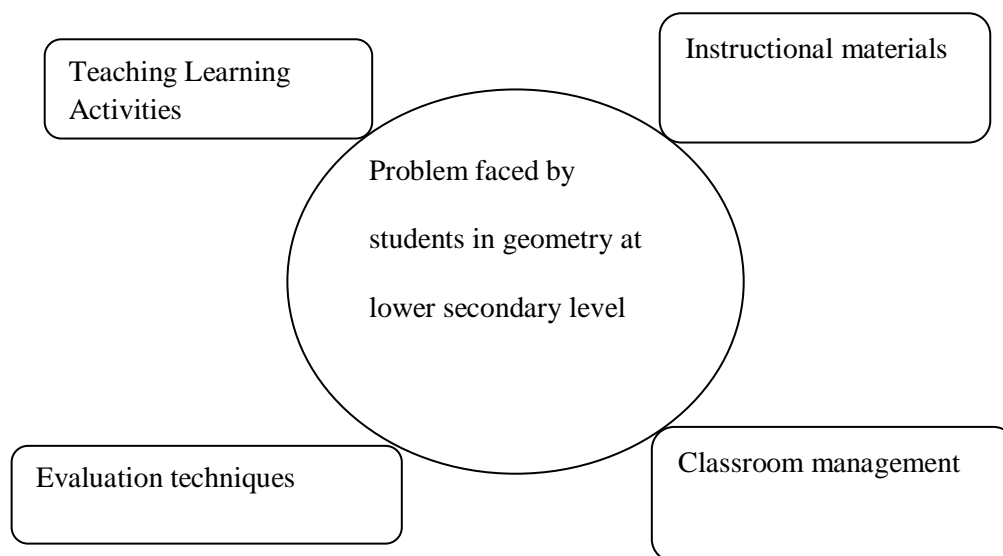

Fig.2.1. Conceptual framework (Source:Paudel; 2007)

Teaching learning activities: Teaching learning activities play important role to shape knowledge and understanding the subject matter. Students' performance and perception depend upon how the teaching present subject matter. Student centered teaching methods are now highly appreciated.

Instructional material: To make teaching learning activities effective and meaningful, are of instructional material are indispensable. Different kinds of teaching material can be used in teaching geometry such as audio, visual aids, models, textbook and computer and so on. This material would be used in classroom to facility teaching learning situation. Instructional materials are strong weapon to motivate the class. To minimize geometrical problems all sort of instructional material can be adopted. Different teaching tools and material can be use the teaching effective.

Classroom management: Education had been aware that the quality of classroom management is an important factor for student's achievement and teaching success. We have written about management rather than control in classroom because management emphasizes that learning and teaching are complementary activities just as successful manager in management.

Evaluation techniques: The primary responsibility of a teacher is to using about the maximum degree of students achievement and learning. Evaluative devices such as examination of various types, oral quizzes and different class activities are essential evaluation process of evaluation techniques. The main purpose of the evaluation program may be to help more intelligent guidance in learning.

CHAPTER III

METHODS AND PROCEDURES

Research methodology presented the logistics of study because it determined how the research becomes complete and systematic. The research designs are survey, descriptive, analytic and comparative in nature. Research design is considered as the heart of research. It presented the plan of study because it determined how the research becomes complete and systematic. This study was concerned with the study of problems faced by students in geometry at lower secondary level. The major components of procedure in this study were as follows:

Research Design

Research design was the specification of the methods and procedures. Descriptive survey method was adopted to conduct the study. For the study using this method more items would be asked and more flexible but factual information would be collect. The nature of the study was qualitative as well as quantitative.

Study Sites

Kailali district is the capital city of far western province. Students' of Kailali, being from various cultural and linguistic backgrounds has their own way of learning. Therefore Kailali district was selected as the study site for this research.

Population of the Study

The population of this study was consisted of all the students of public schools who studied mathematics in lower secondary level of grade 8 of Kailali district who currently involved in teaching learning program.

Sample of the Study

On the basis of development status of Kailali district, it was divided in to rural and urban areas. The researcher would select 5 schools from rural and 5 schools from urban areas using sampling method; one mathematics teacher and 10 students from each school would taken as the sample from the population by the simple random sampling method.

Instruments of the Study

The major tools of this study was class observation form, interview schedule and questionnaires. It would be developed by researcher himself by the help of the supervisor. Two separate questionnaires were developed for the students.

Questionnaires for the students would developed concerning about teaching learning activities, instructional materials, classroom management and evaluation techniques.

Also class observation form and interview schedule was regarded as the tool of this study. Before developed class observation form and interview schedules the researcher constructed with mathematics expert and experienced teachers. The questions for the interview was constructed in such manner it found that the problems of mathematics students in the classroom. The areas of the problems would be related to the classroom management, instructional materials, Teaching learning activities and Evaluation techniques.

Data Collection Procedures

The data were collected by primary sources. For this purpose the researcher visited each of the sampled school along with the questionnaire, observation form and interview schedule. For the purpose of the visit the researcher requested each of the schools included in the sample with the request letter from T.U. to fill in the questionnaire honestly. Researcher togive the questionnaire about problem of geometry to the sampled students and take interview with students and sampled teachers.The researcher would explain and clarify the confuse that arose in understanding the statements. The researcher was observed the class and recording the information on the basis of the set of observation form.

Scoring Procedures

The researcher would use three point rating scale for analysis of the item weighted of 3, 2, 1 was assigned to statements if the response is 'always' , 'sometimes' , and 'never' respectively. The mean weighted of total scores of three points rating scale is 6 and average score is 2. If the calculated index is to be greater than two then it is conclude that the statement would be contained in favorable to the problem. If the calculated index was to be less than or equal to two then the statement would be weak favor to the problems.

In this research the term favorable to the problem means the statementswere problematic and less favorable means the statements were less Problematic. If the statement is positive, they give their opinions always then the score is 3. In the similar manner sometimes and never has scored 2, 1 respectively. If the statement is

negatives they gives their opinions always then scored is 1. In the similar manner sometimes and never has scored 2, 3 respectively.

Data Analysis Procedure

The obtained data would be analyzed and interpreted with the help of following statistical technique

Weighed Mean $= \dfrac{Total\,rank\,score\,of\,statements}{No.\,of\,students}$

Each statements would studied in terms whether the students problems. If the calculated weighted mean was greater than two then it was concluded that the statements indicates the problems and it will strongly favorable to the problems. Similarly, If the calculated weighted mean was to be less than two then it would be concluded that the statements indicates the problems and it would be less favorable to the problems. The t-test would use to investigate the significance difference in Problem between rural and urban lower secondary mathematics students towards the response to the statements. The difference was test at the 5% level of significance.

Similarly, Descriptive survey method of qualitative design was used to investigate the problem of geometry faced by students in lower secondary level. When the researcher collectmuch information about the problem of students facedin geometryat lower secondary level Researcher tried to explore and analyze these data by the help of qualitative design. Researcher use descriptive survey method to collect the students and teachers opinions about problem of geometry in own words and it help to the compare the problem of rural and urban area school students in geometry at lower secondary level.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

The responses of the 100 students from their questionnaire, face to face interview of 10 students, the class observation of each 10 sampled schools two times and the responds of interview with 10 teachers were used to analyze data.

The interaction with the respondents was recorded and noted carefully. The collected information was categorized according to the category of the respondents and different themes were given in the context of interview considered as a code and the similar code versions of respondents together and explained in their perspective.

The data were collected for this study from ten lower secondary schools selected (five from urban and five rural area schools) of Kailali district. The collected data were tabulated and analyzed according to objectives of the study. The obtained data were statistically analyzed and interpreted by using statistical tools weightage mean, t- test and percentage.

The weightedmean of every item of questionnaire was calculated area wise in various problems faced by the students related to teaching learning activities, teaching materials, evaluation techniques and classroom management. The collected data were analyzed under the following main heading which is related to the developed questionnaires and correspondent to the objectives of the study.

Stepwise analysis and interpretation are given on the topic teaching learning activities, Instructional material, evaluation techniques and classroom management are given below.

Teaching Learning Activities

Teaching activities play important role to shape knowledge and understanding about the subject matter. Students' performance and perception depend upon how the teaching present subject matter. Student centered teaching methods are now highly appreciated. The students' responses on teaching learning activities are given below.

Table No.1

Student's Responses on Teaching Learning Activities

S.N	Statement	A	S	N	weighted Mean	Remark
1	The class starts from interesting way	108	92	18	2.18	Favorable
2	Teacher gives extra parallel problem related with exercise	204	36	14	2.54	Favorable
3	Teacher provide opportunity for weak students	135	34	38	2.07	Favorable
4	The teacher also participate with you in classroom activities	126	48	34	2.08	Favorable
5	We do not feel difficult while proving theorem	177	14	34	2.25	Favorable
	Total				2.224	Favorable

From above table thestatements no. 1,2,3,4 and 5 have weightedmeans are 2.18, 2.54, 2.07, 2.08 and 2.25 all which aremore than two.So,By the three point Likertscale implies that there were favorablefor the problems (i.e. Problematic for the statement)on the abovestatements includingin teaching learning activities in the above table.

From above table shows that the total weightedmean is 2.224on the teaching learning activities which is greater than two.Therefore,the above table clears that there were problems in the learning geometry due to different level of learning capacity of students in the class. Most of the students were facing problems on the teaching learning activities at lower secondary level.The class observation records related to teaching learning activities are given below.

Table No.2

The class Observation Record to Teaching / Learning Activities

S.N	Statement	Yes		No		Remarks
		NR	%	NR	%	
1	The teacher moves in the classroom	5	50	5	50	
2	Teacher provide clear instruction for new concepts	4	40	6	60	
3	All students involved in all activities	3	30	7	70	
4	Sufficient example provides for new concepts.	3	30	7	70	
5	Teacher encourage all students	2	20	8	80	
6	Teacher solves problems himself / herself	4	40	6	60	
7	Teacher shows positive behavior on difficult question	6	60	4	40	
8	Teacher has good command over subject matter	4	40	6	60	
9	Teacher provide opportunity for weak students	3	30	7	70	

From the 10 classes observation the researcher concluded that some classes are not good. The movement of the teacher had not seen in five classes. Teacher did not give the clear concept in the six class's observation. The teacher did not care to all students in the classroom. The teacher did not provide good opportunity for weak students. Six

classes observation out of ten, it was seen that the teacher had not good command over the subject matter.

Most of the teacher agreed that we were facing various teaching learning problems such as large number of Students, different learning capacities of students in a classroom etc. Beside these problems, teacher was again argued that we did hard labors to provide quality education but students were not interested for their study.

Interaction with the teacher and student problem related to teaching and learning activities in the classroom were as follows:

- It was very difficult to prepare and implemented the lesson plan.

- More emphasis should be given to finish the course rather that students' learning. To motive students towards learning mathematics was very difficult.

- Class control and student motivation was the difficult task for the teacher.

- Weakness of the students and teacher faced difficult in teaching which further leads to slow speed of teaching. The different category of students and their negligible toward mathematics created problems in teaching.

- It was generally agreed that student in school differ in the learning ability of mathematics due to the various background such as age,maturity and socio economic status.

Most of the students responded that the teacher gave the example related to the lesson while teaching only. The teacher evaluated them at the end of the lesson but they were not able to involve all students due to the large number of students in a class. The

teacher did not check their homework daily because there was large number of students in a class.

Interview Schedule

In order to the relevancy of text book researcher took the interview to the some students and teachers. That is given below:

What type of problems do you face in the textbook?

Teachers' views " *In remote area textbook for ours students neither we get have the references book nor other related materials in the schools. If there are problem in the solving the exercise then it is very difficult to solve it because of the lack of the solution materials and facilities of internet. Some problems given in the exercise are not clear to the students and all examples of the textbooks are helpful to the exercise but not sufficient and not concern with real of the situation. Purposed time for unit is not sufficient because of the press of the student in the class*".

Students View "*when teacher teaches to us in the class he does not give us the clear concept about the topic so that feel difficulty in solving the exercise' problems. He does use the teaching material and the unit tests in the classroom*".

From the above responses of the relatedrespondents it concluded that there were problems related in the text book as availability of it and some error into it and teacher did not follow the rules of learning and he was unknown about the selection of the methods, materials and evaluation techniques.

Instructional Materials

To make teaching learning activities effective and meaningful, are of instructional material are indispensable. Different kinds of teaching material can be used in teachinggeometry such as audio, visual aids, models, textbook and computer and so on. The material could be used in classroom to facility teaching learning situation. Instructional materials are strong weapon to motivate the class. To minimize geometrical problems all sort of instructional material can be adopted. Different teaching tools and material can be use the teaching effective. Table no.3 shows the situation of problems related with instructional material

Table No.3

Students' Responses on Instructional Materials

S.N	Statement	A	S	N	Weighted Mean	Remarks
6	Textbook and practice books are available in time	264	16	4	2.84	Favorable
7	Our teachers uses locally available and low cost material in teaching geometry	153	38	30	2.21	Favorable
8	Manipulative geometrical materials are not available in our school	168	28	30	2.26	Favorable
9	Less use of teaching materials	46	30	117	1.93	Less favorable
10	Teacher uses instructional materials while teaching geometry	204	44	10	2.58	Favorable
	Total				2.364	Favorable

The table No. 3 shows that theweighted mean of statements no.6,7,8 and 10 have 2.84, 2.21, 2.26 and 2.58 respectively.So, these statements are favorable for the problem (i.e. Problematic for the statements) for the students regarding as instructional material because of their weighted means are greater than two. Similarly, the statement no. 9 has weighted mean 1.93 by three point Likert scale which is less favorable for the problem for students.

Similarly, the total weighted mean of the table no.3 is 2.364. It concluded that there areso many problems facing students on the various topics related to the instructional materialin lower secondary level.

Classroom Management

Education has been aware that the quality of classroom management is an important factor for student's achievement and teaching success. We have written about management rather than control in classroom because management emphasizes that learning and teaching are complementary activities just as successful manager in management in table no.4.

TableNo.4

Student's Responses about Classroom Management

S.N.	Statements	A	S	N	Weighted Mean	Remarks
11	We feel difficulties while participating in the congested classroom	138	46	31	2.15	Favorable
12	Problems of the textbook are not related to the daily life of the students	210	42	9	2.61	Favorable
13	We have no any problems of blackboard and other furniture in our classroom	189	34	20	2.43	Favorable
14	We solve our mathematical problem in group	243	22	8	2.73	Favorable
15	Anything written in blackboard is visible	189	36	19	2.44	Favorable
	Total				2.472	Favorable

From the above table the statements no.11, 12, 13, 14 and 15 have weighted mean

2.15, 2.61, 2.43, 2.73 and 2.44 respectively which follows that these statements are in

favorable for the problems (i.e. Problematic for the statements) because of all

weighted means are greater than two.Similarly, the total weighted mean of the table

no.3 is 2.472. By the Likert scale index it is clear that there are problems for the

students in learning geometry about classroom management because of the weighted

mean of table no.3 is also greater than two.So, there were favorable to the problems

on the various topic included in the above table related to classroom management in

lower secondary level.

The table given below was classroom observation record related to the classroom management.

Table No. 5

Classroom Record Related to Classroom Management

S.N.	Statement	Yes		No		Remarks
		NR	%	NR	%	
1	The class is not crowed	4	40	6	60	
2	Students have sufficient space to live	8	80	2	20	
3	The arrangement of desk and benches are good	4	40	6	60	
4	There was noise outside the classroom	2	20	8	80	
5	Classrooms are well lighted and ventilated	6	60	4	40	
6	The class has good decoration	2	20	8	80	
7	White board and furniture management are sufficient in classroom	4	40	6	60	

The table no.5 shows that there was too crowed. Similarly, the classroom was not properly arranged. The classroom decoration was not properly managed and there was the problem of backboard, drinking water,play ground and furniture. The maps, poster and other chart were not properly hanged. However, the classroom was well ventilated and lighted.

By the analysis and interpretation of responses about the classroom management there were obtain some problems which are related to decoration and proper arrangement of furniture, placement of blackboard and its smoothness , size of classroom according as the number of students, alternative management for weak students.

Evaluation Techniques

The primary responsibility of a teacher is to using about the maximum degree of students achievement and learning. Evaluative devices such as examination of various types, oral quizzes and different class activities are essential evaluation process of evaluation techniques. The main purpose of the evaluation program may be to help more intelligent guidance in learning. Table no.6 presents the situation related with the problems in evaluation techniques.

Table No.6

Students Responses on Evaluation Techniques

S.N.	Statements	A	S	N	Weighted Mean	Remarks
16	The teacher checks our homework daily	150	56	22	2.28	Favorable
17	The teacher does not take the test at the end of unit	268	14	5	2.83	Favorable
18	Our teacher takes different types of test except terminal exam	171	22	32	2.25	Less Favorable
19	Teaching is only examoriented	162	20	36	2.18	Favorable
20	The teacher do not focus on our creativity and curiosity	201	28	19	2.44	Favorable
21	Content in the given textbook are related to lower classes	75	46	52	1.73	Less Favorable
22	Teacher gives the feedback	111	50	38	1.99	Less Favorable
23	All geometrical problems aren't included in exam	156	18	39	2.13	Favorable

24	The first priority is not given to teach geometry	96	16	60	1.72	Less Favorable
25	Teacher uses different kinds of test book	69	70	42	1.81	Less Favorable
26	Teacher gives the basic concept of previous chapter of geometry	75	100	25	2	Less Favorable
	Total				2.123	Favorable

From the above table the statements no. 16,17, 18,19,20 and23 havethe weightedmeans are2.28, 2.83, 2.25, 2.18, 2.44, and 2.13 respectively. These result shows that these statements are favorable for the problems (Problematic for the statements) by the Likert scale index. The statements no. 21, 22, 24,25 and 26 having the weightedmeansare 1.73, 1.99,1.72 and 2 respectively were less favorable of the problems (Less Problematic for the statements) related to evaluation techniques because of their weighted means having greater than or equal to 2.

Similarly, the total weighted mean of the table no.6 is 2.123. So, by the likert scale index the result of above table shows that there were so many problems on the various statements on the learning geometry related to the Evaluation techniques which are facing students.

To justify the above result the researcher used in the interview schedule related to the students which are given below:

Analysis of Data Obtained from Interview

For the purpose first selected 10 students, 1 / 1 studentfrom ten each school and ask the same question and responses given below.

Geometry as Hard Subject

"Yes, I feel mathematics is hard subject but in lower level my favorite subject was math. Nowadays I don't get sufficient time to practice mathematics so I feel it is hard subject". (BikramChaudhary)

" Yes, I feel geometry is a hard subject because I must engage in household work, like carrying water, making food, cutting grass etc. This work or daily routine" (jeevanSapkota)

" Geometry become hard subject to me because I used the evening time by playing football volleyball caremboardand listening folk song in mobile as well as watching TV everyday as like" (ArjunChaudhary)

"Yes, I am also feeling that Geometry is the hardest subject because of my pre-knowledge and teacher does not care us use to forward according to talent students only" (Himalsaud)

"Due to my family I cannot read write more I have to engage in other house work I used to be absent. I can't understand while teaching by teacher in the classroom can't see all the thing which are written in the board. So I feel mathematic is hard subject." (TejendraDhami)

"I spend more time and departure because my house is far from school. Our teacher does not check our homework daily and he also does negligence our creativity and curiosity. Teacher does not review the previous which are very need to know the geometrical ideas so day by day I am feeling that geometry is hard subject "(Kamala Dhami)

" I am feeling mathematics as interesting and easy subject among all other subject because if we know the process and formula we can solve the problem easily " (BimalaChaudhary)

"I also feel geometry as an interesting and easy subject. but some time if teacher does not give clear concept in proving and verifying the geometry theorem then I used to feel lazy." (Bishalbhattarai)

"Yes for me geometry is hardest subject I would not take mathematics after SEE because of my economic condition I can not read tuition class. I don't get sufficient material, and our classroom also vey congested. I have to sit back always and friends are taking much more. So I don't understand mathematics. " (Madanbhatta)

"yes I am feeling geometry is hard subject because in the class our teacher never uses the teaching material and he alwaysuse the lecture method. He also follows the summative evaluation system and he is known about the using and constructing the local teacher materials." (Bir Bd. Rawal)

Study other problem related to evaluation techniques are as follows:

- Yearly and half yearly tests are not reliable due to cheating problem.

- Record keeping evaluation system is tiresome job.

- Poor students copy the homework of talent.

- Weak student also passed the class and place new comers in class due to the defected promoted policy.

- No use of any other evaluation tools expect paper pencil test exam.

- The evaluation of classroom activities is not included in the terminal examination.

In conclusion, various problems had appeared in evaluation system of mathematic. Lack of involvement in curriculum planning , lack of efficiency to conduct with their teacher such as shy, hesitation produces, lack of books and journals and teaching facilities, lack of opportunities given to upgrade their knowledge, poor family environment in terms of financial social prestige in society, involvement in their household work as child labour and various capacity.

Comparison of Problems Faced by Urban and Rural School Students

The F-ration is never less than one for the largest variance is always divided by smallest variance to test the homogeneity of variance then t-test can be used to test null hypothesis.

Tabulated value is large than calculated value. Then the groups are homogeneous so we can apply t – test for compare problem faced by the student in rural and urban students. For the sake of easiness, paired sample t- test was applied to compare the problem rural school students are shown in the following table no.7.

Table No. 7

Comparison of Problems Faced by Urban and Rural School Students

Group Compared	Mean	S.D.	Number of students	Degree of freedom	Calculated value	Tabulated value
Urban Students	$\bar{x}_1$=2.36	s_1=0.735	n_1= 50			
Rural Students	$\bar{x}_2$=2.38	s_2=0.788	n_2= 50	98	-0.092	1.96

The analysis of table no.7 shows that the tabulated value of t at 5 % level of significance and 98 degree of freedom is $t_{0.05, 98}$= 1.96. Whichshown that the calculated t value of students is - 0.092 at 5% level of significance and 98 degree of freedom. Whereas tabulated value given at the same degree of freedom and the level of significance is 1. 96.It shows that tabulated value exceeds calculated value for two tailed test. So the value falls on acceptance region. Thus the significant difference between thenull hypothesesis accepted and concluded that there is no problems faced by urban and ruler school students. For the statistical formula it is concerned inAppendix-J.

Analysis and Interpretation of Teacher's Responses

Ten questions were included in questionnaire for ten teacher related problems in teaching geometry at lower secondary level. These questionnaires were related to textbook, subject matter, instructional materials and evaluation techniques and so on. The collective responses were categorized in few columns and calculated by percent. The collected responses are shown in the table no.8.

Table No. 8

Teacher's Response about Classroom Activities

S.N.	Statement	Yes		No		Remark
		NR	%	NR	%	
1	Are the subject matters included in the textbook is the high spirit of curriculum?	8	80	2	20	
2	Are the subject matter appropriate with the level of students?	6	60	4	40	

3	Are you satisfied with your job?	8	80	2	20	
4	Are example and the exercise correlated or not?	4	40	6	60	
5	Are the teacher training sufficient? If not what types of training do you need?	4	40	6	60	
6	Are teachersguiding journal available in your school?	2	20	8	80	
7	Do you encourage students to use material in solving of the problem	8	80	2	20	
8	Is there any obstacle to make and collect local teaching materials in teaching mathematics?	6	60	4	40	
9	There are fewer environment except third terminal exam though there are other means of evaluation system	8	80	2	20	
10	Are there exercises in the textbook, can solving the daily life mathematical problems?	2	20	8	80	

From the above table in the statements, eighty percent teachers are supported to the subject matters included in text book is high spirit in the curriculum and only 20 % teachers are against it. It meant the subject matter included in the text book has high spirit of curriculum. 60% teachers are supported to the statement and 40 % teachers are not favor to the statements. It meant the teachers' response were not in the favor of problem on the subject matter. 80% teachers were satisfied with their job and only 20 % were dissatisfied with their job and they were feeling burden job. From the above table it was found that 40 % teachers were agreed to the statement and 60 % were against to it. It meant there are problems between the relation of examples and exercise.

From this study, it is found that teachers training are not sufficient. Most of the teachers were untrained. 40 % teachers were supported statements and 60 % were not supported to the statements. Also most of teacher demanded for refresher training according as changing curriculum and some teachers were fully untrained although they were teaching mathematics since last one decade. From the above study found that textbook was available in school rarely but except this other references book and required maternal not available in school. Responses percent is also indicated to it.

Most of teacher accepted that there arose problems in making collecting local teaching materials teaching period were overloaded and no time for collecting and using locally available materials.80 % teachers were supported to the annual examination and 20 % teachers appeared to the support of unit test. They gave more importance to the half annual and annual examination then unit test. At last only 20 % teachers were favor to the statement and 80% were not favor to the statement. It means there were great problems in the subject matter which was included in the textbook of mathematics. Researcher tried to justify the teacher's responses that are in numerical status by using interview schedule.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter deals with the summary, major finding, conclusionandrecommendation.

Summary

The main purpose of the study was to identify the problems faced by the mathematic students in geometry at lower secondary level of Kailali district.For further convenience of the study, the problems were categories into different four areas viz. teaching learning activities, instructional material, classroom management and evaluation techniques.

This study was entirely survey type. The population of the study consisted of entire mathematic students, teachers of government school situated both urban and rural area of Kailali district. The researcher himself developed the questionnaire, observation form and interview schedule under the guidance of supervisor and researcher aids some problems himself with advice of experienced mathematics teacher. The questionnaire, observation and interview schedule were tools of this study. The responses and the teachers wereselected from simple random sampling method. The collected data were quantified based on 3-pointLikert scales. Questionnaire, observation form and interview schedule were included in each category of problems and descriptive analysis of collected responses were carried out. Statistical indicator such as mean weight age, T- test and the percentage were used for analysis of problems.

Finding

From the field survey and statistical analysis of the collected data it was found that students have been facing numerous of problems of geometry teachingat lower secondary level. Different types of internal and external factors are affecting to arise these problems.

Problem Related to Teaching Learning Activities are as Follows

- Misconception of students to mathematic as a hard subject has become a problems students are found not be laborious. Hence, there also great problems of students side.

- Problem on finishing the lesson of textbook due to the untrained teacher and the lack of monitoring part from school administration.

- Problem on solving parallel problems related with exercise due to the large number of students and time boundary.

- Problems on teacher guidance for solving problems.

- Due to the lack of sufficient time, there were difficulties in checking homework.

- Beside problem related to good performance of teacher, lack of guiding encouragement motivation etc are equally problematic.

- Regarding the problems of teaching method and the techniques, there seems to be confusion to selecting appropriate teaching method. Lack of time to use various methods.

- Lack of time to use various method, lesson plan and appropriate example to make clear concept of its difficulties.

Problems Related to Instructional Materials are as Follows

- Problem related with textbook and other references books due to the difficulties of transportation remoteness and also the some error into the textbook.

- School had a few quantities teaching materials but there was not facility to store and placed rightly.

- Time factor hinder use of instructional material due to short time period of mathematics class.

- Teaching materials have not been used because of the large number of class size.

- Problems on construction and using locally available and low cost materials in teaching geometry.

- There was economic crisis in school therefore; school could not manage the proper environment of teaching learning.

Problems Related to Classroom Management are as Follows

- It was problem of managing the weak student in the classroom teaching learning.

- It was difficult to demonstrate and the use the teaching material because of the lack of space in classroom.

- There was problem to decoration of classroom and proper arrangement of furniture.

- There was problem of placement and smoothness of blackboard.

- Teacher was not able to manage the students due to the small size of classroom.

Problem Related to Evaluation Techniques are as Follows

- There was problem related to evaluation of classroom activities.

- Daily homework correction was impossible due to the large class size and over work load of teacher.

- Maximum teachers claimed that there was not a connection between the classroom evaluation and final evaluation of the students. It indicated that the poor students could pass the examination.

- There was problem on fulfillment of student's creativity and curiosity.

- There was problem of utilization of time by students before and after the school time.

Conclusion

From the above stated finding of this study, it can be concluded that:

Problem on finishing the lesson of textbook due to the untrained teacher and the lack of monitoring part from school administration. Problem on solving parallel problems related with exercise due to the large number of students and time boundary.Problems on teacher guidance for solving problems. Due to the lack of sufficient time, there were difficulties in checking homework. Problem related with textbook and other references books due to the difficulties of transportation remoteness and also the some error into the textbook. School had a few quantities teaching materials but there was not facility to store and placed rightly.

Teaching and learning of geometry was not satisfactory in Kailali district.Time factor hinder use of instructional material due to short time period of mathematics class. School had a few quantities teaching materials but there was not facility to store and placed rightly.Time factor hinder use of instructional material due

to short time period of mathematics class. There was problem related to evaluation of classroom activities. Daily homework correction was impossible due to the large class size and over work load of teacher. There was problem on fulfillment of student's creativity and curiosity. There was problem of utilization of time by students before and after the school time. There had been significant problems in teaching learning activities instructional materials, classroom management and evaluation techniques.

Recommendation

Observing the above study the researcher has presented recommendation which will be benefited to the concerned authority further improvement in the geometry teaching. The problem aroused teaching learning activities instructional materials and evaluation system.

Recommendations for educational implication are as follows:

- The contents and method of teaching should be influenced by some practical motive.

- Using of lesson plans should be encouraged.

- Government of Nepal should supply the essential teaching material and should encourage the school administration such teaching materials.

- Teacher should be encouraged for making using the teaching material.

- Evaluation system should be more valuable and scientific.

- The teacher should motivate the weak and weak students and pressed these to participate in teaching learning activities.

- The demonstration materials should be fit the classroom size and situation.

- School need to make mathematic laboratory.

- The teacher should not make students only busy copy the solve the problem from the blackboard check them whether they are comprehending or not.

- The classroom should be well arranged that the student can equality and easily participate in the classroom activities.

- The school administration should interact to the students, teachers, guardians and other related person to discussed the problem and come to the solution.

- Innovative and refreshment training, orientation and supervision training should be provided to the teacher time to time.

Recommendation for Further Study

This presents study may not be completed for all. Further researcher can apply the different tools and methods related to the some problems.

Similar studies should be carried out with large sample of data and various school of different part of Nepal.These kinds of study should also be conducted at all level and in other subject as well. The similar study should be done in other district of Nepal as well. The District Education Office should managed the inter resource centre visiting an observing the mathematical class and also should play vital role of organizing the inter district level mathematical conferences.

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APPENDICES

APPENDIX – A

Responses Score of Rural Students in Questionnaire

Responses Score on Teaching Activities

S.N	Statement	A	S	N	Total
1	The class start from interesting way	75	38	6	119
2	Teacher gives extra parallel problem related with exercise	99	18	8	125
3	Teacher provide opportunity for weak students	75	22	14	111
4	The teacher also participate with you in classroom activities	84	24	10	118
5	We do not feel difficult while proving theorem	120	8	6	134

Student's responses on Instructional Materials

6	Textbook and practice books are available in time	126	12	2	140
7	Our teachers uses locally available and low cost material in teaching geometry	93	26	6	125
8	Manipulative geometrical materials are not available in our school	75	18	16	109
9	Less use of teaching materials	72	24	14	110
10	Teacher uses instructional materials while teaching geometry	105	22	4	131

Students' Responses about Classroom Management

11	We feel difficulties while participating in the congested classroom	93	28	5	126
12	Problems of the textbook are not related to the daily life of the students	111	12	7	130
13	We have no any problems of blackboard and other furniture in our classroom	93	28	5	126
14	We solve our Mathematical problem in group	132	4	4	140
15	Anything written in blackboard is visible	99	16	9	124

Students Responses on Evaluation Techniques

16	The teacher checks our homework daily	87	26	8	121
17	The teacher does not take the test at the end of unit	3	8	129	140
18	Our teacher takes different types of test except terminal exam	84	12	16	112
19	Teaching is only exam oriented	75	6	22	103
20	The teacher do not focus on our creativity and curiosity	16	16	78	110
21	Contents in the given textbook are related to lower classes	30	40	20	90
22	Teacher gives the feedback	30	44	18	92
23	All geometrical problems aren't included in exam	33	8	35	76
24	The first priority is not given to teach geometry	48	4	32	84
25	Teacher uses different kinds of text book	9	50	22	81
26	Teacher gives the basic concept of previous chapter of geometry	39	50	12	101

APPENDIX – B

Number of Respondents in the Questionnaire of RuralSchool Students

Responses Score on Teaching Activities

S.N	Statement	A	S	N	Total
1	The class start from interesting way	25	19	6	50
2	Teacher gives extra parallel problem related with exercise	33	9	8	50
3	Teacher provide opportunity for weak students	25	11	14	50
4	The teacher also participate with you in classroom activities	28	12	10	50
5	We do not feel difficult while proving theorem	40	4	6	50

Student'sResponses on Instructional Materials

6	Textbook and practice books are available in time	42	6	2	50
7	Our teachers uses locally available and low cost material in teaching geometry	31	13	6	50
8	Manipulative geometrical materials are not available in our school	25	9	16	50
9	Less use of teaching materials	24	12	14	50
10	Teacher uses instructional materials while teaching geometry	35	11	4	50

Students' Responses about Classroom Management

11	We feel difficulties while participating in the congested classroom	31	14	5	50
12	Problems of the textbook are not related to the daily life of the students	37	6	7	50
13	We have no any problems of blackboard and other furniture in our classroom	31	14	5	50
14	We solve our	44	2	4	50

	Mathematical problem in group				
15	Anything written in blackboard is visible	33	8	9	50

Students Responses on Evaluation Techniques

16	The teacher checks our homework daily	31	14	5	50
17	The teacher does not take the test at the end of unit	37	6	7	50
18	Our teacher takes different types of test except terminal exam	31	14	5	50
19	Teaching is only exam oriented	44	2	4	50
20	The teacher do not focus on our creativity and curiosity	33	8	9	50
21	Contents in the given textbook are related to lower classes	29	13	8	50
22	Teacher gives the feedback	43	4	3	50
23	All geometrical problems aren't included in exam	28	6	16	50
24	The first priority is not given to teach geometry	25	3	22	50
25	Teacher uses different kinds of test book	36	8	16	50
26	Teacher gives the basic concept of previous chapter of geometry	10	20	20	50

APPENDIX- C

Responses Score of Urban Students in Questionnaire

Responses Score on Teaching Activities

S.N	Statement	A	S	N	Total
1	The class start from interesting way	33	54	12	99
2	Teacher gives extra parallel problem related with exercise	105	18	6	129
3	Teacher provide opportunity for weak students	60	12	24	96
4	The teacher also participate with you in classroom activities	42	24	24	90
5	We do not feel difficult while providing theorem	57	6	28	91

Students Responses on Instructional Materials

6	Textbook and practice books are available in time	138	4	2	144
7	Our teachers uses locally available and low cost material in teaching geometry	60	12	24	96
8	Manipulative geometrical materials are not available in our school	93	10	14	117
9	Less use of teaching materials	45	6	32	83
10	Teacher uses instructional materials while teaching geometry	99	22	6	127

Students Responses about Classroom Management

11	We feel difficulties while participating in the congested class	45	18	26	89
12	Problems of the textbook are not related to the daily life of the students	99	30	2	131
13	We have no any problems of blackboard and otherfurniture in our classroom	96	6	15	117
14	We solve our Mathematicalproblems in group	111	18	4	133

15	Anything written in blackboard is visible	90	20	10	120

Students Responses on Evaluation Techniques

16	The teacher checks our homework daily	63	30	14	107
17	The teacher does not take the test at the end of unit	135	6	2	143
18	Our teacher takes different types of test except terminal exam	87	10	16	113
19	Teaching is only exam oriented	87	14	14	115
20	The teacher do not focus on our creativity and curiosity	123	12	3	138
21	Content in the given textbook are related to lower classes	45	6	32	78
22	Teacher gives the feedback	81	6	20	107
23	All geometrical problems aren't included in exam	123	10	4	137
24	The first priority is not given to teach geometry	48	12	28	88
25	Teacher uses different kinds of test book	60	20	20	100
26	Teacher gives the basic concept of previous chapter of geometry	36	50	13	99

APPENDIX- D

Number of Respondents of Urban Students in Questionnaire

Responses Score on Teaching Activities

S.N	Statement	A	S	N	Total
1	The class start from interesting way	11	27	12	50
2	Teacher gives extra parallel problem related with exercise	35	9	6	50
3	Teacher provide opportunity for weak students	20	6	24	50
4	The teacher also participate with you in classroom activities	14	12	24	50
5	We do not feel difficult while proving theorem	19	3	28	50

StudentsResponses on Instructional Materials

6	Textbook and practice books are available in time	46	2	2	50
7	Our teachers uses locally available and low cost material in teaching geometry	20	6	24	50
8	Manipulative geometrical materials are not available in our school	31	5	14	50
9	Less use of teaching materials	15	3	32	50
10	Teacherusesinstructional materials while teaching geometry	33	11	6	50

Students' Responses about Classroom Management

11	We feel difficulties while participating in the congested class	15	9	26	50
12	Problems of the textbook are not related to the daily life of the students	33	15	2	50
13	We have no any problems of blackboard and other furniture in our classroom	32	3	15	50
14	We solve our mathematical problems in group	37	9	4	50
15	Anything written in blackboard is visible	30	10	10	50

Students Responses on Evaluation Techniques

16	The teacher checks our homework daily	21	15	14	50
17	The teacher does not take the test at the end of unit	45	3	2	50
18	Our teacher takes different types of test except terminal exam	29	5	16	50
19	Teaching is only exam oriented	29	7	14	50
20	The teacher do not focus on our creativity and curiosity	41	6	3	50
21	Content in the given textbook are related to lower classes	15	3	32	50
22	Teacher gives the feedback	27	3	20	50
23	All geometrical problems aren't included in exam	41	5	4	50
24	The first priority is not given to teach geometry	16	6	28	50
25	Teacher uses different kinds of test book	20	10	20	50
26	Teacher gives the basic concept of previous chapter of geometry	12	25	13	50

APPENDIX- E

Total Number of Respondents in the Questionnaire

Responses Score on Teaching Activities

S.N	Statement	A	S	N	Total
1	The class start from interesting way	36	46	18	100
2	Teacher gives extra parallel problem related with exercise	68	18	14	100
3	Teacher provide opportunity for weak students	45	17	38	100
4	The teacher also participate with you in classroom activities	42	24	34	100
5	We do not feel difficult while proving theorem	59	7	34	100

Students Responses on Instructional Materials

6	Textbook and practice books are available in time	88	8	4	100
7	Our teachers uses locally available and low cost material in teaching geometry	51	19	30	100
8	Manipulative geometrical materials are not available in our school	56	14	30	100
9	Less use of teaching materials	39	15	46	100
10	Teacher uses instructional materials while teaching geometry	68	22	10	100

Students' Responses about Classroom Management

11	We feel difficulties while participating in the congested class	46	23	31	100
12	Problems of the textbook are not related to the daily life of the students	70	21	9	100
13	We have no any problems of blackboard and other furniture in our classroom	63	17	20	100
14	We solve our mathematical problem in group	81	11	8	100
15	Anything written in blackboard is visible	63	18	19	100

Students Responses on Evaluation Techniques

16	The teacher checks our homework daily	50	28	22	100
17	The teacher does not take the test at the end of unit	88	7	5	100
18	Our teacher takes different types of test except terminal exam	57	11	32	100
19	Teaching is only exam oriented	54	10	36	100
20	The teacher do not focus on our creativity and curiosity	67	14	19	100
21	Content in the given textbook are related to lower classes	25	23	52	100
22	Teacher gives the feedback	37	25	38	100
23	All geometrical problems aren't included in exam	52	9	39	100
24	The first priority is not given to teach geometry	32	8	60	100
25	Teacher uses different kinds of test book	23	35	42	100
26	Teacher gives the basic concept of previous chapter of geometry	25	50	25	100

APPENDIX –F

Number of Respondents of Teachers in the Questionnaire Related to Geometry

S.N.	Statement	Responses	
		Yes	No
1	Are the subject matters included in the textbook is the high spirit of curriculum?	8	2
2	Are the subject matter appropriate with the level of students?	6	4
3	Are you satisfied with your job ?	8	2
4	Are example and the exercise correlated or not?	4	6
5	Are the teacher training sufficient?	4	6
6	Are teacher'sguiding other journal available in your school?	2	8
7	Do you encourage students to use material in solving of the problem	8	2
8	Are there any obstacle to make and collect local teaching materials in teaching geometry?	6	4
9	There are fewer environments except terminal exam though there are other means of evaluation system?	8	2
10	Are there exercises in the textbook, can solving the daily life mathematical problems?	2	8

APPENDIX – G

Sample Schools

S.N	Name of school	Location	Rural/ urban
1	Rastriya Higher Secondary School	Dhangadhi	Urban
2	KhaptadHigher Secondary School	Tikapur	Urban
3	JanapriyaHigher Secondary School	Likma	Rural
4	RastriyaHigher Secondary School	Sukhad	Rural
5	Janabikas Secondary School	Sukhad	Rural
6	GyanJyotiBidyaMandir School	Pahalmanpur	Rural
7	KantiRajyaLaxmi Higher Secondary School, Pahalmanpur	Pahalmanpur	Rural
8	Guheswori Secondary SchoolAtariya	Atariya	Urban
9	New Light Secondary School	Tikapur	Urban
10	BirendraBidyaMandirHigher Secondary School	Tikapur	Urban

APPENDIX – H

Sample Teachers Profile

S.N	Name of Teachers	Age	Experience	Trained / Untrained
1	Gobinda Prasad Sapkota	30	5 years	U
2	Keshab Sing Airi	35	6 years	U
3	Sunil Prasad Sapkota	40	7 years	U
4	BidyaBatt	40	17 years	T
5	Ramesh Prasad Gautam	39	9 years	U
6	Krisnasapkota	30	5 years	U
7	ThagiramTiwari	39	6 years	T
8	Bed Prasad chaudhary	40	10 years	T
9	Khagedrasubedi	32	4 years	U
10	Tej sing bista	28	4 years	U

APPENDIX – I

Guideline for Interview withMathematic Students:

Name:

Age: Sex:

Father's name:

Qualification: Occupation:

Mother's name:

Qualification: Occupation:

School's name:

Location: Rural / Urban   Nature: Government / Private

Time to reach school:

The interview with mathematics students was taken on the basis of following main

topic.

- Home environment of students ;

- Task, help,facility,parents,family

- Opportunity to learn to home

- Teaching learning activities;

Starting situation, methods,response,management, question/evaluation system,

summarize

- School environment of classroom managements

- Instructional materials Nature of material, effectiveness etc.

- Relation between teacher and students

- Class behavior toward students

- Opportunity provided by school group work given in classroom

APPENDIX – J

Statistical Formula

$$t = \frac{(\bar{X}_1 - \bar{X}_2)}{S_p\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \qquad \text{Where,} \qquad S_p = \sqrt{\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1+n_2-2}}$$

$$= \sqrt{\frac{117.8}{98}} = 1.09$$

now,

$$t = \frac{(2.36 - 2.38)}{1.09\sqrt{\frac{1}{50} + \frac{1}{50}}} \text{Where,} \bar{X}_1 = \text{Mean of first sample}$$

$\bar{X}_2$ = Mean of Second sample

$$= \frac{-0.02}{0.218} \quad S_1 = \text{Standard Deviation of first sample}$$

$= -0.092$ $\qquad\qquad$ S_2 = Standard Deviation of second sample

N_1 = Number of the first Sample

N_2 = Number of the second Sample

APPENDIX – K

Class ObservationForm

Name of the school:

Date:

Period: Starts at: Ends at:

Teacher's name:

Class size: Boys: Girls:

S.N	Statement	Yes	No	Remark
1	The class is not crowed			
2	Students have sufficient space to live			
3	The arrangement of desk and benches are good			
4	There was noise outside the classroom			
5	Classrooms are well lighted and ventilated			
6	The class has good decoration			
7	The teacher moves in the classroom			
8	All students involved in all activities			
9	Teacher provide clear instruction for new concepts			
10	white board and furniture management are sufficient in classroom			
11	Sufficient example provides for new concepts.			
12	Teacher encourage all students			
13	Teacher provide opportunity for weak students			
14	Teacher solves problems himself / herself			
15	Teacher has good command over subject matter			
16	Teacher shows positive behavior on difficult question			

S.N	Statement	Yes	No	Remarks
17	Lack of time to construct materials			
18	Problem to construct and collect lesson wise appropriate materials			
19	It is difficult to complete the whole course if taught using teaching materials			
20	Raw materials are not easily available			
21	Difficulty and boring to construct			
22	Difficulty to control classroom and management while using material			