Chapter I

INTRODUCTION

1.1 Background of the Study

Mathematics plays an importance role for the development of society. The word 'Mathematics' which means "to learn" Mathematics helps people understand and interpret different quantitative as well as qualitative aspects of natural phenomena. Mathematics is a process of learning and it is an expression of human mind, concerned chiefly with ideas, process and reasoning. It is a way of thinking, a way of organizing a logical proof.

Mathematics is an essential part of school education. It is one of the core subjects at all levels of schooling. It is essential for everyday life as well as for higher study in the fields of science and technology. It is also related to logic science, social studies arts, music and literature. Students apply mathematical concepts, skills and logical reasoning to solve different kinds of problems in their life. Thus the ultimate goal of learning mathematics is to enable students to solve problems in mathematics. Consequently, it is the concern of both students and teachers to make the teaching of mathematics effective to increase understanding of mathematics better for getting better achievement in mathematics.

The English system of modern education started with the establishment of Darbar school in the autumn of 1853 AD (27^{th} Ashwin 1910) by Prime Minister Jang Bahadur Rana after his return from England. This school was located at Gol Baithak in Thapathali Darbar. The school had some European and some Indian teachers. At that time the school introduced some subject including mathematics. Same type of

school was later opened in Hanumandhoka Darbar. This school is taught only up to standard fine following the syllabus containing Ganit, poetry and fiction and some other books. Later, Darbar school was affiliated with Calcutta University and It started its teaching its name as Darbar high school. The course of shrestha pathasala (1905 AD also had included arithmetic in its curriculum only after the organization of the school learning certificate (SLC) examination board (Nov 1, 1932) Courses of study were framed in Nepal for SLC level. The first curriculum for secondary level had included compulsory mathematics of 100 marks along with additional mathematics of 100 marks the vocational training started with the name of Adhar Shiksha (1947 AD) had given emphasis on mathematics. After the establishment of democracy in 1950 (2007) BS) brought various changes in Nepalese educational political and economic fields. Generally, the education system of country is influenced by its political system. So, the democratic government of Nepal stated to recognize the school education and revised the mathematics syllabus.

In 2011 BS the Nepal national educational planning commission (NNEPC) made recommendation for defining the authority of MOE, for the establishment and enforcement of standards and for planning and prescribing an minimum curriculum. NNEPC also reported that examination system was pass system and compulsory mathematics was in the curriculum of multipurpose secondary school. Advanced mathematics was also included in the college preparatory area of the vocational works.

Also all round national education committee (ANNEC) had included compulsory mathematics as well as optional mathematics in the art and science schools but not only mathematics as well as other subjects were optional in the vocational and sanskrit schools.

National education system plan (NESP 2028 – 32 BS) brought with compulsory mathematics age occupied their earlier position in general schools but in vocational and sanskrit school, there was no room for optional mathematics. NESP emphasized in making mathematics life oriented and practical by revising and improving mathematics curriculum and adopting as effective teaching method. It was the first time when Nepali textbooks were introduced.

After the political change of 1990 the National educational commission (NEC-2049 BS) has given some significant suggestions about how to improve the standard of education NEC had recommended to revises completely the mathematics curriculum every five years in manner designed to bring It in a line with the changing time and circumstances. It has been said the raising quality if secondary education in Nepal required first and for most a comprehensive processes of mathematics curriculum development and reformed.

In 2055 BS report of high level education commission has proposed some suggestions for secondary educations. It has categorized secondary education into the group six to eight as lower secondary nine to ten grades as secondary and eleven to twelve grades as higher secondary. It also recommended that mathematics should be a compulsory subject carrying 100 marks and also as an optional subject of 100 marks for interested students.

The SLC examination is externally administered and the school level test examination is conducted at the end of 10^{th} year of formal schooling cycle. SLC examination has become a major land mark in an individual's life in the Nepalese society. It provides the ladder for one to

get on to higher education and also opens up the visa for making his or her own career development.

Until now, secondary has been the terminal stage of school education. To complete this cycle of education students have to pass the SLC examination. There are no external examination other than the SLC examination in secondary education. The SLC examination is conducted by a board of the controller of examinations ministry of education.

The examination had short and long answer questions of knowledge understanding skill and problem solving lend from curriculum of grade 10 of mathematics.

The students of secondary level faced school leaving has created some sorts of dissatisfaction and have in guardians, students, teachers, educational administers and planners because of higher percentage of under-achievement rate, specially in Mathematics.

School education is assumed to be the first step of formal education. Several researcher pointed out that the distance between two schools in the trekking distance of 20 minutes only. In this reference of Khotang district it is quite difference. In the remote areas of this district there is too much scatter endless between houses village. Therefore schools are very far from village in the district. This is one of the responsible to make the students beyond the approach of education.

1.2 Statement of the Problem

In SLC examination most of the students were more over the under-achievement rate is higher in mathematics then other subjects.

The problem of the study mainly concerns with the causes of under-achievement of students in mathematics in SLC examination. The researcher seeks the answer of the following specific question.

a. What are the causes of under-achievement in mathematics in SLC examination?
b. How can be minimized the under-achievement rate in mathematics in SLC examination?

1.3 Rationale of the study

To a majority of the schools the moon here is symbolized by the school leaving certificate (SLC) examination. All their successes of under-achievements are determined by what they achieve in the SLC examination. Therefore schools, students and parents have put an excessively high premium on the SLC examination.

Although mathematics has been given a important placed in the curricula of all levels of schools education, most of the students fail in this subject in the SLC examination.

Most of the parents wish their children study mathematics although many of them lack of the knowledge of various facts like aptitude attitude and intelligence of their children to which even the (mathematics) teacher are sometimes fond to be unfamiliar. The result of which is the most under-achievements in the subject. In this fact, this is still no study has been carried out on factors associated with under-achievement in mathematics at SLC examination hence the need/rational of the present study.

1.4 Objectives of the Study

This study enabled us to achieve the following objectives:

a. To identify the causes of under-achievement in mathematics in SLC Examination.
b. To identify the ways to minimized the rate of under-achievement in Mathematics in SLC Examination.

1.5 Research Hypothesis

To test the significant difference of the responses of teacher and students to have the empirical verification of the study, following hypothesis will be subjected.

H_o : There is no significant difference between the responses of students and teachers about the causes of under-achievement in mathematics in SLC Examination.

1.6 Significance of the Study

Mathematics has been a key subject in school curriculum from ancient period. The main objectives of mathematics teaching is to develop the reasoning ability of the students. There should not be gap in the mathematics curriculum from one level to another level.

Although mathematics has been given a important place in the curricula of all levels of school education. The finding of the study would have the following significances:

i. The study would be helpful for planners.
ii. The study would be helpful for curriculum designers.
iii. The student study would be helpful for teachers, students and parents.
iv. The studies provide important information about the causes of under-achievement in mathematics in SLC examination.
v. It would be useful school to mathematics teacher to improve the teaching and learning activities.

1.7 Delimitations of the Study

This study consists of the following limitations:

i. This study was limited to Khotang district.

1.8 Operational definition of the key terms

All the terms used in this research are simple, however some of the terms are defined as follows:

Textbook:

Textbook in this study means the book approved by government of Nepal curriculum development centre for grade X which is taught in public school in Nepal since the academic year 2008.

Teachers:

All the Teachers who are teaching mathematics in grade 10 in academic year 2070.

Students:

All students studying in grade 10 in the academic year 2070 in Khotang district.

Public School (PS) :

The schools that are established by the government and are running by the grunt funding in an academic and physical aspect.

Achievement:

Achievement in this study is defined in terms of the scores obtained by the students on the test conducted by the researcher.

Chapter II

REVIEW OF RELATED LITERATURE AND CONCEPTUAL FRAMEWORK

2.1 Review of Related Literature

Review of related literature is an exacting task, calling for a deep insight and clear prospective of the overall field. The main purpose of review of related literature is to find out what works have been done in the area of the research problem under study and what has not been done in the field of the research studies being under taken in this chapter focuses on the review of the related literature relevant to the purpose and questions addressed in the study. The present chapter attempts to review into two sectors: 1) Empirical Literature and 2) Theoretical Literature

1) Empirical Literature

There are several studies undertaken towards the comparative study of mathematics achievement in mathematics during the last three decades in Nepal. Some of them finding the impact in Mathematics achievement by various independent variables.

Bista (2014) cites that, "National achievement level of grade 3 students". After studying EDSC, found that achievement scores of private school students were found than public school students. EDSC also found many other influencing factors in the student's achievement. Those factors students, teacher, parents influenced positively in the better achievement of their children.

Shrestha, (2005) cites that, who studied a study on factors affecting teaching/learning mathematics at secondary level with the objectives to study the factors affecting in learning of schools in terms of the

following: school environment, family background, motivational factors, physical, interest of the learners, instructional materials. The tools for the study were administrated to the sample of ninety students and t-test was applied. The t-test result concluded as environment of school in both rural and urban areas affects equally but the boys are more affected than girls where as home environment affects more to the subjects of rural areas and girls were more affected than boys. The t-test also concluded that the students of urban areas were more interested to study mathematics and the girls pay more attention for study where as the students of the rural areas were more affected by the use of instructions of materials and girls paid more attention to the use of instructional materials.

Chaudhary (2000) had concluded a research on the topic "comparative study of achievement in mathematics of primary level students related to parent's educational status and found that mathematics achievement of student from educated parents was higher than achievement of students from illiterate parents. he cites that Singh (1990) investigated differences in mathematical creativity on the sample of high caste, background caste, scheduled caste and scheduled tribes of middle school children of age 11+ to 13+ years. The result showed that (i) the groups differed among themselves (ii) high caste children were more creative than the children were more creative than the children belonging to scheduled caste and scheduled tribe in the field of mathematics. (iii) scheduled tribes were less creative than scheduled caste and back ward caste in the field of mathematics and (iv) the group of backward of children was more creative than scheduled caste and scheduled tribe children.

Upaddhay (2012) cites that, examined parents involvement in mathematics education through the lens of the school mathematics reform

literature. Peressini mentioned that it was important to study the role of parents in school reform as well as their role in children's mathematics education. Also, parents should be involved in the mathematics reform movement. Peressini stated that, "To effectively involve parents in the reform of school mathematics, the mathematics education community needs both an understanding of the research regarding parental involvement and a commitment to future research on parents in mathematics education" **Peressini (1998).**

Gautam (2014) cites that notes that parents can take many positive steps to help their children, including the following: they can encourage students to pursue advanced course work, to invest significant amount of time in their homework and to devote more time to reading than to television. An interest in reading and learning can be fostered by reading aloud to children; holding family discussion about reading materials, schoolwork and current events and encouraging frequent trips to the library together more information about interesting topi*c*s (**Mullis, 2002)**.

Subedi, (2005) cites that did research work depending upon the secondary data of the result of SLC examination on "A study of mathematics achievement of private and regular students in SLC examination" with the aims to identity the trend in mathematics achievement of the students attempting the SLC examination privately and regularly and to compare the overall mathematics achievement of private and regular students. Data were collected from lalitpur district of five years 2054, BS to 2058 BS. The t-test was applied to conclude that the trends in achievements of private and regular students. The further ti is concluded that mathematics achievement of the private and regular students did not to different in the examination **(Shrestha P.D., 2002)**.

Dhakal K. (2002) did a study on a topic "A comparative study of SLC results of English" and found variable factors that affect the SLC result positively and negatively. Student's house and school educational environment affect the SLC result positively and age of SLC appearing students (lower limit 16 years), Size of class and Number of children per guardian affect the SLC result negatively.

Subedi, G.P. (2004) Studied on a study of causal attributions for success and under-achievement in mathematics among students "Attributing causes to events that usually happen in the environment has been considered as an human tendency. People not only use to think about fact that occur in their lives, but also try to explain them searching for their causes. Heider (1944) was the first to conduct studies aimed at understanding the way individuals look for links between causes and effect of events in their lives. His pioneer work had demonstrated that comprehending how people attribute causes is very useful information for predicting and modifying future behaviour.

Shrestha, N.K. (2005) did a study on a topic , "A study of causes of under-achievement in compulsory mathematics in SLC examination in Latitpur district. The main finding of this study are as follow, which are the causes of being under-achievement :

a. Textbooks are theoretical

b. Lack of learning teaching materials in teaching activities .

c. Teaching without familiar with student's previous knowledge.

Bista (2014) cites that conducted a research on topic "Factor influencing mathematics achievement (A case studies of ineffective secondary school of Kailali district)". Which was a case study conducted

in the secondary school of Kailali district. Only 20 students each from effective and ineffective schools were choosen as sample. Interview schedule, observation, survey form and school documents were used as a tools to collect data and information. This case study was focused on multiple factors and its influence on mathematics results. Personal and environmental factors such as gender, age, prior knowledge, attendance, motivation, study at home; parental support, quality of teacher, class size, student teacher interaction, physical and environmental condition and school leadership were in consideration (Pandey, 2007).

The major findings of this study were that student's achievement was mostly affected by both their personal and environmental factors. Gender discrimination was one of the key factors that caused the girls amount was low marks and the amount up boy's high. Home environment, school environment, teacher's quality, students self motivation resulted to achieve high mark in mathematics. Less knowledge on instructional strategy, less teaching experiences and lack of teaching materials have led student's mathematics achievement towards low percentage. Another physical factor, to the student's amount like school surrounding environment was seen as an influencing factor. Teacher's laziness and school's leadership have close link to student's performance and achievement.

Yadav (2008) writes that economic factors which affect the child's education is considered as important. Economically resourceful people living in urban area can afford money for their children and poor people are not in the position to afford money for their children. Attitude plays the important role on the performance of individual, which can be influenced by the occupation of their parents. An attitude is a psychological constraints or latent variable inferred from observable

responses it is fundamental concern to every parents towards the academic achievement.

2) Theoretical Literatures

Rodriguez Castellanos (1986) considers academic under-achievement as the situation in which the subject does not attain the expected achievement according to his or her abilities. Resulting in an altered personality which affects all other aspects of life. Tapai (2002) notes that, while the current educational system perceives that the student under-achievement if he or she doesnot pass, more appropriate for determining academic under-achievement is weather the student performs below his or her potential.

The parenting styles such as democratic, authoritarian, etc is also influential both in the students' educational process as well as in family-school relations; another finding similar to it carried out research such as that by Rodriguez Castellano (1986) demonstrate that a positive family climate favors the development of well-adapted, mature, stable and integrated subjects, and an unfavorable family climate promotes non-adaptation, immaturity, lack of balance and insecurity.

Castejon and Perez (1998) Find that the child's perception of the family support directly affects performance, while the mother's level of studies does so indirectly. Other research indicates that the most influential family components on performance are not socio-cultural or economic, but rather those pertaining to the affective or psychological dimension; that is, although good academic preparation in the parents, especially the mother, and a positive cultural environment, favor scholastic performance, it is affective and relational variables which most stand out as factors in performance.

Sanchez (2000) academic self-concept is at the base of future school success or under-achievement, having been formed starting in Early childhood education from peer contact and teacher attitude and expectations. One interesting study indicates positive self-concept, as one risk-reducing factor against academic under-achievement in the case of unfavorable family situations (Fullana Noel, 1995).

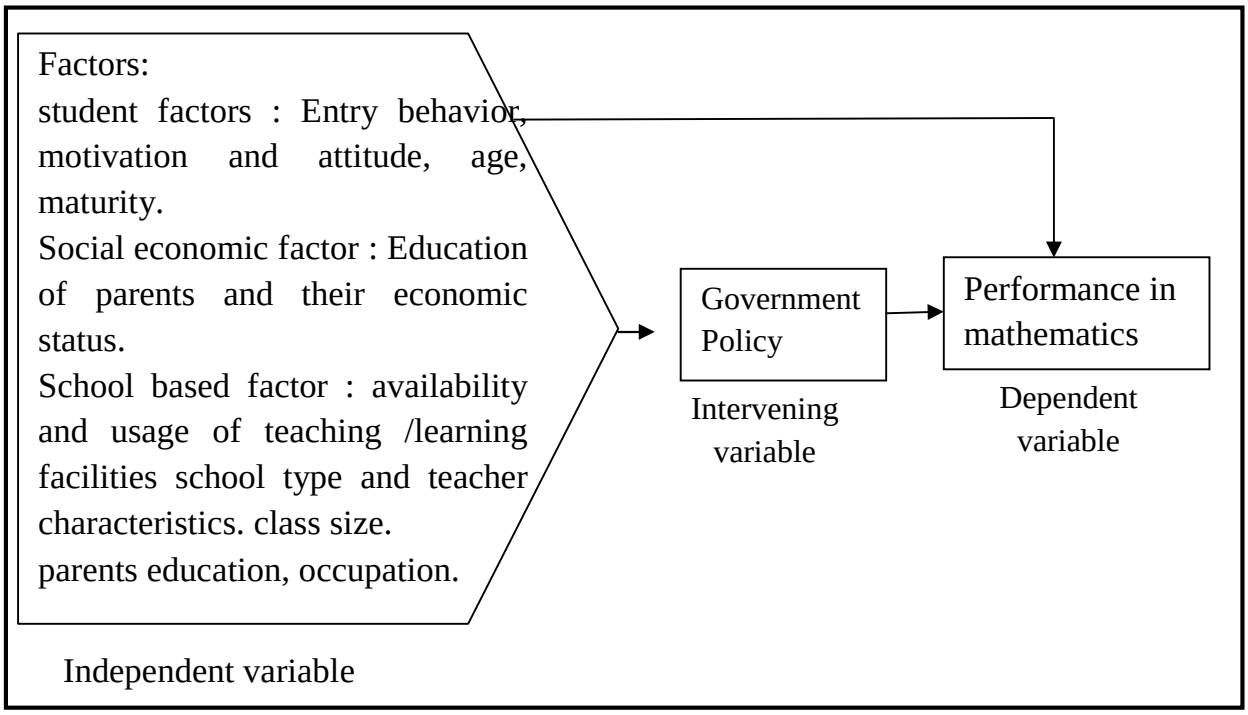
Another group of performance determining factors are the social/family factors. The educational condition attributed to the family is beyond all doubt or discussion, as there is an ever-increasing awareness of the importance of the parents' role in the progress and educational development of their children. Schiefelbaum and Simmons (cited by Adell, 2002, p.91) consider family background the most important and most weighty factor in determining the academic performance attained by the student. Among family factors of greatest influence are social class variables and the educational and family environment.

Marchesi and Martin (2002) propose that the pupil's sociocultural level and his previous aptitudes indirectly influence the results of learning since they delimit classroom procedures. As for characteristics of the teacher-tutor, this is considered a key element for the pupil's personal and academic development the value given from teacher to pupil and vice-versa as usually reciprocal, highlighting additionally the personal relationship (Marchesi and Martin, 2002). These same authors find that teacher expectations significantly influence student results. The teachers' assessment is mediated by two variables: (1) the student's intelligence, that is, the greater the intelligence, the better the academic results and the better reciprocal appreciation between teacher and student, (2) family support for study also makes the student value his teacher more highly (Castejon and Perez, 1998).

From the above literatures in Nepal, some studies have been made to explore whether the failed in mathematics is by the various variables such as class size, Age of the SLC appearing students, Number of children the guardians have, teacher qualification, lack of teaching materials, lack of previous knowledge, educational environment of student's house and school. So this study is revent to deal with the above mentioned problems of education in remote and rural Area.

2.2 Conceptual framework of the study

From the above empirical research and general literatures we can conclude that there are various cause of under-achievement in mathematics SLC examination and there are various factor affect in performance in mathematics. Independent variable is the variable that can researcher has control over and can manipulate intervening variable is a variable that helps explains the relationship between two variable and dependent variable that is being observed a measured for changes that are thought to be caused by change in independent variable. The various factors affecting achievement of mathematics students are categories in the diagram as below:



Source: Centre for Promoting Ideas, USA

Fig: 1 Factors contributing to poor performance in mathematics

Mathematics education requires highly motivated students because if requires reasoning, making interpretation and solving problems, discussion on issues and concepts. The challenges of mathematics learning for today's education is disciplined study, concentration and motivation.

Learning motivation and self regulation, self concept, self esteem and self efficiency the general tenet is regulated learning can indirectly influence performance in mathematics.

Socioeconomic status is considered to be a predicator of mathematics achievements. Socioeconomic status was found significant in primary mathematics and science score.

Instructional strategies and methods of teaching provided to student in learning situation helps to develop and apply higher order operational are critical thinking of mathematics concepts as the most influential factor on the mathematics achievement on students.

Teacher's philosophy of mathematics has significant influence on the structure of mathematics classes. Teachers need to have skills and knowledge to apply the philosophy of teaching and instructional decisions.

Schools context and its facilities could be as important factor in student achievements. In fact, identifying factors related to school environment has become research focus among educational practitioners. For instance, research suggests that student achievement is associated with a safe and orderly school climate.

Parent's educational level has been shown to be a factor in academic achievement. Parents serve as a role model and a guide in encouraging their children to pursue high educational goals and desires by establishing the educational resources on hand in home and holding particular attitudes and values towards their children's learning.

Different variables like age of the children, the size of the classroom, the length of waiting list for the class and various licensing restrictions all have an effect on the size of class and it effect on the performance.

Use of instructional materials in delivery at class room in the researchers set out to investigate the state of the art in terms of availability and use of mathematical instructional material and the influence of these on students’s achievement in the subject.

Parent’s occupation may influence student performance in various ways. For example, an occupation related income may determine access to learning opportunities and resources so plays a role in learning outcomes.

Learning motivation and self regulation, self efficiency, socio economic status, instructional strategies and methods, teacher's philosophy on mathematics, school context and its facilities, parent's occupation and educational level, age of the children, the size of the classroom are more responsible in mathematics achievement.

Chapter III

METHOD AND PROCEDURES OF THE STUDY

This chapter describes the design of the plans and procedures of the study used in this research to achieve the objective stated. It consists of the following sections:

3.1 Design of the Study

This research included the perspectives of mathematics teacher available from Khotang district. So it is survey design. Moreover the collected data were analyzed quantitative as well qualitatively, description in nature.

3.2 Population

All the mathematics teacher who were teaching mathematics in public secondary schools of Khotang district in academic year 2070 which is 80 in number. And all tenth grade students of Khotang districts who studied mathematics in academic year 2070 were considered as population of this study.

3.3 Sample of the Study

There are 45 secondary government schools all the teacher were asked to participate on organized by training NCED. So the participated 25 mathematics teachers of mathematics training organized by NCED school and 80 students from 8 school of 85 considered as sample. Similarly the head teachers of each secondary school of this cluster were also taken as the sample of this study.

3.4 Sampling

25 mathematics teachers are taken from training programme who where participate of TPD training organized by NCED, similarly, there are 8 schools on the 85 cluster Khotang. So randomly 10 students from each school in total 80 students were taken as sample.

3.5 Tools/Instrument

In order to develop the tools for the study the researcher first studied the school mathematics curriculum and textbook prescribed for secondary level. Then developed the questionnaire to school secondary students, mathematics teachers, and Head teacher for assessing the various aspects of factors of under-achievement in mathematics in SLC examination. The factors analysis of under-achievement in mathematics at SLC examination covered by questionnaire are Curriculum and textbook, Teaching method, Student's interest, Subjects teacher, School management, Questions set, Parent's occupation, Use of materials and Evaluation system

3.6 Data Collection Procedure

The researcher has visited all the secondary schools of the cluster. At first he gained asses from the head teacher by explaining the purpose of the study.

The researcher had given questionnaire to all the teachers at training centre at initial day of the training and requested to return the copies along by the answers at the last day of the training. Similarly, visited the headmaster of all school and requested to fill the answer. Semi structured interview was taken to the head teacher on the met with them.

Validity

Validity of the research instruments are the necessary qualities of the instruments. This study had used likert scale base questionnaire.

Validity of the research instruments are the necessary qualities of the instruments. This study had use likert scale base questionnaire. The tools were developed under the domain of the action verbs of conceptual framework so, it is supposed to be and valid, the answers of the same nature from different were considered as reliable.

The validity of the questionnaire was established by its approval from the subject experts and thesis supervisor. To check the gross defects in language suitability of the items appropriateness of the statements, complexity, coverage of the context etc of questionnaire, the questionnaire were given to students and lastly with the suggestion of supervisor, some modification in language were made and finalized the questionnaire.

All the answers of the questions asked were measured with likert type measuring technique which is described as below:

A likert scale is actually the scale of responses to several likert items. These items are usually displayed with a visual aid, such as a series of radio buttons or a horizontal bar representing a simple scale.

In a "good" likert scale, the scale is balanced on both sides of a neutral option creating a less biased measurement. The actual labels as well as numeric scale may vary.

A Likert term is a state that the respondent is asked to evaluate. In the example below, this item, "The cheek out process was easy is a likert item and a Table as a whole is a likert scale.

This is a very useful question type when you want to get an overall measurement of a particular topic, opinion or experience and also collect specific data on contributing factors. Measuring the satisfaction of a recent shopping experience is a common use. You should not use this form of question (or at list you should not call it a likert scale) when the items in the questions are unrelated to each other, or when the options are not in the form of a scale.

Scoring procedure

5 points measuring methods of liquit type technique in used as follow:

	Positive Statement	Negative Statement
Meaning of ratings	Rating	Rating
Strongly agree (SA)	5	1
Agree (A)	4	2
Undecided (U)	3	3
Disagree (D)	2	4
Strongly Disagree (SD)	1	5

3.7 Data Analysis and Interpretation Procedure

The collected data were analyzed using the following statistical methods.

a. The cause of under-achievement in mathematics in SLC examination was analyzed with the help of weightage mean scored. when the weightage mean value greater than 3.5 was called agree, the cause of under-achievement whose weightage mean value was between 2.5 to 3.5 was undecided about the agreeness and the cause of under-achievement having weightage mean value less the 2.5 was disagree.

Chapter IV

ANALYSIS AND INTERPRETATION

This chapter deals with the statistical analysis and interpretation of the data obtained by using tools teacher and student questionnaire from mathematics achievement scores in the examination.

The data were tabulated on the basis of responses given by subject teachers, Head teacher and students for each statement on cause of under-achievement in Mathematics at SLC examination. The weightage weightage mean values were computed by giving a value from five point scale.

4.1 Teachers Responses on cause of under-achievement in Mathematics in SLC Examination

The first objective of the study was to study the causes of under-achievement in Mathematics in SLC examination. For this, the researcher had set the following major points as factors, which were based on the domains of theoretical framework on affecting student achievement which are as follows:

i) Curriculum and textbook
ii) Teaching method, use of materials
iii) Students interest, age
iv) Subject teachers
v) School management and extra class provided
vi) Questions set
vii) Parent's occupation /education
viii) Friend circle
ix) Study hours of students at home

x) Value of parents students towards good score in mathematics.

The researcher had observed the SLC result of mathematics score from District education office Khotang himself and calculate the pass and fail percentage in average of last three years (2067, 2068, 2069) which is tabulated as below:

Table 1 : Pass and Fail percentage in average of last three years of SLC Examination

Year	Pass %	Fail %
2067	75.41%	24.59%
2068	38.81%	61.19%
2069	37.34%	62.66%

Source : Mark ledger from exam cell, DEO Khotang 2070

The Table shows that the result of the SLC even in the year 2067 BS which was the highest one and other years decreasing, but the average percent in exam. The cause of lower the pass percent was sending all students to SLC without screening but passed percentage is in decreasing form.

After this, the research has set the questionnaire to the subject teacher, head teacher and students. From different aspect of the theoretical domain and surveyed and to be respondents.

Curriculum and textbook

A curriculum is a prescriptive, and is based on a more general syllabus which merely specifies what topics must be understood and to what level to achieve a particular grade or standard. Curriculum has numerous definitions, which can be slightly confusing. In its broadest

sense a curriculum may refer to all courses offered at a school. This is particularly true of schools at the university level, where the diversity of a curriculum might be an attractive point to a potential student.

A curriculum may also refer to a defined and prescribed course of studies, which students must fulfill in order to pass a certain level of education. For example, an elementary school might discuss how its curriculum, or its entire sum of lessons and teachings, is designed to improve national teaching scores or help students learn the basics. An individual teacher might also refer to his or her curriculum, meaning all the subjects that will be taught during a school year.

A textbook is a manual of instruction in any branch of study. Textbooks are produced according to the demands of educational institutions. Although most textbooks are only published in printed format, many are now available as online electronic books.

The weightage mean values on each area of the curriculum and text books are presented and interpreted in Table 2.

Table 2 : Weightage mean of factors related to the curriculum and text books

S.N.	Statements	Weightage mean
1	Textbooks are more theoretical.	4.20
2	More difficult words are presented in the text books.	2.6
3	The subject matters are revised without informing to teachers & students.	4.12
4	More chapters are included in the text books	1.92
	Total Weightage mean value	3.21

The computed weightage mean values on the Table 2 for the statements textbooks are more theoretical and the subject matters are revised without informing to teachers and students were greater than 3.5. It indicates that the teachers were agreed with the statements of the textbooks are more theoretical and the subject matters are revised without taking concept of mathematics teacher, the curriculum designed in for down approach, not available text book in time in the school, students cannot self study. Which is not student friendly at some remote areas as Khotang district so the under-achievement rate is higher in mathematics.

The weightage mean value on the statements more difficult words are presented in the textbook is less than 3.5.

However, the obtained weightage mean value of more chapters are included in the textbooks is less than 2. It indicates that the teachers disagreed with the statement of "more chapters are included in the text books".

Method of teaching

A teaching method comprises the principles and methods used for instructions. Commonly used teaching method may include class participation, demonstration, recitation, memorization or combination of these. The choice of teaching method or methods to be used in depends largely on the information or skills that are being taught and it may also be influenced by the aptitude and enthusiasm of the students.

The term teaching method refers to the general principles, pedagogy and management strategies used for class term instructions. Your choice of teaching method depends on what fits you – you educational philosophy. Classroom demographic, subject area and

school's mission statement. Teaching theories primarily fail into two categories or approaches – teacher centered and student centered.

The weightage mean values of on each area of the method of teaching are presented and interpreted in Table 3.

Table 3 : Weightage mean of factors related to the method of teaching

S.N.	Statements	Weightage mean
1	Negligence in practical aspects of mathematical concepts in teaching activities.	4.04
2	Lack of use of teaching materials in teaching activities.	3.88
3	Teaching without being familiar with students previous mathematical knowledge.	3.72
4	Lack of meaningful teaching in classroom.	3.68
	Total Weightage mean value	3.83

The computed weightage mean values on the Table 3 for Negligence in practical aspects of mathematical concepts in teaching activities, Lack of use of teaching materials in teaching activities, teaching without being familiar with students previous mathematical knowledge and lack of meaningful teaching in classroom are greater than 3.5. It indicates that the teachers were agree with the Negligence in practical aspects of mathematical concepts in teaching activities, Lack of use of teaching materials in teaching activities, teaching without being familiar with students previous mathematical knowledge and lack of meaningful teaching in classroom lack of select the method according to the need and interest of students, lack of diagnose difficulties and provides remediation, lack of use of play in mathematics, School has used traditional method of teaching, teacher always for the selection of method

and lesson dominate the students. The mathematics teacher in the classrooms did not try to do extra mathematical activities such as mathematical games and the school did not try to manage extra mathematical activities. Teachings are the cause of under-achievement in Mathematics in SLC examination.

I am poor in mathematics, I try to do my homework regularly but I can't do my teacher throws my copy looking my incomplete work and poor handwriting. My sir does not teach individually- **Student's View**.

The weightage mean value of teaching method is greater than 3.5. It indicates that the teachers were agree with the cause of under-achievement in SLC examination was the method of teaching.

Students Interest

A students interest in the subject matter is co-related with the knowledge they gain from that subject. Interests are linked to deep learning recall main ideas and response to more difficult. As students enter in collage and gain greater autonomy over what, when, and how they study and learn, motivation plays a critical role in guiding the direction, intensity, persistence and quality of learning behaviours in which they engage. When students find positive values in a learning goal or activity, expect to successfully achieve a desired learning outcome and perceive support from their environment, they are likely to be strong motivated to learn.

The weightage mean values of on each area of the students interest are presented and interpreted in Table 4.

Table 4 : Weightage mean of factors related to the students interest

S.N.	Statements	Weightage mean
1	The students are deprived of learning mathematical concepts according to their interest, ability.	4.28
2	Lack of knowledge that extent to what content the mathematical knowledge is needed to the adolescents.	3.76
3	The students are weaker in the lower classes	3.68
4	Psychological impact in the students that the mathematics is a difficult subject.	3.36
5	Lack of knowledge about the importance of mathematics.	3.84
6	Students learn Mathematics by rote.	3.84
7	Students do not practice mathematics.	3.76
8	Irregularity of students in school.	3.2
9	More students get failed in Mathematics due to inability of there.	3.40
	Total Weightage mean value	4.11

The weightage mean value of the students are deprived of learning mathematical concepts according to their interest and ability, lack of knowledge that extent to what content the mathematical knowledge is needed to the adolescents, the students are weaker in the lower classes, psychological impact in the students that the mathematics is a difficult subject, students learn mathematics by rote and students do not practice mathematics are greater than 3.5 so teachers were agreed with the students are deprived of learning mathematical concepts according to their interest and ability, lack of knowledge that extent to what content

the mathematical knowledge is needed to the adolescents, the students are weaker in the lower classes, psychological impact in the students that the mathematics is a difficult subject, students learn mathematics by rote and students do not practice mathematics, students are more work at home, are the cause of under-achievement in Mathematics in SLC examinations.

However the weightage mean value of lack of knowledge about the importance of Mathematics, irregularity of students in school and more students get failed in Mathematics due to inability of there are less than 3.5 so teachers were undecided with lack of knowledge about the importance of mathematics, irregularity of students in school and more students get failed in mathematics due to inability of their.

We regularly did the class work and homework given by the teacher in the classroom – **Student**.

I always encourage to be student giving more class work and provide the guideline about class work and emphasis the importance of high achievement for the further study to the students – **Teacher**

We are interested to learn mathematics. Teacher encourages us to learn but we feel difficulty on geometry - **Student**

Parents' occupation and educational status are more influence in mathematics achievement.

The weightage mean value of student's interest is greater than 3.5. It indicates that the teachers were agree with the cause of the students interest. It suggests that first motive to the students to learn mathematics and then starts to teach.

Subject teachers

Mathematics teacher activity instructs students, create lesson plans, assign and correct homework, manage students in the classroom, communicate with parents and help students prepare for standardized testing. Mathematics teacher job duties can be very significantly between elementary school and higher grade levels. In high school for example, Mathematics teacher many need to help students prepare for graduation and collage entry exams while elementary schools the mastery of basic skills is of paramount importance.

The weightage mean values of on each area of the subject teachers are presented and interpreted in Table 5.

Table 5 : Weightage mean of factors related to the subject teachers

S.N.	Statements	Weightage mean
1	The weak students are not taught in separate room.	3.88
2	Lack of subject teachers.	3.88
3	No individual teaching activities in the class	4.4
4	Lack of training to the subject teacher.	3.88
5	Teaching focuses only to the talented students.	3.16
6.	Irregularity of teachers in the class.	3.66
7	No regular checking of students home-work.	4.2
	Total weightage mean value	3.82

The results on Table no. 5 indicates that the weightage mean value of the weak students are not taught in separate room, lack of subject

teachers, no individual teaching activities in the class, lack of training to the subject teacher and no regular checking of students homework are greater than 3.5. It indicates that teachers were agreed with the statements of the weak students are not taught in separate room. Lack of subject teachers, no individual teaching activities in the class, lack of training to the subject teacher and no regular checking of students homework are the cause of fail in Mathematics in SLC examinations.

But the weightage mean value of teaching focuses only to the talented students and irregularity of teachers in the class are less 3.5. It indicates that teachers were undecided with the statements of teaching focuses only to the talented students and irregularity of teachers in the class are the cause of fail in Mathematics in SLC examinations.

The weightage mean value of subject teachers is 3.75 so it indicates that subject teachers are more responsible to the pass to students in SLC examination.

School Management

Management is defined as the organization and co-ordination of the activities of an enterprises in accordance with certain policies and in achievement of clearly defined objectives. Management in business and organizations is an art that co-ordinates the efforts of the people to accomplish goals and objectives using available resources effectively and efficiently. Management comprises planning, organizing, staffing, leading or directing and controlling an organization to accomplish the goals. Resourcing encompasses the deployment and manipulation of human resources, financial resources, technological resources and natural resources. Management is also academic discipline, a social science whose objective is to study social organizations.

Management is often included as a factor of production along with machines, materials and money. According to the management guru Petor Druker (1909-2005), the basic task of management includes both marketing and innovation. Practice of modern management originates from 16th century study of low efficiency and under-achievements of certain enterprises conducted by English statesman SIR Thomas more (1478-1535). Management consists of an interlocking functions of creating corporate policy and organizing, planning controlling and directing an organizations resources in order to achieve the objectives of that policy.

Classroom management is the aspect of learning environment which includes the physical setting as well as rules, regulation and discipline. There is sufficient benches in the classroom. The number of students in the classroom was sixty approximately equal numbers of girls and boys. The class was not homogeneous in terms of gender class, ethnicity, language minority etc. The classroom was multicultural but a practice on sit planning of the class was a way of providing equal treatment to the students. There is free to seat anywhere the seating system free and first came first sit seating on the bench of choose.

The weightage mean values of on each are of the school management are presented and interpreted in Table 6.

Table 6 : Weightage mean of factors related to the school management

S.N.	Statements	Weightage mean
1	No proper management of class rooms.	4.32
2	Teachers are kept changing.	3.76
3	Less time is given to Mathematics in school.	2.44
	Total Weightage mean value	3.40

The weightage mean value of no proper management of class rooms and teachers are kept changing are greater than 3.5 so it indicates that teachers were agree with the statement of "No proper management of class rooms in school" and "teacher are kept changing ". It is main cause of fail in Mathematics in SLC examination.

School has not developed any policy for the parental involvement in the school - **Headteacher**

The weightage mean value of less time is given to Mathematics in school is less than 2.5. It indicates that teachers were disagreed with less time is given to Mathematics in school. It was not a cause of under-achievement in Mathematics in SLC examination.

There is large number of students in the classroom i.e. 50 students sit together in the class. Students feel difficulty for learning and teacher cannot use teaching materials so much this may be lack of teacher and physical constraints of the school - **Student**

The weightage mean value of school management is 3.40. It implied that teachers were undecided about school management.

The class size of the students in above 50 moreover the students of government of grade 9,10 are promoted from junior classes if they are failed in some subjects too - **Teacher**

Questions sets

The weightage mean value of on each area of the questions are presented and interpreted in Table 7.

Table 7 : Weightage mean of factors related to the questions sets

S.N.	Statements	Weightage mean
1	Out questions than syllabus are asked in the examination.	3.08
2	Difficult words are used in questions.	2.64
3	Different sets of questions are asked in he exam.	3.48
4	entire choice questions are asked in the question.	4.52
	Total Weightage mean value	3.43

The results on Table 7 indicates that the weightage mean values of no choice questions are asked in the questions is greater than 3.5 so it implies the students were failed in Mathematics in SLC examination because there was not alternate question asked in examination. Teachers were agreed with the statement of no choice questions are asked in the question.

But the weightage mean value of out questions are asked in the examination and two sets of questions are asked in the examination are less than 3.5. It indicates that teachers were undecided about the out questions are asked in the examination and two sets of questions are asked in the examination.

The weightage mean value of difficult words are used in questions is less than 2.5 so, teachers were disagreed about the difficult words are used in the question.

However, the total weightage mean value of questions set is less than 3.5. It indicates that teacher were undecided about the questions sets due to the fail in examination.

4.2 Students response on Cause of Under-achievement in C. Mathematics in SLC Examination

The objective of the study was to study the cause of under-achievement in Mathematics at SLC examination by

i) Curriculum and textbook
ii) Teaching method
iii) Students interest
iv) Subject teachers
v) School management
vi) Questions set

For these students were asked the questionnaire set to fill and responses. Their responses were analyzed as below:

Curriculum and textbook

The weightage mean values on each area of the curriculum and the textbooks are presented and interpreted in Table 8.

Table 8: Weightage mean of factors related to the curriculum and textbooks

S.N.	Statements	Weightage mean
1	Textbooks are more theoretical	3.95
2	More difficult words are presented in the text books.	2.31
3	The subject matters are revised without informing to teachers and students.	3.50
4	More chapters are included in the text books.	1.63
	Total Weightage mean value	2.85

The computed weightage mean values on the Table no. 8 for textbooks are more theoretical and the subject matters are revised without informing to teachers and students were greater than 3.5. It indicates that the students were agreed with the cause of under-achievement in Mathematics in SLC examination by the text books are more theoretical and the subject matters are revised without informing to teachers and students.

The weightage mean value of the statement of more difficult words are presented in the textbooks is less than 3.5. It indicates that the students were undecided about the statement of more difficult words are presented in the text books.

However they obtained weightage mean value of more chapters are included in the textbooks is less than 2.5. It indicates that the students

were disagree with the statement of more chapters are included in the text books.

School has added different practice book for mathematics learning according to this academic curriculum. Teacher modify and adopt teaching styles of the students, teachers have a clear and efficiently organized lessons plans and there is a higher order teaching ie development and promotion of creativity, analytical skills, ability of seek information and inquiring mind through were participatory and child centered teaching.

The weightage mean value of curriculum and textbook is less than 3.5 so it seems that the students were undecided about the cause of the fail in Mathematics in SLC examination by curriculum and textbooks.

Method of teaching

The weightage mean values of on each area of the method of teaching are presented and interpreted in Table 9.

Table 9 : Weightage mean of factors related to the method of teaching

S.N.	Statements	Weightage mean
1	Negligence in practical aspects of mathematical concepts in teaching activities.	3.43
2	Lack of use of teaching materials in teaching activities.	3.75
3	Teaching without being familiar with students previous mathematical knowledge.	3.79
4	Lack of meaningful teaching in classroom.	4.21
	Total Weightage mean value	3.80

The computed weightage mean values on the Table no. 9 lack of use of teaching materials in teaching activities, teaching without being familiar with students previous mathematical knowledge, lack of meaningful teaching in classroom are greater than 3.5. It indicates that the students were agree with the statements of lack of use of teaching materials in teaching activities, teaching without being familiar with students previous mathematical knowledge, lack of meaningful teaching in classroom were the cause of under-achievement in Mathematics in SLC examination.

Teacher always emphasis their own method and they also choose the lesson according to their will. The class size is very large and lacks of so much teaching material I am unable to guide every student independently. School always emphasis on bookish knowledge in mathematics classroom and on extra classes provided too. The teacher evaluated us by giving task to solve on the board but doesn't check out homework daily.

The weightage mean value of negligence in practical aspects of mathematical concepts in teaching activities is less than 3.5. It implies that students were undecided to the negligence to practical aspect while the teaching.

The weightage mean value of method of teaching is greater than 3.5. It indicates that the students were agreed with the method of teaching is the main cause of under-achievement in SLC examination.

Students Interest

The weightage mean values of on each area of the students interest are presented and interpreted in Table 10.

Table 10 : Weightage mean of factors related to the students interest

S.N.	Statements	Weightage mean
1	The students are deprived of learning mathematical concepts according to their interest, ability.	3.65
2	Lack of knowledge that extent to what content the mathematical knowledge is needed to the adolescents.	2.40
3	The students are weaker in the lower classes	4.25
4	Psychological impact in the students that the mathematics is a difficult subject.	3.94
5	Lack of knowledge about the importance of mathematics.	2.88
6	Students learn Mathematics by rote.	2.38
7	Students do not practice mathematics.	2.60
8	Irregularity of students in school.	3.15
9	More students get failed in Mathematics due to inability of their.	3.25
	Total Weightage mean value	3.17

The weightage mean value of the statements of the statements of the students are deprived of learning mathematical concepts according to their interest and ability and psychological impact in the students that the mathematics is a difficult subject are greater than 3.5 so students were agree with the statements of the students are deprived of learning mathematical concepts according to their interest and ability and

psychological impact in the students that the mathematics is a difficult subject are the cause of under-achievement in Mathematics at SLC examinations.

However the weightage mean value of lack of knowledge about the importance of mathematics, students learn mathematics by rote, irregularity of students in school and more students get failed in Mathematics due to inability of their are less than 3.5 so students were undecided with the statements of lack of knowledge about the importance of mathematics, students learn mathematics by rote, irregularity of students in school and more students get failed in mathematics due to inability of there.

The weightage mean value of lack of knowledge that extent to what content the mathematical knowledge is needed to the adolescents, the students are weaker in the lower classes and students do not practice mathematics. The teacher hasn't checked students homework daily so that the student was not interested in mathematics. Students do homework at home. Some students need to do some work in the kitchen like cooking rice, cleaning and help of the work of farm are the causes of under-achievement in mathematics in SLC examination.

The weightage mean value of students interest is less than 3.5. It indicates that students were disagree with the cause of the students interest.

Subject Teacher

The weightage mean values of on each area of the subject teachers are presented interpreted in Table 11.

Table 11 : Weightage mean of factors related to the subject teachers

S.N.	Statements	Weightage mean
1	The weak students are not taught in separate room.	4.18
2	Lack of subject teachers.	3.51
3	No individual teaching activities in the class	3.56
4	Lack of training to the subject teacher.	3.07
5	Teaching focuses only to the talented students.	3.68
6.	Irregularity of teachers in the class.	2.87
7	No regular checking of students home-work.	4.06
8	No permanent teacher	2.58
9	Never uses materials in teaching	3.07
10	Focus on girls students only	2.43
11	School environment to mathematics learning	2.42
12	Parent occupational effect of mathematics teacher	2.6
	Total weightage mean value	3.17

The weightage mean value of the weak students are not taught in separate room, lack of subject teachers no individual teaching activities in the class, teaching in the class focusing to the excellent students and no regular checking of students home-work are greater than 3.5. It indicates that students were agree with the statements of the weak students are not taught in separate room, lack of subject teachers, no individual teaching

activities in the class, teaching in the class focusing to the excellent students and no regular checking of students home-work were of under-achievement in Mathematics at SLC examinations.

The weightage mean value of subject teacher is 3.56 so, it indicates that subject teachers are more responsible to the pass to students SLC examination.

School management

The weightage mean values of on each area of the school management are presented and interpreted in Table 12.

Table 12 Weightage mean of factors related to the school management

S.N.	Statements	Weightage mean
1	No proper management of class rooms.	3.2
2	Teachers are kept changing.	4.6
3	Less time is given to Mathematics in school.	1.6
4	No audio, video materials	2.5
5	No internal test conducted frequently.	2.57
6	Parents involve in school	3.3
7	Reward to talent student	2.5
8	Parent's occupation and access of more provide facilities to their student	3.3
9	Code of conduct could not managed	3.4
10	Not managed tuition classes or extra classes	2.89
	Total weightage mean value	2.99

The results in Table 12 indicates that the weightage mean value of teachers are kept changing is greater than 3.5 so it indicates that students were agreed with the statements of teachers are kept changing.

The weightage mean value of no proper management of class rooms code of conduct could not managed , Reward to talent student , parents involve in school is less than 3.5. It indicates that students were undecided about teachers are changing in school.

The weightage mean value of less time is given to Mathematics in school is less than 2.5 . It indicates that students were disagreed with less time is given to 0 mathematics in school, so it is not a cause of fail in Mathematics in SLC examination.

The weightage mean value of school management is 3.13. it implies that students were undecided to cause of school management due to the fail in SLC examination.

Questions sets

The weightage mean value of on each area of the questions are presented and interpreted in Table 13.

Table 13 : Weightage mean of factors related to the questions sets

S.N.	Statements	Weightage mean
1	Out questions are asked in the examination.	3.25
2	Difficult words are used in questions.	1.68
3	Two sets of questions are asked in the exam.	3.25
4	No choice questions are asked in the question.	2.57
5	Large number of questions asked so that could not attempt in time 3 hours	3.25
6	There are no exact solution to in the examination	3.0
7	Objective question are not asked	3.10
	Total Weightage mean value	2.87

The weightage mean values of no choice questions are asked in the questions is greater than 3.5 so it implies the students fail in mathematics in SLC exam because there was not alternate questions asked in exam. Students were agreed with no choice questions are asked in the question.

But the weightage mean value of out questions are asked in the examination is less than 3.5. It indicates that students were undecided to the statements of out questions are asked in the examination.

The weightage mean value of difficult words are used in questions and two sets of question are asked in the exam are less than 2.5 so, students were disagreed about the difficult words are used in questions and two sets of questions are asked in the exam.

However, the total weightage mean value of questions set is less than 3.5. It indicates that students were undecided about the questions sets due to the under-achievement in exam.

Chapter V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMANDATION

After having analyzed and interpreted the data collected according to design of the study in this concluding chapter an attempt has been made to summarize the finding of the study.

5.1 Summary of the study

The study was conducted to attain of this objective, to identify causes for the high percentage of under-achievement of SLC examination in Mathematics. To compare the responses of teachers and students towards the cause of under-achievement in Mathematics at SLC examination. The statement of the problem of this study are what are the causes of under-achievement in mathematics at SLC Examination. The Statement of the problem of this study are what are the causes of under-achievement in mathematics at SLC examination? How can be minimized the causes of under-achievement rate in mathematics at SLC examination?

For this purpose all the study was limited in Khotang district, remote area, mathematics only and the result of SLC examination 3 years only. This research is a survey design, the collected data were analyzed quantitative as well as qualitatively, it is description in nature. All the mathematics teachers and students of Khotang district in the academic year 2070 were the population for the study and 25 mathematics teachers and 80 students from the school of a cluster of defined population were selected. Then to generate the needed data, questionnaires were developed. The questionnaire had covered the factor analysis of under-achievement of mathematics in the different aspects for example

curriculum and textbook, teaching method and use of materials, student interest subject teacher, school management etc.

The questionnaires were distributed on a sample of 25 mathematics teachers and 80 grade 10 students of defined sample. The scoring procedure 5 points measuring methods of likert type technique. The data was analyzed with the help of weightage mean scored when the weightage mean value greater than 3.5 was called agree, weightage mean value was between 2.5 to 3.5 was undecided and weightage mean value less than 2.5 was disagree.

5.2 Findings and Conclusion

On the basis of collected and analyzed data the following finding were deduced.

Textbooks are more theoretical as well as sub-devided chapters are included in the text. The subject matter which are revised in the text are included without collecting the information from teachers and students. Practical aspects of Mathematics are ignored in the text books.

Student's performance is low in classes because of lack of use of teaching materials and drill practice in teaching no proper management of subject teacher irregularity to students as well as teacher in class, lack of checking homeworks as well as class works in the class. While teaching teacher focuses only the limited number of talented students and no individual teaching in the classes. Discipline is not well managed in students and teachers as well as no proper educational environment of the student's house and school.

Different sets of questions are asked in the examination where alternative question is asked for the proper questions. No objective questions are included in the question but large number of questions.

Conclusion

The data are collected and analyzed to find the answer of the research question and objective of the study. The analysis of the data shows the students performance in mathematics. It deferens according to the age and maturity of the student. The major findings of the study are:

Irregularity of the teachers and students lack of use of instructional materials in appropriateness of teaching, low participation of discussion are major affecting factor for under-achievement in mathematics. In the same way, students spent out amount of time on school activities like leisure, reading, home-work discussion with peers which has affected in mathematics achievement unmanaged code of conduct and tuition classes or extra classes, lack of teaching material and other facilities, parent's occupation, etc have affected the mathematics achievement.

5.3 Recommendation

After conducting this research, the investigator found some findings, the investigator would like to suggest some recommendation and educational implication for the improvement of mathematics achievement in various levels.

5.3.1 Policy Level

The findings of this study will be helpful for policy makers, stakeholders, authors and management committee of the institution to carry out the policies towards better achievement of the students in Mathematics at SLC exam:

1. The ministry of education should review the curriculum to make it relevant and flexible to the diverse needs of different regions and background of the students.

2. To mitigate on the inadequacy of teaching/learning materials and equipments the government need to enhance their provisions to schools. It should extend and bursaries to secondary school students from poor families.
3. The ministry of education and school managements should motivate teachers especially after the release of examination results. This includes recommendation for promotion, subsidizing of house rents.

5.3.2 Practice Level

The research conclusions can be used in practice to uplift the academic status of the students in every education institution. Since it is found that the mathematics achievement of under-achievement student are more affected by school environment. Effective classroom teaching, time variables and low affected by physical facilities and interest off learner so, it is suggested to improve school environment, effective classroom teaching, time variable, physical facilities and interest & learner to get better achievement in mathematics. It is suggested to involve the teachers, parents, head teacher and educational planner to identify the factors which affects the mathematics achievement.

5.3.3 Further Research

1. Due to the hilly geographical area and time, this study was limited to the under-achievement students of SLC examination from remote area of Khotang of public schools, hence the investigator cannot generalize the findings of this study to all grade and the whole country. So the similar study can be done region wise as well as nation wise in order to establish the findings of the study.
2. The study of this kind should be conducted at all levels of schools and in other subjects as well.
3. Other Researcher can be used as a review literature.

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Appendix A

शिक्षकका लागि प्रश्नावली

आदरणीय शिक्षक मित्रहरु

शिक्षक मित्रहरु तपाईहरुलाई थाहनै छ हाम्रो देशमा एस.एल.सी परिक्षामा कम उपलब्धि हासिल गर्छन् जसमा गणित विषयमा नै कम उपलब्धि हासिल गरेका छन् । यसको कारण के हो भन्ने कुरा अहिले सम्म कुनै अनुसन्धान भएको पाइएको छैन तसर्थ मैले आफ्नो शिक्षा तर्फको स्नाकोत्तर तहको विद्यार्थीको हैसियतले शैक्षिक आवश्यकता एक अंशको रुपमा यस शोधकर्ताले "एस.एल.सी. परीक्षामा गणित विषयमा कम उपलब्धिसँग सम्बन्धित तत्वहरु" शीर्षकमा एउटा शोधकार्य गर्न लागिरहेको छु ।

मेरो शोधकार्यमा तपाईहरुको सम्बन्धित क्षेत्रमा व्यवहारपरक अनुभवहरुले सर्वोतम सुचकको काम गर्ने छन् भन्ने सोचाईले प्रेरित भई यो प्रश्नावली तपाईहरु सामु प्रस्तुत गरिएको हो । यस अध्ययनको वैधता र विश्वसनियता तपाईहरुको पक्ष पातविहिन र उचित प्रतिक्रियामा निर्भर गर्दछ कृपया यहाँ कुनै सहि वा गलत भनिने जवाफ छैनन् भन्ने कुरालाई ध्यानमा राखिदिनुहोला मात्र तपाइका अनुभव वा भावनाको बारेमा यस अध्ययनमा सोधपुछ गर्न खोजिएको छ ।

दिइएका कथनहरु प्रति आफ्ना प्रतिक्रिया दिने क्रममा ति कथनहरुलाई होसियार पूर्वक अध्ययन गरी दिइएको निर्देशनहरु आत्मासाथ गर्न अनुरोध गरिन्छ ।

यदि तपाइ कथन प्रति सहमत हुनुहुन्छ भने (SA) मा रेजा (☑) लगाउनुहोस् ।

यदि तपाई कथनप्रति सहमत हुनुहुन्छ भने, (A) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति अनिर्णित हुनुहुन्छ भने, (UN) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति असहमत हुनुहुन्छ भने, (D) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति पूर्ण असहमत हुनुहुन्छ भने, (SD) मा रेजा ☑ लगाउनुहोस् ।

तपाई यसै साथ प्रस्तुत प्रश्नावली पूर्णरुपले भरेर सर्वसुलभ रुपले फिर्ता गरिदिनुभएमा अनुसन्धानकर्ता तपाई प्रति आभारी रहने छ । तपाईका प्रतिक्रियाहरु गोप्य राखिने छन् र यसै अध्ययनमा प्रयोग गरिने छ ।

क्र. सं.	कारणहरु	प्रतिक्रिया					
		SA	A	UN	D	SD	कै.
१	विद्यालयमा पढाइने पाठ्यपुस्तक बढि सैद्धान्तिक छन् ।						
२	विद्यालयमा पढाइने पाठ्यपुस्तकमा अप्ठ्यारा शब्दहरु धेरै प्रयोग भएका छन् ।						
३	शिक्षक विद्यार्थीलाई सार्वजनिक रुपमा जानकारी नगराई पाठ्यपुस्तकको पाठ्यवस्तुहरुमा संशोधन गरिन्छ ।						
४	विद्यालयको पाठ्यपुस्तकमा बढि शिर्क्षक छन् ।						
	Method of Teaching						
१	शिक्षण क्रियाकलापमा गणितिय धारणको प्रयोगात्मक पक्षलाई उपेक्षा गरिन्छ ।						
२	शिक्षण क्रियाकलापमा शैक्षिक सामग्रीको प्रयोग गरिदैन ।						
३	विद्यार्थीहरुको पूर्व ज्ञान थाहा नपाई शिक्षण गरिन्छ ।						
४	शिक्षण क्रियाकलाप अर्थपूर्ण तरिकाबाट शिक्षण गरिदैन ।						
	Students' Interest						
१	विद्यार्थीको रुची, क्षमता, चाहना अनुसारको गणितीय धारणा सिक्ने अवसर प्रदान गरिदैन ।						
२	विद्यार्थीलाई वयस्क भएपछि कतिसम्मको गणितको ज्ञान आवश्यक पर्छ भन्ने थाहा हुदैन ।						
३	विद्यार्थीहरु शुरुका कक्षादेखि नै गणित विषयमा कमजोर हुदै आएका हुन्छन् ।						
४	विद्यार्थीहरुमा गणित विषय अप्ठ्यारो हो भन्ने मनोवैज्ञानिक प्रभाव परेको छ ।						
५	विद्यार्थीहरुले गणित विषयको महत्व राम्रोसँग थाहा पाएका हुदैनन् ।						
६	विद्यार्थीहरुमा गणित विषय कण्ठ गरेर पढ्ने बानी हुन्छ ।						
७	विद्यार्थीहरु यस विषयलाई कम अभ्यास गर्छन ।						

८	विद्यार्थीहरुको असक्षमताले गर्दा परीक्षामा अनिवार्य गणितमा बढि अनुत्तीर्ण हुन्छन् ।						
९	विद्यार्थीहरु विद्यालयमा नियमित उपस्थिति हुँदैनन् ।						
	Subject Teachers						
१	कमजोर विद्यार्थीहरुलाई छुट्टै कोठाको व्यवस्था गरी पढाइदैन ।						
२	विषयगत दक्ष शिक्षकको कमि छ ।						
३	कक्षा कोठामा व्यक्तिगत शिक्षण क्रियाकलाप हुदैन ।						
४	विषय शिक्षकहरुलाई तालिमको व्यवस्था कम छ						
५	शिक्षकले सवल विद्यार्थीलाई ध्यान दिई शिक्षण कार्य अगाडि बढाउछन् ।						
६	शिक्षकहरु कक्षामा नियमित उपस्थित हुदैनन्						
७	विद्यार्थीको गृहकार्य नियमित जाँच गरिदैन ।						
	School Managements						
१	विद्यार्थीहरुलाई बस्ने कक्षा कोठाको व्यवस्था राम्रो छेन ।						
२	शिक्षकहरु परिवर्तन भइरहन्छन् ।						
३	विद्यालयमा अनिवार्य गणितलाई कम समय दिइन्छ ।						
	Questions						
१	परीक्षामा बाहिरी प्रश्नहरु सोधिन्छ ।						
२	प्रश्नपत्रमा जटिल शब्दहरु प्रयोग गरिन्छ ।						
३	परीक्षामा दुईसेट प्रश्न पत्र सोधिन्छ ।						
४	प्रश्न पत्रमा प्रश्न छनौटको सुविधा छैन ।						

Note : SA = Strongly agree, A = Agree , UN = Undecided, D = Disagree, SD = Strongly disagree

Appendix B

प्र.अ. का लागि प्रश्नावली

आदरणीय प्र.अ. ज्यूहरु

प्र.अ. ज्यूहरु तपाईहरुलाई थाहनै छ हाम्रो देशमा एस.एल.सी. परीक्षामा कम उपलब्धि हासिल गर्छन् जसमा गणित विषयमा नै कम उपलब्धि हासिल हुने गरेका छन् । यसको कारण के हो भन्ने कुरा अहिले सम्म कुनै अनुसन्धान भएको पाइएको छैन तसर्थ मैले आफ्नो शिक्षा तर्फको स्नातकोत्तर तहको विद्यार्थीको हैसियतले शैक्षिक आवश्यकता एक अंशको रुपमा यस शोधकर्ताले एस.एल.सी. परीक्षामा गणित विषयमा कम उपलब्धिसँग सम्बन्धित तत्वहरु शीर्षकमा एउटा शोधकार्य गर्न लागिरहेको छु ।

मेरो शोधकार्यमा तपाईहरुको सम्बन्धित क्षेत्रमा व्यवहारपरक अनुभवहरुले सर्वोत्तम सुचकको काम गर्ने छन् भन्ने सोचाइले प्रेरित भई यो प्रश्नावली तपाइहरु सामु प्रस्तुत गरिएको हो । यस अध्ययनको वैधता र विश्वसनियता तपाईहरुको पक्ष पातविहिन र उचित प्रतिक्रियामा निर्भर गर्दछ कृपया यहाँ कुनै सहि वा गलत भनिने जवाफ छैनन् भन्ने कुरालाई ध्यानमा राखिदिनुहोला मात्र तपाईका अनुभव वा भावनाको बारेमा यस अध्ययनमा सोधपुछ गर्न खोजिएको छ ।

दिइएका कथनहरु प्रति आफ्ना प्रतिक्रिया दिने क्रममा ति कथनहरुलाई होसियार पूर्वक अध्ययन गरी दिइएका निर्देशनहरु आत्मासाथ गर्न अनुरोध गरिन्छ ।

यदि तपाई कथन प्रति सहमत हुनुहुन्छ भने (SA) मा रेजा (☑ लगाउनुहोस् ।

तपाई यसै साथ प्रस्तुत प्रश्नावली पूर्णरुपले भरेर सर्वसुलभ रुपले फिर्ता गरिदिनुभएमा अनुसन्धानकर्ता तपाई प्रति आभारी रहने छ । तपाईका प्रतिक्रियाहरु गोप्य राखिने छन् र यसै अध्ययनमा प्रयोग गरिने छ ।

१. विद्यालयमा शिक्षकहरु १०-४ वजेसम्म वस्छन् ?

सधै धेरैजसो कहिलेकाही

२. शिक्षकहरु शैक्षिक सामग्री प्रयोग गरेर शिक्षण गर्दछन् ?

सधै धेरैजसो कहिलेकाही गर्दैनन्

३. विभिन्न समयमा शिक्षकहरुलाई तालिममा पठाउनुभएको छ ?

सधै धेरैजसो कहिलेकाही छैन

४. विद्यालयमा कोचिङ्ग कक्षाको व्यवस्था गर्नुहुन्छ ?

हुन्छ (सधै कहिलेकाही विदाको समयमा जाँच आउने वेलामा)

हुदैन

५. विषयगत दक्ष शिक्षकको व्यवस्था गर्नु आवश्यक छ ?

छ छैन

६. कमजोर विद्यार्थीहरुलाई छुट्टै कक्षा कोठाको व्यवस्था गर्नु आवश्यक छ ?

छ छैन कहिलेकाही

Appendix C

विद्यार्थीहरुका लागि प्रश्नावली

प्यारा विद्यार्थी भाइ बहिनीहरु,

विद्यार्थी भाइबहिनीहरु तिमीहरुलाई थाहानै छ हाम्रो देशमा एस.एल.सी परीक्षामा बढी विद्यार्थीले कम उपलब्धि हासिल गर्छन् जसमा गणित विषयमा नै कम उपलब्धि हासिल हुने गरेका छन् । मैले आफ्नो शिक्षा तर्फको स्नातकोत्तर तहको विद्यार्थीको हैसियतले शैक्षिक आवश्यकताको एक अंशको रुपमा यस शोधकर्ताले एस.एल.सी. परीक्षामा गणित विषयमा कम उपलब्धिसँग सम्बन्धित तत्वहरु शीर्षकमा एउटा शोधकार्य गर्न लागिरहेको छु ।

मेरो शोधकार्यमा तिमीहरुका सम्बन्धित क्षेत्रका व्यवहारपरक अनुभवहरुले सर्वोतम सूत्रको काम गर्नेछन् भन्ने सोचाइले प्रेरित भई यो प्रश्नावली तपाईहरु सामु प्रस्तुत गरिएको हो । यस अध्ययनको वैधता र विश्वसनीयता तपाईहरुको पक्षपात विहिन र उचित प्रतिक्रियामा निर्भर गर्दछ । कृपया यहाा कुनै सही वा गलत भनिने जवाफ छैनन् भन्ने कुरालाई ध्यानमा राखिदिनुहोला । मात्र, तपाईका अनुभव वा भावनाको बारेमा यस अध्ययनमा सोधपुछ गर्न खोजिएको हो ।

दिइएका कथनहरु प्रति आफ्ना प्रतिक्रिया दिने क्रममा ती कथनहरुलाई होसियारीपूर्वक अध्ययन गरी दिइएका निर्देशनहरु आत्मसाथ गर्नुहुन अनुरोध गरिन्छ ।

यदि तपाई कथनप्रति पूर्ण सहमत हुनुहुन्छ भने, (SA) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति सहमत हुनुहुन्छ भने, (A) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति अनिर्णित हुनुहुन्छ भने, (UN) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति असहमत हुनुहुन्छ भने, (D) मा रेजा ☑ लगाउनुहोस् ।

यदि तपाई कथनप्रति पूर्ण असहमत हुनुहुन्छ भने, (SD) मा रेजा ☑ लगाउनुहोस् ।

तिमीहरुले यसै साथ प्रस्तुत प्रश्नावली पूर्णरुपले भरेर सर्वसुलभ रुपले फिर्ता गरिदिएमा अनुसन्धानकर्ता तिमीहरु प्रति आभारी रहने छ । तिमीहरुका प्रतिक्रियाहरु गोप्य राखिने छन् र यसै अध्ययनमा प्रयोग गरिने छ ।

क्र. सं.	कारणहरु	प्रतिक्रिया					
		SA	A	UN	D	SD	कै.
१	विद्यालयमा पढाइने पाठ्यपुस्तक बढि सैद्धान्तिक छन् ।						
२	विद्यालयमा पढाइने पाठ्यपुस्तकमा अप्ठ्यारा शब्दहरु धेरै प्रयोग भएका छन् ।						
३	शिक्षक विद्यार्थीलाई सार्वजनिक रुपमा जानकारी नगराई पाठ्यपुस्तकको पाठ्यवस्तुहरुमा संशोधन गरिन्छ ।						
४	विद्यालयको पाठ्यपुस्तकमा बढि शिर्क्षक छन् ।						
	Method of Teaching						
१	शिक्षण क्रियाकलापमा गणितिय धारणको प्रयोगात्मक पक्षलाई उपेक्षा गरिन्छ ।						
२	शिक्षण क्रियाकलापमा शैक्षिक सामग्रीको प्रयोग गरिदैन ।						
३	विद्यार्थीहरुको पूर्व ज्ञान थाहा नपाई शिक्षण गरिन्छ ।						
४	शिक्षण क्रियाकलाप अर्थपूर्ण तरिकाबाट शिक्षण गरिदैन ।						
	Students' Interest						
१	विद्यार्थीको रुची, क्षमता, चाहना अनुसारको गणितीय धारणा सिक्ने अवसर प्रदान गरिदैन ।						
२	विद्यार्थीलाई वयस्क भएपछि कतिसम्मको गणितको ज्ञान आवश्यक पर्छ भन्ने थाहा हुदैन ।						
३	विद्यार्थीहरु शुरुका कक्षादेखि नै गणित विषयमा कमजोर हुदै आएका हुन्छन् ।						
४	विद्यार्थीहरुमा गणित विषय अप्ठ्यारो हो भन्ने मनोवैज्ञानिक प्रभाव परेको छ ।						
५	विद्यार्थीहरुले गणित विषयको महत्व राम्रोसँग थाहा पाएका हुदैनन् ।						
६	विद्यार्थीहरुमा गणित विषय कण्ठ गरेर पढ्ने बानी हुन्छ ।						
७	विद्यार्थीहरु यस विषयलाई कम अभ्यास गर्छन ।						
८	विद्यार्थीहरुको असक्षमताले गर्दा परीक्षामा अनिवार्य गणितमा बढि अनुत्तीर्ण हुन्छन् ।						
९	विद्यार्थीहरु विद्यालयमा नियमित उपस्थिति हुँदैनन् ।						

	Subject Teachers						
१	कमजोर विद्यार्थीहरुलाई छुट्टै कोठाको व्यवस्था गरी पढाइदैन ।						
२	विषयगत दक्ष शिक्षकको कमि छ ।						
३	कक्षा कोठामा व्यक्तिगत शिक्षण क्रियाकलाप हुदैन ।						
४	विषय शिक्षकहरुलाई तालिमको व्यवस्था कम छ						
५	शिक्षकले सवल विद्यार्थीलाई ध्यान दिई शिक्षण कार्य अगाडि बढाउछन् ।						
६	शिक्षकहरु कक्षामा नियमित उपस्थित हुदैनन्						
७	विद्यार्थीको गृहकार्य नियमित जाँच गरिदैन ।						
	School Managements						
१	विद्यार्थीहरुलाई बस्ने कक्षा कोठाको व्यवस्था राम्रो छेन ।						
२	शिक्षकहरु परिवर्तन भइरहन्छन् ।						
३	विद्यालयमा अनिवार्य गणितलाई कम समय दिइन्छ ।						
	Questions						
१	परीक्षामा बाहिरी प्रश्नहरु सोधिन्छ ।						
२	प्रश्नपत्रमा जटिल शब्दहरु प्रयोग गरिन्छ ।						
३	परीक्षामा दुईसेट प्रश्न पत्र सोधिन्छ ।						
४	प्रश्न पत्रमा प्रश्न छनौटको सुविधा छैन ।						

Note : SA = Strongly agree, A = Agree , UN = Undecided, D = Disagree, SD = Strongly disagree

Appendix D

Name of the public schools and number of teachers in the sample.

Public School

SN	Name of School	No of Teacher	No of Student
1	Bhagawati Dinanath HSS Khotang Bazar	1	10
2	Sawakali Ma Vi Sawakatahare	1	10
3	Chisapani HSS Chisapani	1	10
4	Krishan Ma Vi Barre	1	10
5	Mahendrodaya HSS Okhre	1	10
6	Saraswati HSS Chhitapokhari	1	10
7	Simpani HSS Simpani	1	10
8	Bina Ma Vi Likuwa Pokhari	1	10
	Total	8	80

Appendix E

Name of School and Number of Teacher

SN	Name of School	No of Teacher
1	Pachkanya Ma Vi , Panwasera	1
2	Tribhuwan H.S.S	1
3	Saraswati HSS	1
4	Saraswati HSS Diktel	1
5	Krishna HSS, Tenme	1
6	Champawati Ma. Vi.	1
7	Shitala Ma. Vi., Khalle	1
8	Malika Devi Ma. Vi.	1
9	Champawati HSS , Buipa	1
10	Rastriya Ma. Vi. Baspani	1
11	Bulapanthe HSS	1
12	Makpa HSS, Makpa	1
13	Kalika Ma. Vi Nerpa	1
14	Laxmi Ma. Vi. Lichkiramche	1
15	Shanti Ma.Vi. Temma	1
16	Mahendradaya Ma. Vi. yamkha	1
17	Saraswati HSS , Matim	1

Appendix F

Item No	In the case of																
		Teachers								Students							
		5	4	3	2	1	TT	Total	Average	5	4	3	2	1	TS	Total	Average
	Curriculum and Textbook																
1		7	15	3			25	104	4.2	30	28	10	12		80	316	3.95
2		0	6	4	15		25	66	2.6		15		60	5	80	185	2.31
3		10	8	7			25	103	4.12	17	27	22	7	7	80	280	3.5
4				5	13	7	25	48	1.92				50	30	80	130	1.63
	$\bar{X}$								3.21								2.85
	Method of Teaching																
1		11	8	3	2	1	25	101	4.04	16	20	30	10	4	80	274	3.43
2		7	10	6	2		25	97	3.88	30	20	15	10	5	80	300	3.75
3		10	9	0	1	5	25	93	3.72	28	27	5	20		80	303	3.79
4		9	9		4	3	25	92	3.68	35	29	15		1	80	337	4.2
	$\bar{X}$								3.83								3.8
	Students interest																
1		7	18				25	107	4.28	26	30	40			80	292	3.65
2		4	11	6	4		25	94	3.76		16	22	20	22	80	192	2.4
3		7	8	5	5		25	92	3.68	30	40	10			80	340	4.25
4		6	4	8	7		25	84	3.36	30	20	15	15		80	315	3.94
5		4	13	8			25	96	3.84		30	20	20	10	80	230	2.88
6		6	12	4	3		25	96	3.84		20	10	30	20	80	190	2.38
7		7	10	3	5		25	94	3.76		20	30	8	22	80	208	2.6

8		4	5	8	8		25	80	3.2		50	2	18	10	80	252	3.15	
9		5	8	4	8		25	85	3.4	10	30	15	20	5	80	260	3.25	
	$\bar{X}$								3.17								4.11	
	Subject Teacher																	
1		3	16	6			25	97	3.88									
2		7	13		5		25	97	3.88									
3		9	16				25	109	4.4									
4			22	3			25	97	3.88									
5		1	12	2	10		25	79	3.16									
6		5	10	3	3	4	25	84	3.36									
7		10	12	2	1		25	105	4.2									
	$\bar{X}$								3.82									
	School Management																	
1		8	17				25	108	4.32									
2		2	15	8			25	94	3.76									
3			2	7	16		25	61	2.44									
	$\bar{X}$								3.40									
	Questions Set																	
1		2	6	9	8		25	77	3.08									
2		2	4	6	9	4	25	66	2.64									
3			12	13			25	87	3.48									
4		15	8	2			25	113	4.52									
	$\bar{X}$								3.43									