

# Chapter – I

## INTRODUCTION

### 1.1 Background of the Study

Mathematics is 'the science of structure, order, and relation that has evolved from elemental practices of counting, measuring, and describing the shapes of objects. It deals with logical reasoning and quantitative calculation, and its development has involved an increasing degree of idealization and abstraction of its subject matter' (Encyclopedia Britannica). It originated with the human civilization. Knowingly or unknowingly, the use of mathematics began from ancient times for counting family members, cattle, etc. by using the means of fingers, pebbles or sticks. It simply proves that life without mathematics is incomplete: it is directly related to every activities of our life.

The word mathematics has been derived from the Latin word "Mathenean". It means "to learn". Therefore, mathematics is a process of learning and expression of human mind concerned with ideas, process and reasoning. Mathematics results from the discovery, formulation and the systematic development and application of patterns of inductive and deductive thinking. It consists of patterns of thoughts. It is the queen of all sciences. It has continuously been developed and changed with changing needs of contemporary society. Mathematics has played a very important role in building of modern civilization. All the progress in the field of science and technology made by men is the product of the successful use of mathematical knowledge. Mathematics is applicable to every aspect of individual life, social work, physics, chemistry, Biology, Astronomy, Geology, Medicine and engineering etc. "Mathematics is as important as language. In fact, it is a kind of language of its own.

Everyone uses mathematics every day, to tell the time, to play games, to cook, to build things and to do almost any kind of work. Without mathematics, the world would have no buildings, no roads, no electricity, no science and no sports."(Encyclopedia Britannica Ultimate Reference Suite, 2009). So it is said that "Mathematics is the science of all sciences and art of all arts". It is sometimes a back stage performer but very powerful one.

**Some of the scholars have defined mathematics as follows:**

- "Mathematics is science of number and space".  
– Oxford Dictionary
- "Mathematics is free invention of the human intellect".  
– Albert Einstein
- "Mathematics is the gate and key to all sciences".  
– Robert Bacon
- "Mathematics is a way of describing relationships between numbers and other measurable quantities"  
– (Microsoft ® Encarta ® 2009. © 1993-2008 Microsoft Corporation)

From the above shortlisted definitions we come to conclusion that mathematics is a way of organizing, analyzing and synthesizing a body of data.

The area of mathematics has now spread in every field of human necessity. So far its better achievements, it has now been divided into levels from general concept to research level which are as follows:

- Pre-primary level
- Primary level
- Secondary level
- Higher secondary level

- University level
- Research level

Parental occupation may influence student performance in various ways. For example, occupation-related income may determine access to learning opportunities and resources and so play a role in learning outcomes. The education and types of skills associated with different occupations and modeled by parents may motivate students to develop their own skills in particular ways. Parental occupation may also influence how students perceive the value of mathematics learning, their beliefs about the usefulness of mathematics and the learning environment at home.

If occupation is considered as an indicator of parental skill use, it appears that students whose parents worked in occupations with greater skill requirements also performed better in mathematics. However, the large overlap between groups also indicates that there are still large differences within occupational categories. Some of these differences may be explained by the specific skills parents use in their occupations.

Parents play an important role in their student's learning. Aside from being actively involved in their student's education, parents also provide a home environment that can affect learning. Parents serve as a model for learning, determine the educational resources available in the home and hold particular attitudes and values towards education. Although it is difficult to examine the home environment of each student, the educational attainment and occupation of parents serve as an indicator of the values and resources with which parents create this environment. (<http://www.statcan.gc.ca/pub/81-004-x/2005001/7836-eng.htm>)

"Creating welcoming, safe, caring and respectful learning environments requires a coordinated and collaborative approach in which school staff, students, families and community partners have a shared understanding and commitment. To create and support this shared focus on the social and emotional development and positive mental health of students, schools may choose to implement a school-wide instructional intervention program with clearly articulated goals and authentic and engaging learning activities that support a comprehensive approach."

[<http://resources.safeandcaring.ca/resource-safe/>]

Considering the importance of mathematics, Curriculum Development Centre has implemented mathematics curriculum in all school levels of our country. But achievement of mathematics learning in every level is just a satisfactory one. There are many corners to improve for high achievement of mathematics. Different factors like social cultural and social-economic status, different occupation/ profession, different income sources, age group, teaching techniques and methodologies, location of schools, mixed community etc. cause to perform better mathematics achievements. This research is the impact of mathematical achievement of SLC students 2069 (Private and Community) in term of their parents' occupation in Itahari, Sunsari, Nepal.

## **1.2 Statement of the problem**

The problem of the study is mainly concerned with the "Impact of Parents' Occupation on Mathematical Achievement of their S.L.C Pass out Students both in Private and Community Schools." So the researcher has collected the achievement of students, studying in both private and community school, with different socio-economic status, profession/occupation and income source background. And he has tried to answer the following questions.

1. Does the Mathematical achievement of S.L.C. students differ by their parents' occupation?
2. Does the Mathematical achievement of S.L.C. students in Private and Community school differ by their parents' occupation?

## **1.3 Significance of the Study**

Occupation refers to Job, a regular activity performed for payment that occupies one's time. People involve in different occupation here available with their interest, ability, education and obligation, too. On the other hand, achievement of students with same parents' occupation differs. Students of highly sharing and caring family, in general, have scored high and in the mean time, students with low income group like farmer, security guard and chatpate seller have also scored high marks in mathematics. It proves that the achievement of the child is not only the cause of a single factor. There are other factors such as facilities provided, love and affection given to students, learning environment at home and school, behavior of the learners etc. Among these factors, parents' occupation is one of the major (important) factors in this research. Although different researches have been conducted regarding

the factors that affect the achievement level of the students, this is one of the very small efforts which may be fruitful for the following purposes:

Comparing the mathematical achievement of private and Community school students, learning and achievement both are interrelated and possible to achieve if provided good family environment available. So this research helps to find the relationship between the achievement of students and their environment. This research may create positive thinking about mathematics learning. This research will be helpful to find the corners of improvement and provide effective guidelines to mathematics teacher to organize their experiences for better achievement in mathematics. This research will help the publisher and the stake-holders to revise their ideas in a day's ahead.

#### **1.4 Objectives of the Study**

This study was intended to accomplish the following objectives:

- a) To investigate the mathematical achievement of S.L.C. Students by their parents' occupation.
- b) To compare the mathematical achievement of students from Private and Community school on S.L.C examination by their parents' occupation.

#### **1.5 Research Hypothesis**

1. The achievement of S.L.C students from Job-holder parents is higher than that of Non-job holders.
2. The achievement of S.L.C students in Private School is higher than that of Community school.

## 1.6 Statistical Hypothesis

The researcher followed the quantitative techniques and seeks the causes of the result qualitatively in this research. Therefore, the researcher had set the statistical hypothesis for testing the research hypotheses. In the course of this study, the researcher tested the following statistical hypothesis.

- a. There is difference in achievement scores of students in Mathematics at SLC examination according to their parents' occupation.
- b. There is a difference in achievement scores of students in mathematics at SLC examination between foreign workers parents and Businessmen parents.
- c. There is a difference in achievement scores of students in mathematics at SLC examination between foreign workers parents and Jobholders.
- d. There is a difference in achievement scores of students in mathematics at SLC examination between foreign workers parents and parents having low income.
- e. There is a difference in achievement scores of students in mathematics at SLC examination between Businessmen parents and Jobholders parents.
- f. There is a difference in achievement scores of students in mathematics at SLC examination between Businessmen parents and parents with low income.
- g. There is a difference in achievement scores of students in mathematics at SLC examination between Low income parents and Jobholders parents.

- h. There is a difference in achievement scores of Private school students from foreign worker and Businessmen parents respectively.
- i. There is a difference in achievement scores of Government students from foreign worker and Businessmen parents respectively.
- j. There is a difference in achievement scores of Private school students from foreign worker and Jobholders parents respectively.
- k. There is a difference in achievement scores of Government students from foreign worker and jobholders parents respectively.
- l. There is a difference in achievement scores of Private school students from foreign worker and low income parents respectively.
- m. There is a difference in achievement scores of Government students from foreign worker and low income parents respectively.
- n. There is a difference in achievement scores of Private school students from Businessmen parents and jobholder's parents respectively.
- o. There is a difference in achievement scores of Government students from Businessmen parents and jobholder's parents respectively.
- p. There is a difference in achievement scores of Private school students from Businessmen parents and low income parents respectively.
- q. There is a difference in achievement scores of Government students from Businessmen parents and low income parents respectively.
- r. There is a difference in achievement scores of Private school students from Jobholder parents and low income parents respectively.



- s. There is a difference in achievement scores of Government students from Jobholder parents and low income parents respectively.
- t. There is a difference in mathematics achievement of the students from the families irrespective the occupational background but getting more sharing and caring on their study.
- u. There is a difference in mathematics achievement scores of students from the families irrespective the occupational background but provided with more material supports and facilities.

### **1.7 Definition of Key Terms**

**Parents:** Parents here refer to the guardians/parents of the S.L.C. appeared students in 2069 B.S.

**Achievement:** The scores obtained by S.L.C. students in Mathematics in 2069 B.S.

**SLC Student:** Students appeared in SLC exam in 2069 BS.

**Parent's Occupation:** What they do to run their daily life.

**Foreign workers:** Persons who work abroad to run their family daily life back in Nepal.

**Businessmen parents:** The persons who run any intuitions investing on their own. Here shopkeepers, founders of private limited company (factories, private schools, consultancies etc.) and property dealers.

**Low-income parents:** Persons working in any institution permanently or temporarily but getting low salary like drivers, peons, sweepers, farmers, carpenters, chatpate sellers, daily wage earners, etc.

**Job-Holders:** Persons working in Government office or private limited company and earning relatively higher salary.

**Sharing and Caring:** the sharing and caring of their joys, sorrows, needs, limitations, etc. between students and parents

**Facilities:** daily learning materials, books, instrument box, reading room, furniture, electrical appliances

### **Delimitations of the Study**

The researcher considered the following points as limitations to this study.

- This study was limited in two schools, one privately owned and run school and another government funded community school, in an urban area of Itahari in Sunsari District.
- The two schools were chosen randomly, the number and area of the school are chosen for the study because of cost, distance and time constraints.
- Achievement scores of only mathematics of S.L.C. 2069 were included.
- Other factors like age of students, interest in Mathematics, learning ability, teacher quality, school management, class size, infrastructure of the institution and students' health, etc. were not deeply observed in this study.

## **Chapter - II**

### **REVIEW OF RELATED LITERATURE**

For the originality and non-repetition of the research, the review of related literature will be done. Review of literature makes clear about the problem and wide the related knowledge. It will be done after deep study of related books, journals, abstracts, reports and magazines etc that are previously published. Review of literature is a continuous process. It starts before selecting the problem and ends after completing the research.

#### **2.1 Empirical literature**

**Chaudhary (2000):** had conducted a research on the topic "A comparative study of achievement in mathematics of primary level students related to parents' educational status and found that mathematics achievement of students of educated parents was higher than illiterate parent's students.

**Tharu (2004):** Cites that the first International Association for the Education of Educational Achievement (IEA) Mathematics study project (1992) was implemented in Australia, Germany, France, Finland, Israel, Japan, Netherland, Which one of the major finding was parent's socio-economic studies and students' achievement was significantly correlated.

**Pandey (2007):** conducted a research on the topic "factor influencing mathematics achievement".(A case study of ineffective secondary school of kailali District.) The case study was done in one of the secondary school of Kailali district with 20 students each from effective and ineffective schools. Personal and environmental factors such as gender, age, prior knowledge, attendance, motivation, and study

at home, parents' support, quality of teacher, class size, student-teacher interaction, physical and environmental condition and school leadership were in consideration. The major finding of the study was that the student's achievement was mostly affected by both personal and environmental factors. Gender discrimination was one of the key factor that caused the girls achieved low marks and boys high.

**Gotame (2005):** Cites that home environment and socio-economical background such as parents occupation for education are related to achievement of their students, it's also adds student coming from a more economically and educationally advanced are more liked to be better in mathematics.

**Upadhyaya (2011):** Cites that parent's education as well as mother's occupation significantly affects student's achievement. From the above literature it can be concluded that the education of child depends on the parents' awareness, interest, knowledge about handling and guiding their students at home. Parents can introduce and teach fundamental knowledge, skills, attitudes and values to their student's as it is said that home is the first schooling for students.

**Gautam (2013):** Concludes on his research that parent' occupation makes positives impact in mathematics achievement and also adds that the achievements in mathematics of students from Job-holder parents is higher than that of low-income group. Moreover, healthy competition, mixed-up seating arrangement, sharing and caring culture and availability of all sort of facilities by their parents caused higher achievement.

## 2.2 General literature

**Becher (1984)** consider one factor that contributes to mathematics achievement as the support and participation of families in their student's education in positive ways. Through this support, students achieve higher grades and test scores, have better attendance at school, complete more homework, demonstrate more positive attitude, graduate at higher rates and more likely to enroll in higher education.

**Bala (2001):** Writes an article on the topic of "parents' education and occupation on achievement of students" which concluded that education and occupation of parents positively influence the academic achievement of students

**Smith and Herierson (1987)** noted that parents can support mathematics teacher's efforts by helping their students to see the importance of taking advanced mathematics courses, limiting television set watching, and visiting science and mathematics related exhibition and fairs with their students. Family support is a factor in mathematics academic achievement and in student's expectation of themselves.

**Simon (2000)** wrote that the benefits of parents' support could influence their student's academic achievement. Research received also indicated that the parents' support in home make more possible for students to do their home.

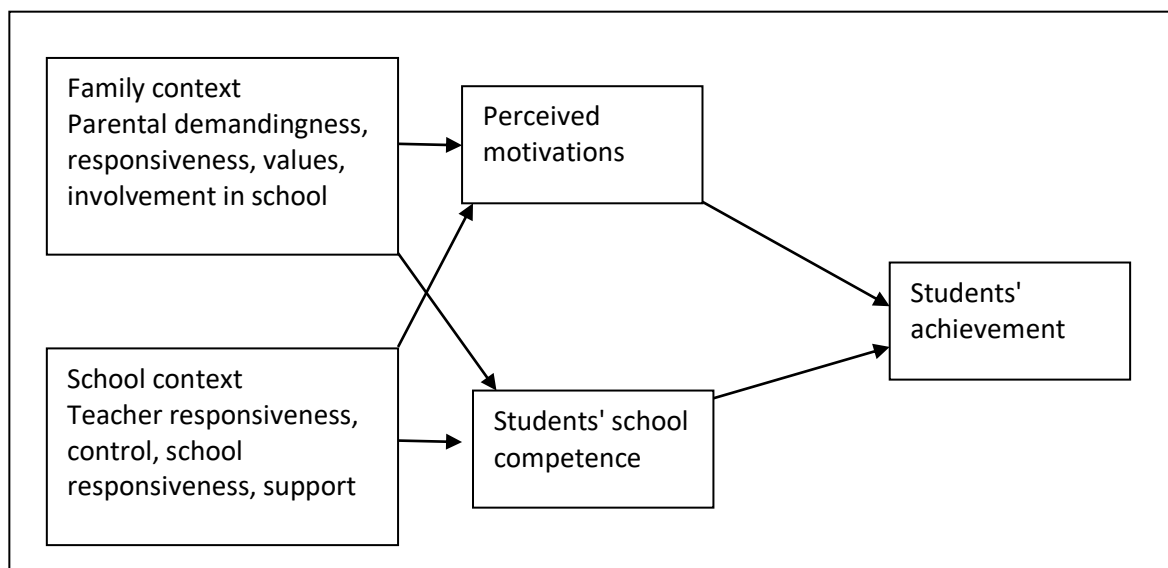
**According to Glenside (2000),** academic motivation could be seen as self-determination to successes in academic work. He posits that the urge to achieve varies from one individual to the other, while for some individuals, the need for achievement is very high and for others it may be very low. The parent's interest and encouragement have a great impact on student's performance in the school more so; student's school achievement is specially accounted for by the variation in parents' attitude than by the variation in the material circumstance of parents.

**Mullis (2002)** notes that parents can take many positive steps to help their students, 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 students; holding family discussion about reading materials, schoolwork and current events and encouraging frequent trips to the library together more information about interesting topics

**Research by Rothman (2004)** showed that the most important factor associated with the educational achievement of students is not race, ethnicity or immigrant status. Instead, the most critical factors according to him appear to be socio-economic factors. These factors as stated by him include parents' educational levels, neighborhood, poverty, parents' occupational status and family income thus concluded that if we do not consider how educational policies related to family welfare, work, poverty, housing and neighborhood condition, then we will continue to face significant obstacles in attaining the goal of narrowing the achievement gaps. This conclusion clearly points to the fact that differences in socio-economic background of students breed achievement gaps.

### 2.3 Theoretical framework of the study

As cited by Pantha (2006) from (Nicon. et al. 1996) parents' occupational may influence student's performance in various ways. On this regard Gautam (2013) cites that occupation related income determine assess to learning opportunities and types of skills associated with different occupations and modeled by parents may motivate students to develop their own skills in particular ways. Parents' occupation may also influence how students perceive the value of mathematics learning and learning environment at home. Parents who perform complex work will encourage self-direction and cognitive achievement in their students. In examining the mechanism of the impact of parental involvement on school achievement, Marchantetal (2001) studied a sample of Canadian adolescents and test the model shown in the following figure:



**Source:** [www.dfes.gov.uk/research](http://www.dfes.gov.uk/research)

On that research he writes that family contexts and school contexts, parenting to students, their involvement in school, student controlled behaviors on school , supports are the factors from which the students perceives the motivations and built the competences for the academic

achievement. The closest determinants of students are assumed here to be their competence and their perceptions of schools and family motivational forces. These forces are assumed to be shaped by the processes shown in the boxes in the above figure.

Here the researcher has defined the family context and school context as below regarding to students achievements.

**Family context:** In general, the nature of every child is demanding so give-and-take environment among students and parent should be created. When we provide their demand like laptop, cell phone, bike and family tour etc. provided they achieved better in study. It definitely makes them feel responsible with values and involve in school activities. As a result, students are fully motivated in study and achieve better.

**School context:** It is said that students are raw mud and can be moulded as we wish. Here School context means generally learning environment and subject teachers in the school. The subject teacher has a leading role to shape the students. In supportive environment of school, the more the teacher is laborious, supportive, encouraging, loving and kind, responsible and controlling over students, the more students' competence level; and this eventually leads to better achievement of students.



## **Chapter -III**

### **METHODS AND PROCEDURES**

This chapter presents the procedure of the study which was carried out to achieve the objectives of it. This contains the method of sampling, the instrument used to collect data, the procedure used for analyzing the data. This study was related to the impact of occupation of the parents to the achievement of their students which is released from their income and the degree of facilities provided to their students for the study. The major procedure followed in the study was as follows:

- Design of the study
- Population of the study
- Sample of the study
- Instruments used
- Procedure of data collection
- Data Analysis

#### **3.1 Research Design**

Research design is a plan, structure and strategy of the investigation which encompasses the methodology and procedure employed to conduct scientific research. Here cases of two schools have been observed and analyzed. In this sense it is in a case-study design. The study is qualitative as well as quantitative in nature, so it is analytic and descriptive in nature.

#### **3.2 Population of the Study**

A population study is a study of a group of individual taken from the population who share a common characteristic. The population of the study belongs to the students of Secondary level who passed S.L.C in 2069 and their parents in Sunsari District, Nepal.

### 3.3 Sample of the Study

Subsets of people are usually used to conduct studies. The samples are used to represent the population from which they are chosen. Two schools (one private school + One community) of Itahari, Sunsari District and scores of 66 students from Private school and 37 from community school were chosen based on S.L.C. result 2069 B.S. as sample of the study.

### 3.4 Sampling

Sampling is the process of selecting people from a population of interest so that by studying the sample we may fairly generalized our result back to the population from which they are chosen. Sample was taken by personal conveniences method because of cost and time.

### 3.5 Instruments

- (a) **School documents:** The details of every student and employee in the school regarding performance, discipline and personal bio- data, etc., belong to school documents. Here school documents belongs to marks ledger of S.L.C. examination 2069 and individual result with scores, extracurricular activities and parents' with address etc.
- (b) **Interview:** An interview is a conversation between two or more people where questions are asked by the interviewer to elicit facts or statements from the interviewee. The interview seeks to describe and the meaning of central theme of the research we are involve in. Semi-structured interview were taken with those sampled parents and students for additional information to meet the need of the study.

### **3.6 Procedure of Data Collection**

Data collection is the process of gathering and measuring information on variables of interest in an established systematic fashion that enables ones to answer stated research questions, test hypothesis and evaluate outcomes. The goal of all data collection is to capture quality evidence and allows the building of a convincing and credible answer to the question that has been posed.

Here the researcher has visited the sample schools and collected the marks obtained by the students and took interview with the parents of concern students, teachers and non-mathematics teachers.

### **3.7 Data Analysis Procedures**

To analyze and verify achievement scores, ANOVA and t-test at 5% level of significance were used.

After the statistical analysis of the data, the possible causes of the result obtained were analyzed and interpreted by using the framework of the achievement model of the study.

### **3.8 Validity and Reliability**

#### **3.8.1 Validity**

Validity in statistics is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. Validity encompasses the entire experimental concept and establishes whether the results obtained meet the entire requirement of the scientific research method.

#### **3.8.2 Reliability**

Reliability is the degree to which an assessment tool produces stable and consistent result. The idea behind reliability is that any

significant results must be more than one-off finding and be inherently repeatable, i.e., other researchers must be able to perform exactly the same experiment under the same condition and generate the same result. This will reinforce the findings and ensure that the wider scientific community will accept the hypothesis.

The validity of the data is based on the assumption that marks of achiever in S.L.C. 2069 mark ledger is valid as the assumption of S.L.C. questions valid.

This is assumed that the result of the data is reliable because interview guidelines were prepared by using the action verbs of the domain of the theory and addition information were collected by the guidelines with different parents, teachers and students. Finally data were analyzed by triangulating their views and facts.

## **Chapter - IV**

### **ANALYSIS AND INTERPRETATION OF DATA**

This chapter deals with the analysis and interpretation of achievement of students with parents' occupation and available supports by their parents, friends, teachers and administration. Moreover it also deals with the fact from interview with students and parents.

The tabulation, presentation, interpretation and analysis of the data were made within the following points.

4.1 Students' mathematics achievement scores of S.L.C. examination 2069 B.S.

4.2 Calculation of mean, standard deviation, co-efficient of variation and its interpretation.

4.3 Comparison of achievement score of students with their parent's occupation.

4.4 Comparison of achievement score of students between two groups with their parent's occupation.

4.5 Comparison of achievement score of students of Private school students from two groups with their parents' occupation.

4.6 Comparison of achievement score of students of Community school students from two groups with their parents' occupation.

4.7 Comparison of achievement scores of students from the families irrespective the occupational background but getting sharing and caring on their concern.

4.8 Comparison of achievement scores of students from the families irrespective the occupational background but provided with material supports and facilities.

Table -4.1

## Mathematical achievement scores of students in S.L.C. examination 2069.

	Foreign Workers		Businessmen		Job-holder		Low-income	
	Private school	Community	Private school	Community	Private school	Community	Private school	Community
		82,37,85,58,41,91, 98,99,95,67,73,89, 95,65,58,67,89,47, 61,66,56,48,76,47, 89,64	89,45,09, 32,81,23,48	68,91,90,88, 84, 82,78, 92, 91, 85, 62, 76, 99, 98, 65, 93, 81,95,50,54	54,48,12, 41,50,47,38	83,94, 86, 87, 65	20, 53, 38, 24, 21, 47, 42	70, 98, 91, 73, 56, 58, 70, 46, 62, 83, 83, 37, 46, 43, 34
No. of students	N=26	N=7	N=20	N=7	N=5	N=7	N=15	N=16
Total Student	33		27		12		31	
Present %	$\frac{33}{103} \times 100\% = 32.04\%$		26.21%		11.65%		30.1%	
$\bar{X}$	70.88	46.7	81.1	41.43	83	35	63.3	28.13
C.V.	26.1%	58.2%	17.31%	31.38%	11.69%	35.29%	30.46%	90.44%
$\sigma$	18.53	27.18	14.04	13	9.7	12.35	19.28	25.44
$\bar{X}_{12}$	65.75		70.81		55		45.16	
$\sigma_{12}$	22.91		22.18		26.23		28.69	
$CV_{12}$	34.84%		31.32%		47.69%		63.53%	
$\bar{X}_{1234}$	59.63							

Source: Marks Ledger of SLC result of 2069

From the refer table, it is seen that the enrollment of students is 32.04%, 26.21%, 11.65% and 30.01% respectively from Foreign worker, Businessmen, Job-holders and Low-income group as compared each group to the total number of students. It proves that the number of students enrolled from Job-holders group is lesser than that of remaining groups.

The mean achievement of total students is 59.63 which is higher than pass percent (41.57%), and near to foreign workers student's and far from low income group. Mean scores among each group students is dissimilar, in the meantime scores between Foreign workers and Businessmen group students seem to be high. Analyzing the result, the C.V. from Businessmen students is less than all remaining ones. It is because the highest marks is 99 and lowest is 12. It proves that there is no fluctuation in marks. The reason behind it is that parents from Businessmen families can afford for and almost always live together with their students. At the same time Job-Holders live together and can invest, but not at the time their students demand (Source: interview). But low income group families are generally uneducated (Source: interview), not able to afford sufficiently and as they need. Also students from this group have to help their parents to meet the two ends meet (Source: interview).

Then to test whether the difference on achievement scores is significant or not? We use ANOVA at 5% level of significance.

Table-4.2

## Completion of ANOVA based on table -4.1

Source of Variation	Sum of Squares	Degree of freedom	Mean Squares	F-value	$f_{0.05(3,99)}$	Result
Columns errors	SSC=1136.66	3	$s_1^2=3787.89$	$\frac{S_1^2}{S_2^2} = 5.83$	2.68	Reject
Errors within	SSE=64382.32	99	$S_2^2=650.33$			
<b>Total</b>	SST=75745.98	103				

Source: Table-4.1

The results of the refer table shows that the compared value of F- test is higher than the tabulated value ( $5.83 > 2.68$ ), so the null hypothesis is rejected at 0.05 level of significance. Thus it is interpreted that there is significant difference in mathematics achievement among the groups. It implies that the achievement in mathematics differ according to the parent's occupation so it is necessary to test further between the students from two particular groups. For this the research has used T- test at 5% level of significance.



**Table-4.3**

**Comparison of the achievement score of the students between foreign workers and Businessmen family**

<b>Students from</b>	<b>Sample size</b>	<b>Sample mean</b>	<b>S.D. (s)</b>	<b>t-value</b>	<b>t<sub>0.025,58</sub></b>	<b>Result</b>
Foreign worker parents	33	65.75	22.91	-0.86	-1.96	No difference
Businessmen Parents	27	70.81	22.18			

(Source- Calculated from table-1)

The result of the refer table shows that the t-value is greater than that of tabulated value ( $-0.86 > -1.96$ ) so null hypothesis is rejected at significant level 0.05. Thus it is interpreted that there is significant difference in mathematics achievement.

In this study, the highest score from foreign workers and businessman is 99 and 98 and that of the lowest is 09 and 12 respectively. Here both low-scores are from community school. The C.V. of both groups is also not as varied as like others. It proves that there is uniformity on achievement of these groups. With the first meet to the sampled student and their parents, the researcher found that all most all the parents of businessmen group are educated, affordable, more concerned to their student's study, used their student's mathematical knowledge in their business area in student's free time and gave a regular company to their students the whole year and special care in S.L.C. exam

time. The students from foreign workers were away from their father /mother but they realized the value of study through their parents abroad and became more sincere to their study. Moreover, even their parents were able to afford. So they also bought practice books, CD/DVDs and other necessary materials. Both group students studying in the private school were in hostel in S.L.C. time and had regular additional support from their teachers. According to subject teacher, it was also found that they had good sharing culture of knowledge and healthy competition in their study. Students were kept in mix-up seating arrangement (according to management). So the researcher has concluded that the reason of not significant difference is due to mix-up seating in the classroom, sharing, healthy competition to each other, financial comfort of their parents, love and affection given by their parents etc.

**Table-4.4**

**Comparison of the achievement score of the students between foreign workers and job- holder family**

Students from	Sample size	Sample mean	S.D.(S)	t-value	$t_{0.025,43}$	Result
Foreign worker parents	33	65.75	22.91	1.33	1.960	Accept
Job holder parents	12	55	26.23			

Where  $N=45$  and  $t_{0.025,43}=1.96$

The result of above table shows that the calculated t-value is smaller than its tabulated value ( $1.33 < 1.960$ ), so the null hypothesis is

accepted at 0.05 significance level. Thus it is interpreted that there is no significant difference on achievement of mathematics regarding to their parents occupation. In this study, the researcher found (through interview) that both group parents were more concerned with their student's study and provide sufficient facilities they needed to better education. Moreover, even their parents had close relationship and used to share their views for student's better achievements and visited school together (Source: interview).

**Table-4.5**

**Comparison of the achievement score of the students between foreign workers and low-income family**

Student From	Sample size	Sample mean	S.D.(S)	t-value	$t_{0.025,62}$	Result
Foreign worker	33	65.75	22.91	3.18	1.96	Reject
Low – income	31	45.16	28.69			

As the computed t-value is greater than its tabulated value ( $3.187 > 1.96$ ), the null hypothesis is rejected when the level of significance is 0.05. Thus, it is interpreted that there is significant difference on achievement of mathematics according to their parents' occupation.

In this study, all students from foreign worker scored more than total average ( $65.75 > 59.63$ ) but from low-income family is lower than

grand average ( $45.16 < 59.63$ ). There are 8 students scoring less than 15 and only 6 scored pass marks. The reasons behind it are as follows: Insufficient of fund to buy necessary learning materials. Parents had no time to take care of their study as they had to work for solving hands to mouth problem. Students had inferior feeling due to low performance in Mathematics which again led not to get better result. Some of the students from this group lost their parents and lived with their relatives. Some had hobby in modeling than studying Mathematics. Irregularity in class was also a major factor to score low marks. Engagement in love-affairs diverted their mind away from studies (Source: interview).

**Table-4.6**

**Comparison of achievement score of the students between businessman and job-holder family**

Students from	sample size	sample mean	S.D	t-value	$t_{0.025,37}$	Result
Businessman family	27	70.81	22.18	1.93	1.96	Accepted
Job-holder family	12	55	26.23			

The calculated t-value is smaller than the tabulated value ( $1.93 < 1.96$ ). So the null hypothesis is accepted at 0.05 level significance. Thus, it is interpreted that there is no significant difference between the students from Businessman and Job-holder family relating to their parents' occupation. In this study, the researcher found very common similarities of both group students to score high. They are as follows:

sufficient fund for learning materials, family care and affection for encouragement of their student's study, sharing culture of skills and knowledge among friends, healthy competition among friends (Source: interview).

**Table-4.7**

**Comparison of achievement scores of the students from businessman and low-income family**

Students From	sample size	Sample mean (X)	S.D. (S)	t-value	$t_{0.025,56}$	Result
Businessman family	27	70.81	22.18	3.81	1.96	Reject
Low-income family	31	45.16	28.69			

The results of refer table shows that calculated t-value is more than its tabulated value ( $3.81 > 1.96$ ) so null hypothesis is rejected at significance level 0.05. It concludes that there is significant difference on the mathematics achievements between the students from businessman and low-income family according to parents' occupation. From the semi structured interview with the parents of low-income group, it was found that their students had compulsion to engage in the works of their parents. And also found that these students had no academic sharing with their better performing friends. Encouragement regarding their better study was less than that of businessman family parents (source: interview).

**Table-4.8****Comparison of achievement scores of the students from Job-holders and low-income family**

Student from	sample size	sample mean	S.D. (S)	t-value	$t_{0.025,41}$	Result
Job-holder family	12	55	26.23	1.03	1.96	Accept
Low-income family	31	45.16	28.69			

The calculated t-value from the above table is smaller than that of tabulated value ( $1.03 < 1.96$ ) so the null hypothesis is accepted. Thus it is interpreted that there is no significant difference between mathematics achievement of job-holder and low-income group family according to their parents' occupation.

From the marks of students from Job-holder in the S.L.C., it is seen that only 12 students appeared the S.L.C. exam in which scoring more than 80 are 4, scoring 65 is one and others are less than the grand average. Also, their average score is 55. In the meantime, students from low-income groups are 31 where average score excluding failure one is 59.04 which is near the grand average score.

**Table-4.9**

**Comparison of achievement scores of private school students from foreign workers and businessman family respectively**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,44}$	Result
Foreign worker	26	70.88	18.5	-2.06	-1.96	Reject
Businessman family	20	81.1	14.04			

The result in the above table shows that the computed t-value is smaller than that of tabulated value ( $-2.23 < -1.96$ ) so the null hypothesis is rejected. Thus it is interpreted that there is significant difference of mathematical achievement of Private school students of foreign workers and Businessman family. The reason behind it is: 8 out of 26 students from foreign workers family scored less than 60 where as only 2 out of 20 from Businessman group scored less than 60. The CV of Foreign worker students is more than that of Businessmen ( $34.84 > 31.32$ ). From field interview it was found that foreign worker students enjoyed more freedom and lack of special care of parents (as they were abroad) than that of students from Businessman family. It proves that misuse of freedom by the students from foreign workers leads them to show low performance in comparison to Businessmen students.

**Table-4.10****Comparison of achievement scores of students in community school of foreign workers and businessman family**

Students from	Sample size	Sample mean	S.D.(S)	t-value	$t_{0.025,12}$	Result
Foreign worker	7	46.7	27.18	0.47	2.179	Accept
Businessman family	7	41.43	13			

As calculated t-value is smaller than tabulated value ( $0.47 < 2.179$ ), so the null hypothesis is accepted. It means there is no significant difference in mathematical achievement scores of community school students of foreign workers and businessman family. The reason behind it are: no sufficient individual care and additional tuition classes but sometimes coaching class to the whole class and no extra remedial class after send-up given to any.

**Table-4.11****Comparison of achievement score of students in private school of Foreign workers and Job-holders family**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,29}$	Result
Foreign workers	26	70.88	18.5	-1.41	-2.045.	Accept
Jobholders	5	83	9.7			



As Calculated t-value is greater than that of tabulated t-value ( $-1.41 > -2.045$ ), the null hypothesis is accepted. It implies that there is no significant difference in achievement level of both groups. Both group of parents and students are equally concerned for better scores (source: interview).

**Table-4.12**

**Comparison of achievement scores of students in community school between foreign workers and job-holders family**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,12}$	Result
Foreign workers	7	46.7	27.18	1.05	2.179	Accept
Jobholders family	7	35	12.35			

Here the calculated t-value is smaller than that of tabulated value ( $1.05 < 2.179$ ) so the null hypothesis is accepted. It means there is no significant difference in achievement level of community school students from foreign workers and Job-holder families. Here, both groups of parents are capable of affording, supportive and caring. Also, they used to encourage their students regularly for better achievement (source: interview).

**Table-4.13****Comparison of achievement score of students in private school of foreign workers and low income group family**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,39}$	Result
Foreign workers	26	70.88	18.53	1.26	1.96	Accept
Low Income	15	63.3	19.28			

As the calculated t-value is smaller than tabulated value ( $1.26 < 1.96$ ), the null hypothesis is accepted. It proves that there is no significant difference in achievement level of private school students of above-mentioned group family. Through interview as well as marks they scored proves that low-income group parents were economically average but educationally rich and more sincere in their student's study.

**Table-4.14****Comparison of achievement level of students in community school between foreign workers and low income group**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,21}$	Result
Foreign workers	7	46.7	27.18	1.59	2.080	Accept
Low Income	16	28.13	25.44			

The result in the above table shows that calculated t-value is smaller than that of tabulated value ( $1.59 < 2.0808$ ) so the null hypothesis is accepted, i.e., there is no difference in achievements scores in mathematics of community school between these groups of families. Here, parents of low-income group could not manage sufficient funds and they had less time to care their students as they needed to work away from homes. Foreign workers had no fund problem but they could not care their students as father was absent and students didn't much listen to their mothers (source: interview).

**Table-4.15**

**Comparison of achievement score of students in Private school between Businessmen and Job-holder family**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,23}$	Result
Businessmen Family	20	81.1	14.04	-0.28	-2.069	Accept
Job Holder Family	5	83	9.7			

The result in the above table shows that calculated t-value is more than that of tabulated value ( $-0.28 > -2.069$ ) so the null hypothesis is accepted. It means there is no significant difference in achievement score of private school students of these families. Here C.V. of Job-holder family student is less than that of Businessmen family ( $11.69 < 17.31$ ), It also proves that uniform performance of students in Job-holder family as they are also equally concerned to their student's study as much as Businessmen family.

**Table-4.16****Comparison of achievement scores of students in Community school between Businessmen and Job-holder family**

Students in Govt. of	Sample size	Sample mean	S.D.	t-value	$t_{0.025,12}$	Result
Businessmen family	7	41.43	13	0.96	2.179	Accept
Job holder family	7	35	12.35			

As calculated t-value is smaller than that of tabulated value ( $0.96 < 2.179$ ), the null hypothesis is accepted. It proves that there is no difference in achievement score of the students of above mentioned families. Because they could manage all sorts of facilities required for their students for better education.

**Table-4.17****Comparison of achievement scores of students in Private School of Businessmen and low income group family**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,33}$	Result
Businessmen Family	20	81.1	14.04	3.18	1.96	Reject
Low Income Family	15	63.3	19.28			

The result in the refer table shows that calculated t-value is greater than that of tabulated value ( $3.18 > 1.960$ ) so the null hypothesis is

rejected. Moreover, it is interpreted that there is difference in mathematical achievement score in Private school students of Businessmen and low income families. Through field interview, it was found that students from low income group should help their parents' field work and had to be irregular in school. Some (7%) students left their permanent home and lived in their relatives as their parents got second marriage. Some (10.6%) students were reported to be involved in love affairs and irregular in homework submission.

**Table-4.18**

**Comparison of achievement of students in Community school  
between Businessmen and Low income group**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,21}$	Result
Businessmen Family	7	41.43	13	1.31	2.08	Accept
Low Income Family	16	28.13	25.44			

As calculated t-value is smaller than that of tabulated value ( $1.31 < 2.080$ ), the null hypothesis is accepted. It is interpreted that there is no significant difference in mathematical achievement scores of community school students of Businessmen and Low income families. But C.V. of students from the Low income family is more than that of Businessmen family ( $31.38 > 90.44$ ) and it implies that there is no uniform performance among the students in Low income group. The reasons are: 10 out of 16 failed with less than 21 marks, involvement in love-affairs,

irregularity of class to support their parents' work and parents were uneducated and had no idea to help their student's learning. One student from this group faced father's death near the exam time, and the students were not as serious as they needed (source: interview).

**Table-4.19**

**Comparison of achievement scores of students in Private school  
between Job holder and Low income family**

Students from	Sample size	Sample mean	S.D.	t-value	$t_{0.025,18}$	Result
Job-holders Family	5	83	9.7	2.15	2.101	Reject
Low Income Family	15	63.3	19.28			

The result from the above table shows that calculated t-value is greater than that of tabulated value ( $2.15 > 2.101$ ), so the null hypothesis is rejected and is interpreted that there is difference in achievement score. Here C.V. of scores of Job holder family students is smaller than that of low income group ( $11.69 < 30.46$ ). It means there is consistency in achievement scores of Job holders, and it also implies that Job holder parents are highly concerned to their student's study, they are able to afford, have a caring and sharing culture, are educated and lived together more than that of low income group (source interview).

**Table-4.20****Comparison of achievement score of students in Community school between Job-holder and Low income family**

Students from	Sample size	Sample mean	S.D.	t-value	t <sub>0.025,21</sub>	Result
Job holder Family	7	35	12.35	0.68	2.08	Accept
Low Income Family	16	28.13	25.44			

As calculated t-value is smaller than that of tabulated value ( $0.68 < 2.08$ ), the null hypothesis is accepted and is also interpreted that there is no significant difference in achievement scores of students in community school of the mentioned families. Their sample mean is not significantly different but C.V. of the score of students from Job-holder family is less than that of low income group ( $35.29 < 90.44$ ). Through interview, it was found that Job-holder parents who sent their students in community school were highly caring and had strong confidence that students in community school also can score good marks as that of private school if we, parents, follow the following: visit school regularly and consult the subject teachers and administration, provide necessary materials to their students, regular review and analyze result, maintain caring and sharing culture, encourage their students positively and make students understand the value of education.

**Table – 4.21****Comparison of Achievement of the Students between Getting Sharing and Caring and Not Getting Sharing and Caring**

Students	Sample size	Sample mean	S.D.	t-value	$t_{0.025, 83}$	Result
Getting Sharing and Caring	51	80.78	13.98	13.85	1.96	Reject
Not Getting Sharing and Caring	34	32.29	18.21			

As the computed t-value is greater than that of tabulated value ( $13.85 > 1.96$ ), the null hypothesis is rejected at significant level 0.05. Thus it is interpreted that the achievement of the students getting sharing and caring at home is higher than that of the students not getting sharing and caring. Students who enjoyed sharing and caring atmosphere were encouraged and motivated to learning. They found meaning in learning.

**Table –4.22****Comparison of Achievement of the Students between Using Facilities and not Using Facilities**

Students	Sample size	Sample mean	S.D.	t-value	$t_{0.025, 83}$	Result
Using Facilities	42	83.05	13.46	10.31	1.96	Reject
Not Using Facilities	43	40.4	23.28			



As the computed t-value is greater than that of tabulated value ( $10.31 > 1.96$ ), the null hypothesis is rejected at significant level 0.05. Thus it is interpreted that the achievement of the students using supportive facilities at home is higher than that of the students not using supportive facilities. Students who enjoyed lighting facilities, textbooks, notebooks, pens, instruments, internet, CD/DVDs, furniture, space/room felt comfortable and motivated to learning.

## **Chapter - V**

### **SUMMARY, FINDING, CONCLUSION AND RECOMMENDATION**

#### **5.1 Summary**

The researcher has felt that the achievement of the students may not be sufficient only by the effort of teachers and schools' strategies. There are many areas to address and link. In this context, there can be impact of parents having different occupation. So the researcher has carried out a research on the topic "Impact of Parents' Occupation on Mathematical Achievement of their S.L.C Pass out Students both in Private and Community School" stating the statement,

1. Does the Mathematical achievement of S.L.C. students differ by their parents' occupation?
2. Does the Mathematical achievement of S.L.C. students in Private and Community school differ by their parents' occupation?

The researcher studied the mathematical achievement of the students appearing in S.L.C. Exam 2069 B.S. which was affected by their parents' occupation. The study was conducted and interpreted the objective cited in the chapter-1 by formulating null hypothesis. The sample of 103 students (66 from a private school and 37 from a community school) together with their parents was selected respectively from Koshi St. James H.G.S. Itahari, Sunsari and Shree Rastriya H.G.S. Itahari, Sunsari. The students were divided into four groups according to their parents' occupation: foreign workers, businessmen, job-holders and low-income group. Here cases of two schools have been observed and analyzed. In this sense it is the case study design, so it is descriptive and analytic in nature. The mathematic achievement score of students was

collected by personal convenient sampling design from their respective school record and analyzed the scores by their mean and C.V. Moreover, related parents were visited and interviewed for effective interpretation.

ANOVA test was used to compare the mean achievement score of mathematics at S.L.C. examination 2069 B.S. by their parents' occupation.

Two-tailed T-test was used to compare the mean achievement score of mathematic at S.L.C. examination 2069 B.S. in between two different occupation parents.

Finally the researcher came to summarize the study that achievement in mathematics was found relative to their parents' occupation. Irrespective of their occupational background, students who enjoyed care and share, and material support performed better in mathematics. The difference in achievement is not so very significant among students from occupational background other than low earning jobs.

## **5.2 The Major Findings**

Statistical analysis of the collected data adopted the following major finding:

- The achievement score of students varies according to their parents' occupation.
- The students from the business occupational background achieved the highest score than the students from other occupational background: Foreign employment, Job-holders and low earning occupation.
- Private-school students from any one of the occupational background achieved higher than the students of community school.

- Among the private- school students, the students from business occupational background achieved the highest where as ones from low-earning family achieved the lowest.
- Among the community school students, the students from business occupational background achieved the higher than the students from other occupational background- Foreign employment, Job-holders and low earning occupation.
- In addition, the students from the families irrespective of the occupational background but getting sharing and caring on their concern achieved higher.
- The students provided with more material supports and facilities for their study achieved higher irrespective of their occupational background.

### **5.3 Conclusion**

The collected data were analyzed to find the answer of the research questions and the objectives of the study. The analysis of the data showed that the student's mathematics achievements differ according to parents' occupation in private institution but not so much in community school. Based on the finding of the study, achievement in mathematics was relative to their occupational background, but students who enjoyed care and share, and material support performed better.

The interview reveals that the parents engaged in business were found to be more educated and sincere in their student's study. Businessmen parents provided supportive facilities to their students. Job-holder parents also equally equipped their students. Moreover, both groups of students were more privileged and scored good marks as they had healthy competition and sharing and caring culture. Students from

low-income group score mixed marks i.e. very high and low. Students scoring high marks were highly concerned in their studies and even their parents tried their best to support students. But low scorers were not serious in their study rather diverted their mind in extra educational activities and affairs. Also, some (7%) students from this group left home and took shelter at their relatives' homes as death/second marriage of their parents. Achievement level of community school students is similar as the classroom offered equality in treatment, no extra tuition to selected few, and scarce facilities available to all.

#### **5.4 Recommendation**

After the conclusion of the study based on the above results the following recommendations are made:

- It is suggested that the research should be carried out among many schools and in different subjects; as this study is limited to two schools at SLC Exam 2069.
- Student achievement is studied on the occupational background, which may be affected by parents' educational level, interest, distance to school, students' involvement on love-affairs, medium of instruction, class size, teacher empowerment, child right, and so on. It is recommended that studies must be carried out on the above-mentioned and other possible areas.
- The findings of this study will be helpful for the policy makers, stake-holders, authors and management committee of institutions to carry out better policies for better achievement of students.
- The research findings can be practiced in the management field to uplift the better achievement of students. In this research the management committee, principals, subject teachers and parents of

different occupation can manage good environment to their students for good result.

- This research helps to mathematics teacher to arrange his students in mixed-up seating and offer healthy competition, sharing and caring atmosphere.
- Availability of physical facilities affects the achievement, and thus teachers/parents may focus on finding a way out to better facilities.

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## Appendix A

Date: 03/04/2071

Dear students,

I am going to conduct a research on the topic "**IMPACT OF PARENTAL OCCUPATION ON MATHEMATICS ACHIEVEMENT OF THEIR SLC STUDENTS**". For this purpose, the students of your batch from Koshi St. James Higher Secondary School Itahari and Shree Rashtriya Higher Secondary School, Hansposa, Itahari, together with your parents are taken as sample. Here are some questions related to the efforts of your parents and your school Mathematics Teacher. You are expected to give the factual answers of your own.

Thank you.

Ghanshyam Bastola  
Sukuna Multiple Campus  
Koshiharaicha Municipality-4, Morang

## Questionnaire

### A. Questionnaires related to sharing and caring environment

S/N.	Questions	Yes	No
1	Parents used to scold a lot for wasting time freely.		
2	Parents used to tell me to study all the subjects with time allocation.		
3	Parents used to tell me to give additional time in practising mathematics.		
4	My parents were worried about my results, my behavior and used to observe my regular activities.		
5	My parents valued the importance of mathematics as they were impressed from their occupation.		
6	Our teachers were friendly to us.		
7	Our teachers used to listen to our voice carefully.		
8	Our teachers used to understand the problems and difficulties we experienced.		
9	Our teachers used to/wanted to share the tips and techniques of learning new things.		
10	Our teachers used to care how we feel in Mathematics class.		
11	Our teachers used to make Mathematics lessons interesting.		
12	Our teachers used to make use of materials frequently while giving basic concepts.		
13	Our teachers used to show mathematical visuals plus engaged into mathematical software.		
14	There was democracy in classroom i.e. there was liberty to discuss in the topic.		
15	Our teachers were in contact with our parents.		

16	Our parents used to take help of teachers to correct us for good performance.		
17	Our homework used to be evaluated on time.		
18	Our teachers used to encourage us to have different practice books.		
19	They used to help us individually to solve the questions asked from other practice books.		
20	We could share the problems related to learning with Mathematics teacher besides the class hour, too.		
21	Our teachers had a dream for us to get a three digit score in Mathematics in the S.L.C. exam.		
22	Our teacher had no personal ego problem when we committed any behavioral problem.		
23	Our teacher used to share the achievements made by ex-students.		
24	Our teacher used to bring different questions asked in different schools.		
25	Our teacher, sometimes, used to take us to different famous neighboring schools to observe their learning techniques.		
26	One of my parents used kept an eye on me while I was reading at night.		
27	Others a. I was rewarded and punished according to my behaviour/achievement. b. I was allowed to bring my friend into my room for combined study. c. .... d.....		

**B. Questionnaires related to facilities at home.**

S/N.	Questions	Yes	No
1	My parents used to facilitate all the types of reasonable resources I demanded.		
2	I had proper lighting facilities 24 hours at home.		
3	I had a separate room for study at home.		
4	I had been provided with a private tuition in need.		
5	I was properly fed and dressed.		
6	I was provided daily newspaper to update me.		
7	I had necessary sports items, internet, phone facilities for better learning and I made proper use of it.		
8	I was disallowed to watching TV while I was reading in Grade 10 except for a few chosen programs.		
9	I was motivated by parents if I scored high scores in examinations with some rewards such as laptop, smart phone, motorcycle, tour and ornaments, etc.		
10	I was allowed to share/exchange learning materials with my friends.		
11	Others. a..... b..... c.....		

## Appendix B

1) Formula for Calculation of ANOVA test for Different Number of Sample Size is Given Below:

Source of variation	Sum of squares	Degrees of freedom	Mean square	F-value	Result
Among columns	SSC	K-	$S_1^2 = \frac{SSE}{k-1}$	$F = \frac{S_1^2}{S_2^2}$	
Errors within	SSE	N-K	$S_2^2 = \frac{SSE}{N-K}$		
Total	SST	SST			

Critical region  $f \geq [f_{\alpha}(k-1, N-k)]$

Where  $k$ =number of columns,  $N$ =total no. of items,

$$SST = \sum_{i=1}^k \sum_{j=1}^n x_{ij}^2 - \frac{T^2}{nk}$$

$$SSC = \frac{\sum_{i=1}^k T_i^2}{n} - \frac{T^2}{nk}$$

2) Formula for calculation of t-test for different number of sample size is given below:

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

Where  $\bar{X}_1$  = Mean achievement of the student of first occupational group.

$\bar{X}_2$  = Mean achievement of the student of second occupational group.

$n_1$  = Number of students involved in first occupational group.

$n_2$  = Number of students involved in second occupational group.

$S_1^2$  = Variance of the first occupational group.

$S_2^2$  = Variance of the second occupational group.

3) The significance level of the research is 0.05 in all tests.

4) Mean ( $\bar{X}$ ) =  $\frac{\sum X}{n}$  where n = number of students involved in occupational group.

5) Combined mean ( $\bar{x}$ ) =  $\frac{n_1\bar{X}_1 + n_2\bar{X}_2}{n_1 + n_2}$

6) S.D. ( $\sigma$ ) =  $\sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$

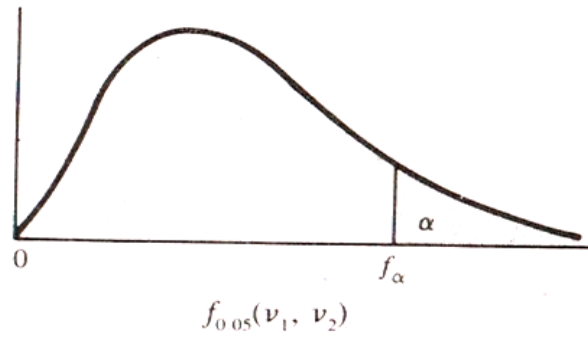
7. Co-efficient of variance (C.V.) =  $\frac{\sigma}{\bar{x}} \times 100\%$

8) Combined S.D. =  $\sqrt{\frac{n_1(\sigma_1^2 - d_1^2) + n_2(\sigma_2^2 - d_2^2)}{n_1 + n_2}}$  where

$$d_1 = \bar{x}_1 - \bar{x}_{12} \text{ and } d_2 = \bar{x}_2 - \bar{x}_{12}$$

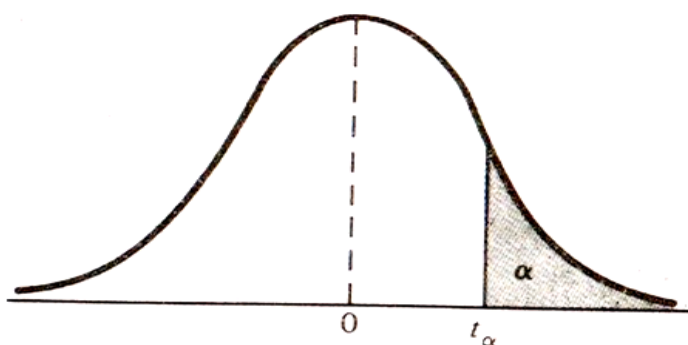


### Critical Values of the F Distribution



$\nu_2$	$\nu_1$								
	1	2	3	4	5	6	7	8	9
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96
$\infty$	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88

### Critical Values of the $t$ Distribution



$\nu$	$\alpha$				
	0.10	0.05	0.025	0.01	0.005
1	3.078	6.314	12.706	31.821	63.657
2	1.886	2.920	4.303	6.965	9.925
3	1.638	2.353	3.182	4.541	5.841
4	1.533	2.132	2.776	3.747	4.604
5	1.476	2.015	2.571	3.365	4.032
6	1.440	1.943	2.447	3.143	3.707
7	1.415	1.895	2.365	2.998	3.499
8	1.397	1.860	2.306	2.896	3.355
9	1.383	1.833	2.262	2.821	3.250
10	1.372	1.812	2.228	2.764	3.169
11	1.363	1.796	2.201	2.718	3.106
12	1.356	1.782	2.179	2.681	3.055
13	1.350	1.771	2.160	2.650	3.012
14	1.345	1.761	2.145	2.624	2.977
15	1.341	1.753	2.131	2.602	2.947
16	1.337	1.746	2.120	2.583	2.921
17	1.333	1.740	2.110	2.567	2.898
18	1.330	1.734	2.101	2.552	2.878
19	1.328	1.729	2.093	2.539	2.861
20	1.325	1.725	2.086	2.528	2.845
21	1.323	1.721	2.080	2.518	2.831
22	1.321	1.717	2.074	2.508	2.819
23	1.319	1.714	2.069	2.500	2.807
24	1.318	1.711	2.064	2.492	2.797
25	1.316	1.708	2.060	2.485	2.787
26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
inf.	1.282	1.645	1.960	2.326	2.576

## Appendix C

Sample Distribution of 85 Interviewees Regarding the Factors that affect Performance

Factors	Parents' Occupation								Total	Percentage
	Foreign workers		Business man		Job-holders		Low income			
	private School	Community School	private School	Community School	private School	Community School	private School	Community School		
Getting Sharing and Caring	11	2	16	2	5	2	10	3	51	60%
Not Getting Sharing and Caring	8	3	3	3	-	4	3	10	34	40%
Using Facilities	10	2	14	-	5	2	7	2	42	49.4%
Not Using Facilities	9	3	5	5	-	4	6	11	43	50.6%
Involved in love – affair	-	2	-	2	-	-	1	4	9	10.6%
Living at relatives home	-	-	-	1	-	-	-	5	6	7%

## Appendix D

### Achievement Score of the Students Based on Sharing and Caring

Foreign Workers				Businessmen				Job-holders				Low-income			
Private School		Community School		Private School		Community School		Private School		Community School		Private School		Community School	
Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring	Getting Sharing and caring	Not getting Sharing and caring
82, 85, 91, 98, 99, 95, 89, 95, 89, 89, 76	37, 58, 41, 58, 47, 56, 48, 47	89, 81	45, 48, 32	91, 90, 88, 84, 82, 92, 91, 85, 99, 98, 93, 81, 95, 78, 76, 65	50, 54, 65	54, 50	38, 12, 41	83, 94, 86, 87, 65	— —	53, 47	20, 24, 21, 38	98, 91, 83, 83, 70, 70, 73 56, 68, 62	46, 37, 34	78, 73, 60	3, 2, 7, 20, 11, 10, 12, 7, 8, 21
11	8	2	3	16	3	2	3	5	—	2	4	10	3	3	10

## Appendix E

### Average Achievement Scores of the Students Based on Sharing and Caring

Getting Sharing and Caring	Not Getting Sharing and Caring
82, 85, 91, 98, 99, 95, 89, 95, 89, 89, 76, 89, 81, 91, 90, 88, 84, 82, 92, 91, 85, 99, 98, 93, 81, 95, 78, 76, 65, 54, 50, 83, 94, 86, 87, 65, 53, 47, 98, 91, 83, 83, 70, 70, 73 56, 68, 62, 78, 73, 60,	37, 58, 41, 58, 47, 56, 48, 47, 45, 48, 32, 50, 54, 65, 38, 12, 41, 20, 24, 21, 38, 46, 37, 34, 3, 2, 7, 20, 11, 10, 12, 7, 8, 21
$n_1=51$	$n_2=32$
$\bar{X}_1=80.78$	$\bar{X}_2=32.29$
$\sigma_1 = 13.98$	$\sigma_2 = 18.25$
$C.V._1=17.31\%$	$C.V._2=56.52\%$

## Appendix F

### Achievement Score of the Students Based on Facilities at Home

Foreign Workers				Businessmen				Job-holders				Low-income			
Private School		Community School		Private School		Community School		Private School		Community School		Private School		Community School	
Using facilities	Not using facilities	Using facilities	Not using facilities	Using facilities	Not using facilities	Using facilities	Not using facilities	Using facilities	Not using facilities	Using facilities	Not using facilities	Using facilities	Not using facilities	Using facilities	Not using facilities
91, 98, 99, 95, 95, 89, 89, 89, 58, 58	85, 82, 76, 37, 41, 47, 56, 47, 48	89, 81	45, 48, 32	91, 90, 92, 91, 99, 98, 93, 95, 88, 85, 84, 82, 81, 54	78, 76, 75, 50, 65	---	54, 50, 38, 41, 12	83, 94, 86, 87, 65	— —	53, 47	20, 24, 21, 38	98, 91, 83, 83, 70, 70, 73	56, 58, 62, 46, 37, 34	78, 73	3, 2, 7, 20, 11, 10, 12, 7, 8, 21, 60
10	9	2	3	14	5	—	5	5	—	2	4	7	6	2	11

## Appendix G

### Average Achievement Scores of the Students Based on Facilities at Home

Getting Sharing and Caring	Not Getting Sharing and Caring
91, 98, 99, 95, 95, 89, 89, 89, 58, 58, 89, 81, 91, 90, 92, 91, 99, 98, 93, 95, 88, 85, 84, 82, 81, 54, 83, 94, 86, 87, 65, 53, 47, 98, 91, 83, 83, 70, 70, 73, 78, 73	85, 82, 76, 37, 41, 47, 56, 47, 48, 45, 48, 32, 78, 76, 75, 50, 65, 54, 50, 38, 41, 12, 20, 24, 21, 38, 56, 58, 62, 46, 37, 34, 3, 2, 7, 20, 11, 10, 12, 7, 8, 21, 60
$n_1=42$	$n_2=43$
$\bar{X}_1=83.05$	$X_2=40.4$
$\sigma_1= 13.46$	$\sigma_2= 23.28$
C.V. <sub>1</sub> =16.21%	C.V. <sub>2</sub> =57.62%