

## Chapter I

### INTRODUCTION

#### Background of the Study

Assessment is any systematic method of obtaining evidence from posing question to draw inference about the knowledge, attitude, and other characteristics of people for a specific purpose. There are different uses of assessments: diagnostic, formative, needs, reaction, summative etc. (E. Shepherd and J. Godwin, 2004). Assessment is a general term that includes the full range of procedures used to gain information about learning and formation of values judgment concerning progress of students in relation to set standards (Linn and Ground, 2003). "Assessment is the systematic collection, review and use of information about educational programs undertaken for the purpose of improving student learning and development" (Chatherine A. & Trudy W. Banta, 1990). Assessment is the act of judging or deciding the amount, value, quality or important of something, or the judgments or decision that is made (Cambridge English dictionary). Assessment is the process of collecting enough data pertaining to a student learning to ascertain how the student is achieving determined standards. Assessment has two parts assessment for learning (formative) and assessment of learning (summative); may also refers to organized to activities to established a student knowledge or skill base in a given capacity (Wiles, 2013). Assessment is the method of obtaining evidence for made decision in intellectual evaluation.

Grading could be considered a component of assessment, i. e., a formal, summative, and final and product oriented judgment of overall quality of worth of a student's performance or achievement in a particular educational activity. Generally,

grading also employs a comparative standard of measurement and sets up a competitive relationship between those receiving the grades (Dr. Bob Kizlil, 2012).

Grade is a tool which measures the student achievement. There are different types of grade such as standard-based, norm-based, absolute and relative. Different types of standard-based grading with formative assessments lets students know where they need to improve (Marzano, 2010). A systematic testing component and a standardized grading system are essential parts of every assessment in a programs to measure learner's aptitude, proficiency, placement, diagnosis, progress, and achievement and provides feedback for the program evaluator, washback information for teachers and students and motivational washforward implication for all concerned. Z. Karim & J. Hossain also states the original purpose of grading was to improve student's greater learning and expansion of the mind; grades are more commonly now looked upon as a measure of student aptitude for outside sources and less for their self improvement nature.

Grading is the process of a teacher arriving at and recording summarizing, symbolic remarks on the academic performance of his or her students. Grading should express neither approval nor disapproval of students as persons. The purpose of a grading system is to give the teacher a regular way to transmit to students, and to other persons who may be concerned with the intellectual development of students, value judgments made by the teacher. (The Educational Policy Committee, 2000,p.6). Milton, Pollio, and Eison (1986) view: Grading were first used at Yale University in the USA in 1783 and carried the titles uptime (honor men), second uptime (pass men), inferiors (charity passes), and perjures (unmentionables). In 1800, Yale began giving marks of 0 to 4. Three years later, students averaged marks ranged from 1.3 to 3.7:

thus, the grade point average was born. (As cited in Z. Karim & J. Hossain, 2015, Hammons & Barnsley, 1992, p.52).

The issues of grading on students learning continue to challenge educators. However, more is known at the beginning of the twenty-first century than ever before about the complexities involved and how certain practices can influence teaching and learning. To develop grading practices that proving requires clear thinking, careful planning, excellent communication skills and an overriding concern for the well being of students. Combining these skills with current knowledge on effective practice will surely result in more efficient and more effective grading and reporting practice.

### **School Leaving Certificate**

The school leaving certificate, popularly abbreviated as SLC/SEE is the final examination in the secondary school system of Nepal. In Nepal SLC Board was established in 1990 B.S. Every student must take this examination for completing the 10<sup>th</sup> grade of their study before they join higher secondary level education. Now SLC result 2072 was published in letter grading system. SLC results 2071, 2070, 2069, 2068, 2067, 2066, 2065 passed percentage of students were 47.73, 43.92, 41.57, 47.16, 55.50, 64.31 and 68 respectively (Paneru, 2016; OCE Report, 2015). It shows that the passed percentage of students is not increasing as expected although government forms many committees to study the reason. The SLC examination is normally known as the 'Iron Gate' in Nepal. In reality, however, there are indeed more obstacles regarding higher level studies after the examination. The SLC examination is the most important examination in the education system of Nepal for building on academic career. The government has a great determination that the grading system that has been recently implemented in the SLC/SEE examination will help the country to increase the literacy rate.

### Academic SLC Grading in Nepal

Depending upon the suggestions and recommendations of different research reports and international practices, National Curriculum Development and Evaluation Council (NCDEC) on 30 Ashad 2071 made theoretical decision and from 59<sup>th</sup> meeting of NCDEC on 24<sup>th</sup> mangsir 2071 have decided to implement letter grading system in SLC examination to evaluate students achievement (CDC, 2015). This letter grading system has been prepared by the CDC and passed by the NCDEC. LGS was implemented on 99 TSLC in 2071 and all SLC in 2072.

In Nepal, the grading system is divided into following ways

SN	Interval in Percent	Grade	Description	Grade Point
1	90 to 100	<i>A</i> <sup>+</sup>	Outstanding	4.0
2	80 to below 90	<i>A</i>	Excellent	3.6
3	70 to below 80	<i>B</i> <sup>+</sup>	Very Good	3.2
4	60 to below 70	<i>B</i>	Good	2.8
5	50 to below 60	<i>C</i> <sup>+</sup>	Satisfactory	2.4
6	40 to below 50	<i>C</i>	Acceptable	2.0
7	30 to below 40	<i>D</i> <sup>+</sup>	Partially Acceptable	1.6
8	20 to below 30	<i>D</i>	Insufficient	1.2
9	0 to below 20	<i>E</i>	Very Insufficient	0.8

(Source: CDC Report, 2015)

*A*<sup>+</sup>(Outstanding): Exceptional evidence of understanding and summarizing the subject matter, demonstration of extraordinary performance in problem-solving, creativity, critical expression and participation, exceptionally independent in learning and organizing contents with superior communication skills.

*A* (Excellent): Strong evidence of understanding and summarizing the subject matter, demonstration of exemplary performance in problem-solving, creativity, critical expression and participation, admirably independent in learning and organizing contents with advanced communication skills.

*B<sup>+</sup>* (Very Good): Very good evidence of understanding and summarizing the subject matter, demonstration of higher performance in problem-solving, creativity, critical expression and participation, greatly independent in learning and organizing contents with sound communication skills.

*B* (Good): Good evidence of understanding and summarizing the subject matter, demonstration of reasonably good independent performance in problem-solving, creativity, critical expression and participation, very independent in learning and organizing contents with reasonable communication skills.

*C<sup>+</sup>* (satisfactory): Adequate evidence of understanding and summarizing the subject matter, demonstration of reasonably good but not particularly independent performance in problem-solving, creativity, critical expression and participation, reasonably independent in learning and organizing contents with sufficient communication skills.

*C* (Acceptable): Sufficient evidence of understanding and summarizing the subject matter, demonstration of acceptable performance in problem-solving, creativity, critical expression and participation, reasonably independent in learning and organizing contents with satisfactory communication skills.

*D<sup>+</sup>* (Partially Acceptable): Some evidence of understanding and summarizing the subject matter, demonstration of limited performance in problem-solving, creativity,

critical expression and participation, partially independent in learning and organizing contents with basic communication skills.

*D*(Insufficient): Minimal evidence of understanding and summarizing the subject matter, demonstration of deficient performance in problem-solving, creativity, critical expression and participation, needs close supervision in learning and organizing contents with minimal communication skills.

*E*(Very Insufficient): Negligible evidence of understanding and summarizing the subject matter, seriously deficient performance in problem-solving, creativity, critical expression and very minimal participation, need constant supervision in learning and organizing contents with inadequate communication skills.

New SLC grading system of Nepal was implemented from the SLC examination of 2072 BS (2015/2016). This year SLC result 2072 was published with LGS. But now examination of the end of grade X is known as SEE. SEE result also published in letter grading system. There is different or not between LGS and number/percentage system, except that no fail students. It is good idea or not at all, which is main controversy at all. Generally parents, teachers and students were not satisfied with use of LGS in SLC/SEE. Only some persons were support this idea, even though all were says LGS is complex to understand and not good idea in students evaluation. There are so many challenges and opportunities on using LGS. However, a study about the teachers and students opinion on LGS has not been done yet. Therefore this study was conducted, for the study of mathematics teachers and students opinion towards LGS and explores the challenges and opportunities to the teachers and students on LGS in SLC/SEE.

**Statement of the Problem**

Recorded history describes that most of the students failed in SLC. Some students do not get school leaving certificate and eligible to higher study because of the failure in SLC examination. For the decrease of educational destroy to use Letter Grading System in SLC result. In LGS all students pass, which is true or not at all. There were so many obstacle and controversy related to LGS even though it is used in SLC result 2072. Then, my study is concern with the study of opinion of mathematics teachers and students towards LGS in SLC/SEE. Although study concern about the challenges and opportunities on LGS. This study was intended to answer the following research questions.

- What are the opinion of mathematics teachers and students towards LGS in SLC/SEE?
- What are the challenges and opportunities to the teachers and students on using LGS in SLC/SEE?

**Objectives of the Study**

The major focus of the study is to analyze the opinion of mathematics teachers and students towards LGS in SLC/SEE. On account of this focal mission of this study the following are the objectives of this study:

- To find the opinion of mathematics teachers and students towards LGS in SLC/SEE.
- To explore the challenges and opportunities of LGS.

**Significances of the Study**

LGS is recent phenomenon for evaluation of student achievement. Numerical grading system was not useful for evaluation of student's intelligence, LGS is most

useful in evaluation of student intelligence, which describes student intelligence in the level, interval, or range. Now LGS is used in SLC/SEE result. Many people do not know about LGS, misconception and misunderstanding about LGS and also many teachers cannot describe LGS and GPA. This study was concerned to find the opinion of secondary level mathematics teachers and students towards LGS in SLC/SEE, problems, challenges and opportunities of LGS in SLC/SEE. Also this study has the following significances:

- This study helps to analyze secondary level mathematics teachers and students opinion towards LGS.
- This study helps to identify problems of using LGS.
- This study helps to explore the challenges and opportunities of using LGS.
- This study helps to identify some shortcoming of using LGS.
- This study helps for further research in LGS.
- This study helps the curriculum designer to improve the existing secondary school curriculum.

### **Delimitations of the Study**

Every study has its own boundary and limitation due to both time and cost. So, this study cannot remain escape from such phenomena. This study has following limitations.

- This study was conducted only in secondary level mathematics teachers and students (that passed SLC/SEE).
- This study was conducted only in Gorkha district.
- Only 15 Schools were selected from which 25 mathematics teachers and 150 students were selected.



## **Operational Definitions of Key Terms**

**Assessment:** Systematic method of obtaining evidence from posing question to draw inference about the knowledge, attitudes, and other characteristics of people for a specific purpose.

**Letter Grading System:** Letter Grading System (LGS) is a tool which describes the student achievement. Since letter grading system is systematic grading system of student intelligence in level, interval or ranges.

**Grade Point Average:** Grade point average (GPA) is an average performance of student.

**School Leaving Certificate:** School Leaving Certificate (SLC) examination in general school.

**Technical School Leaving Certificate:** School Leaving Certificate examination in Technical and vocational education (TSLC).

**Opinion:** An opinion is a personal view of mathematics teacher and student about letter grading system on the basis of their experience and pre-knowledge.

**Mathematics Teachers:** The teachers who teach mathematics in secondary level on selected school.

**Students:** The person that passed SLC 2072 and study in grade X of selected school.

**Secondary School:** A school, concerning the education from Grade one to ten.

**Secondary Education Examination:** Secondary Education Examination (SEE) is a final exam at the end of grade X.

## Chapter II

### REVIEW OF RELATED LITERATURE

Review of related literature is a summary of writings of recognized authorities. It provides evidence that the researcher is familiar with what is already known and what is still unknown and unstated. Because effective research is based on past knowledge, this step helps to eliminate the duplication of what has been done and provides useful hypotheses and helpful suggestion for significant investigation. The review of related literature brings clarity and focus to our research problem, improves our methodology and problems our knowledge base. The empirical literature includes the different researches in the area of LGS.

#### **Empirical Literature**

Paneru, (2016) prepared a master thesis on the topic Letter Grading System: Perceptual difference and student motivation to learn mathematics (A Case Study). This case study about LGS in order to explore perceptual similarity and difference among mathematics teachers, students, parents in relation to improve students mathematics achievement and its effect on student's motivation to learn mathematics at secondary school. In the research, researcher made 4 groups of students including purposively 8 students in each group from one private and one public school. There were 37 students who were evaluated through LGS in TSLC examination last year, 40 students are studying in technical and vocational stream and 45 students are studying in general stream in this year. The collected information analyzed qualitatively and connected with Maslow's Hierarchy of need Theory and Holland Theory of Career Choice. The result of the study showed that there was common and positive perception among respondents regarding LGS.

Bailey, (2012) prepared a dissertation on the topic "The relationship between secondary school teacher perception of grading practices and secondary school teacher perceptions of student motivations" for the degree of doctor of education in educational leadership from University of Missouri-St. This quantitative study examined the relationship between secondary school teacher perceptions of grading practices and secondary school teacher perception of student's motivation, by using data from two instruments, TPGP questionnaire and PSM questionnaire. Results indicate descriptive statistics regarding ANOVA. This study focused on 307 secondary school teachers in four Midwest countries. Result indicated statistically significant difference in mean score of perception between genders, experience levels and subject area taught for both grading practice and student motivation.

Bhattraï, (2001) prepared a master thesis on the topic "A study of teacher's opinions on secondary school curriculum". In this study, the researcher consisted 42 opinionnaire statements and selects 31 teachers of 15 secondary school on Tanahun district for collecting data. He categories and rating the teacher opinion on each opininnare statement by Likert-five scale. And analyze the teacher opinion by using Chi-square test. The result was a positive opinion of secondary mathematics teachers towards secondary school mathematic curriculum.

Wiles, (2013) prepared a dissertation on degree of doctor of education on the topic "A quantitative study exploring grading and assessment practice in the middle school environment" from Northwest Nazarene University. The purpose of this study was to analyze the perceptions of grading and assessment practice and the impact of increasing opportunities for professional development in grading and assessment practices for middle school teachers. He prepared a quantitative study with pre-survey and post-survey at FRMS teacher staffs. For survey prepare 23 questions on different

level and field with Likert-Scale. The non-parametric test Mann-Whitney U test is administrated to evaluate difference between pre-survey and post-survey. The collected data will be also analyzed by Histogram in each question with obtaining percent. The final summary of results points to the constructive potential for the impact professional development has on the perceptions and eventual practice of educators.

Karim & Hossain (2015) was writing in the topic “Grading controversies in the assessment of university graduates in Bangladesh” in international journal crossing the border. In this study, attempts to find out the purpose of grading, problem with current grading practices, and the impact of such discrete grading system on the learners and teachers. For the research include 17 teacher and 89 students of private universities and two separate questionnaires. The research findings are: there is grading imbalanced in the private Universities in Bangladesh and it affects the graduates in the job market. Therefore, discriminatory grading policies need to be avoided and a uniform grading polices should be introduced.

Wagle, (2014) wrote newspaper article in topic “Letter Grading System in SLC”: In this contemporary world, education systems and evaluation system are relatively changed. At the beginning and developing of educational system there are so many grading systems are used and practiced in the world. Numerical grading system is mostly used and practiced in the world. It is called final grading because it calculate and get the constant mark for student intellectual performance. Now it describe subjective and discriminative because intelligence cannot exact calculate in a number. If calculate in exact number, why different evaluator evaluate different number in same answer paper? It is most negative fact of numerical grading. Now a days, almost define intelligence is not exact, so intelligence is lies in the Level,

Interval, and Range. Since the intelligence level, interval and range are defined in different letter which is called letter grading system. It relatively defines intellectual range of student capacity. Thus it also defined “relative grading”.

Dauncey, (1986) prepared a thesis on a topic "Assessment of Teachers grading Practices" for the degree of Master of Arts from the University of British Columbia. The purpose of this study was to determine if letter grades could be made more reliable by statistically balancing raw achievement score prior to aggregation for reporting purpose. This investigative study was designed to evaluate the grading methods used by 37 randomly selected elementary school teachers. Data were collected by questionnaire and rank a hypothetical set of raw achievement score. The ranking of the original aggregate scores were compared to those derived from the balanced aggregate scores using the Spearman Rank Correlation Coefficient. As a result, this approach to grading has often received criticism from those who question its reliability and usefulness.

SSDP (2016-2022, p.34) also describe in policies: To establishing National Examination Board; Conduct National Exam in the end off class 8, 10, 12; and Use Letter Grading System in all educational certificate.

Gueskey: Over the course of academic career the average student would be exposed to a variety of grading systems and procedures. Although some of these systems may be qualitative in nature, such as an annual or semiannual written narrative, the vast majority are quantitative and depends upon numerical or alphanumeric metrics perhaps the most familiar of these involve the letters “A” through “F”, where “A” is usually given a value of 4.00 and is characterized in words as outstanding or excellent and “F” is given a value of 0.00 and is described as unsatisfactory or failing. The specific translation of test performance into letter grade,

the point to keep in mind is that the A-F scale defines the most frequent grading system used in higher education over the past half century or more, the A-F system admits many variations. These often take the form of plusses and minuses, thereby producing a scale having the possibility of fifteen distinct units A<sup>+</sup>, A, A<sup>-</sup>, B<sup>+</sup>, B, B<sup>-</sup>, ..., F. GPA is significant in categorizing student performance.

**Pedagogical Alternatives in Schooling:-**In justifying and defending contemporary educational policy: educationists have drawn significantly two key theoretical influences: Progressivism with John Dewey and Critical Pedagogy with Paulo Freire who wrote a book named 'We make the road by walking' and 'Pedagogy for Liberation' (Upadhyay, 2067). Paulo Freire is the most influential man who brought the concept of the alternative school, alternative assessment and alternative pedagogy through his ground breaking treatise "Pedagogy of the Oppressed" in 1968. It was the fundamental book which allowed educationists to think about the alternative way of teaching and learning, alternative system of education and alternative system of assessment. Similarly Ivan Illich's "Deschooling Society (1971)" also brought the revolution in education system by challenging the existing education system of that time. Another most recognized educationist who brought out the concept of alternative education system is Everett Reimer who published the important treatise named as "The School is Dead" in 1971. These thinkers have presented the concept of alternative education and alternative evaluation system. So there has been arising the alternative assessment system (Paneru, 2016). Now for the evaluation of student intellectual performance used letter grading system practiced all over the world. Nepal also published SLC result 2072 in LGS.

**Conceptual Framework**

A conceptual framework is a representation, either graphically or narrative form, of the main concepts or variables and their presumed relationship with each other.

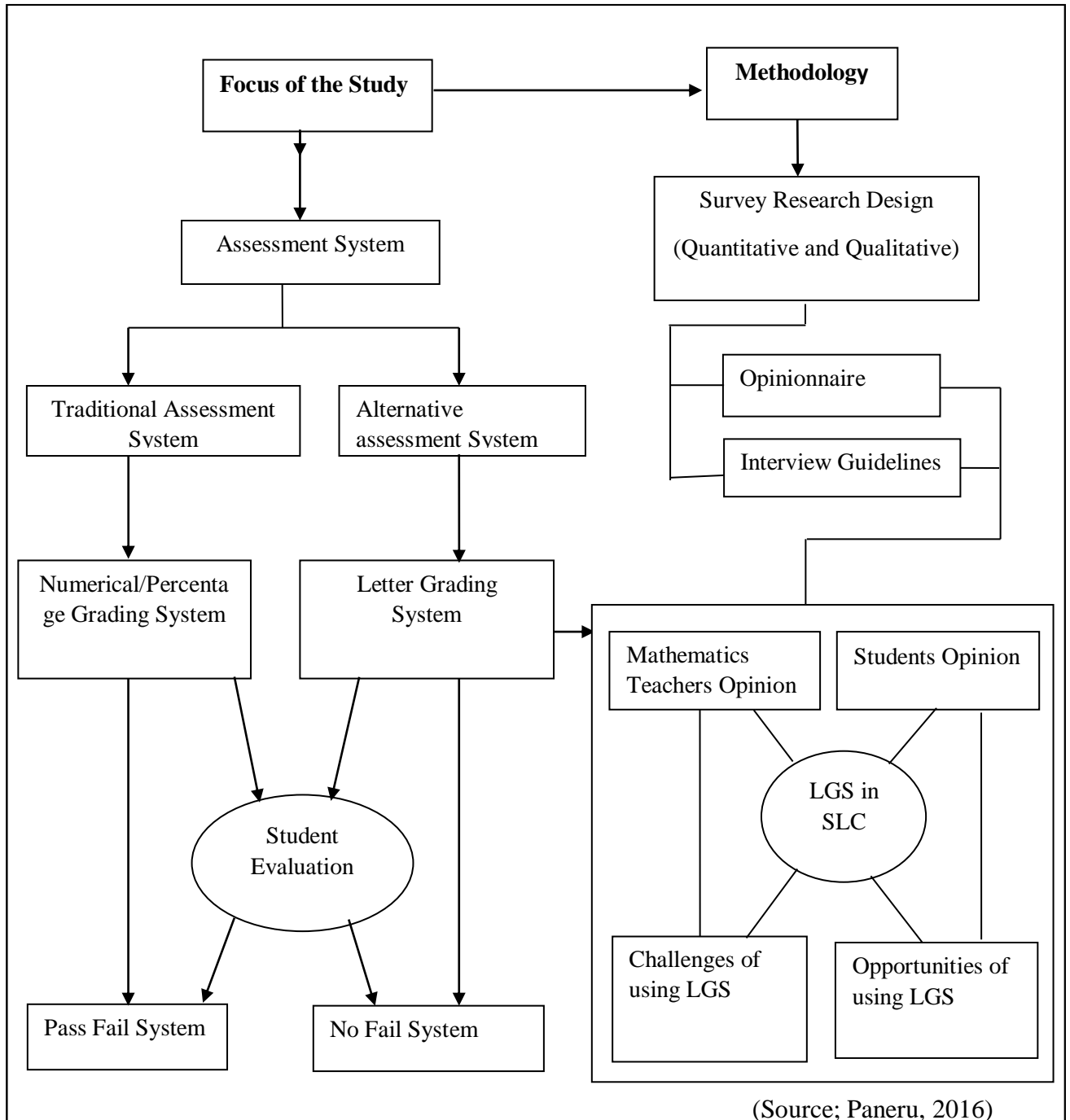


Figure 1: conceptual framework

The conceptual framework of my study was related to two parts. Firstly focus of the study. This study is focus on assessment system. From this diagram, assessment system is categories traditional and alternative to evaluate the level of student in SLC/SEE., Numerical/percentage grading system were mostly used and practiced for student intellectual achievement evaluation in the traditional assessment system. Where many students were failed, who were not got pass marks. Another assessment system; In alternative assessment system, now practice and used letter grading system for student intellectual achievement evaluation, where no student fail and grading by student intelligence in levels, intervals and ranges. This study was focused on LGS in SLC/SEE. Where analyze the teachers and student's opinions, problem, challenges and opportunities of using LGS. Secondly methodology: This study was survey research design. The collected data were analyzed quantitatively as well as qualitatively. The primary data sources Opinionnaire statements and interview guidelines were used for collect data.



## **Chapter III**

### **METHODS AND PROCEDURES**

This chapter presents the methods and procedure of the study, which is carrying out to achieve the objectives of the study and to get the answer of the statement of the problem. We describe in this phase design and method of the study, population of the study, sample of the study, data collection tools reliability and validity of the tool and data analysis procedure.

#### **Design and Method of the Study**

This study was based on survey research design. The survey was conduct on 15 secondary schools mathematics teachers and students from selected school. The data was collect through Primary sources. The primary data was collect through Opinionneire as well as interview from mathematics teachers and students towards LGS in SLC/SEE. Opinionneire was constructed to get opinion about letter grading system and interview guidelines were construct to get personal belief, views, opinion, challenges, opportunities on using LGS and to make a theme. The nature of the study is quantitative and qualitative.

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

This study was conducted for the purpose of finding the mathematics teachers and students opinion towards LGS in SLC/SEE. Thus all mathematics teachers and students of Gorkha district are the population for this study.

#### **Sample of the Study**

This study was conducted only in Gorkha district. The total secondary schools were 116 in Gorkha. Among them 15 secondary schools were selected as random sampling. 25 mathematics teachers and 150 students (students that passed SLC/SEE)

were selected from sampled schools. Therefore 25 secondary level mathematics teachers and 150 students were total sampled of this study.

### **Data Collection Tools**

The data collection process was begun by using opinionnaire statements and Interview. Data was collect to the survey on secondary level mathematics teachers and student's perception, beliefs, and opinion about LGS.

#### **Opinionnaire**

A set of structured opinionnaire was constructed to clear the opinions of mathematics teachers and students towards LGS in SLC/SEE. The opinionnaire statements were developed by using Likert-Scale. The opinionnaire statements were consist of understanding, practicing, evaluation and effectiveness level of statement. This survey was completed through the teachers and students opinion on LGS, and all teachers and students were actively participants. Opinionnaire statements were revised by internal supervisor and few statements were discarded.

#### **Interview**

Interview is an attractive proposition involving a set of assumptions and understandings about the situation which are not normally associated with a casual conversation. Interviews are also referred as an oral questionnaire by some people on which data is collected directly from other in face to face contact. Interview is the most commonly used method for collecting primary data. Interview expresses the internal thought, interest, personal thinking, and opinion. It is a tool to find out personal experience expresses, internal thought of person according to their acting, looking and facial expression. Interview guidelines were developed as given in Appendix-H, Appendix-I and Appendix-J. The interview was taken from 5 students

and 3 teachers to explore the challenges and opportunities of LGS in SLC/SEE and to develop a theme. The interview consist semi structure guidelines about LGS in SLC.

### **Instruments**

A set of structured opinionnaire was constructed to solicit the opinions of secondary school mathematics teachers and students about LGS in SLC. The opinionnaire consisting of 43 statements for teacher and 38 statements for student, were developed under the guidance of the supervisor. The response options in the survey used a Likert-Scale: Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree. The Likert-Scale is a 5-point or 7-point scale, which was used to allow the individual to express how much they agree or disagree with a particular statements. In this study the 5-point Likert-Scale was used. This ordinal scale measured attitudes of agreement or disagreement of individuals, asking them to response to a series of statements on certain topics. The Likert-Scale is the most popular method for recording survey research answers and is not the same as the Likert-type scale, or rating scale. In the Likert-type scale, questions are referred to as Likert items, while the Likert scale is the sum of many of the items (McLeod, 2008; Tanner, 2012; G. Wiles, 2013). The opinionnaire statements were made for finding teachers and students opinion about the usefulness, appropriateness, challenges and opportunities of using LGS in SLC/SEE.

The research tool of opinionnaire statements has been in the Appendix-A for teacher and Appendix-B for student, which consisted if items of different levels of affective domain in given below;

Secondary level mathematics teacher's opinion survey on LGS in SLC/SEE

- Understanding: Included 15 opinionnaire statements

- Practice: Included 8 opinionnaire statements
- Evaluation: Included 11 opinionnaire statements
- Effectiveness: Included 9 opinionnaire statements

#### Student's opinion survey on LGS in SLC

- Understanding: Included 11 opinionnaire statements
- Practice: Included 8 opinionnaire statements
- Evaluation: Included 10 opinionnaire statements
- Effectiveness: Included 9 opinionnaire statements

#### **Reliability and Validity of the Tools**

The data for the study were collected from the primary sources by involving the researcher himself. The primary data were collected from opinionnaire statements and interview guidelines. The opinionnaire statements were adopted from previous literature: Bailey (2012), Wiles (2013), Dauncey (1986), Paneru (2016) and rewrite by purposively. The validity and reliability of opinionnaire statements and interview guidelines were examined by expert judgment and consulting by supervisor.

#### **Data Collection Procedure**

The standardize opinionnaire was distributed to the teachers and students to collect the opinion about LGS in SLC/SEE in the sample. The opinionnaire was distributed 25 mathematics teachers and 150 students of selected schools. Interview was taken from 5 students and 3 teachers to explore the challenges and opportunities of using LGS in SLC and to make a theme. The interview consist semi structure guidelines. Finally the primary data were collected through opinionnaire and interview.

## Data Analysis and Interpretation Procedure

The collected data was analysis through quantitatively as well as qualitatively. The researcher analyzed the obtained data through opinionnaire by using the statistical procedure. Statistical Package for Social Science (SPSS) is widely used quantitative data analysis software so the research was analyzed the obtained data by using SPSS software. The collected information of opinions was analyzed through  $\chi^2 - test$  at 0.05 level of significance to find out opinion of mathematics teachers and students towards LGS in SLC/SEE. The collected data were also analyzed by weighted mean compare with weighted average mean and analyze by histogram with obtained percentage. The data collected from opinionnaire and interview was transcribed to develop the theme about opinion, challenges and opportunities on LGS.

### Statistical Technique

Statistical device  $\chi^2$  -distribution is the distribution of the sum of square of independent standard normal random variables with degree of freedom. It is mostly useful for testing the 'Goodness of Fit' of an observation with a theoretical distribution and in qualitative data to test the independence of two criteria of classification.  $\chi^2$  is non parametric test. It can be applied in a wild area surveys, quality control, and biological research. It is commonly use in Likert-Scale and other discrete data. In my research the Statistical device  $\chi^2 - test$  was applied to the response of all opinionnaire statements of teachers and students about understanding, beliefs, appropriateness, usefulness, challenges and opportunities of using LGS.

The computational formula used for calculation of  $\chi^2 - test$  was

$$\chi^2 = \sum \left[ \frac{(o_i - e_i)^2}{e_i} \right]$$

Where  $o_i$ =Observed frequency

$e_i$ =Expected frequency

The level of significance is 0.05 with degree of freedom  $n - 1$

(Since  $\chi^2$  value is calculated by SPSS)

Critical region  $\chi^2_{\alpha, v} = \chi^2_{0.05, 4} = 9.488$

s-stand for significant and ns-stand for not significant.

The collected data were tabulated by using Edwards five-point scale: 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Strongly Agree for statistical analysis in each statement. The statistical device weighted mean was calculated by the sum of obtained points in each statements divided by total responded and compare with the weighted average mean.

## Chapter IV

### ANALYSIS AND INTERPRETATION

This chapter presents the analysis of the data and the finding of the study. Included in this chapter were summaries of descriptive statistics for areas related to the survey response. This chapter deals with the statistical analysis and interpretation of the data. In order to analyze and interpret the collect data by  $\chi^2 - test$  were use 0.05 level of significance with  $(n - 1)$  degree of freedom and weighted mean in each statement. The purpose of this study was to analyze the opinions of secondary level mathematics teachers and students towards letter grading system, effectiveness, challenges and opportunities of using LGS.

#### Overview of Analysis

Twenty-five teachers from selected schools were asked to involve in my study and 150 students were involved in my study and they responded my opinionnaire statements. Some teachers and students were not give response in some opinionnaire statements.

#### Opinion of Mathematics Teacher's

There were twenty-five mathematics teachers of secondary levels from selected fifteen schools who involved to response in my opinionnaire statements. The teachers responded was shown in appendix-C and the  $\chi^2 - value$  at 0.05 level of significance and weighted mean show in the table-1.

<b>Table-1: <math>\chi^2</math> – value and Weighted Mean of opinion of secondary level mathematics teacher</b>					
	<b>SN</b>	<b>Opinionnaire Statements</b>	<b><math>\chi^2</math> – value</b>	<b>Conclusion</b>	<b>Weighted Mean</b>
<b>Understanding</b>	1	I understand about Letter Grading System.	17.080	S	3.64
	2	I understand about Grade Point Average.	18.500	S	3.58
	3	I understand how giving Letter grades and calculating and giving GPA.	5.240	NS	3.32
	4	Students, parents and teachers are aware and understanding of policy of LGS.	5.240	NS	2.68
	5	LGS is an important criteria for judging students progress.	12.400	S	3.12
	6	LGS has a positive effect in student's academic achievement.	3.640	NS	2.88
	7	High grades can motivate student to learn.	14.800	S	3.52
	8	Grades are based on student critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.	14.200	S	3.96
	9	I am very confident that the Letter Grades, I'll also assign accurate and reliable to students achievement.	8.800	NS	3.20
	10	I think teachers should be able to adopt whatever grading practice work for them.	9.080	NS	3.12



	11	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.	17.080	S	3.76
	12	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.	14.840	S	3.40
	13	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.	17.080	S	2.24
	14	I support the idea of an implementation of LGS in SLC.	5.880	NS	3.24
	15	I would like to learn more about Letter Grading System.	17.360	S	4.12
<b>Practice</b>	16	LGS is firstly used in the evaluation of TSLC2071 & all SLC 2072 result.	10.640	S	4.04
	17	LGS is usefulness for evaluation in existing school curriculum.	11.667	S	2.46
	18	Sufficient curriculum will be change for using LGS in school level.	5.560	NS	3.72
	19	Orientation programs are not sufficient for understanding LGS & GPA.	14.840	S	4.00
	20	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.	11.000	S	2.24
	21	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.	5.880	NS	3.36
	22	LGS is practice in internal evaluation of student	17.360	S	1.88

		achievement.			
	23	Practice work is not including in the end of our grading.	6.320	NS	4.12
<b>Evaluation</b>	24	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.	18.360	S	4.28
	25	LGS is appropriate for evaluation of SLC Examination.	9.220	NS	2.96
	26	LGS is same with Numerical/Percentage grading system.	6.800	NS	2.60
	27	LGS is very different from Numerical/Percentage system.	10.000	S	3.20
	28	LGS is using in internal evaluation.	10.640	S	1.96
	29	LGS is also need in internal evaluation.	11.600	S	3.12
	30	CAS is similar to LGS in student intellectual evaluation.	5.200	NS	3.00
	31	No students fail in LGS in evaluation.	14.400	S	3.24
	32	No students fail in LGS, which is true at all.	22.000	S	2.48
	33	Give opportunity to re-test for increasing grade, who get low grade.	22.520	S	4.08
	34	Re test is not true for increasing grade.	4.280	NS	2.84
	<b>Effectiveness</b>	35	Student motivation is increase after using LGS in SLC.	14.800	S
36		Teachers, students and parents are satisfied to using LGS in SLC.	7.200	NS	2.60

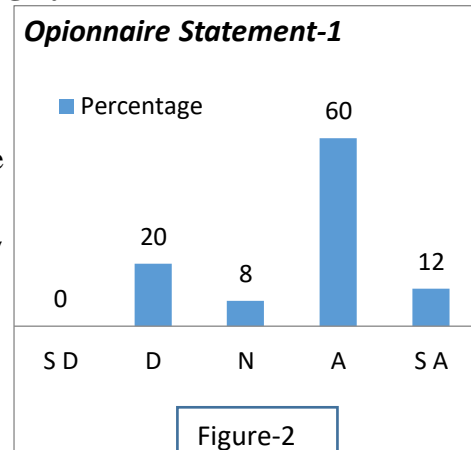
37	Continuity in study is increase after using LGS in SLC.	4.920	NS	2.44
38	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.	8.000	NS	3.08
39	Student performance is increase while using LGS in student evaluation in SLC.	6.400	NS	2.92
40	I feel student motivate to study out of school to aid my learning when it is not before using LGS.	8.400	NS	2.92
41	I feel better understanding of my teaching when LGS is used in SLC.	6.400	NS	3.04
42	I feel more motivated to learn when I understand the expected learning objectives.	13.600	S	3.44
43	Letter grades are an effective method of informing parents of their child progress and achievement.	11.640	S	3.20

S-stand for significant and NS-stand for not significant

The table-1 shows that the  $\chi^2$  – value of 24 statements out of 43 statements were significant at 0.05 level of significance. The average weighted mean of the teachers responded were 3.15. Then table-1 shows that 21 statements out of 43 were above the average weighted mean. Also 26 statements out of 43 were above the percentage of agreed performance. It concluded that there was positive opinion of secondary level mathematics teacher towards LGS.

**Statement1: I understand about Letter Grading System.**

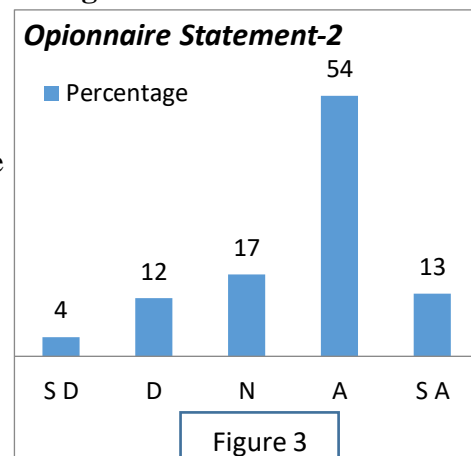
As illustrated in Table-1, the  $\chi^2$  - value of statement 1 was 17.080, which is significant. The weighted mean was  $3.64 > 3.15$ . The figure 2 show that a substantial increase in the agree category,



a highly decrease in a disagree category, and decrease in strongly agree and neutral category and zero in strongly disagree category. The results indicated that about 72% teachers agreed with this statement, this shows that they understand about LGS.

**Statement 2: I understand about Grade Point Average**

As illustrated in Table-1, the  $\chi^2$  - value of statement 2 was 18.500, which is significant. The weighted mean was  $3.58 > 3.15$ . The figure 3 shows that a substantial increase in the agree category, a highly decrease in neutral, strongly



agree and strongly disagree categories. The results indicated that about 67% teachers agreed with this statement, thus they would understand about GPA.

**Statement3: I understand how giving letter grades and calculating & giving GPA.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 3 was 5.240, which is insignificant . The weighted mean was  $3.32 > 3.15$ . Although the

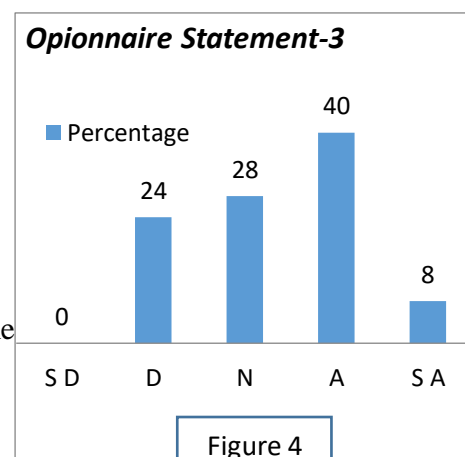
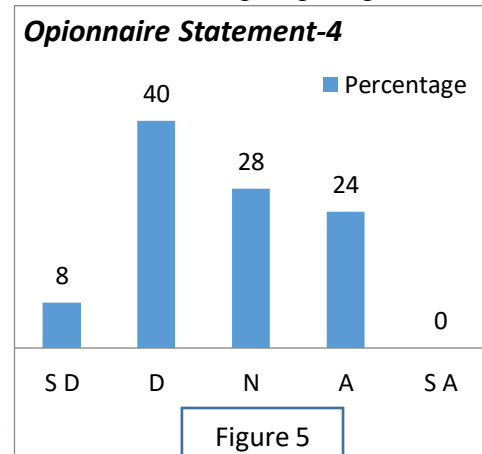


figure 4 shows that there was an increase in the agree category, a slight decrease in neutral, disagree and strongly agree categories. And zero in strongly disagree category. The results indicated that 48% teachers were agreed with this statement, thus they would understand how giving letter grades and calculating & giving GPA.

**Statement 4: Students, parents and teachers are aware and understanding Policy of LGS.**

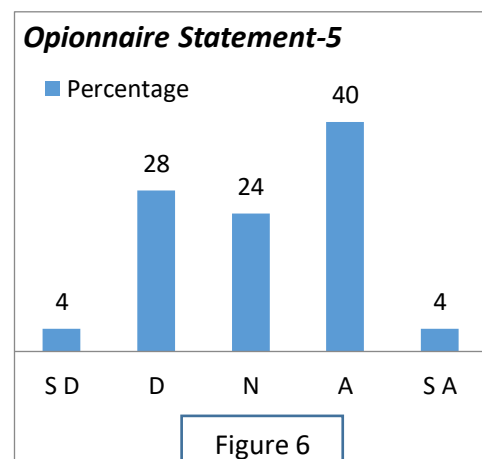
As illustrated in Table-1, the  $\chi^2$  - value of statement 4 was 5.240 at 0.05 level and was statistically insignificant according to chi square



test. The weighted mean was  $2.68 < 3.15$ . The figure 5 shows that a substantial increase in a disagree categories, a slight decrease in neutral, agree and strongly disagree categories and zero in strongly agree category. The results indicated that only 24% teachers were agreed and 48% teachers were disagreed with this statement, thus students, parents and teachers were not aware and understanding policy of LG.

**Statement 5: LGS is an important criteria for judging students progress.**

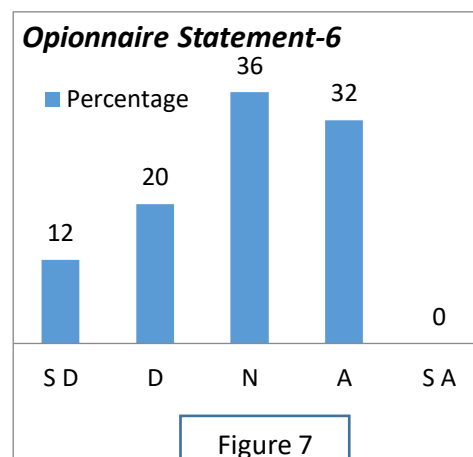
As illustrated in Table-1, the  $\chi^2$  - value of statement 5 was 12.400 at 0.05 level and was statistically significant according to chi square



test. The weighted mean was  $3.12 < 3.15$ . The figure 6 shows a substantial increase in agree category, a slight decrease in disagree, neutral, strongly agree and strongly disagree categories. The result indicated that 44% teachers were agreed with this statement, thus LGS is an important criteria for judging students progress.

**Statement 6: LGS has a positive effect in student's academic achievement.**

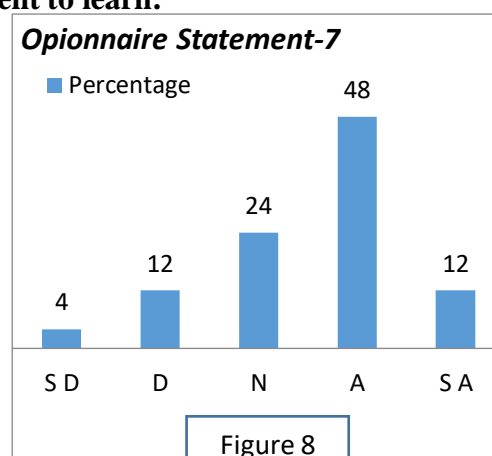
As illustrated in Table-1, the  $\chi^2$  - value of statement 6 was 3.640 at 0.05 level and was statistically insignificant according to chi square test. The weighted mean was  $2.88 < 3.15$ . The figure 7 shows a substantial shift from the



neutral category and equal in agreed and disagreed percentage, thus LGS has neither positive nor negative effect in student's academic achievements.

**Statement 7: High grades can motivate student to learn.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 7 was 12.667 at 0.05 level and was statistically significant according to chi square test. The weighted mean was  $3.52 > 3.15$ . The figure 8 shows a substantial shift from agree



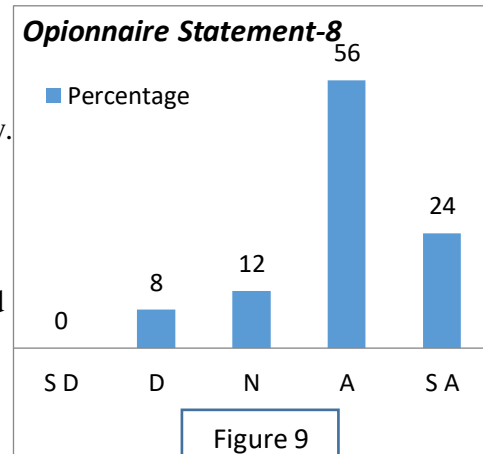
category, a highly decrease in neutral category and disagree and strongly agree categories is equal and slight decrease in strongly disagree category. The result indicated that 60% teachers were agreed with this statement, thus high grades can motivate student to learn.

**Statement 8: Grades are based on student critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 8 was 14.200 at 0.05 level and was statistically significant according to chi square test. The weighted mean was  $3.96 > 3.15$ . The figure 9 shows a substantial shift from agree category, a slight

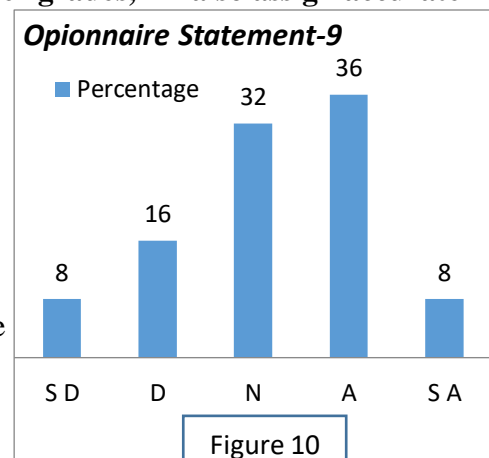
decrease in strongly agree, neutral and disagree categories and zero in strongly disagree category.

The result indicated that 80% teachers were agreed with this statement, thus grades are based on student critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.



**Statement 9: I am very confident that the letter grades, I'll also assign accurate and reliable to students achievement.**

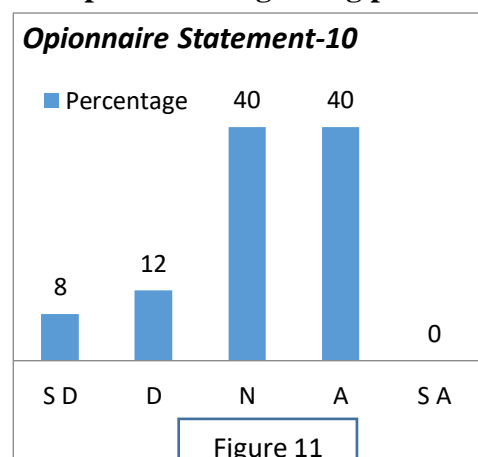
As illustrated in Table-1, the  $\chi^2$  - value of statement 9 was 8.800 at 0.05 level and was statistically insignificant according to chi square test. The weighted mean was  $3.20 > 3.15$ .



Although the figure 10 shows a substantial shift from agree category, a slight decrease in neutral, disagree, strongly agree and strongly disagree categories. The result indicated that 44% teachers were agreed with this statement, thus they are also assign letter grade accurate and reliable to student's achievement.

**Statements 10: I think teacher should be able to adopt whatever grading practice work for them.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 10 is 9.080 at 0.05 level and was statistically insignificant according to chi square test. The weighted mean was  $3.12 < 3.15$ .



Although the figure 11 shows a substantial shift from agree and neutral category, a highly decrease in disagree and strongly disagree categories and zero in strongly agree category. The result indicated that 40% teachers were agreed, thus teacher should be able to adopt whatever grading practice work for them.

**Statement 11: I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 11 was 17.080 at 0.05 level and was statistically significant according to chi square test. The weighted mean was  $3.76 > 3.15$ . The

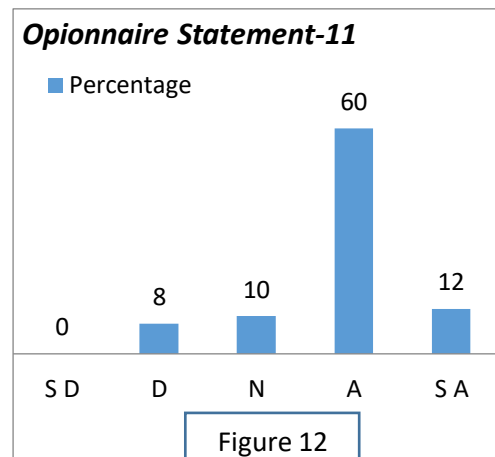
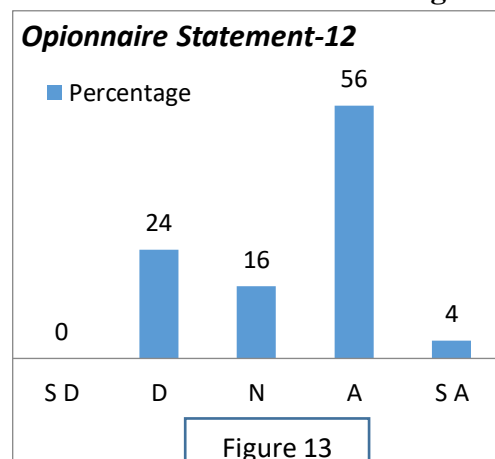


figure 12 shows 72% teachers were agreed with this statement, thus grades should reflect the influence of a student's behavior and work ethic in his or her achievement.

**Statement 12: I believe LGS should reflect the influence of a teacher teaching activity and responsibility.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 12 was 13.000 at 0.05 level and was statistically significant according to chi square test. The weighted mean was  $3.40 > 3.15$ .



The figure 13 shows a substantial shift from agree category, a highly decrease in strongly disagree, neutral and strongly agree categories and zero in strongly disagree category. The result indicated that 60% teachers were agreed with this statement, thus LGS should reflect the influence of a teacher teaching activity and responsibility.



**Statement 13: To the best of my knowledge, parents are generally satisfied with the letter grading system.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 13 was 17.080 at 0.05 level and was statistically significant according to chi square test. The weighted mean was  $2.24 < 3.15$ . The

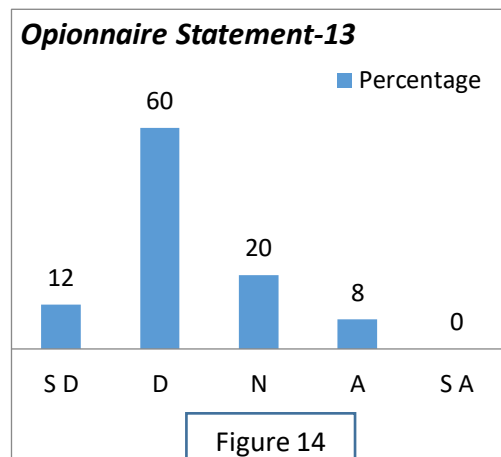


figure 14 shows a substantial shift from disagree category, a highly decrease in

neutral, strongly disagree, and agree categories and zero in strongly agree category.

The result indicated that 8% teachers were agreed and 72% teachers were disagreed with this statement, thus parents were not satisfied with letter grading system.

**Statement 14: I support the idea of an implementation of LGS in SLC.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 14 was 5.880 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $3.24 > 3.15$ . The

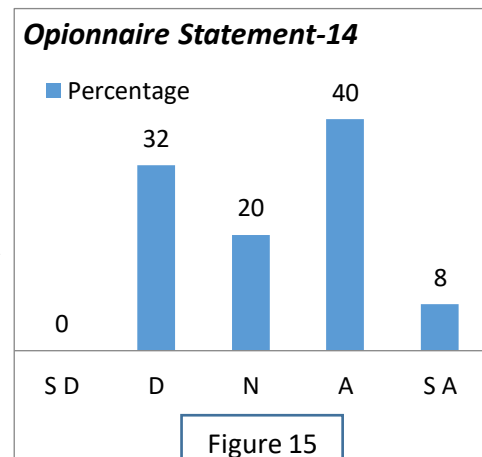


figure 15 shows a substantial shift from agree

category, a slight decrease in disagree, neutral and strongly agree categories and zero

in strongly disagree category. The result indicated that 48% teachers were agreed with

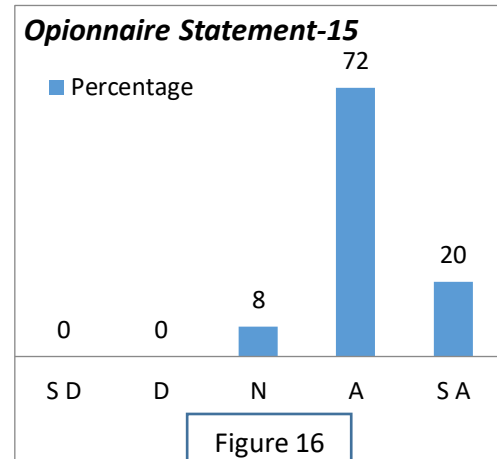
this statement, thus they were support the idea of implementation of LGS in SLC.

**Statement 15: I would like to learn more about letter grading system.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 15 was 17.360 at 0.05 level and it was statistically significant according to chi square test. The weighted mean

was  $34.12 > 3.15$ . The figure 16 shows a substantial shift from agree category, a highly

decrease in strongly agree and neutral categories and zero in disagree and strongly disagree categories. The result indicated that 92% teachers were agreed with this statement, thus all were like to learn more about letter grading system.



**Statement 16: LGS is firstly used in the evaluation of TSLC 2071 and all SLC 2072 result.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 16 was 10.640 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $4.04 > 3.15$ . The

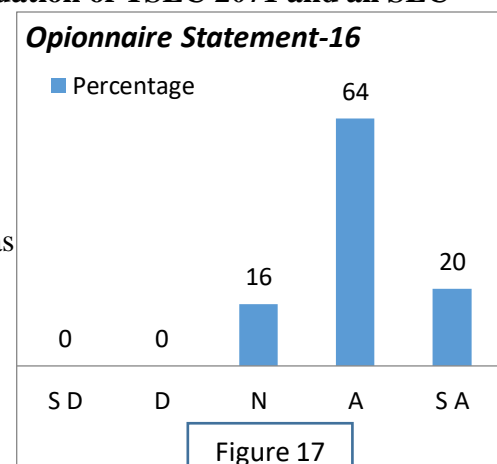
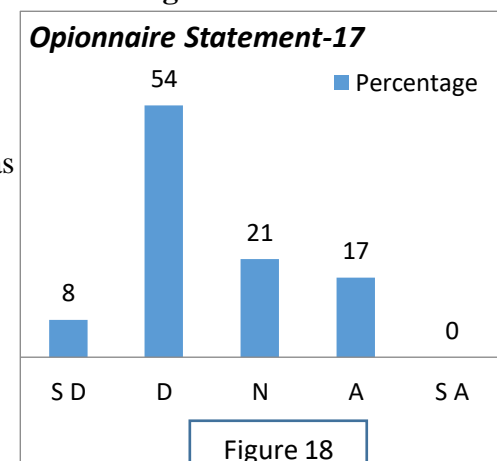


figure 17 shows a substantial shift from agree category, a highly decrease in strongly agree, neutral categories and zero in disagree and strongly disagree categories. The result indicated that 84% teachers were agreed with this statement, thus LGS is firstly used in the evaluation of TSLC 2071 and all SLC 2072 result.

**Statement 17: LGS is usefulness for evaluation in existing school curriculum.**

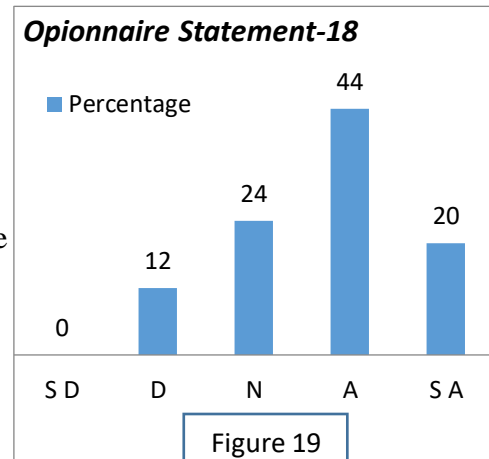
As illustrated in Table-1, the  $\chi^2$  - value of statement 17 was 11.667 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $2.46 < 3.15$ . But the figure 18 shows that 62% teachers were



disagreed with this statement, thus LGS was not usefulness for evaluation in existing curriculum.

**Statement 18: Sufficient curriculum will be change for using LGS in school level.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 18 was 5.560 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $3.72 > 3.15$ . The figure 19 shows a substantial shift from agree



category, a slight decrease in neutral, strongly agree, and disagree categories and zero in strongly disagree category. The result indicated that 64% teachers were agreed, thus the sufficient curriculum would be change for using LGS in school level.

**Statement 19: Orientation programs are not sufficient for understanding LGS and GPA.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 19 was 14.840 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $4.00 > 3.15$ . The

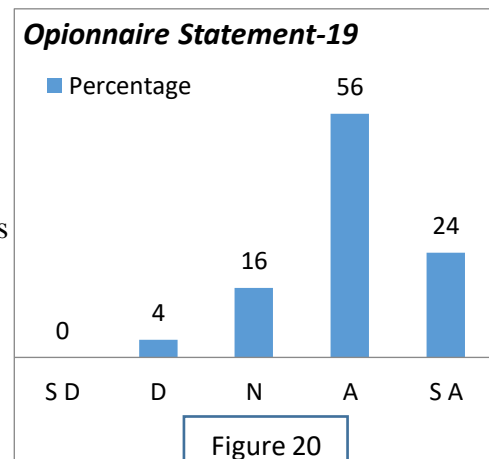
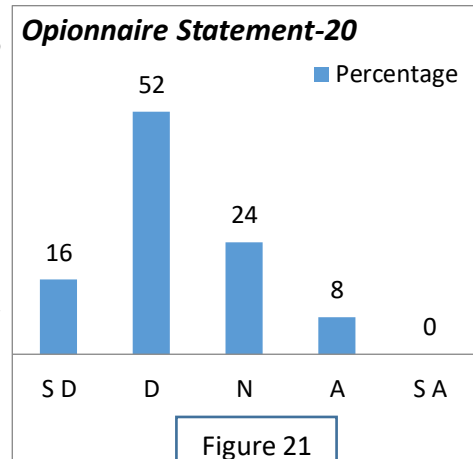


figure 20 shows that 80% teachers were agreed with statement, thus orientation programs are not sufficient for understanding LGS and GPA.

**Statement 20: Training is sufficient for teacher and stakeholders understand about GPA and LGS.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 20 was 11.000 at 0.05 level and it was statistically significant according to chi square test. The weighted mean

was  $2.24 < 3.15$ . But the figure 21 shows that 68% teachers were disagreed with this statement, thus training was not sufficient for teacher and stakeholders about understanding GPA and LGS.



**Statement 21: Now school work is used only**

**feedback, practice and not for final grades, student's neglects important practice.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 21 was 5.880 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $3.36 > 3.15$ . The

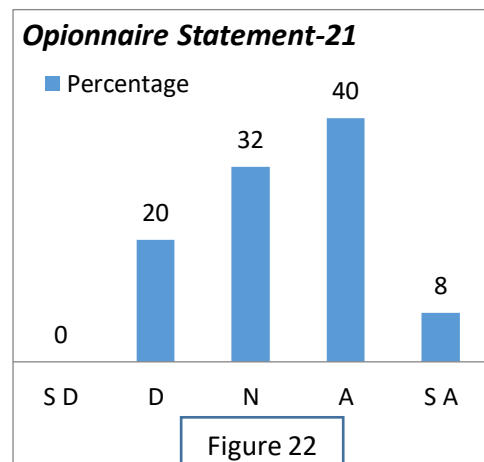


Figure 22 shows a substantial shift from agree

category, a slight decrease in neutral, disagree, and strongly agree categories and zero in strongly disagree category. The result indicated that 48% teachers were agreed with this statement, thus school work is used only for feedback, practice and not for a final grades so student's neglects important practice.

**Statement 22: LGS is practice in internal evaluation of student achievement.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 22 was 17.360 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $1.88 < 3.15$ . But the

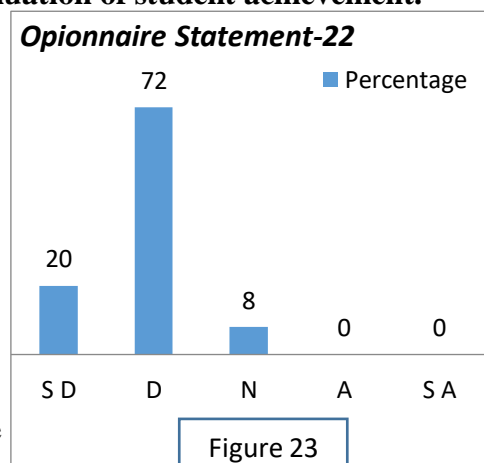


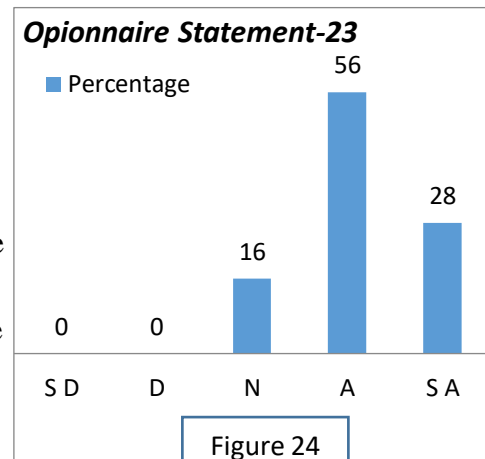
figure 23 shows a substantial shift from disagree

category, a highly decrease in strongly disagree and neutral categories and zero in

agree and strongly agree category. The result indicated that 92% teachers were disagreed with this statement, thus LGS was not practice in internal evaluation of student achievement.

**Statement 23: Practice work is not including in the end of our grading.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 23 was 6.320 at 0.05 level and was statistically insignificant according to chi square test. The weighted mean was  $4.12 > 3.15$ . But the figure 24 shows a substantial shift from agree



category, a slight decrease in strongly agree, neutral categories and zero in disagree and strongly disagree categories. The result indicated that 84% teachers were agreed with this statement, thus practice work was not included in the end of our grading.

**Statement 24: The numerical/percentage grading system is used before use of LGS for student achievement evaluation.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 24 was 18.360 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $4.28 > 3.15$ . The

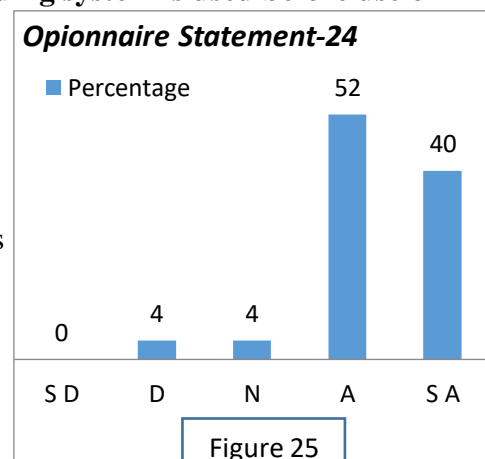
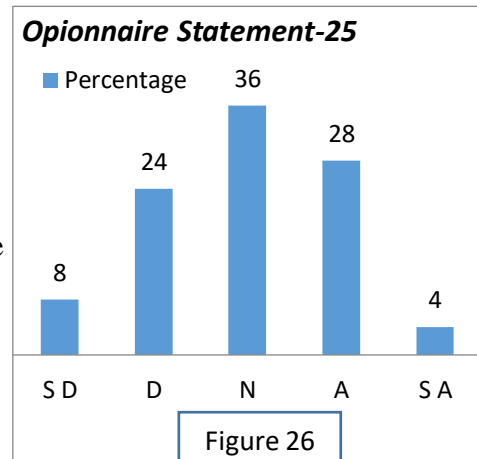


figure 25 shows a substantial shift from agree category, a slight decrease in strongly agree, highly decrease in neutral and disagree categories and zero in strongly disagree category. The result indicated that 92% teachers were agreed with this statement, thus the numerical/percentage grading system was used before use of LGS for student achievement evaluation.

**Statement 25: LGS is appropriate for evaluation of SLC examination.**

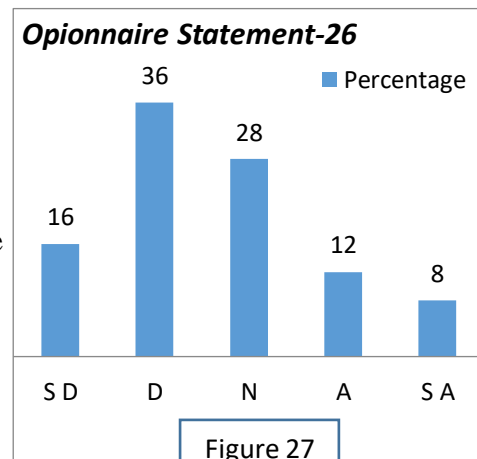
As illustrated in Table-1, the  $\chi^2$  - value of statement 25 was 9.200 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $2.96 < 3.15$ . The figure 26 shows that 32% teachers were agreed



and also 32% teachers were disagreed thus the result indicated that neither agreed nor disagreed with this statement.

**Statement 26: LGS is same with numerical/percentage grading system.**

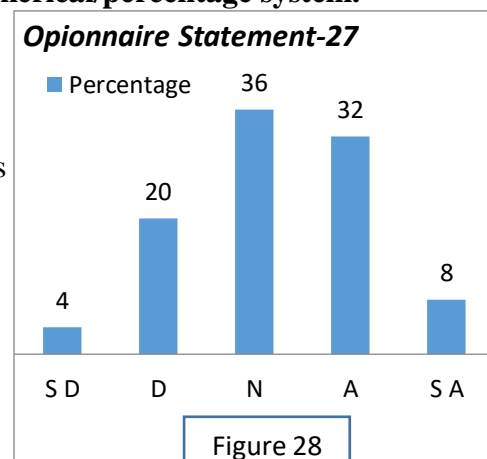
As illustrated in Table-1, the  $\chi^2$  - value of statement 26 was 6.800 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $2.60 < 3.15$ . The figure 27 shows that 52% teachers were



disagreed with this statement, thus the result indicate that the numerical/percentage grading system was different from LGS.

**Statement 27: LGS is very different from numerical/percentage system.**

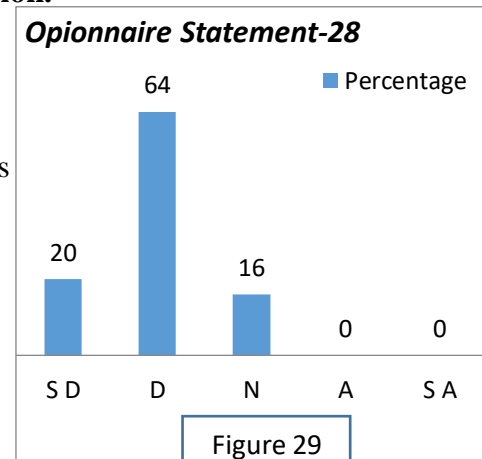
As illustrated in Table-1, the  $\chi^2$  - value of statement 27 was 10.000 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $3.20 > 3.15$ . The figure 28 shows that 40% teachers were agreed



with statement, thus the numerical/percentage grading system was different from LGS.

**Statement 28: LGS is used in internal evaluation.**

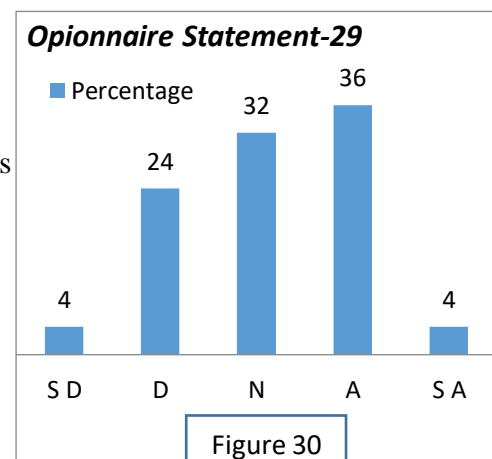
As illustrated in Table-1, the  $\chi^2$  - value of statement 28 was 10.640 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $1.96 < 3.15$ . The figure 29 shows that 84% teachers were



disagreed with statement, thus LGS was not used in internal evaluation.

**Statement 29: LGS is also need in internal evaluation.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 29 was 11.600 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $3.12 < 3.15$ . The figure 30 shows a substantial shift from agree

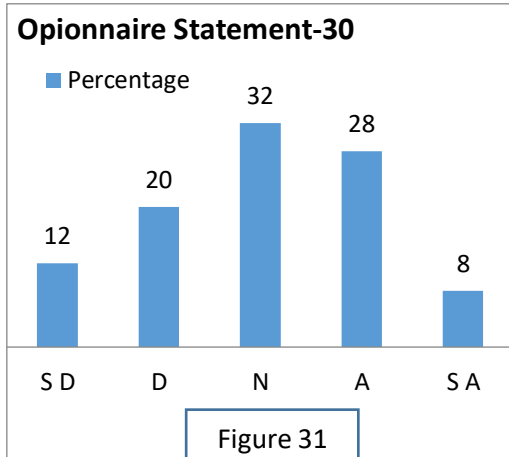


category, a slight decrease in neutral, disagree, strongly agree and strongly disagree categories. The result indicated that 40% teachers were agreed and 28% teachers were disagreed thus LGS also need in internal evaluation.

**Statement 30: CAS is similar to LGS in student intellectual evaluation.**

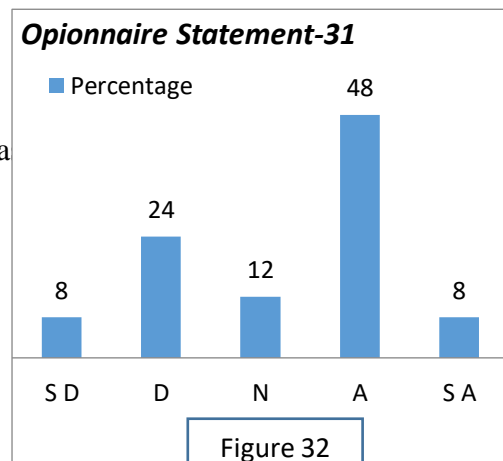
As illustrated in Table-1, the  $\chi^2$  - value of statement 30 was 5.200 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $3.00 < 3.15$ . The figure 31 shows a substantial shift from neutral category, a slight

decrease in agree, disagree, strongly disagree and strongly agree categories. The result indicated that 36% teachers were agreed and 32% teachers were disagreed, thus CAS is neither similar nor same to LGS in student intellectual evaluation.



**Statement 31: No students fail in LGS in evaluation.**

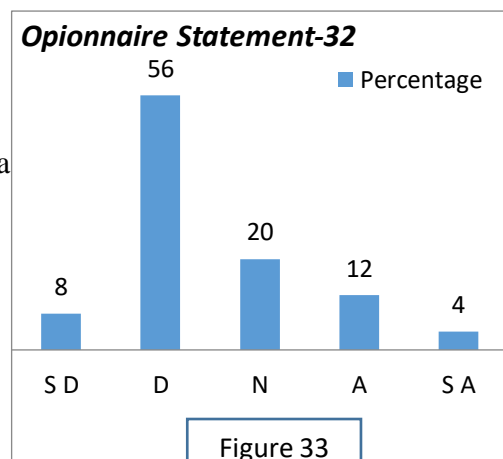
As illustrated in Table-1, the  $\chi^2$  - value of statement 31 was 14.400 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $3.24 > 3.15$ . The figure 32 shows a substantial shift from agree



category, a highly decrease in disagree, neutral, strongly agree and strongly disagree categories. The result indicated that 56% teachers were agreed with this statement, thus no students fail in LGS in evaluation.

**Statement 32: No students fail in LGS, which is true at all.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 32 was 22.000 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $2.48 < 3.15$ . The figure 33 shows that 64% teachers were





disagreed with this statement, thus the result indicated that no students fail in LGS, which is not true at all.

**Statement 33: Give opportunity to re-test for increasing grade, who get low grade.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 33 was 22.520 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $4.08 > 3.15$ . The

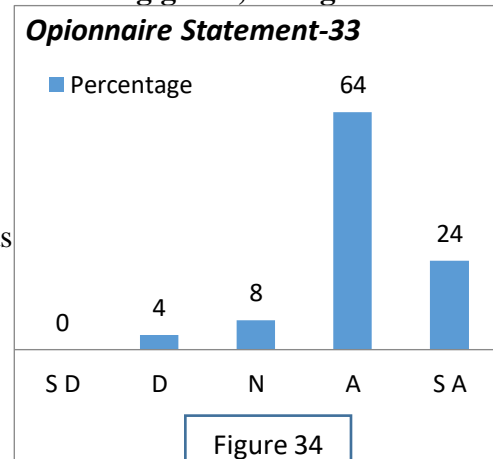
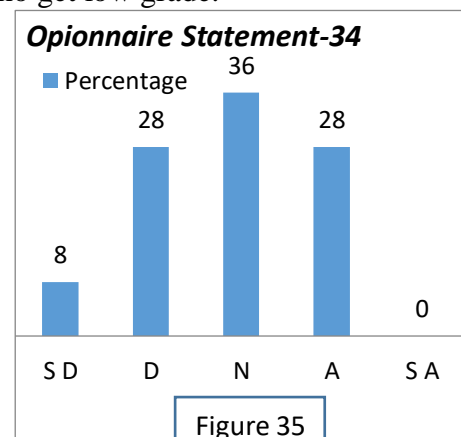


figure 34 shows a substantial shift from agree category, a highly decrease in strongly agree, highly decrease in neutral and disagree categories and zero in strongly disagree category. The result indicated that 88% teachers were agreed with this statement, thus give opportunity to re-test for increasing grade, who get low grade.

**Statement 34: Re test is not true for increasing grade.**

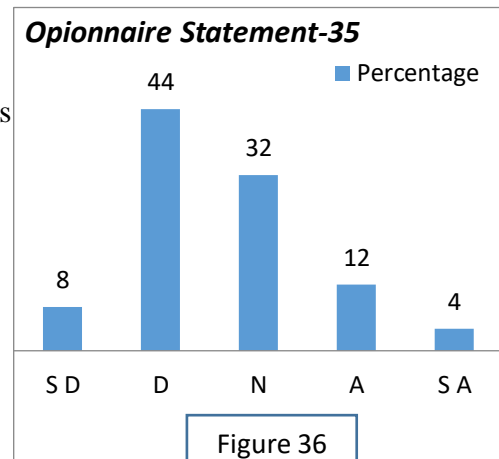
As illustrated in Table-1, the  $\chi^2$  - value of statement 34 was 4.280 at 0.05 level and it was statistically insignificant according to chi square



test. The weighted mean was  $2.84 < 3.15$ . The figure 35 shows a substantial shift from neutral category, a slight decrease in agree, disagree, strongly disagree categories and zero in strongly agree category. The result indicated that 28% teachers were agreed and 36% teachers were disagreed with this statement, re-test is true for increasing grade.

**Statement 35: Student motivation is increasing after using LGS in SLC.**

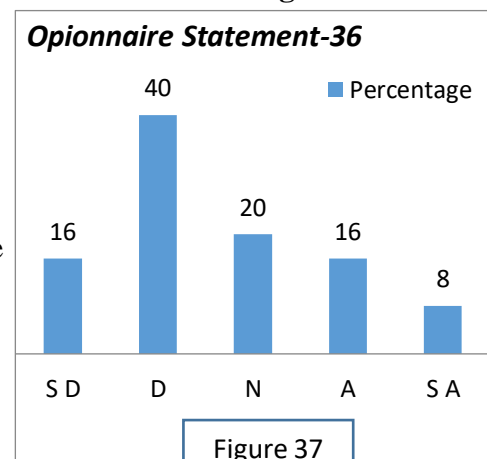
As illustrated in Table-1, the  $\chi^2 - value$  of statement 35 was 14.800 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $2.60 < 3.15$ . The figure 36 shows 52% teachers were disagreed with statement, thus the result indicate that



student motivation was not increase after using LGS in SLC.

**Statement 36: Teachers, students and parents are satisfied to using LGS in SLC.**

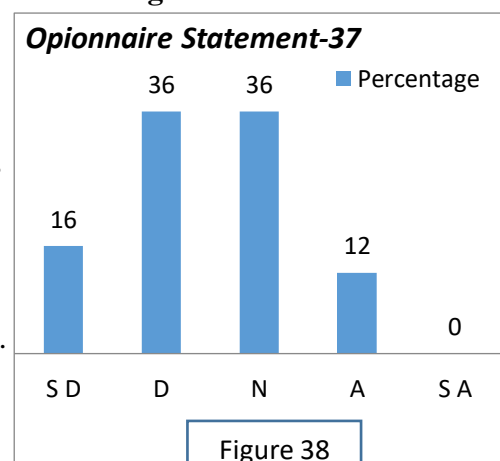
As illustrated in Table-1, the  $\chi^2 - value$  of statement 36 was 4.920 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $2.60 < 3.15$ . The figure 37 shows that only 24% teachers were



agreed and 56% teachers were disagreed with this statement, thus the result indicate that teachers, students and parents were not satisfied to using LGS in SLC.

**Statement 37: Continuity in study is increase after using LGS in SLC.**

As illustrated in Table-1, the  $\chi^2 - value$  of statement 37 was 4.920 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $2.44 < 3.15$ . The figure 38 shows that only 12% teachers



were agreed and 52% teachers were disagreed with this statement, thus the result indicated that continuity in study was decrease after using LGS in SLC.

**Statement 38: Responsibility and duty in reading and writing is increase in student after using LGS in SLC.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 38 was 8.000 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $3.08 > 3.15$ . The

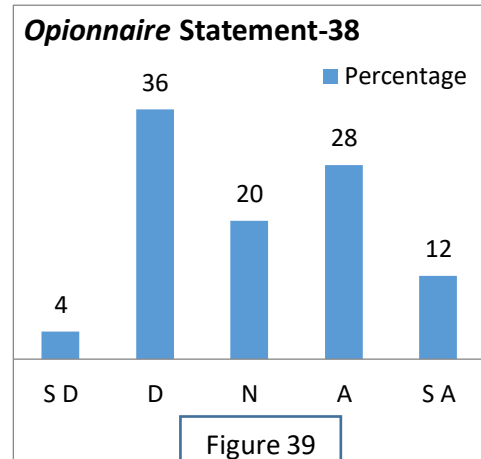


figure 39 shows that 40% teachers were agreed and 40% disagreed, thus the result indicated that responsibility and duty in reading and writing was neither increase nor decrease in student after using LGS in SLC.

**Statement 39: Student performance is increase while using LGS in student evaluation SLC.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 39 was 6.400 at 0.05 level and it was statistically insignificant according to chi square test. The weighted mean was  $2.92 < 3.15$ . The

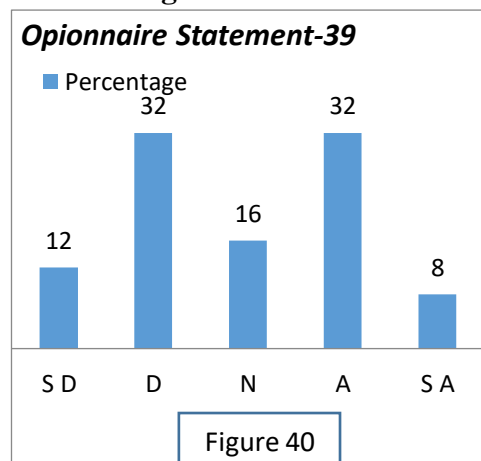


figure 40 shows that 40% teachers were agreed and 44% were disagreed with this statement, thus the result indicated that student performance was not increase while using LGS in student evaluation in SLC.

**Statement 40: I feel student motivate to study out of school to aid my learning when it is not before using LGS.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 40 was 8.400 at 0.05 level and

it was statistically insignificant according to chi square test. The weighted mean was

$2.92 < 3.15$ . The figure 41 shows that 40%

teachers were agreed and 40% teachers were

disagreed. Thus the results indicate that

neither agree nor disagree with this statement.

**Statement 41: I feel better understanding of my teaching when LGS is used in SLC.**

As illustrated in Table-1, the  $\chi^2$  - value of

statement 41 was 6.400 at 0.05 level and it was

statistically insignificant according to chi square t

The figure 42 shows a substantial shift from

agree category, a slight decrease in disagree,

neutral and highly decrease in strongly agree

and strongly disagree category. The result indicated that 40% teachers were agreed

and 36% teachers were disagreed with this statement, teacher feel better

understanding of his teaching when LGS was used in SLC.

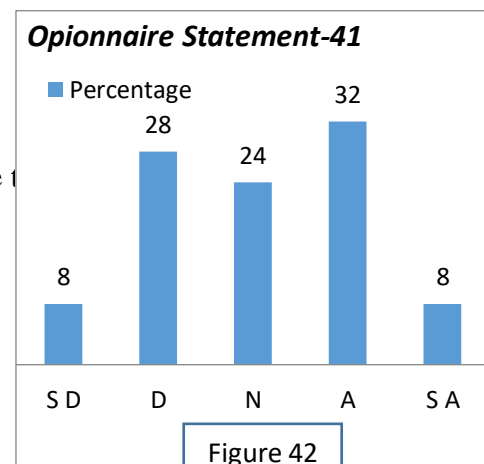
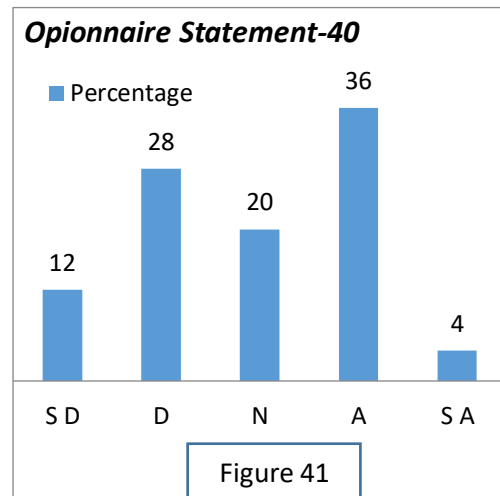
**Statement 42: I feel more motivated to learn when I understand the expected learning objectives.**

As illustrated in Table-1, the  $\chi^2$  - value of

statement 42 was 13.600 at 0.05 level and it was

statistically significant according to chi square

test. The weighted mean was  $3.44 > 3.15$ . The



and strongly disagree category. The result indicated that 40% teachers were agreed

**Statement 42: I feel more motivated to learn when I understand the expected learning objectives.**

As illustrated in Table-1, the  $\chi^2$  - value of

statement 42 was 13.600 at 0.05 level and it was

statistically significant according to chi square

test. The weighted mean was  $3.44 > 3.15$ . The

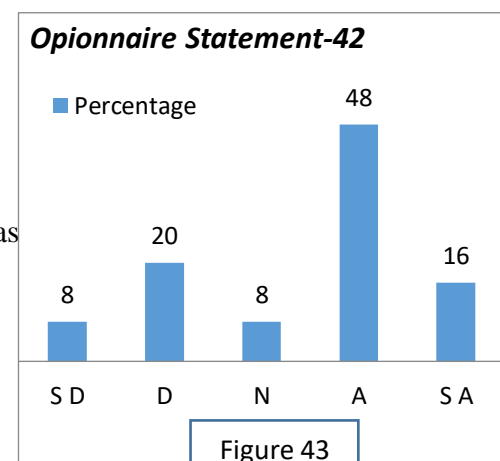
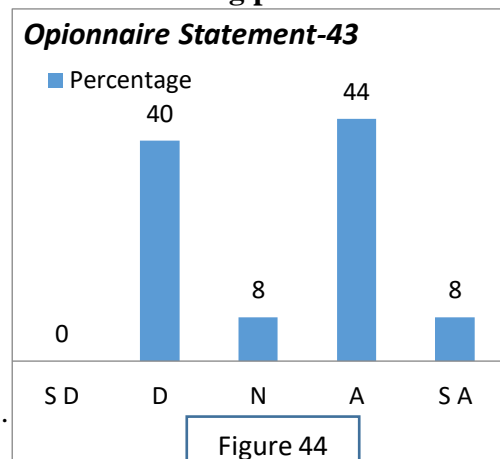


figure 43 shows a substantial shift from agree category, a highly decrease disagree, strongly agree, neutral and strongly disagree categories. The result indicated that 64% teachers were agreed with this statement, thus they feel more motivated to learn when they understand the expected learning objectives.

**Statement 43: Letter grades are effective method of informing parents of their child progress and achievement.**

As illustrated in Table-1, the  $\chi^2$  - value of statement 43 was 11.640 at 0.05 level and it was statistically significant according to chi square test. The weighted mean was  $3.00 < 3.15$ .



The figure 44 shows a substantial shift from agree category, a slight decrease in disagree, strongly agree and neutral categories and zero in strongly disagree category. The result indicated that 52% teachers were agreed with statement, thus letter grades were effective method of informing parents of their child progress and achievements.

Finally the aptitude score in percent on histogram shows that 26 statements out of 43 were substantial shift from agree category. Similarly, 4 statements were neutral and 13 statements were disagree category. It shows that there was a positive opinion of mathematics teacher towards LGS.

**Opinion of Student's**

There were one hundred fifty students select from sampled school. They were give response in my opinionnaire statements. The student's response was shown in Appendix-E and the  $\chi^2$  - value at 0.05 level of significance and weight mean of students response was shown in the table-2.

<b>Table-2: <math>\chi^2</math> – value and weighted mean of opinion of students</b>					
	S N	Opinionnaire Statements	$\chi^2$ – value	Decision	Weighted Mean
<b>Understanding</b>	1	I understand about Letter Grading System.	67.135	S	3.08
	2	I understand about Grade Point Average.	64.122	S	3.28
	3	Students, parents and teachers are aware and understanding of policy of LGS.	50.295	S	3.00
	4	LGS has a positive effect in student's academic achievement.	47.014	S	3.16
	5	High grades can motivate student to learn.	61.730	S	3.91
	6	Grades are based on student's critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.	59.432	S	3.73
	7	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.	41.932	S	3.39
	8	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.	34.616	S	3.53
	9	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.	37.533	S	3.15
	10	I support the idea of an implementation of LGS in SLC.	48.419	S	3.69
	11	I would like to learn more about Letter Grading System.	108.589	S	4.17

<b>Practice</b>	12	LGS is firstly used in the evaluation of TSLC 2071 & all SLC 2072 result.	42.485	S	3.59
	13	LGS is usefulness for evaluation in existing school curriculum.	50.082	S	3.50
	14	Sufficient curriculum will be change for using LGS in school level.	67.727	S	3.76
	15	LGS is practice in internal evaluation of student achievement.	22.338	S	3.18
	16	Orientation programs are not sufficient for understanding LGS & GPA.	33.238	S	3.37
	17	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.	14.499	S	2.97
	18	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.	43.081	S	3.49
	19	Practice work is not including in the end of our grading.	37.400	S	3.15
	<b>Evaluation</b>	20	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.	41.973	S
21		LGS is appropriate for evaluation of SLC Examination.	51.257	S	3.59
22		LGS is same with Numerical/Percentage grading system.	33.374	S	2.95
23		LGS is very different from Numerical/Percentage system.	38.759	S	3.65

	24	LGS is using in internal evaluation.	38.589	S	2.35
	25	LGS is also need in internal evaluation.	43.110	S	3.55
	26	No students fail in LGS in student evaluation.	61.172	S	3.52
	27	No students fail in LGS, which is true at all.	12.067	S	3.01
	28	Give opportunity to re-test for increasing grade, who get low grade.	77.667	S	3.91
	29	Re test is not true for increasing grade.	17.191	S	2.52
<b>Effectiveness</b>	30	Student motivation is increase after using LGS in SLC.	25.133	S	3.47
	31	Teachers, students and parents are satisfied to using LGS in SLC.	53.600	S	3.22
	32	Continuity in study is increase after using LGS in SLC.	38.757	S	2.55
	33	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.	34.859	S	3.30
	34	Student performance is increase while using LGS in student evaluation in SLC.	47.946	S	3.43
	35	I feel student motivate to study out of school to aid my learning when it is not before using LGS.	18.617	S	2.98
	36	I feel better understanding of my learning when LGS is used in SLC.	47.217	S	3.30
	37	I feel more motivated to learn when I understand the expected learning objectives.	55.876	S	3.69
	38	Letter grades are an effective method of informing parents of their child progress and achievement.	53.014	S	3.65



S-stand for significant and SN-stand for not significant.

The table-2 shows that the  $\chi^2 - value$  of all statements were significant at 0.05 level of significance. The average weighted mean was 3.35. Then table-2 shows 21 statements out of 38 were above the average weighted mean. Although 31 statements out of 38 statements were increase in the percent of agree category and 7 statements out of 38 statements were increase in the percent of disagree category. It concluded that there was positive opinion of student towards LGS.

As illustrated in Table-2 shows that,  $\chi^2 - value$  of all statements in understanding category were significant at 0.05 level of significance. The weighted mean of 6 statements were above the average weighted mean out of 11 statements in understanding category. Also all statements on understanding were sifted in agree category in percentage. Thus the results indicate that the students were understood about LGS.

As illustrated in Table-2 shows that,  $\chi^2 - value$  of all statements in practice category were significant at 0.05 level of significance. The weighted mean of 5 statements were above the average weighted mean out of 8 statements in practice category. Also 7 statements out of 8 statements on practice were sifted in agree category in percentage. Thus the results indicate that the students were understood about practice of LGS.

As illustrated in Table-2 shows that,  $\chi^2 - value$  of all statements in evaluation category were significant at 0.05 level of significance. The weighted mean of 6 statements were above the average weighted mean out of 10 statements in evaluation category. Also 6 statements out of 10 statements on evaluation were sifted

in agree category in percentage. Thus the results indicate that the students were understood about use of LGS in evaluation.

As illustrated in Table-2 shows that,  $\chi^2$  – *value* of all statements in effectiveness category were significant at 0.05 level of significance. The weighted mean of 4 statements were above the average weighted mean out of 9 statements in effectiveness category. Also 8 statements out of 9 statements on effectiveness were sifted in agree category in percentage. Thus the results indicate that LGS is effective method of student evaluation.

Thus the result indicated that the students were positive opinion towards letter grading system.

### **Interview**

For the purpose of gaining personal perception/views/opinion about LGS, the researcher was conducted an interview. Researcher select 5 students and 3 teachers purposively, objectively form sample for the interview. The interview was conduct on the basis of semi-structured interview guidelines of Appendix-H for SLC 2072 Passed student, Appendix-I for SEE passed students and Appendix-J for secondary level mathematics teachers. This interview focused the opinion towards LGS, faced problem and explore the challenge and opportunities on LGS.

#### **Interview with SLC/SEE passed students**

The researcher selects 5 students for the interview from the sampled student who passed SLC/SEE in grading system. Among the selected five students, they were two girl and three boys.

**Student A1:** Student A1 is a SLC passed student of Shree Janasakti

Secondary School, Namjung. He is 17 years old. He gets 2.45 GPA. He said

that, *"Letter Grading System was used in our SLC examination evaluation. We were not understood about it before our SLC examination. Therefore we neglect our regular study but now know about LGS, because I couldn't join in solder and I couldn't study my choices faculty and subject in class eleven. LGS and numerical evaluation system were same but we think vast different. No students fail is not true for all because they reject in any field. It is useful for educated family and opportunity to the further study of their excellencies in some field. Although LGS is useful in SLC examination"*.

He had positive opinion towards letter grading system. He was the average student of this school. He gets only D-grade in mathematics and thus could not join solder and choice faculty in higher study. All were think no one fail, therefore we neglect our regular study but after the result we know low grade were effected many field. Although LGS is useful in SLC examination.

**Student A2:** Student A2 is a SLC passed student of Shree Navajagriti Chandi Secondary School, Asrang. She is 16 years girl. She gets 3.6 GPA. She said that, *"LGS means Letter Grading System. It is most important evaluation system in the 21<sup>st</sup> century. Therefore LGS was use in the SLC and other examination. It increases of student's skill, qualification, and experience, responsibility and duty in reading and writing. Student's performance was increase while using LGS in student evaluation in SLC. I feel better understanding of my learning when LGS was used in SLC. It is useful for educated family but all the family is not understand about it. Students, parents and teachers were not aware and understanding about LGS and its policies properly. Therefore it has not a positive effect in student academic achievement. We could not understand it properly. Parents were not satisfied*

*with this system because they cannot understand about it properly. Give opportunity to re test for increasing grade that get low grade. It can motivate for student to the opportunity for them. No students fail in SLC/SEE, it is not true at all".*

She had strong positive opinion towards LGS. She was the excellent student of this school. She said that, LGS was mostly used in intellectual evaluation in 21th century. Therefore LGS was used in SLC evaluation. She did not understand about LGS and GPA properly. It is best for excellent students and educated family because they understand and further impact about LGS. Give opportunity to re test for increasing grade that get low grade was true. Thus LGS is useful in SLC examination.

**Student A3:** Student A3 is the SLC passed student of Shree Bhagawati Himalaya Secondary School, Ghairung. He is 16 years old. He gets 2.30 GPA. He said that, *"Letter Grading System is student achievement score level. LGS is usefulness in evaluation system only in educated family but not in uneducated family. Because all of above parents were not understood about LGS and its policies.LGS was firstly used in student evaluation, therefore it was difficult to understand. Their accurate achievement score is difficult to know in LGS. All are passed in LGS, which is not true at all because they are not get opportunity in so many fields that get low grade. Although if we aware it is useful for evaluation in SLC/SEE examination".*

He had positive opinion towards LGS. He said it was useful for only educated family because they understand about it. LGS was firstly use in student evaluation, therefore it was difficult to understand. Difficult to know accurate score in LGS. Low

grade achievers were not get opportunities in so many fields. Although if we aware LGS is usefulness for student evaluation.

**Student A4:** Student A4 was SEE passed student of Shree Shaheed Smrity Secondary School, Bungkot. He was 16 years old. He was from Hatia. He said that, *"LGS is a grading of achievement level of obtained score of student in examination. Our SEE evaluation was also evaluated in LGS. In LGS, no one is fail. Therefore teacher and students were neglecting their regular study. Even though if we get low grade then we are not acceptable in some field. It gets opportunity to higher study that was week in some specific subject which is true. Lastly it is useful for using evaluation of student achievement but need to aware and understand about LGS and its policies for students, teachers and parents"*.

He was positive opinion towards LGS. He said that teacher and student were neglect regular study because they think no one was fail in LGS. Even though if we get low grade then we are not acceptable in some field. It is useful for using evaluation of student achievement but need to aware and understands about LGS.

**Student A5:** Student A5 was SEE passed student of Siddasthani Secondary School, Taklung. She was 14 years old. She said that, *"Letter Grading System is a system of grading of student achievement in letter. I am not also clearly understands about LGS. It is simply understands educated family but not understand uneducated family. It is difficult to understand what LGS is and how calculate GPA. No student fail in LGS it is not true at all. Because no opportunity in some field. Now student are not interested in regular study"*

*because they think no one is fail. But now teacher and parents are aware about our achievement in LGS and further ways".*

She said LGS was simply understood educated family but not uneducated family. It was difficult to understand GPA and LGS and further impact. Although it is true for using student intellectual evaluation. Thus she had positive opinion towards LGS.

Finally they had positive opinion towards LGS. Even though it's need to aware because of misconception and misunderstanding the students, parents, teachers and stakeholder about LGS and it policies. Some educated parents were aware about LGS but not all. Some students did not get opportunities to their choices higher study and join in solder. Even though all were agree, it was usefulness for student intellectual evaluation.

### **Interview with teachers**

For the purpose of gaining personal information, beliefs, views, and opinions about LGS the researcher conduct an interview. The researcher selects three teachers for the interview. The interview was conducted on the basis of interview guidelines (Appendix-J). This interview focuses the teacher's perception, views, thoughts, and opinions towards LGS.

**Interview with teacher A:** Teacher A was a secondary level mathematics teacher. He was 53 years old and 30 years secondary level mathematics subject teaching experience. His qualification was B.ed. in mathematics education. He said that, *"Letter Grading System is a grading system in letter of student achievement. We are not clear about LGS and its policies but I understand about LGS and GPA. Training and orientation programs were not*

*sufficient for understanding LGS. LGS is not clear student achievement score. Parents and students were generally misunderstanding about LGS evaluation system and regular and continuity in study was decrease. Achievement was not exact and it is in interval. In the present context LGS was used in SLC/SEE evaluation. All were passed in LGS but not anywhere. It's most important fact was no students drop out in school and week students also get level clear certificate but not excellent in talented student. Even though, if all were understood about LGS it is best system in student achievement evaluation".*

He was 30 years experienced teacher in secondary level mathematics subject.

He said, we were not clear about LGS and GPA. LGS not shows students actual intelligence. It's most important fact was no students drop out in school and week students also gets level clear certificate but not excellent in talented student. Even though, if all were understood about LGS it is best system in student achievement evaluation. Thus he was positive opinion towards LGS.

**Interview with teacher B:** Teacher B was a secondary level mathematics teacher. She was 29 years old and 5 years secondary level mathematics subject teaching experience. Her qualification was M.ed. in mathematics education. She said that, *"Letter Grading System is a system of grading in a symbolic interval for student intellectual achievement. I understand about LGS and GPA and I also calculate GPA and LGS. But some teacher and stakeholder were not understood and they do not aware about LGS. Now the mathematics teacher are need learn and teach about calculating GPA and assign LGS. Training and orientation programs were not sufficient for understanding LGS and its policies. It is also need in internal evaluation. Responsibility, duty, continuity in study, studying habit and interest were decrease from the*

*misunderstanding about LGS. All stakeholders and teachers need understand in time and aware in the student and parents about LGS. All were thinking no student fail in LGS but who is capable and incapable for the further specific study his or her achievement grade are decided. Educate persons and parents were satisfied with LGS but not all. So many problems were faced who get low grade. The student's gets opportunity for the further study in their choices and talented field. It was not before using LGS because of their frailer in some subject. Therefore LGS is useful for using SLC".*

She was a teacher of secondary level mathematics subject. She was understands and also calculate LGS and GPA. She said it is also need in internal evaluation. Responsibility, duty, continuity in study, studying habit and interest were decreased from the misunderstanding about LGS. LGS is useful for using SLC evaluation. Thus she had positive opinion towards LGS.

**Interview with teacher C:** Teacher C was the secondary level mathematics teacher. He was 28 years old and 7 years teaching experience. His qualification was M.ed. in mathematics education. He said that, *"LGS is a grading of a student achievement score in fixed division or interval. It is from A<sup>+</sup> to E. In the context of Nepal it was start from TSLC 2071. LGS was describing in new curriculum and SLC/SEE. Therefore it is recommended and used in evaluation in student capacity. LGS is simple for measurement of student ability. I understand about LGS and GPA and I also calculate GPA and LGS. But some teacher and stakeholder were not understood and they do not aware about LGS. Now the mathematics teachers are need to learn and teach about calculating GPA and assign LGS. Training and orientation programs were not sufficient for understanding LGS and its policies. It is also*



*need in internal evaluation. Some teacher think that responsibility and duty were decrease from using LGS in SLC, but I think increase because of the student future study and opportunity ways are vast day to day. Studying habit, interest, and continuity in study was decreased because of misunderstanding of use of LGS. But the teacher and related stakeholders are need to aware about evaluation in LGS and further impact. The main problem face in using are: difficult to the stakeholder for understand the concept of LGS, regular study was decreased in student, difficult to determine student position etc. The main challenging points are: challenge to understand for student, teacher and parents about GPA and LGS, challenge to motivation of students and teacher in teaching learning activity etc. LGS is latest and scientific system in evaluation of intellectual ability. No students fail in LGS, was not true at all because all were not accept in all sectors. Re-test is true for increasing grade, who get low grade. High grades can motivate for further study. Although all of above parents and related persons were satisfied with LGS. Therefore LGS is useful for evaluation of student intellectual ability".*

He had strongly positive opinion towards LGS. He said LGS was describing in new curriculum and SLC/SEE. Therefore it is recommended and used in evaluation in student capacity. He understands and also calculates GPA and LGS. Studying habit, interest, and continuity in study was decreased because of misunderstanding of use of LGS. The teacher and related stakeholders are need to aware about evaluation in LGS and further impact. It was difficult to determine student position. Although all of above parents and related persons are satisfied with LGS. Therefore LGS is useful for evaluation of student intellectual ability.

All teachers are positive opinion towards LGS. They understand about LGS and GPA and also calculate and assigned accurately GPA and LGS. Mathematics teacher were need to learn and teach and understand the students, teachers and parents about it. Training and orientation programs were not sufficient for understand LGS and it policies. Therefore related sector need to lunch training and orientation programs for students, teachers and parents. LGS is also need in internal evaluation. Teacher's responsibility and duty was increase after using LGS. Studying habit, interest, and continuity in study was decreased because of misunderstanding of use of LGS. But the stakeholders are need to aware about evaluation in LGS and further impact. The main problem face by difficult to the stakeholder for understand about LGS, regular study was decreased, difficult to determined student position etc. The main challenges about LGS are: understand for student, teacher and parents about GPA and LGS, student's motivation etc. No students fail in LGS, is not true at all because all are not accept in all sectors. Re-test is true for increasing grade, who get low grade. High grades can motivate for further study. Even though, parents and related persons were generally satisfied with LGS. Therefore LGS is useful for evaluation of student intellectual ability.

## Chapter V

### SMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This fifth and final chapter would include a summary and interpretation of the research finding of the study. Theoretical and practical implication, as well as recommendation for further research and conclusion, will also be delineated.

#### Summary and Findings

This research was concerned about the opinion of secondary level mathematics teachers and students towards LGS and to explore the challenges and opportunities to the teachers and students on LGS. This study was survey research. The population of the study was consisted of all secondary level mathematics teachers and students that passed SLC/SEE in LGS of Gorkha district. The researcher selected 15 schools randomly. 25 mathematics teachers and 150 students from the selected schools constituted the sample of the study from Gorkha district.

A set of structured opinionnaire was developed as a tool for collect data for the study. All opinionnaire statements were related to LGS in SLC/SEE. The opinionnaire statements were classified into: understanding, practice, evaluation, and effectiveness. There were 43 opinionnaire statements for sampled secondary level mathematics teachers and 38 statements for sampled students.

The  $\chi^2 - test$  at 0.05 level of significance was used to find out the opinion of mathematics teachers and students towards LGS in SLC/SEE. Among the total 43 opinionnaire statements, the mathematics teachers responded 24 statements were significant and 19 were insignificant from  $\chi^2 - test$ . The average weighted mean was 3.15 and 21 statements out of 43 were above the average weighted mean. Similarly the figure 1-43 shows that 26 statements were slidely decreased from agree category,

4 statements were neither agree nor disagree and 13 statements were slidely decried from disagree category. And among the 38 opinionnaire statements, the students responded all statements are significant from the  $\chi^2 - test$ . The average weighted mean was 3.35 and 21 statements out of 38 were above the average weighted mean. Similarly 31 statements out of 38 were slidely decreased from agree category and 7 statements were slidely decreased from disagree category. It shows that the secondary level mathematics teachers and students are positive opinion towards LGS in SLC/SEE.

Similarly primary data was collect from interview. Interview was conducted in 5-SLC/SEE passed students and 3-secondary level mathematics teachers with the help of interview guideline kept in Appendix-H, Appendix-I and Appendix-J. The interview get personal thoughts, opinion, views and beliefs about LGS and it helps to explore the challenges and opportunity on LGS in SLC/SEE and to make a theme.

From the above collected data analysis the findings were as follows:

- There was a positive opinion of secondary level mathematics teachers and students towards LGS in SLC/SEE.
- Secondary level mathematics teachers were understood and calculate and assigned accurately GPA and LGS.
- Training and orientation programs were not sufficient for understanding GPA and LGS.
- There was necessary of training, orientation programs to the teachers, parents and students to understand about LGS.
- LGS was not useful for existing curriculum; therefore sufficient curriculum will be change for using LGS.

- LGS was not used in internal evaluation and LGS was also need in internal evaluation.
- Letter Grading System was different from numerical/percentage grading system.
- No student's fail in LGS, which is not true at all.
- Give opportunity to re-test for increasing grade, who get low grade.
- Student motivation, regularity and continuity in study were decreased after using LGS in SLC/SEE.
- Difficult to the stakeholders for understand the concept of LGS and further impact.
- Challenge to understand for student, teacher and parents about GPA and LGS.
- Challenge to motivation of students and teacher in teaching learning activity.
- Most of the Students, teachers and parents have misconceptions, misunderstanding and illusions about LGS due to the lack of knowledge and clear understanding about LGS.
- Parents, teachers and students were not generally satisfied to using LGS, because of misunderstanding about LGS.
- They support the idea of an implementation of LGS in SLC/SEE and they would like to learn more about it.
- Some student did not get opportunity to join solder and did not join interested higher study for his low grade in some subject in SLC/SEE.
- Students dropout rate were decreased in a school.
- Week students were also gets level clear certificate.
- Some students anytime fail in some subject and excellent others subject, LGS provides them an opportunity to higher study.

## **Conclusions**

On the basis of findings of this study shows that there was a positive opinion of secondary level mathematics teachers and students towards LGS in SLC/SEE. Even though teachers, parents and students were generally not satisfied with LGS because most of the students, teachers and parents have misconceptions, misunderstanding and illusions about LGS due to the lack of knowledge and clear understanding about LGS. Therefore there is necessary to training, orientation programs to the teachers, parents and students to understand about GPA and LGS. Challenge to understand for students, teachers and parents about GPA and LGS. Student's dropout rate was decrease in school and week student's were also get level clear certificate. Some students failed in some subject and excellent other subject, LGS provides them an opportunity to higher study.

## **Recommendations**

This research was in the issues of the influence of opinion of mathematics teachers and students towards LGS and challenges and opportunities on LGS. Grades exemplify teachers central philosophies about education and its purposes (Gullen, Erickson-Guy, 2012: Wiles, 2013), and there was a wide spectrum of beliefs on grading practice. The survey endeavored to secondary level mathematics teachers and student's opinion and explores some challenge and opportunities on LGS. There is a disputed the value of traditional practice and present variable alternatives based evaluation system on research and result. After conducting the study, may ideas surfaced about the continuance of similar research. Recommendations for additional research include adding a qualitative study, selecting varied and larger test group.

From the finding of this study, the researcher suggests the following recommendations on LGS.

- To discuss the opinion about letter grading system in a bigger volume of mathematics teachers and students.
- To discuss the impact on the mathematical achievement of students evaluated by numerical/percentage system and LGS.
- To discuss and interact the effectiveness of LGS in secondary level new curriculum evaluation system among the teachers, students and parents.
- To discuss the parents satisfaction on using LGS in student evaluation.
- To compare the student performance in traditional assessment system (numerical/percentage) and LGS

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### Appendix-A

#### Secondary Level Mathematics Teachers Opinion Survey on LGS.

	SN	Opinionnaire Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Understanding</b>	1	I understand about Letter Grading System.					
	2	I understand about Grade Point Average.					
	3	I understand how giving Letter grades and calculating and giving GPA.					
	4	Students, parents and teachers are aware and understanding of policy of LGS.					
	5	LGS is an important criteria for judging students progress.					
	6	LGS has a positive effect in student's academic achievement.					
	7	High grades can motivate student to learn.					
	8	Grades are based on student critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.					
	9	I am very confident that the Letter Grades, I'll also assign accurate and reliable to students achievement.					
	10	I think teachers should be able to adopt whatever grading practice work for them.					

	11	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.					
	12	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.					
	13	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.					
	14	I support the idea of an implementation of LGS in SLC.					
	15	I would like to learn more about Letter Grading System.					
<b>Practice</b>	16	LGS is firstly used in the evaluation of TSLC2071 & all SLC 2072 result.					
	17	LGS is usefulness for evaluation in existing school curriculum.					
	18	Sufficient curriculum will be change for using LGS in school level.					
	19	Orientation programs are not sufficient for understanding LGS & GPA.					
	20	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.					
	21	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.					
	22	LGS is practice in internal evaluation of student					

		achievement.					
	23	Practice work is not including in the end of our grading.					
<b>Evaluation</b>	24	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.					
	25	LGS is appropriate for evaluation of SLC Examination.					
	26	LGS is same with Numerical/Percentage grading system.					
	27	LGS is very different from Numerical/Percentage system.					
	28	LGS is using in internal evaluation.					
	29	LGS is also need in internal evaluation.					
	30	CAS is similar to LGS in student intellectual evaluation.					
	31	No students fail in LGS in evaluation.					
	32	No students fail in LGS, which is true at all.					
	33	Give opportunity to re-test for increasing grade, who get low grade.					
	34	Re test is not true for increasing grade.					
	<b>Effectiveness</b>	35	Student motivation is increase after using LGS in SLC.				
36		Teachers, students and parents are satisfied to using LGS in SLC.					

37	Continuity in study is increase after using LGS in SLC.					
38	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.					
39	Student performance is increase while using LGS in student evaluation in SLC.					
40	I feel student motivate to study out of school to aid my learning when it is not before using LGS.					
41	I feel better understanding of my teaching when LGS is used in SLC.					
42	I feel more motivated to learn when I understand the expected learning objectives.					
43	Letter grades are an effective method of informing parents of their child progress and achievement.					

## Appendix-B

## Student's Opinion Survey on LGS

	SN	Opinionnaire Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Understanding</b>	1	I understand about Letter Grading System.					
	2	I understand about Grade Point Average.					
	3	Students, parents and teachers are aware and understanding of policy of LGS.					
	4	LGS has a positive effect in student's academic achievement.					
	5	High grades can motivate student to learn.					
	6	Grades are based on student's critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.					
	7	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.					
	8	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.					
	9	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.					
	10	I support the idea of an implementation of LGS in SLC.					
	11	I would like to learn more about Letter Grading System.					

<b>Practice</b>	12	LGS is firstly used in the evaluation of TSLC 2071 & all SLC 2072 result.					
	13	LGS is usefulness for evaluation in existing school curriculum.					
	14	Sufficient curriculum will be change for using LGS in school level.					
	15	LGS is practice in internal evaluation of student achievement.					
	16	Orientation programs are not sufficient for understanding LGS & GPA.					
	17	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.					
	18	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.					
	19	Practice work is not including in the end of our grading.					
<b>Evaluation</b>	20	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.					
	21	LGS is appropriate for evaluation of SLC Examination.					
	22	LGS is same with Numerical/Percentage grading system.					
	23	LGS is very different from Numerical/Percentage system.					
	24	LGS is using in internal evaluation.					
	25	LGS is also need in internal evaluation.					



	26	No students fail in LGS in student evaluation.					
	27	No students fail in LGS, which is true at all.					
	28	Give opportunity to re-test for increasing grade, who get low grade.					
	29	Re test is not true for increasing grade.					
<b>Effectiveness</b>	30	Student motivation is increase after using LGS in SLC.					
	31	Teachers, students and parents are satisfied to using LGS in SLC.					
	32	Continuity in study is increase after using LGS in SLC.					
	33	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.					
	34	Student performance is increase while using LGS in student evaluation in SLC.					
	35	I feel student motivate to study out of school to aid my learning when it is not before using LGS.					
	36	I feel better understanding of my learning when LGS is used in SLC.					
	37	I feel more motivated to learn when I understand the expected learning objectives.					
	38	Letter grades are an effective method of informing parents of their child progress and achievement.					

(App-A, App-B sources: Bailey,2012;Wiles,2013;Dauncey,1986;Paneru,2016)

## Appendix-C

## Attitude score of mathematics teachers

	S N	Opinionnaire Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Understanding	1	I understand about Letter Grading System.	0	5	2	15	3	25
	2	I understand about Grade Point Average.	1	3	4	13	3	24
	3	I understand how giving Letter grades and calculating and giving GPA.	0	6	7	10	2	25
	4	Students, parents and teachers are aware and understanding of policy of LGS.	2	10	7	6	0	25
	5	LGS is an important criteria for judging students progress.	1	7	6	10	1	25
	6	LGS has a positive effect in student's academic achievement.	3	5	9	8	0	25
	7	High grades can motivate student to learn.	1	3	6	12	3	25
	8	Grades are based on student critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.	0	2	3	14	6	25
	9	I am very confident that the Letter Grades, I'll also assign accurate and reliable to students achievement.	2	4	8	9	2	25
	10	I think teachers should be able to adopt whatever grading practice work for them.	2	3	10	10	0	25

	11	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.	0	2	5	15	3	25
	12	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.	0	6	4	14	1	25
	13	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.	3	15	5	2	0	25
	14	I support the idea of an implementation of LGS in SLC.	0	8	5	10	2	25
	15	I would like to learn more about Letter Grading System.	0	0	2	18	5	25
	<b>Practice</b>	16	LGS is firstly used in the evaluation of TSLC2071 & all SLC 2072 result.	0	0	4	16	5
17		LGS is usefulness for evaluation in existing school curriculum.	2	13	5	4	0	24
18		Sufficient curriculum will be change for using LGS in school level.	0	3	6	11	5	25
19		Orientation programs are not sufficient for understanding LGS & GPA.	0	1	4	14	6	25
20		Training is sufficient for teacher and stakeholders about understanding GPA and LGS.	4	13	6	2	0	25
21		Now school work is used only for feedback, practice and not for a final grades student's	0	5	8	10	2	25

		neglects important practice.						
	22	LGS is practice in internal evaluation of student achievement.	5	18	2	0	0	25
	23	Practice work is not including in the end of our grading.	0	0	4	14	7	25
<b>Evaluation</b>	24	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.	0	1	1	13	10	25
	25	LGS is appropriate for evaluation of SLC Examination.	2	6	9	7	1	25
	26	LGS is same with Numerical/Percentage grading system..	4	9	7	3	2	25
	27	LGS is very different from Numerical/Percentage system.	1	5	9	8	2	25
	28	LGS is using in internal evaluation.	5	16	4	0	0	25
	29	LGS is also need in internal evaluation.	1	6	8	9	1	25
	30	CAS is similar to LGS in student intellectual evaluation.	3	5	8	7	2	25
	31	No students fail in LGS in evaluation.	2	6	3	12	2	25
	32	No students fail in LGS, which is true at all.	2	14	5	3	1	25
	33	Give opportunity to re-test for increasing grade, who get low grade.	0	1	2	16	6	25
	34	Re test is not true for increasing grade.	2	7	9	7	0	25
<b>Effectiven</b>	35	Student motivation is increase after using LGS in SLC.	2	11	8	3	1	25

36	Teachers, students and parents are satisfied to using LGS in SLC.	4	10	5	4	2	25
37	Continuity in study is increase after using LGS in SLC.	4	9	9	3	0	25
38	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.	1	9	5	7	3	25
39	Student performance is increase while using LGS in student evaluation in SLC.	3	8	4	8	2	25
40	I feel student motivate to study out of school to aid my learning when it is not before using LGS.	3	7	5	9	1	25
41	I feel better understanding of my teaching when LGS is used in SLC.	2	7	6	8	2	25
42	I feel more motivated to learn when I understand the expected learning objectives.	2	5	2	12	4	25
43	Letter grades are an effective method of informing parents of their child progress and achievement.	0	10	2	11	2	25

## Appendix-D

## Weighted Mean of Attitude score of mathematics teachers

	SN	Opinionnaire Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Weighted Mean
Understanding	1	I understand about Letter Grading System.	0	10	6	60	15	91	3.64
	2	I understand about Grade Point Average.	1	6	12	52	15	86	3.58
	3	I understand how giving Letter grades and calculating and giving GPA.	0	12	21	40	10	83	3.32
	4	Students, parents and teachers are aware and understanding of policy of LGS.	2	20	21	24	0	67	2.68
	5	LGS is an important criteria for judging students progress.	1	14	18	40	5	78	3.12
	6	LGS has a positive effect in student's academic achievement.	3	10	27	32	0	72	2.88
	7	High grades can motivate student to learn.	1	6	18	48	15	88	3.52
	8	Grades are based on student critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.	0	4	9	56	30	99	3.96
	9	I am very confident that the Letter Grades, I'll also assign accurate and reliable to students achievement.	2	8	24	36	10	80	3.20
	10	I think teachers should be able to adopt	2	6	30	40	0	78	3.12

		whatever grading practice work for them.							
	11	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.	0	4	15	60	15	94	3.76
	12	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.	0	12	12	56	5	85	3.40
	13	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.	3	30	15	8	0	56	2.24
	14	I support the idea of an implementation of LGS in SLC.	0	16	15	40	10	81	3.24
	15	I would like to learn more about Letter Grading System.	0	0	6	72	25	103	4.12
<b>Practice</b>	16	LGS is firstly used in the evaluation of TSLC2071 & all SLC 2072 result.	0	0	12	64	25	101	4.04
	17	LGS is usefulness for evaluation in existing school curriculum.	2	26	15	16	0	59	2.46
	18	Sufficient curriculum will be change for using LGS in school level.	0	6	18	44	25	93	3.72
	19	Orientation programs are not sufficient for understanding LGS & GPA.	0	2	12	56	30	100	4.00
	20	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.	4	26	18	8	0	56	2.24

	21	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.	0	10	24	40	10	84	3.36
	22	LGS is practice in internal evaluation of student achievement.	5	36	6	0	0	47	1.88
	23	Practice work is not including in the end of our grading.	0	0	12	56	35	103	4.12
<b>Evaluation</b>	24	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.	0	2	3	52	50	107	4.28
	25	LGS is appropriate for evaluation of SLC Examination.	2	12	27	28	5	74	2.96
	26	LGS is same with Numerical/Percentage grading system..	4	18	21	12	10	65	2.60
	27	LGS is very different from Numerical/Percentage system.	1	10	27	32	10	80	3.20
	28	LGS is using in internal evaluation.	5	32	12	0	0	49	1.96
	29	LGS is also need in internal evaluation.	1	12	24	36	5	78	3.12
	30	CAS is similar to LGS in student intellectual evaluation.	3	10	24	28	10	75	3.00
	31	No students fail in LGS in evaluation.	2	12	9	48	10	81	3.24
	32	No students fail in LGS, which is true at all.	2	28	15	12	5	62	2.48
	33	Give opportunity to re-test for increasing	0	2	6	64	30	102	4.08



		grade, who get low grade.							
	34	Re test is not true for increasing grade.	2	14	27	28	0	71	2.84
<b>Effectiveness</b>	35	Student motivation is increase after using LGS in SLC.	2	22	24	12	5	65	2.60
	36	Teachers, students and parents are satisfied to using LGS in SLC.	4	20	15	16	10	65	2.60
	37	Continuity in study is increase after using LGS in SLC.	4	18	27	12	0	61	2.44
	38	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.	1	18	15	28	15	77	3.08
	39	Student performance is increase while using LGS in student evaluation in SLC.	3	16	12	32	10	73	2.92
	40	I feel student motivate to study out of school to aid my learning when it is not before using LGS.	3	14	15	36	5	73	2.92
	41	I feel better understanding of my teaching when LGS is used in SLC.	2	14	18	32	10	76	3.04
	42	I feel more motivated to learn when I understand the expected learning objectives.	2	10	6	48	20	86	3.44
	43	Letter grades are an effective method of informing parents of their child progress and achievement.	0	20	6	44	10	80	3.20

## Appendix-E

## Attitude score of students

	SN	Opinionnaire Statements	Strongly	Disagree	Neutral	Agree	Strongly Agree	Total
<b>Understanding</b>	1	I understand about Letter Grading System.	9	41	33	59	6	148
	2	I understand about Grade Point Average.	9	31	30	64	13	147
	3	Students, parents and teachers are aware and understanding of policy of LGS.	11	38	47	46	7	149
	4	LGS has a positive effect in student's academic achievement.	7	39	36	51	13	146
	5	High grades can motivate student to learn.	6	13	27	45	57	148
	6	Grades are based on student's critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.	7	10	37	57	38	149
	7	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.	9	22	42	53	22	148
	8	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.	9	21	32	52	32	146
	9	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.	14	34	32	55	15	150
	10	I support the idea of an implementation of LGS	7	18	28	56	39	148

		in SLC.						
	11	I would like to learn more about Letter Grading System.	2	11	19	42	72	146
<b>Practice</b>	12	LGS is firstly used in the evaluation of TSLC 2071 & all SLC 2072 result.	12	16	26	56	35	145
	13	LGS is usefulness for evaluation in existing school curriculum.	2	36	24	56	29	147
	14	Sufficient curriculum will be change for using LGS in school level.	5	13	26	61	34	139
	15	LGS is practice in internal evaluation of student achievement.	16	31	32	49	20	148
	16	Orientation programs are not sufficient for understanding LGS & GPA.	17	13	42	49	26	147
	17	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.	20	33	43	33	18	147
	18	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.	7	21	39	54	27	148
	19	Practice work is not including in the end of our grading.	15	26	45	50	14	150
	<b>Evaluation</b>	20	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.	6	17	39	49	38
21		LGS is appropriate for evaluation of SLC	7	16	38	57	30	148

	Examination.							
22	LGS is same with Numerical/Percentage grading system.	17	33	48	39	10	147	
23	LGS is very different from Numerical/Percentage system.	5	20	34	48	38	145	
24	LGS is using in internal evaluation.	42	51	25	16	12	146	
25	LGS is also need in internal evaluation.	9	16	37	54	30	146	
26	No students fail in LGS in student evaluation.	11	15	31	64	24	145	
27	No students fail in LGS, which is true at all.	18	42	33	34	23	150	
28	Give opportunity to re-test for increasing grade, who get low grade.	13	11	14	50	62	150	
29	Re test is not true for increasing grade.	43	36	24	22	16	141	
<b>Effectiveness</b>	30	Student motivation is increase after using LGS in SLC.	13	20	35	48	34	150
	31	Teachers, students and parents are satisfied to using LGS in SLC.	7	28	55	45	15	150
	32	Continuity in study is increase after using LGS in SLC.	27	57	30	23	11	148
	33	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.	19	19	32	57	22	149
	34	Student performance is increase while using LGS in student evaluation in SLC.	6	22	46	52	23	149
	35	I feel student motivate to study out of school to aid my learning when it is not before using LGS.	20	36	35	43	15	149

36	I feel better understanding of my learning when LGS is used in SLC.	13	18	37	55	15	138
37	I feel more motivated to learn when I understand the expected learning objectives.	7	14	28	58	33	140
38	Letter grades are an effective method of informing parents of their child progress and achievement.	5	16	38	56	33	148

## Appendix-F

## Weighted Mean of Attitude score of students

	SN	Opinionnaire Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Weighted Mean
<b>Understanding</b>	1	I understand about Letter Grading System.	9	82	99	236	30	456	3.08
	2	I understand about Grade Point Average.	9	62	90	256	65	482	3.28
	3	Students, parents and teachers are aware and understanding of policy of LGS.	11	76	141	184	35	447	3.00
	4	LGS has a positive effect in student's academic achievement.	7	78	108	204	65	462	3.16
	5	High grades can motivate student to learn.	6	26	81	180	285	578	3.91
	6	Grades are based on student's critical thinking skill, independent thinking ability, collaborative learning ability, writing ability.	7	20	111	228	190	556	3.73
	7	I believe grades should reflect the influence of a student's behavior and work ethic on his or her achievement.	9	44	126	212	110	501	3.39
	8	I believe LGS should reflect the influence of a teacher teaching activity and responsibility.	9	42	96	208	160	515	3.53

	9	To the best of my knowledge, parents are generally satisfied with the Letter Grading System.	14	68	96	220	75	473	3.15
	10	I support the idea of an implementation of LGS in SLC.	7	36	84	224	195	546	3.69
	11	I would like to learn more about Letter Grading System.	2	22	57	168	360	609	4.17
Practice	12	LGS is firstly used in the evaluation of TSLC 2071 & all SLC 2072 result.	12	32	78	224	175	521	3.59
	13	LGS is usefulness for evaluation in existing school curriculum.	2	72	72	224	145	515	3.50
	14	Sufficient curriculum will be change for using LGS in school level.	5	26	78	244	170	523	3.76
	15	LGS is practice in internal evaluation of student achievement.	16	62	96	196	100	470	3.18
	16	Orientation programs are not sufficient for understanding LGS & GPA.	17	26	126	196	130	495	3.37
	17	Training is sufficient for teacher and stakeholders about understanding GPA and LGS.	20	66	129	132	90	437	2.97
	18	Now school work is used only for feedback, practice and not for a final grades student's neglects important practice.	7	42	117	216	135	517	3.49
	19	Practice work is not including in the end	15	52	135	200	70	472	3.15

		of our grading.							
<b>Evaluation</b>	20	The numerical/percentage grading system is used before use of LGS for student achievement evaluation.	6	34	117	196	190	543	3.64
	21	LGS is appropriate for evaluation of SLC Examination.	7	32	114	228	150	531	3.59
	22	LGS is same with Numerical/Percentage grading system.	17	66	144	156	50	433	2.95
	23	LGS is very different from Numerical/Percentage system.	5	40	102	192	190	529	3.65
	24	LGS is using in internal evaluation.	42	102	75	64	60	343	2.35
	25	LGS is also need in internal evaluation.	9	32	111	216	150	518	3.55
	26	No students fail in LGS in student evaluation.	11	30	93	256	120	510	3.52
	27	No students fail in LGS, which is true at all.	18	84	99	136	115	452	3.01
	28	Give opportunity to re-test for increasing grade, who get low grade.	13	22	42	200	310	587	3.91
	29	Re test is not true for increasing grade.	43	72	72	88	80	355	2.52
<b>Effectiveness</b>	30	Student motivation is increase after using LGS in SLC.	13	40	105	192	170	520	3.47
	31	Teachers, students and parents are satisfied to using LGS in SLC.	7	56	165	180	75	483	3.22
	32	Continuity in study is increase after using	27	114	90	92	55	378	2.55



	LGS in SLC.							
33	Responsibility and duty in reading and writing is increase in student after using LGS in SLC.	19	38	96	228	110	491	3.30
34	Student performance is increase while using LGS in student evaluation in SLC.	6	44	138	208	115	511	3.43
35	I feel student motivate to study out of school to aid my learning when it is not before using LGS.	20	72	105	172	75	444	2.98
36	I feel better understanding of my learning when LGS is used in SLC.	13	36	111	220	75	455	3.30
37	I feel more motivated to learn when I understand the expected learning objectives.	7	28	84	232	165	516	3.69
38	Letter grades are an effective method of informing parents of their child progress and achievement.	5	32	114	224	165	540	3.65

**Appendix-G****Name of the school**

1. Shree Shaheed Smrity Secondary School, Bungkot-3
2. Shree Bhagawati Himalaya Secondary School, Ghairung-2
3. Shree Navajagriti Chandi Secondary School,Asrang-6
4. Shree Janasakti Secondary School, Namjung-7
5. Shree Shiddasthani Secondary School, Taklung-9
6. Shree Rameshwory Secondary School, Bungkot-9
7. Shree Ammar Jyoti Secondary School, Palungtar
8. Shree Bal Mandir Secondary School, Gorkha municipality-1
9. Shree Himalaya Secondary School, Ghairung-7
10. Shree Jaldevi Secondary School, Taklung-8
11. Shree Bijaya Bhawani Secondary, Makaising
12. Shree Dirgeswor Secondary School, Fujel
13. Shree Annapurna Secondary School, Khoplang
14. Shree Tanglichok Secondary School, Tanglichok
15. Shree Ratna Laxmi Secondary School, Gorkha Municipality-6

## Appendix-H

### Interview guideline for SLC passed students

Name:

Gender:

Address:

Age:

SLC Passed School:

SLC passed GPA:

The interview to the students was taken on the basis of the following main guidelines:

1. Personal history.
2. Understanding about GPA.
3. Understanding about LGS.
4. Perception/views about use of LGS in SLC.
5. Continuity in study before after use of LGS.
6. Satisfaction from received grade each subject and total.
7. Studying habit and interest before and after using LGS.
8. Motivation in study.
9. Opinions about no student fail in LGS.
10. Views on re-test for increasing grade, who get low grade.
11. Satisfaction to using LGS.
12. Problem face in using LGS.
13. Challenges on using LGS.
14. Opportunities on using LGS.
15. Effectiveness of using LGS.
16. Opinion on LGS.

## Appendix-I

### Interview guideline for SEE passed students

Name:

Gender:

Address:

Age:

School Name:

The interview to the students was taken on the basis of the following main guidelines:

1. Personal history.
2. Understanding about GPA.
3. Understanding about LGS.
4. Perception/views about use of LGS in SLC.
5. Continuity in study after use of LGS.
6. Studying habit and interest after using LGS.
7. Motivation in study.
8. Opinions about no students fail in LGS.
9. Views on re-test for increasing grade, who get low grade.
10. Satisfaction to using LGS.
11. Effectiveness of using LGS.
12. Opinion on LGS.

## Appendix-J

### Interview guideline for secondary level Mathematics teacher

Name:

Gender:

Address:

Age:

Teaching School:

Teaching Experience:

The interview to the teachers was taken on the basis of the following main guidelines:

1. Personal history.
2. Understanding about GPA and LGS.
3. Perception/views about use of LGS in SLC.
4. Role of mathematics teacher to understand GPA and LGS.
5. Training/Orientation about LGS.
6. Practice of LGS in internal evaluation.
7. Responsibility and duty in teaching.
8. Continuity in study before and after use of LGS.
9. Studying habit, interest and motivation before and after using LGS.
10. Opinion about no student fail in LGS.
11. Views on re-test for increasing grade, who get low grade.
12. Satisfaction to using LGS.
13. Problem face in using LGS.
14. Challenges and opportunities on using LGS.
15. Effectiveness and appropriateness of using LGS.
16. Opinion on LGS.

## Appendix-K

### Statistical formula used in data analysis

For  $\chi^2$  – test

$$\chi^2 = \sum \left[ \frac{(o_i - e_i)^2}{e_i} \right]$$

Where  $o_i$ =Observed frequency

$e_i$ =Expected frequency

The level of significance is 0.05 with degree of freedom  $n - 1$

(Since  $\chi^2$  value is calculated by SPSS)

Critical region  $\chi^2_{\alpha, v} = \chi^2_{0.05, 4} = 9.488$

s-stand for significant and ns-stand for not significant.

### For Weighted Mean

The collected data were tabulated by using Edwards five-point scale: 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Strongly Agree in each statements. The statistical device weighted mean calculated by the sum of obtained points in each statements divided by total responded and compare with the weighted average mean.