

Chapter One

INTRODUCTION

1.1 Background of the study

In this contemporary world, education systems are currently under changes to teach new skills and competencies to all students and to function under increasing financial constraints brought about by changing economic circumstances. The effectiveness of schools to meet these challenges is being questioned by politicians, business leaders and academics world-wide. Consequently school effectiveness has become one of the important themes of world education.

Nepal government is also committed for the effective and quality education. For this purpose, the Nepalese Ministry of Education and Education department have applied different strategies. Among the different strategies declaration of Namuna school in different district is one. In Namuna schools we find the intensive care of concerning authorities. After meeting certain criteria of Namuna School, any general government school may be named as Namuna school. Till now 56 schools in Nepal are declared as Namuna schools student teachers ratio, qualification training and experience of teachers, physical infra-structure, economic condition, learning outcomes etc are some basic criteria for the categorization of the schools. In Namuna school both academic achievement and character development are focused.

Namuna Schools have strong cultures and a process factor. Strong supportive school leadership by the principal mainly is the most important content factor of Namuna Schools. Strong cultures permit principals to realize the main focus of Namuna Schools while permitting much teacher autonomy. Effective principals promote strong cultures but

also have roles of instructional leadership, internal change agent, program improver, and systematic problem solver.

According to Brookover & Lezotte, 1979; ILEA, 1986; Rutter, Maughan, Mortimore, Ouston, & Smith, 1979 Namuna School has been defined in terms of attendance, delinquency, general behaviour, and attitudes of students as well as in terms of student achievement. According to this definition, in which the outcome of an Namuna School is stated in terms of both student achievement and character development, is considered to be the most acceptable.

It is not yet clear exactly why some schools become effective but by imagining Namuna Schools as having strong cultures (Saphier & King, 1985) helps in understanding the problem; it also directs attention to the process by which school cultures develop and are maintained. Cultural linkages or couplings include shared meanings within the school, the symbols and mottos used, and the informal communication networks. Cultures, therefore, seem to be the glue that holds schools together and make them effective. Strong cultures provide the tight links within Namuna Schools that permit effective principals to influence and shape the instructional program and general operation of schools while simultaneously providing much autonomy for individual units and teachers within the school. Gross and Herriott (1965) concluded from an extensive study in the 1960s that elementary school principals have a limited and indirect impact on student achievement. There was no attempt in this study to distinguish Namuna Schools from typical schools or from schools in general.

Macbeath and Mortimore (2001, P. 7) have described the following characteristics of Namuna School.

Professional leadership, Shared vision and goals, A learning environment, Concentration on learning, Climate of high expectation for success, Positive reinforcement, Monitoring progress, Pupil's right and responsibilities, A learning organization and Home school partnership.

The above ten characteristics should have in every Namuna School. However, the following seven correlates or characteristics of the Namuna School are the most prominent ones are described here.

- i. Clear school mission: In the Namuna School, there is a clearly articulated school mission through, which the staff shares an understanding of and commitment to instructional goals, priorities, assessment procedures and accountability. Staff accepts responsibility for students' learning of the school's essential curricular goals.
- ii. High expectation for success: In the Namuna School, there is a climate of expectation in which the staffs believe and demonstrate that all students can attain mastery of the essential content and skills and the staffs also believe that they have the capability to help all students achieve that mastery.
- iii. Instructional leadership: In the Namuna School, the principal acts as an instructional leader and effectively and persistently communicates that mission to the staff, parents and students. The principal understands and applies the characteristics of instructional effectiveness in the management of the instructional program.
- iv. Frequent monitoring of student progress: In the Namuna School, student academic progress is measured frequently. A

variety of assessments are used to improve individual student performance and also to improve the instructional program.

- v. Opportunity to learn and student time on task: In the Namuna School, teacher allocates the significant amount of classroom time to instruction in the essential contents and skills. For a high percentage of this time students are engaged in whole class or large group, teacher directed, planned learning activities.
- vi. Safe and orderly environment: In the Namuna School, there is an orderly, purposeful, business like atmosphere which is free from the threat of physical harm. The school climate is not oppressive and is conducive to teaching and learning.
- vii. Home-school relation: In the Namuna School, parents understand and support the school's basic mission and are given the opportunity to play an important role in helping the school to achieve that mission.

Namuna Schools are those who have been successful in teaching and adopted curriculum to all students. Those schools have adopted both quality and equity standards. The equity standard expects the highest level of performance of every student and the equity standard assures that a student achievement is not a function of his or her gender, economic status or ethnicity. A Namuna School involves all staffs in planning, decision making and monitoring the continuous improvement efforts in each student and every teacher is expected to demonstrate leadership in providing each student the maximum opportunity to succeed. The Namuna School process is a comprehensive school reform plan that involves not only the curriculum and classroom instruction by the entire infrastructure to facilitate and sustain the improvements made. Namuna

Schools believe there are unique characteristics and process common to schools where all children are learning, regardless of family background. Because those mentioned seven characteristics found in schools where all students learn are correlated with student success are called “correlates”.

The above discussion of Namuna Schools describes that there is highest level of student’s performance and the student achievement is not a function of his or her gender economic status or ethnicity. And every teacher is expected to demonstrate leadership in providing each student the maximum opportunity to succeed. So, this is a curious aspect in mathematics learning to do research.

On the other hand learning is one of the important themes in the Namuna School which involves all the characteristics of the Namuna School. According to Skinner, “learning is a process of progressive behaviour adaptations”. Woodworth defined, “learning is the process of acquiring new knowledge and new response. There are certain steps in learning such as goal, motivation, recreation, obstacles, response and generalization. So, in the Namuna School for high expectation in learning always demands the collaboration of learning methods in the classroom.

Teacher needs to provide maximum opportunity to students on practice. Mathematics learning in the classroom always demands more practice for students and learning mathematics in the Namuna School has been becoming an interesting and existing them. Mathematics is a valuable subject in the school curriculum. It is widely used to the development of science and technology. “Mathematics as we know of it today is the science of number and their operation, interrelations and combination of space configuration and their structure, measurement etc (Upadhyay, 2001). In the context of Nepal, the S.L.C. results of students show that more than 50 percent students failed and the results of public

schools is worse than private school. the S.L.C. results also indicate that the maximum numbers of students are failure in mathematics. This is always blamed that the school has used traditional method of teaching, poor school environment, lack of proper policies of school, lack of teaching materials, lack of qualified and dedicated teachers etc. But there are some public schools with high achievement in the S.L.C. as well as in mathematics. Out of which 56 schools were announced as Namuna school by the government at 2056 BS. These reason also encouraged the researcher to identify the learning environment to the students in learning mathematics an Namuna school.

Now a days child centered teaching approach is more popular in mathematics education. The research (Upadhya, 2001) on mathematics teaching shows that constructivism as a method of teaching mathematics. Constructivist assumes that knowledge is actively constructed by learner not passively transmitted by teacher. In the line with this discussion the researcher proposed to this study to get the answer on “how do the teacher and students work in the classroom? What type of instructional strategies is promoted in the Namuna school and what additional supports are provided to the students who are low performer in mathematics? So This research has attempted to draw the answer of the above questions.

1.2 Statement of the Problem

Namuna school and school improvement are the recent phenomena in education. As already explained the characteristics of an Namuna School the creation of learning environment and best practices are the most important things for other schools to follow. How the Namuna School is managing the learning environment for mathematics learning,

the desire of the present study. The study also intends to answer the research questions as heading.

- i. What type of learning environment is provided to the students in learning mathematics in a Namuna School?
- ii. How do the teachers and students work in the classroom?
- iii. What additional supports are provided to the students who are low performer in mathematics?
- iv. Does the school announce Namuna once is still performing all the criteria's of Namuna School?

1.3 Objectives of the Study

The major focus of this study to draw the evolved model of learning management for mathematics learning in a Namuna School. On account of this focal mission of this study, the following the objectives of this case study.

- i. To describe the learning environment for mathematics learning in the Namuna School.
- ii. To analyze the teacher and students activities in the classroom of the Namuna school.
- iii. To identify the instructional strategies promoted for the mathematics learning in the Namuna School.
- iv. To investigate the type of additional support to low performer at Namuna school on mathematics learning.
- v. To find out once announced Namuna is still meeting its criteria.

1.4 Significance of the Study

Mathematics is one of the most important subjects in the school curriculum. It is widely used to solve daily life problem in the society but students fear from and feel that it is complicated to grasp. The results of mathematics in the school show that most of the students are low achievers to other subjects. Also maximum number of students has failed in mathematics and most of them felt more difficult to understand. But in the Namuna School maximum number of students have passed and got high achievement in mathematics. In this context, this research in the Namuna School for the purpose of finding the evolved model of mathematics learning which can be most important things for other schools to follow. On the other hand most of the researches done before about different general that School had been based on to find whose achievement was better but this study was done to explore what makes better achievement in mathematics learning, which can be valuable thing for school administrators, teachers students, researchers, curriculum designer and other stakeholders related to educations. Also this study to find weather a school announced Namuna once is performing based on all its criteria or not. In short know the answer of the question a Namuna school is still Namuna? So the answer of this question is important to the Government sectors so that can carry out other midterm policies to reform the Namuna school.

1.5 Delimitation of the Study

The limitations of this study were as follows:

- i. The study is limited to Rural Community School of Dhankuta District.
- ii. This study is limited to Namuna School only.
- iv. This study is limited to secondary level only.
- V. This study is limited on the basis of information obtained from observation made in two weeks at Namuna school.

1.6 Definition of Key Terms

Namuna School : There are school categorized as effective school and general school internationally depending upon different criteria. In Nepalese context 56 school were announced as Namuna schools which was differ in criteria of international system of effective school. So the word Namuna is used for effective school.

Common Practice: Daily usual practice on teaching & learning at the Namuna Schools

Subject Teacher: All the teacher teaching mathematics at the Namuna school for last five years.

Chapter Two

REVIEW OF THE RELATED LITERATURE AND THEORETICAL FRAMEWORK

This chapter deals on the review of the related literature to this study and a framework for the study. Theoretical literature for understanding the Namuna School, some related empirical studies about Namuna School and literature related to philosophy of learning on mathematics are reviewed. The theoretical literature of the Namuna School describes the recognition framework and a model for understanding the Namuna School. The empirical literature includes the different researches in the Namuna School in different time. Both theoretical and empirical literatures have been reviewed and discussed in this chapter.

2.1 Empirical Literature

The following conclusions are derived from a review of researches on Effective Schools and from information which is beginning to emerge on the cultures of good schools and on the role of the principal in good schools:

1. Effective Schools are commonly defined in terms of student achievement or character development; the preferred definition is a combination of both concepts.
2. Content or organizational factors of an Effective School include: effective teacher characteristics and behavior; strong supportive school leadership; good home-school-community relations; academic emphasis; effective instructional strategies; and positive external relationships with

board and board office personnel. These are essential givens in a good school and there may be others.

3. Process factors include: clearly articulated goals, objectives, mission; decentralized decision-making and collaboration; and high student expectations. These serve to articulate a strong school culture in a good school.

4. Effective Schools are paradoxical in that they are simultaneously both tightly coupled and loosely coupled. The school personnel operate based on a small number of themes agreed upon by all within the broader school context; but there is considerable freedom as to how to serve these themes and to accomplish the school's major purpose as embodied in the definition.

5. Strong cultures within schools determine the tight coupling or linkages which include the shared meanings or themes as manifested by the mottos and symbols and the informal communication networks.

6. Strong school leadership is the most important content or organizational factor of an Effective School. Effective principals have a multitude of influences on the school chief of which is the cultivation of a strong school culture. This includes articulation of shared meanings or themes as well as the factors of the school or the conditions by which the main purpose can be realized.

Other influences of good principals include: (a) assuming instructional leadership, especially in the area of basic skills; (b) assuming the role of internal change agent, especially as it relates to curriculum implementation; (c) ensuring program improvement by paying attention to providing materials and resources, time management,

and the physical environment of the school; and (d) playing the role of systematic problem-solver.

The movement of school effectiveness research began with the works of Edmonds (1970, 1979) and Brookover and other (1979) (Acharya, 1999-2000) Tammy Brawn, Norma Lemus nad Susie Dollbaum conducted research on three secrets of Effective School leaders i.e. team building, school climate and school vision all play important roles increasing a school site where morale is high and trust exists. The concept of team building is essential in order to bring the groups of dedicated individuals at a school site together. Team work provides cohesiveness as well as a sense of vision. The school culture or climate is what sets the learning tone within a school. People are empowered through a vision for the school. by working and communicating through terms and a vision, in a positive school climate change can occur. With a focus on these three elements school and community spirit can improve as well as school achievement. Deal and Peterson (1990) define school culture as “deep patterns of values, beliefs, and traditions that have been formed over the course of (the schools) history. Heckman (1993) brings the idea of school culture/ climate home to education with the definition as” the buzz words of” creating an efficient learning environment”. These definitions focus more on the core values necessary to teach and influence young minds so that students can make wish both in school and in the large picture of their world. Research supports the positive and healthy school culture/ climate correlates strongly with teacher productivity, morale and satisfaction as well as students achievement. Effective School leaders develop the common vision and at the same time they value the human resources of the organization. The successful leaders of schools form teams, support team efforts, develop the skill

groups and individuals need, and provided the necessary resources, both human and material, to fulfill the shared vision. Fried (1999) states that instructions should always be centered on how to help students better understand retain, and apply all that they have learned. Team efforts should reflect on the programs that are in place at any given school. Assessment and accountability will be meaningful as groups of teachers called work terms share and discuss the strategies that will or have fostered student's growth. On the other hand schools are complex environment with daily challenges for teacher, students, support staff, and administrators. In order to create a successful school vision, there must be a clear, shared sense of direction. According to Betances (1992) school visions have several components, including the following.

A vision features a compelling picture or image of what the school can become in the further, feasible and attainable, connected to an articulate deeper values and hopes for the further, needs to translate into actions and plants that can be and are implemented, will die if it is not regularly communicated.

Barbara M. Taylor, P. David Pearson, Kathleen F. Clark and Sharon Walpole (1999) research indicates a combination of sound building decisions, such as the collaborative model for reading instruction, and effective classroom practices contributed to success also in our most Effective Schools. This research also found the strong relationship between school effectiveness and teacher communication with parents.

Based on research and consultations with parents, the Act Council of P and C Associations has identified nine characteristics of Effective School. They are as follows Strong and professional teacher, Strong and professional principal, Clear positive philosophy, Environment

conductive to learning, Effective students' welfare system, Strong organizational frame work, Board balance curriculum, Meaningful assessment and reporting student progress, Support for parent and community participation.

As cites by subedi (2005) Effective School research was done by Norma Loft House (NLH, 1999), Aboriginal Education enhancements Branch, Ministry of Education. The major research tool used for this study was the ERIC (Educational Resource information Center) data base. Two documents were useful as format organizers what works; research about teaching and learning, published by the US Department of Education in 1987, and handbook of research on improving student achievement, edited by Gordon Cawelti and published by the Educational Service in 1995. this research indicates that a child's success in school is significantly influenced by having classrooms, parents and community members and schools all working together to support student achievement learning takes place in relationship. The home, the school and the community all contribute to a child's development. This research (NLH 1999) also indicates the following characteristics for the Childs success in school. High degree of parental involvement: parents and family members are a child's first teacher. Their active participation in school activities improves student's achievement, increase school attendance and decrease students dropout delinquency and pregnancy rates. The kinds of involvement that parents want most with schools is how to work with their own child at home in ways that help the students succeed and that keep the parents as parents as partners in their children's education across the grades.

Teachers with high expectations for all students and who Encourage habits of positive self-regard: teachers who set and

communicate high expectations from all their students obtain great academic performance than teachers who set low expectations. Students tend to learn as much (or as little) as their teachers expect. They highlight their strengths. They are student centered. Teachers use the students own strengths, interests, goals and dreams as the beginning point for learning and they tap into the students natural curiosity and desire to learn. Teacher who understand different culture and background, recognize student differences and provide a sense of inclusiveness for all students.

Learning activities that are relevant to a child's background and cultural beliefs Student to teach Effective School where classroom teachers function in the class more as facilitators of learning than transmitters of knowledge. They use practices that support children's active curiosity. Students learn to direct their own learning.

- Use of direct instruction where appropriate.
- Instruction adapted to students learning needs.
- Classrooms which have positive peer interaction.
- Use co-operative learning in the classroom.
- Create an environment where hard work and personal responsibility are valued.
- Safe orderly learning environment and class rooms that are well managed with clearly understood purpose and disciplinary rules.
- Classrooms which focus on learning and maximize time spent on academic tasks.
- Teachers who provide encouragement and recognize accomplishment.

- Frequent and systematic monitoring of academic skill.

The report (1999-2000) prepared by Susan Acharya as part of education sector review conducted by the world bank, Nepal. She summarized the school effectiveness literature on which the following condition can be found.

- I. Purposeful teaching exists in a school when the curriculum is flexible enough to meet the local needs.

A variety of teaching techniques are in practice.

Teachers modify and adapt teaching style to address the varied learning styles of the students.

Teachers have a clear and efficiently organized lesson plans.

The school mobilize senior student to provide additional tutoring to junior grades.

There is a higher order teaching i.e. development and promotion of creativity, analytical skills, ability to seek information and inquiring mind through more participation and inquiring mind through more participatory and child centered teaching methods.

- II. Maximization of learning time is effective in a school when a reasonable load of homework is introduced.

A frequent and continuous student assessment is practiced.

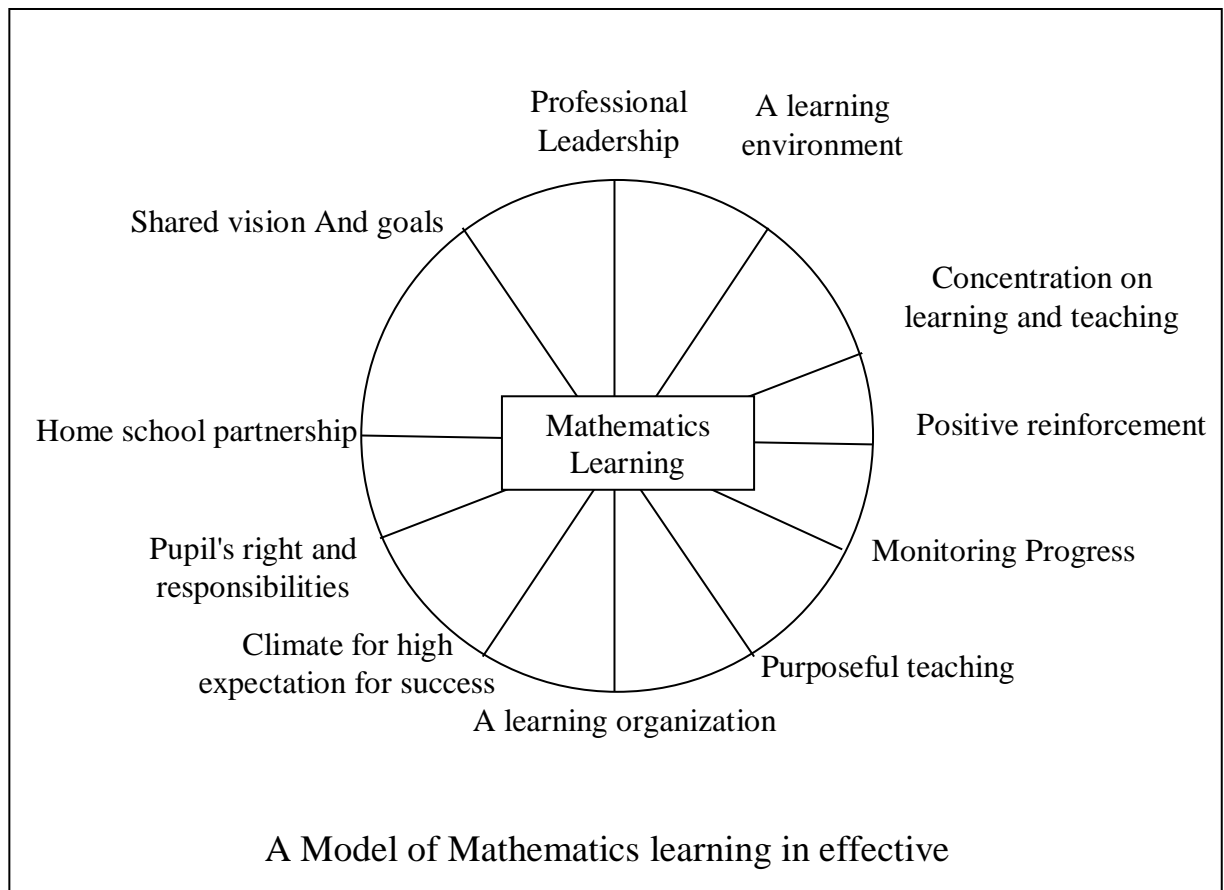
Research was done (Upadhyay, 2001) on effect of constructivism of mathematics Achievement of Grads five students in Nepal. He concluded that the constructivism is a new method of teaching mathematics in which teacher as a facilitator, students as a performer and society as an evaluator. The research (Robert B. Davis. Carlyn A, Maher

and Net Nodding, 1995) did on constructivist views on the teaching and learning. Thus research has focused on the more constructivist aspects of learning in mathematics. Effective School demands also such type of learning.

Subedi, (2005) has conducted a research on Mathematics learning management at Effective School has concluded that teacher and their teaching methods were not only the factors for high achievement in mathematics. Overall learning management of the schooling contributed for the high performance in mathematics, included stimulating school's physical environment, high expectation of success, School chief supervision, qualified teacher, lecture cum practice method, extra books for practice, emphasis on class work and homework, extra classes for low performer and parental involvement in mathematics learning. The model of learning management in the Effective Schools for mathematics learning is mainly dominated.

Under this thesis, objectives are taken as, the learning environment for mathematics learning in the effectiveness, teacher and students activities in the classroom, instructional strategies promoted for the math additional support to low performance and theoretical framework used as effective school theory and the theory of social constructivism for learning which is both collaboration of learning model in the school environment.

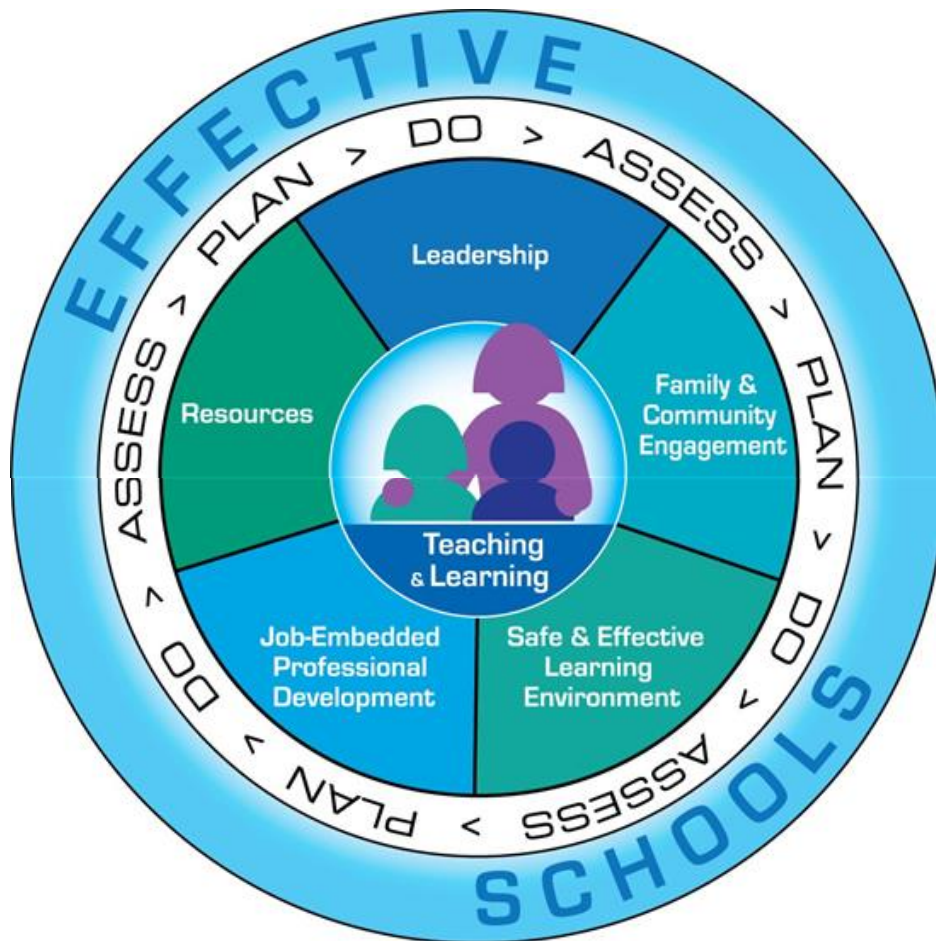
Theoretical Framework



Intends to explain and interpret what and how of the proposed elements working for effective mathematics learning in the school, the tools are used to collect the primary and secondary data by using the interview schedule, observation form and school documents related to the study and questionnaire are not only used interview with school chief, subject teacher, students and parents related to the stake holders and but also used class observation record form. Findings, subject teacher has emphasized on more class-work and practices and home work checked. School environment and classroom management always encouraged the students. Teachers have provided feedback which acted as the work of reinforcement and school policy and school team have concerned about subject teaching and learning.

2.2 Theoretical Framework Effective Schools

Effective School Framework



Source: DCPS effective school framework, www.educationconsumers.com

The Elements of Effective School designed on the above model are describe as bellow:

- i. Resources
- ii. Teaching and learning
- iii. Leadership
- iv. Family and community engagement
- v. Safe and effective learning environment
- vi. Job – embedded professional development

Element 1: Resources

Resources (funding, staff, materials, and time) are allocated with a specific focus on instructional improvement and increasing student achievement.

School Expectations

Staff, funding, and time are appropriately allocated and/or utilized to support the work of teaching and learning.

A system for budgeting and resource allocation is designed to identify instructional priorities and align budgeting decisions and resource allocation to those priorities.

Data-powered decision-making is in place to ensure that all funding determinations are directly related to improving student achievement.

Element 2: Teaching and Learning

All teachers engage in a strategic instructional planning process and deliver high-quality, rigorous, standards-based instruction to ensure continuous growth and high levels of student achievement.

School Expectations

High-quality, standards-based instruction is evident in every classroom. The school has a coherent instructional program in which there is close alignment among content standards, assessments, and instructional strategies.

Students are invested in their academic growth and achievement and can articulate their academic performance in relation to standards mastery.

Teachers utilize a variety of high impact teaching strategies to effectively engage students.

Systematic academic intervention and enrichment is in place aimed at providing academic supports for both advanced students and those struggling to achieve.

A collaborative and authentic data-powered improvement cycle regularly engages school staff members in using rich sources of quantitative and qualitative data to improve instruction.

Positive classroom environment and effective management structures are created by teachers to purposefully promote and foster effective teaching, learning, and student achievement.

Integrated and inclusive classroom settings effectively serve students with disabilities in their neighborhood schools with their non-disabled peers.

Element 3: Leadership

All school leaders fully understand their role as a high-impact instructional leader and create a coherent organizational structure to support teaching and learning.

Instructional Leadership

- A clear instructional vision demonstrates a school-wide focus on teaching and learning, and staff members understand the vision and are able to consistently articulate it.
- Discrete school-wide instructional expectations are understood by the staff and consistently implemented in every classroom.

- On-going learning is a priority of the school leader and he/she uses professional development to expand the capacity of his/her team and to nurture shared decision-making and problem solving.
- Accountability systems are in place for effective and on-going monitoring, reflection, and evaluation of teaching practice.

Organizational Leadership

Systems and structures are in place to ensure smooth daily operations resulting in efficient and Effective School management.

Effective management of the external environment ensures minimal disruptions to teaching and learning.

Leadership of People

Leadership style invests all stakeholder groups in building a culture of inclusiveness, collegiality, and collaboration.

The physical presence of the school leader is strongly felt throughout the school day and characterized by positive and productive interactions with students, staff, and the school community.

Positive interpersonal relationships foster an environment in which teachers feel supported by the school leader.

Element 4: Family and Community Engagement

Schools make families and community members aware of their important roles in creating effective learners and schools, and invest families and community members in that work.

School Expectations

A family and community engagement plan is in place to ensure that the school works in collaboration with parents, and benefits from the contributions of community members in meeting the school's instructional goals.

School-wide activities and programs allow parents and community members to participate in the life of the school. The school proactively and diligently works to bring in parents and the community, including families who cannot get to school.

High quality customer service and access ensure that students, parents and community members feel welcomed, respected, and valued at the school.

Translation is provided as needed, events are scheduled to accommodate families, and excellent student attendance is promoted.

Authentic and relevant partnerships with Community Based Organizations and Faith Based Organizations are developed in order to support the educational program and enhance student achievement.

Systematic methods of communication are present to inform parents about student progress, school events, meetings, and other important information pertaining to their child's success.

Element 5: Safe and Effective Learning Environment

Policies, procedures, and practices are in place to support a safe environment characterized by high expectations, mutual respect, and a focus on teaching and learning.

School Expectations

Discipline policies and procedures are equitable and consistently enforced, and student discipline data is utilized to inform policies.

Internal and external school wellness staffs work collaboratively to provide students and their families support services necessary to engage students in school.

Instruction and support staff, in both general education and special education, work collaboratively to support student academic and social/emotional success.

Positive classroom culture is emphasized school-wide and student-adult interactions are positive and respectful.

A safe and clean building is provided for students.

Element 6: Job-Embedded Professional Development

High-quality professional development is job-embedded, aligned to district and local school goals, data-driven, and differentiated. It supports in-depth development of teachers and leadership and is directly linked to the District's Effective Schools Framework.

School Expectations

A comprehensive professional development plan is in place that is aligned to school-wide and district instructional initiatives, reflects best practices in adult learning, promotes reflection, and presents content and pedagogy in a way that impacts teacher practice.

A professional learning community engages in on-going and structured collaboration that targets a school-wide focus on learning and is supported by tools for accountability.

Instructional coaching is provided to ensure the consistent implementation of the school's academic program and to promote high-quality classroom instruction.

Differentiated support for individual teachers is provided to ensure that each teacher has the support they need to meet school and district expectations for effective instruction.

The above explained empirical studies focus on different strategies for learning in the school and classroom including the co-operative learning and mastery learning in the Effective School. In co-operative learning students working together in small groups can support and increase each other's learning. In whole-class instruction only one person can speak at a time and shy children may be reluctant to enter into discussion. But in small groups each members can make a contribution and in this way, learning can be increased co-operative learning is the most effective when students clearly understand the teacher's goal and when students are expected and taught to explain things to one another instead of just providing answer. On the other hand mastery learning involves careful sequencing, monitoring and control of the learning process. Achieving mastery of the beginning steps of learning process ensures that a student will continue to make progress as the material becomes more complex.

Chapter Three

METHODS AND PROCEDURES

This chapter presents the procedure of the study, which was carried out to achieve the objectives of the study and to get the answer of the statement of the problem. It describes the design of the study, selection of case and selection of respondents, method of data collection procedure and tools used for this study. It also explains the method of analyzing the collected data.

3.1 Design of the Study

This is a case study made on a Namuna School to carry out the teaching-learning environment of mathematics. This is the qualitative research so it is descriptive in nature.

3.2 Population

All the Namuna Schools of Nepal are considered as population of this study. These types of schools are 56 in number.

3.3 Sample

There are five Namuna schools in eastern region of Nepal. All of them are at Dhankuta District. Out of these five schools one school named Gramin Janata H.S. School is taken as sample for this study.

3.4 Selection of case school

Ministry of Education has developed criteria to categorize the schools as Namuna and General school on 2056 B.S. Namuna schools were categorized on the basis of the performance made in different areas like teachers students ratio, social link, academic achievement. There are five Namuna Schools in Dhankuta announced on that year. Among these schools one school, Namuna Gramin Janata Higher Secondary School

Namje Vedetar was chosen purposively. The purpose of the study was to draw a model of learning management for mathematics learning and also to find out whether the school announced once Namuna is still performing all the criteria

3.5 Selection of Respondents

The respondents of the case study were students, parents, subject teacher and the School Chief selected purposively. From the Namuna school, 15 students of grade X and 15 students of grade IX were chosen accordance with gender, ethnic/caste and socio-economic background. The parents related to these focus children were chosen for the case study. The School Chief and subject teacher of the class IX and X were the respondents.

3.6 Tools

To collect the primary and secondary data for this case study the following main tools were used

- a. Interview schedule:** On the basis of objectives and Namuna School literature, the researcher developed the interview themes in semi structured form. (Appendix: B, C, D)
- b. Observation form:** The already established classes IX and X observation form was used to observe the classroom practice in mathematics learning. (Appendix: A)
- c. School documents:** Students attendance register, SLC result sheet, teachers profile, schools other files and records were reviewed (SIP-2070).

3.7 Data Collection Procedure

To collect the qualitative data class observation (mathematics class) was made by the researcher for two weeks. The researcher visited the school and observed the school activities with participation to students and teacher in the classroom every day. On the basis of observation form, the researcher observed mathematics class in grade nine and ten of the school and recorded the reflections on this observation form. Classroom behavior was carefully observed from different perspectives of the theoretical domain and outlook of setting and noted every day.

The incomplete aspects of classroom presentation (as cited toos) were asked to the subject teacher and other related stake holders in semi-structured interview guideline form and also taken form the school document and another library /internet documents.

3.8 Validity & Reliability of the Tools:

3.8.1 Validity of the Tools

All the tools used on this study (questionnaires, to subject teacher, school chief and others) were developed with using the appropriate words from domain of the theoretical frame work of effective school. So it is assumed to be valid.

3.8.2 Reliability of Research findings

The data were collected from multi-source like teacher, students, management committee as guided by theory. So the cross-cutting of common results were conducted as findings so the researches are reliable.

Chapter Four

ANALYSIS AND INTERPRETATION OF THE RESULT

This chapter deals the analysis and interpretation of the collected information from selected school. The researcher used class observation form (Appendix: A) to observe the classes regularly for two weeks. Direct observation was done every day in the classroom and the classroom behavior was carefully observed schedule the interviews were taken with focus children, teacher, and school chief. The interaction with the respondents was carefully listed and noted properly. The focus children attendance, regularity and other behavior were noted by reviewing the school files and records. The school environment and other details were obtained by observing the school environment and interviewing with School chief as well as document analysis of the school. The collected information at first was categorized according the category of the respondents and then different themes were given in the text of interview or the observation note. These themes were considered as a code and the similar code versions of respondents were collected together and explained in their perspective. The case study school was analyzed and discussed in terms of location, history of school establishment, physical facilities, SLC results of last five years, public image towards school and profile of teaching and non-teaching staffs. The teaching and learning environment for mathematics learning in an Namuna School was discussed and analyzed in some aspects such as physical management, learning culture reflected in the classroom, rule and regulation, relationship between teacher and students as well as supportive roles of leadership, parents and learning organization in the school. Classroom practice in mathematics was analyzed in terms of teacher and students' works in mathematics classroom as well as use of

purposeful teaching, assessment reinforcement, concentration on learning and teaching and teacher's expectation of mathematics learning. Thus, the collected information were analyzed and discussed under the following headings.

4.1 Resources

4.2 Safe and effective learning environment

4.3 Leadership/job embedded professional leadership

4.4 Family and community engagement

4.5 Teaching and learning environment for mathematics learning.

4.6 Analysis of the school performance

4.1 Resources

4.1.1 History of the school Establishment

Gramin Janata Higher Secondary School, Dhankuta district, Vedetar-7 at Namje is situated in the South of Dhankuta district, which is about 700 meters far from Bhedetar Bazar. The school established with the initiation of local social leader late Bir Bahadur Magar with the bamboo cottage and hut of thatch at 2014BS but at 2019-2-19, Mr. Manbir Dangol, D.E.O. has given the Government authority and given the duty of principle to Laxmi Gurung. At 2051 BS it was accepted 5-7 class (lower secondary) and at 2054 BS it was established as secondary school. At 2055 BS there were 409 students. At 2060 there were 482 students which shows the inrollement rate is increase by 18.15%. Similarly the result of 2065BS was 97.44%, 34.6% at 2066, 68.75% at 2067 and 12% at 2068BS and also 16% at 2069BS at SLC exam. Now there are 14 computers on which 7 are used for students' lab and 5 for official use. There are physical, educational and other facilities enough as

per the requirement of secondary level. But there was only one secondary level post of teacher. Nowadays with the help of community the school is running upto grade 12. Seven teachers of the school were provided computer training up to diploma level. The school has members. The community of the school's neighborhood is composed of the casts Rai, limbus, Tamang, Lama and less are bramins too. The school community is multicultural and multi-ethnic in social composition as well as multi classes in economic condition. Dalit students could be found rarely in the school. The stake holders related to the school are the local people as well as interested ones to this school. There is an INGO from Germany named forma culture funding to school. The parents of the students are engaged in farming, vegetables farming and labours in the different sectors.

Economically the people in the school community are of middle classes. Some people in the community are rich and most of them can maintain their everyday expense with difficulty. Some youth have gone to serve in other countries. Some are working in the Nepal army, Nepal police, driver, and other labor. Some stakeholders related depend upon agriculture. Hence, it could be seen that the classroom of the school is also highly multicultural, multiethnic, multi-classes and multi languages.

4.1.2 Physical Facility

The school has located within the area of forty three ropani of land, and the component surrounded by eight buildings and walls, within seven plastered buildings the school has 44 rooms and one program hall. One building is still in the state of under construction. The school has one library and Cafteria inside its surrounding. The playground is very large which is outside the buildings on the other side. Students can play volleyball, football, and others games at once in the ground. The school has maintained drinking water facility. Toilet facility to both boys and

girls are good and enough in number girl students. The school has a Green water club of student which specially water to the public of the school is surrounding too. The school is now thinking to add three toilets.

All the resources are available as per the need of higher secondary level school which is shown Appendix -F.

According to Mortimore (1997), “an Namuna School is one where students’ progress is greater than what would be expected in the light of intake variables”.

4.1.3 Profile of Teaching and Non-teaching staff

Name	Qualification	Training	subject	
Tank Bdr. Bhujel	M.A., B.Ed.	Trained	Economic	Head
Nar Bdr. Chamjung	M.A., B.Ed	√	Social	Ass. Head
Purushottam Niroula	M.Ed.	√	Math/Science	
Gokal Kafle	B.Ed.	√	English	Rahat
Krishna Giri	M.A., B.Ed.	√	Pop/Computer	
Pabitra Devi Timsina	B.Ed	√	Pop	
Narayan Bhattarai	I.Ed.	√	Math	
Gajendra Chaudhary	B.Ed.	√	Math/Science	
Shiva Maya Kafle	I.Ed.	√	English	
Lok Bdr. Katwal	M.A., B.Ed.	√	Nepali	
Kumar P. Paudel	S.L.C.	√	Nepali	
Tirtha Kumari Magar	I.Ed	√	Social	
Chandrakala Rai	B.Ed	√	English	
Rudrakumari Rai	+2	√	Helper(ECD)	
Kala Neupane	SLC	√	ECD	
Kula Kafle	B.Ed	√	Social	

Since the school has 580 students this year and there are 16 teachers in the school. So the ratio of teacher to student is 1:38. The ratio of teacher to student was 1:30. This shows that when the school was

announce Namuna there were more teachers and less students but now the student has increased. As the requirement of the ratio is 1:40. The ratio of the school is satisfactory.

4.2 Safe and Effective Learning Environment

The school environment should provide students participation in aspects of school organization and life. In the school's learning organization includes a student representative council, team work, teacher parent association and schools committees. The learning organization in the school is environment conducive to learning.

There is a management committee and also teacher's parent association in the school's Team work plays a vital role in the development of students learning. There is a club inside the school. It has different wings and The main aim of the club is to change the community by means of environment conservation in the school and society. From the interviews with students the following views were collected.

"We are the member of this clubs but the teachers are the patron members of the club. Every student can become the member of the club in which, the students of class 9 and 10 are educational members" (Students).

"This club organizes extra activities in the school such as poem competition, essay competition, quiz contest, Lokgit Pratiyogita etc. "This club provides different training such as compost mal formation (natural fertilizer), water monitoring etc to us" (Students).

The above views indicate that the school has a student's representative club which organizes different extra activities for students.

School gets so many prizes from the club programme in the different school.

According to the School chief, school has a strong management committee and the members of this committee are represented by parents. This management committee is responsible for the following decision about school.

- i. Student's admission on new educational year.
- ii. School building management
- iii. Teacher appointment and upgrading
- iv. To develop new policies strategies
- v. To implement the policies, strategies
- vi. Economic management
- vii. Others problems of the school

According to subject teacher of the school, the school provide following opportunities for the professional development of subject teacher.

Discussion in the teacher meeting about how to teach, sufficient text books, teachers' guide etc, give the chance to teacher to discuss about learning in the leisure time, Send the subject teacher in SEDU program, provide extra allowance for teacher i.e. on medicine expense, accidental insurance and other allowance like coaching

From the above, discussion, it was analyzed that the government school also provides extra incentives to the teachers to motivate them in their work. This supports to the learning environment in school. This provides greater change for learning encouragement and development.

4.3 Leadership / Job Embedded professional leadership

There are many trainings conducted by cluster level and district level. On this program teachers are participating. Now all the teachers had taken the different course of educational training. This shows that the teacher feel professionally enriched and valued from the school community. The school sometime organized the discussion in between teachers. The school arranged quiz competition in between students clubs and subject wise teachers.

To create teaching and learning environment in the school the leadership has great role. Effective leadership can run an institution successfully seeking help and contribution from all the stakeholders. The School chief, as the chief executive officer of the school is responsible for the processes that will bring about the development of an appropriate school policy, utilizing the best information and the best methods of development at the school's and the staff are responsible for ensuring that policies are implemented in such a way as to facilitate their best possible change to success.

“Our school has a team, it makes decision about academic task and school's policy. I am just the leader of this team always encourage to build team spirit. The school community has concerned with this polity” (School chief).

The above view indicates that the School chief of the school always encourage the team spirit. The school's has clearly defined policy on issue such as discipline, bullying and student welfare. The school is always starts from 10:00 am to 4:00 pm. In the school it is seen there is regularity and punctuality of staffs and teachers.

“We are keeping school environment sound with the co-operation between staffs of the school. Our schools staffs are punctual and responsible for the school” (School chief).

“For the teaching and learning process in the classroom we have focused on locally construct materials. In the case of mathematics, school has provided text books, teacher guide, prepared solid materials. Geometric instruments etc which are of teaching the minimum requirements to teacher” (School chief).

The above view indicates that the School chief has great role in the development of school policy and keeping the sound environment as well as in the development of teaching environment in the school.

Professional development of the teacher is another aspect of school leadership. According to School chief, the school has functioning following works for the professional development of subject teacher.

- 1 Send teacher to SEDU program to participate in training.
- 2 Provides salary on time as well as extra allowance for accidental insurance.
- 3 Provides text-books, teacher’s guide, Wi-fi facilities for browsing teaching material etc.

Supervision is another important aspect of professional leaderships.

“I have supervised the works of teacher regularly and encouraged them to construct, lesson plan, unit plan etc for their subject with the help of school’s calendar” (School chief).

“We discuss on the staffs meeting about the problem, issue, technique of evaluation and methods of teaching without any supremacy” (School chief).

The above views of School chief show that there is democratic environment in the school as well as in the school meeting. The team of the school also shares the vision and goals of the school and there is good tradition for discussing the issue, problem, technique of evaluation and method of teaching within the staff meeting.

Sharma (2005) has recommended that the School chief should be a man of task oriented in order to make the school effective. School leadership should be handled over the such person. The School chief should work in the school in such a way to make the teacher task oriented being regular in the school and taking care of the problems of the teachers both in academic and social needs.

4.4 Family and community Engagement

Parent's and family members are the child's first teacher. Their participation in learning can improve students' achievement. There may be many ways of parental involvement in the children's learning in mathematics for facilitating schools activities and guidance at home.

"We generally conduct parents and teachers joint meeting three times in a year at the school. At the starting time general meeting prepares the plan, policies and strategies of the school and other meetings related to the implementation of it." (Head- teacher and teachers)

The above views of teacher and School chief indicate that the school co-ordinates Parent-Teacher general meets and prepares the plan policies and other then government policies and tries to implement. The numbers of parents in the meetings seems to be 252-300. It has seen from registrar of the school. This shows the school tries to make the parents participation school activities. Regarding voluntary involvement of parent in their children's learning Subject teacher said-

“Some parents meet me and consult about mathematics learning of their child, I always provided them encouragement about the success of children and also request them need to do more practice a home for mathematics” (Subject teacher)

School has great role to the development of society and it has to serve positive impact from society. Public image means the views, expectation and values to this school of the school community. In the school community parents, teacher, students and School chief are the main elements.

“The medium of instruction in the school is both in English as well Nepali medium, the mixed medium of instruction and the success rate of this school is satisfactory, so there is no difference between private boarding school and this school” (Parents A).

“This is a government school, so we can easily admit to our children in this school and expects that our children can get high achievement from this school” (Parents B).

The demography of the school community is multi-classes. Some parents of these classes feel the school is good for their children. They had also expected high achievement from this school according to the success rate of previous year.

“Some people on the school community admit their children in other highly expensive private school for their prestige in the society but I think that they also feel good quality of our school” (School chief).

There are 90% student from local community and 5% from other neighbouring areas. 2% orphans students and 3% students working as hotel and also at other household work.

Many studies have shown that student involvement in household duties especially in low-economic status family has become a cause of low achievement. In this concern some students said-

“We read at home 3-4 hours each day. We don’t do any work at home. But sometimes we do work in the kitchen and shops”
(Students).

The above students’ views indicate that the students do homework at home. Some students need to do some work in the kitchen like cooking rice, cleaning plates and help in the shops.

4.5 Teaching and Learning environment

Learning environment is the totality of the education atmosphere in the school. In the Namuna School environment, student need to feel secure and positive about the school, teacher need to feel valued and be professionally enriched by their teaching and parents and community members need to feel welcome and involved. Learning environment included the learning culture reflected in the classroom activities within the school premise. The rule and regulation, relationship between teachers and students, teacher and administration and overall physical condition of the school and their interaction is the culture of the school and this is ultimately the teaching and learning environment of the school.

In the sampled school, there is a sound building and compound surrounded by walls one aspects of good environment for learning. There is separate building for administration and teaching rooms. The School chief looks other class from the office room. In the school time, on the visited days, all students were inside the room. The grounds of the school could be seen clean and quiet. The toilets of the school are far from the

teaching building. Generally, Student enjoy to seat inside the class because outside climate almost cold.

In the sampled school, subject teacher used to teach Mathematics and Science. He was not loosing even a minute of his classes. When he got leisure in a particular time, he was either making question or checking students copy. Some teachers were studying what they would have to teach in the next period. The observation did not find any matters unrelated to teaching and learning talked during the leisure time. This indicates that teachers were very much careful on time and task.

Classroom practice is the main aspect for the improvement of student learning habit. Classroom practice includes the interaction between teacher and students, students' time on task, strategies used for teaching and the impact of classroom management for the mentioned topic.

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

“There is free to seat anywhere, the seating system is free first come first seating according to our choice.” (Students)

The above view indicates that the rule of seat planning in the classroom made equity learning environment. The proper arrangement of desk and bench and the size and position of the blackboard in the class

was be seen well. This justify that the physical seating in the classroom encouraged to the mathematics learning.

Monitoring the students' progress is another aspect of learning environment.

"We take weekly test of Math, Science and English for the progress of students and also take terminal and final examination." (School chief).

"I usually take weekly test in mathematics and also emphasis on class work because all the students do not get help of others in learning mathematics at there home." (Math teacher).

The above views indicate that the school takes maximum examinations in different form within a year such as weekly, terminal, half-yearly, and yearly. The teachers asks the questions on the chart paper to a blackboard and takes the exam.

"Teacher give us more class work and tells to complete the remaining at home but they don't check usually but does sign only, this may be the number of students large." (Students).

The above views show that the class has large number of students, so it is difficult to check home work day to day. but the teachers takes the exam weekly.

The school has Green Clubs established at 2056 Baisakh 6 BS and it has different wings like green, red cross circle, green social club, green forest club, green sport club, green cultural club etc. these clubs performs as the duty assign by its name. For example: Green Society club looks after water supply to village, green forest club looks after a forestation to public areas and other clubs work inside the school. Such as cleaning school environment, gardening, conducting different extra co-curricular

activities within the students and teacher too. All these clubs given a social link to the public.

"We conduct staff meeting and parents meeting at the starting of the season and plan each and every activities that can be conducted in the year and the different responsibilities are given to the individuals." (School chief)

"If the students failed in any subject, then we invite to the parents in the school in order to make a plan for the weak performing students" (School chief).

"After consultation with parent's school manage extra class or coaching for the students according to their will" (School chief).

The above views indicate that the learning environment at school is also a concern of the parents. There are extra classes in the school for low performer in the mathematics.

4.5.1 Class practice in the Namuna School

Classroom practice is a matter of power relation between teachers and students and among students too. A class has different types by gender, class, ethnicity, language minority etc. and equally there are some students who are much smarter than others. How successfully the appropriate teaching learning strategies to be followed are the concern of classroom practice in general.

In the observed class the subject teachers enter to the class, there was a formal greeting of students, then he has started the lesson which was continuity of previous class. He ask some questions of knowledge level and started that days lesson with good expository. He used materials too and explain and summarized the lesson but while doing so there was no time to manipulate materials by the student. No participation of all

students on discussion and some student were talking themselves. This shows that the teacher was trying his best but some student could not be included in the activities. The class size moreover the student of Government school of grade 9 and 10 are promoted from junior classes when they were failed in some subject too. Altimetly they are poor in mathematical backgrounds but the teacher had compulsion to complete the course on time. So he used chalk and talk method of instruction.

There could be seen three types of power relation affecting the mathematics learning, they are teacher power to the students, students powers themselves and schools powers towards teacher and students in the classroom.

“Teacher always their own method and they also choose the lesson according to their will” (Students view).

The above students view shows that for the selection of method and lesson teacher always dominate the students but the modern view of learning emphasis more collaborative and co-operative method for teaching and learning mathematics.

There could be seen another powers that is school powers also dominated to the students in the classroom.

“School always on bookish knowledge in mathematics classroom” (Students).

The above view of students indicates that the subject teacher in the classrooms did not try to do extra mathematical activities such as mathematical games and the school did not try to manage extra mathematical activities.

“Lack of so much teaching material i am unable to use material in the class” (Teachers views).

Teaching material cannot be used in all the lesson so I used material in case of teaching material to give concept. (Teachers views).

There is large number of students in the classroom i.e. 60 students sit together in the class, Students do not get chance to manipulate material in the class for learning feel difficulty for learning and teacher cannot use teaching materials so much this may be lack of teacher and physical constraints of the school.

Among the students relations could be seen interesting by gender and talency of the student.

“Boys always dominate us in mathematics learning, they said that you cannot solve the problem similar to us that makes me discourage” (Girls students views).

“Girls are generally talent in other subjects like Nepali, social studies etc but they cannot solve mathematics easily” (Boy students).

“Boys are more talent than girls in mathematics. Sometime boys can do the problems on the blackboard. But the girls become nervous in the blackboard they are shyly in nature and laugh” (Teacher’s view)

The above views indicate that girls feel low performance in learning mathematics. The classroom practice is promoting this orthodoxy. It could be felt domination to girls in setting learning opportunity to mathematics and teacher’s expectation for girls was lower than boys in mathematics class.

The recent view in the mathematics education is that there is no gender difference in mathematics learning but others factor may influence

them. The Namuna School research (NLH, 1999) indicates that the teacher's who set and communicate high expectation for all their students obtain greater academic performance from those students than teacher who set low expectations.

Hence in the classroom the teacher' power dominates the class for choosing method and the classroom is crowded, and gender difference can be found on teacher's expectation.

“Teacher doesn't do any stratification in the classroom by means of cast and economic background they always focus us to do more practice in mathematics” (Student view).

This view shows that the classroom has no any stratification by means of caste/ ethnicity. Shows that there is little be similarity in the economic status of the students.

4.5.2Teacher and students work in the class

Teacher is a main agent for curriculum implementation in the school. The main works of the teacher in the classroom are to guide students provide extra activities, encouragement and motivation, use teaching materials and appropriate method of teaching, monitored students' progress and direct students to achieve the objective of the school. The students' works in the classroom are to do the activities set by the school curriculum and task given by the teachers in the school a common portrait of the observed classes is presented here.

Episode : 1

In observed classes, subject teacher just enter the room with chalk, duster and text-book and all students stand up and said “Good morning sir” then teacher told them sit down. Usually, teacher opened the text-book and asked the question to the students; did you finish the problem given you yesterday? If the teacher did get the answer yes, he went to another exercise, if no teacher did that problem, on the blackboard by explaining step by step and students were engaged to write the solution in the copy. After finishing that problem teacher started to do another problem in the black board by explaining step by step and asked the question to the students, do you understand? If no, he repeated the above process again and gave another problem to the students for individual practice. Teacher just moved among the students and observed their activities but did not give any guidance for this problem. He just looked the mistake of the students on his/her copy then if he did get mistake, he again came to the blackboard and did the problem by the above process. Again he gave another problem for students and repeated the same process. It could be seen one day the teacher gave the problem to the students for individual practice related to the height and distance as described in previous day. After then he called a student who could do that problem and gave the chance to do the problem on the blackboard. Other student to explain it and provided a chance to write on copy for other students.

The above activities in the classrooms show that the teacher seemed less prepared used lecture cum practice method in the classroom for mathematics teaching. He evaluates the students’ performance by giving class work and homework. it could be seen that teacher always

asked the questions for students but did not expect the questions from students.

The modern notion that knowledge can be constructed and reconstructed by the students themselves in course of learning is not found applied in classroom practice. There should be the process in the classroom that can promote students learning activities that can generate knowledge, skills and attitudes by themselves.

4.5.3 Assessment

Teachers find out what students already know and they still need to learn by assessing student work. Students' progress can be measured by using paper pencil test as well as other alternative assessment such as class work, quiz contest, homework, parent comments and other standardized test. Students' progress can be measured continuously as well as fixed time interval such as monthly, terminal, half yearly and yearly examination. Regarding the practiced assessment system for evaluating students progress, in an interview School chief said.

"We generally evaluate the students performance by taking weekly, terminal, half-yearly and yearly-exams" (School chief).

"I generally take weekly test in mathematics teaching but I usually measures student's progress by daily test as a class work" (Trencher's view).

"The school provides annual report card but if school gives the report card of weekly test it would be easy to evaluate the children at home. (Parent A)

The above quotes indicate that the school takes many tests in the year. The total marks obtained by students in such exams are the total achievement of the students. It could be seen that the subject teacher of

the secondary level always focus on class work. It was also observed that the teacher always did students attendance in the mathematics class. The use of alternative assessment for formative purpose was not found encouraging.

“The teacher evaluates us by giving task to solve on the board but doesn't checked our homework daily” (Students view)

It could be seen that there is 60 students in a class so, the class size was the cause that subject teacher became unable to check their homework daily.

“We have provided students' progress to the parents by report card after the end of the year” (School chief).

There is a system of reporting students progress and provide all the progress of students to their parents with the students. But it can not be said that parents cannot get continuous progress of their children. Only the testing score would mean the progress report. There seemed to be lack of continuous assessment. The modern notation is that the teacher should do frequent monitoring the student's progress and provided to the parents that makes the communication between parents and school, can get the comments about students as well as school's from parents. Hence, student's progress is reported by terminal, half-yearly and yearly test but the continuous assessment techniques are rarely used. The other important work of the school is to provide the student's report card to parents, which is not exactly the report card.

4.5.4 Reinforcement in the classroom

Reinforcement is a tool which encourage students to learning and increase the rate of learning. There are two types of reinforcement such as

positive and negative reinforcement. Reward, encouragement, monetary prizes etc are the positive reinforcement.

It is observed that the teacher encourage to the students by emphasizing academic task with class work. Teacher also provides feed back by guiding the students along the objective of the lesson.

“Teacher always encourages us by providing the guidance about learning and for our bright future. He also says you are weak in mathematics, so you should take extra classes” (Students view).

“School provide us rewards like copy, pen dictionary etc. when we get the best position in the class in any field of school’s evaluation”(Students views).

“I motivated students by providing curiosity, co-operation and giving their achievement in the classroom” (Teacher’s view).

With the above view, it could be seen that the mathematics classrooms motivated students more and more the task oriented. They did teacher assigned task honestly and did not backbiting, side talking in the classroom. Subject teacher also provided more chance to solve problem to students and guided them in the class. He did not punish students physically in the classrooms. Teacher guided students to reach the objective. It could be seen in the classroom, there was not any stratification. All the above feedback and student’s teacher activities did the work of reinforcement in the observed classes.

“School provides us extra classes, to participate in the different program such as lockgit pratiyogita, quiz contest, essay and poem competition, training such as water monitoring and compostmal formation. We are also rewarded from school in such activities” (Students view).

It could be seen that the above opportunity provided by the school also encouraged the students to learning.

In short, there is encouragement in mathematics learning, motivation along hard works provides extra classes for mathematics, and students participate in the extra-curricular activities. All such activities and feedback do the work of reinforcement in the mathematics learning.

4.5.5 Concentration on learning and teaching

Learning and teaching are the main aspects of classroom practice. Learning is the process of progressive behaviour adaptation (Skinner) and also process of acquiring new knowledge and new response (Wood Worth).

Teaching is a method of interaction in the classroom practice. Concentration on learning and teaching in the classroom includes the time provided for students practice, student's motivation, attendance of teacher and students in the classroom, acceptance of teacher's assignments, questioning in the classroom, and focus on objective and management of time.

4.5.6 Supports for low performer

Individual difference can be found everywhere. In the classroom practice students are different according to gender, ethnicity/caste, religion, cultural, socio-economic status etc. individual difference could also be found in terms of performance on the academic task in school. according to performance the class can be divided into three groups, they are low performer, average performer and high performer students. In the mathematics classroom. Low performer students are those who have low achievement score in mathematics. Low performer may be slow learners with low mathematics ability and low motivation in mathematics practice.

NCTM (1972) defines “Slow learners are those students who are not achieving at the desired level (CME, 2003).

The school provides coaching classes for all the students of grade 9 and 10 after first term examination. This is compulsory to all the students. The school has not made any policies to low performers. But The school divides the sections so that the class size is small and gives the coaching classes.

“I give equally emphasis to all students in the mathematics class but some time I encourage to low performer with in the time of class work practice” (Teacher)

“Teacher mostly heard the question of high performer but less heard our question as compare with them” (Students).

The above quotes indicate that the low performer in the classroom were not satisfactory with the activities of the teacher. Even though, school has taken special care to the low performer in mathematics.

4.6 Analysis of the school performance

SLC Result of the past years

The school is a public secondary school in terms of government status. In its short history of secondary status, the school achieves glorious success. The average success rate of the school is good, with around 47 percent of the recent six years SLC results.

The school has been appearing the SLC exam for last 6 years. The status of the past 6 years from 2065 B.S. to 2070 B.S., SLC results is present in Table 4.2.

Table 4.2
SLC Result Profile

Year	No. of students Appeared	No. of failed	No. of Passed	Passed percent
2065	45	2	43	97.44
2066	48	31	17	34.6
2067	51	16	35	68.75
2068	44	20	24	54.75
2069	49	43	6	12
2070	55	46	9	16

The table 4.2 shows that the result of the SLC exam in the year 2065 B.S. which was the highest one, and other years decreasing, but average is not less than the national pass percent of the year. The School chief and the teachers reported in 2065 student write sent up exam. But in the recent years there is no system of conducting sent up exam so that the students were sent-up for the SLC every year. The cause of lower the pass percent was sending all students to SLC without screening, Ultimately reduce the passed percentage.

The School announced Namuna School in 2063 BS. The school meets the criteria of Namuna School made by the Government. They are Large number of teachers than average that is ratio of teacher student is low, to narrow down the distance between remote and urban areas by the school, includes all its feeder schools of different level and no. of students in class sizes good. In the period of announcement the school was running secondary level but it hasn't faced SLC examination. After 2065 the school has participated on SLC exam. The school has good Infra structure. It has a donner agency from Germany. With the help of agency, the local community the school has made sound building and other physical facilities. It has support of district development committee and other organization. At the initial years the school had good SLC result. That time the students used to screen the student at sent up test but now the government policy of not to take sent up exam so that all the students get enrollment in SLC exam. So failure rate is increasing. In that sense the school has perform better in all the sectors expects the academic achievement. If we analyze only the pass percentage of SLC examination of the school it is losing its academic achievement.

Chapter Five

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study is a case study of a Namuna School. The purpose of the study was to draw the model of learning management for mathematics learning of an Namuna School. For this purpose the other specific objectives of the study were to describe the learning environment for mathematics learning, to analyze the teacher and student work in the mathematics classroom, to investigate the additional support for low performer in mathematics and to identify the instructional strategies promoted by school for mathematics learning. The major tools used for this study were class observation form, semi-structure interview guideline and school documents. The respondents of the study were students; subject teacher, School chief and parents. From this case study of mathematics learning in the Namuna school the following are the major findings.

- i. The school community is multicultural and multiethnic in social composition as well as multi classes in economic condition.
- ii. The community has the role to establish the school in the present place.
- iii. The physical facilities of the school are sufficient for classrooms, desk, bench, blackboard, but it has lack of good library, teaching materials, computer etc.
- iv. School has good S.L.C. result in the past. The success rate of the school is decreasing because government policies is not to take sent up test at grade 10.

- v. Mixed medium of instruction is used in the school from nursery to class ten. and school gains meet the good perspectives from society.
- vi. Teachers are qualified according to the qualification stated in Education act, but the teacher student ratio is 1:38 where the government recent criterion is 1:40 in secondary level. which is satisfactory.
- vii. The mathematics classroom environment is controlled by teacher but there is no discrimination in treatment in terms of gender, ethnicity in class. In providing equal opportunity to the student care was taken on sit planning. The rule of the seat planning is first come first seat which makes all student front to seat on timer came.
- viii. There is good tradition of making the parents aware about the mathematics examination results. Parents get information of student's progress report in mathematics after every terminal examination but not at weekly test.
- ix. The School chief acts as a leader of the school who always encourage to the team spirit. In the case of mathematics, supervised mathematics classes encouraged teacher and students for mathematics learning and provided opportunity to participate in the training for mathematics.
- x. The subject teacher was always available to the parents in the school to know about their children's progress. This shows, there is maximum, parental concern and involvement in mathematics learning.

- xi. There is a student's representative club called Green club with different wings which has encouraged to the students to be become responsible in different areas.
- xii. There is regularity of students and teachers in the mathematics classroom but teacher has mostly used lecture cum practice method in mathematics teaching. he has encouraged more class works to the students.
- xiii. The teacher does not come with daily lesson plan he uses material only one concept teaching. fewer use of teaching material in classroom teaching.
- xiv. Terminal exams, half yearly exams and yearly exams are the assessments used by school to measure the student's progress on academic tasks. Math, English and Science teachers were using weekly test to measure the continuous assessment techniques.
- xv. The subject teacher has emphasized on more class work.
- xvi. School environment and classroom management always encouraged the students. Teachers have provided feedback from the parents to School chief.
- xvii. School policy and school team have concerned about mathematics learning.
- xviii. There are extra classes for all the students where they practice book and questions bank related to SLC course.
- xix. The cause of good performance in the school is not only the modern approach and strategy of the teaching of mathematics but the multiple effects of holistic effort of the elements, good learning environment, school chief supervision, parental involvement, high – expectation for success, additional support

for low performer, qualified teacher, lecture com practice method, extra books for practice, class work and homework.

xx.Schools once scored high achieve good percentage on SLC can decrease its pass rate it means the schools once meet the criteria of Namuna school can lose it. .

5.2 Conclusions

Based on the above major findings the following conclusions are drawn. The school environment needs to be more stimulation for mathematics learning with adequate building and compound surrounded by walls having sufficient classroom as well as sufficient desks and benches for student. School has provided more qualified and experienced teacher for mathematics and opportunity for them participate in the mathematics training, for the professional development of subject teacher. The School chief of the school is also a qualified and experienced, supervised mathematics class once a month as well as encouraged to the subject teacher and students work. There is good tradition of making the parents involvement to make the plan policies and implement. And the school meet the criteria of Namuna School by achievement can lose it.

5.3 Recommendations

This is a case study of a Namuna school about the learning management for mathematics learning at Dhankuta district. The finding and conclusion drawn from the study cannot be generalized in all the schools. But it could be a possible learning management practices to other schools in order to get better performance in mathematics learning.

For Planners

This study help to government and planners that school once announce Namuna can decrease in pass percentage so that it needs to carry out the plans to reform the academic achievement to meet the criteria of Namuna School.

For the stake holders

The finding of the study is helpful material to published the learning resource and other own related ideas as found on a school so that other general school also can follow the system.

For further researcher

This research is limited to only one Namuna school's overall learning management, so the findings of this study cannot be generalized more in this situation. Further researcher can carried out other research works on between Namuna and General school. Moreover the structure carried on this research can be used by the further researcher also the findings and literatures cited of this research can be use by other researcher.

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Appendix A

Class observation Record Form

School :

Date:

Teacher :

Period :

Topic

Time :

Student No:

M/F

Preparing			NO NA NI OK EX
	1		Instructor is prepared for class
	2		Session content is reviewed
Introduction			NO NA NI OK EX
	3		Session starts on time
	4		Motivation provided
	5		Overview/review/preview provided
	6		Objectives provided
Delivering		Content	NO NA NI OK EX
	7		content is accurate
	8		Material presented sequentially
	9		many examples provided for concepts
	10		Summaries and transitions provided
		Methods	NO NA NI OK EX
	11		Learners actively involved
	12		Learners names used
	13		Clear and concise instructions provided
	14		Creativity used in selecting methods
	15		Methods used proficiently
	16		Methods changed every 20 minutes
	17		Debriefing activities are conducted
		Resources	NO NA NI OK EX

	18		Visuals are used extensively
	19		Resources add to the learning experience
	20		Resources are used proficiently
	21		Care instruction are followed for resources
		Platform skills	NO NA NI OK EX
	22		Nervousness managed
	23		Eye contact is equal
	24		Gestures are non-distracting
	25		Voice is clear and audible with inflections
	26		Enthusiastic and positive towards topic or skill
	27		Words used are understandable to audience
Guiding		Questioning	NO NA NI OK EX
	28		Opportunities provided for questions
	29		Open-ended questions used
	30		Unanswered questions researched/reported
	31		Questions referred back to learners
	32		Learners guided to reach answers themselves
		Performance	NO NA NI OK EX
	33		Adequate guided practice provided
	34		Encouragement and developmental feedback provided

	35		Instructor moves among learners
	36		Proper work habits encouraged
	37		Adequate independent practice provided
	38		Safety emphasized
	39		Performance evaluated (observation, tests, questions)
Controlling		Lerner behavior	NO NA NI OK EX
	40		Expected behavior communicated
	41		Behaviour monitored
	42		Appropriate feedback provided
	43		Control of learning environment is maintained
		Use of time	NO NA NI OK EX
	44		Clear directions provided
	45		Materials distributed efficiently
	46		Learners kept "on-task"
	47		Classroom problems handled efficiently
	48		Focus on learning objectives
Concluding			NO NA NI OK EX
	49		Content and objectives reviewed
	50		Previews provided
	51		Session ends on time

NO = Not observed

NA = Not Applicable

NI = Needs Improvement

OK = Acceptable Performance

EX = Excellent Performance

Comments and Feedback

Appendix – B

Guide Lines for interview with Head-teacher

Name :	Date :
qualification :	Gender:
Experience as a principal :	Place of birth:
Experience as a teacher:	Religion:
Caste/ethnicity :	

The interviews with Head-teacher were taken on the following roles of him to support mathematics learning.

Professional development of math teacher :-

Learning environment in the school:-

Communication between parents and teacher:-

Guidance for mathematics teacher:-

Instructional leadership :-

students opportunity for learning with teacher :-

policy of the school :-

Appendix – E

Guidelines for Interviews with students

Name:

Class:

Roll No:

Position in the class:

Sex:

Caste/Ethnicity:

Place of birth:

Place of Residence:

The interviews with students were taken on the basis of following different aspect:

expectation about mathematics learning :-

Teachers behavior towards students:-

opportunity to learn at home :-

school rules, oppressive/Democratic :-

Class behavior towards students :-

Punishment reward etc. provided by school :-

Encouragement provided to students :-

opportunity provided by school :-

Views towards mathematics teachers and school :-

Appendix - F

Physical Facilities of the school

Particulars	Quantities
Area of the School	43 ropanies
No. of Building	8
Types of Building	Plastered 7, Non-plaster 1
No. of rooms	16
Size of rooms	ventilated & fiber roof
No. of teaching room	30
No. of Programme hall	1
No. of library rooms	1 room, 2557 pieces books with hall.
No. of Practical room	1 for math and Science
No. of Others room	7
No. of computer room	1, 12 sets, with halls.
Furniture in the school	
Desk and bench	120 pair
No. of table	31 piece
No. of Chair	58
No. of Racks	5
Sofa and cusion	3 set
No. of Daraj	5
Teaching Materials	
Microscope	3
No. of Blackboard/Whiteboard	12
No. of Globe	3
No. of Maps	20
No. of information board	3
No. of Falatin board	2
Geometry box	2 set
And other science equipments and locally made materials	
Others Materials	
No. of Electric bell	1
No. of filter	2
No. of glasses	3 dozen
No. of Ricapies	1 dozen
No. of Jugs	4
No. of Plastic bottle	3



