

Chapter- I

INTRODUCTION

Background of the Study

Mathematics is a backbone of the community development. It is also called mirror of civilization. The origin of mathematics is same as the origin of mankind. Mathematics had led to the development of various subjects, vocation and other many technologies. Mathematics plays an important role in each and every modes of life. Hence each person is using Mathematics knowingly and unknowingly.

The term mathematics may be defined as in numerous ways. Mathematics is the science, which is related to measurement, calculation, discovering relationship and dealing with the problems of space. According to English Dictionary Mathematics is a strict science. It is the abstract science. Which investigate deductively the contuses implicit in the elementary conception of spatial and numerical relations. According to John Locke Mathematics is a way to settle in mind a habit of reasoning. Mathematics is the way of thinking, analyzing and synthesizing a body of data. Mathematics is the core subject in school curriculum. There are many kind of schools that exist in our community and nation. Some of them are academic, some are public and some are community school.

A community school is both a planned and a set of partnership between the school and community resources. It is integrated to focus on academic health and social service, youth and community development. Community engagement leads to improve student's learning. It also focuses on strong families and healthier community. The schools became center of the community and are opened to

everyone. The concept of community school has been in use since about 1940 and then its implication is increasing day by day.

The term community based school offers the broadest definition of the relationship between school and community. Community schools are intended to respond to the needs of the students, their families and community. Therefore the amount of cost needed would vary depending upon these circumstances. Community schools are partnership between public organization and private organizations. The school became a hub for the community. The school not only teaches students but also provided access to families needs. These services could be healthcare, counseling, or even adult general education(Goods and Braden 2000)

The concept of community school is taken place since about 1940 and then its implication is increasing day by day. The community school socks to improve the quality of human living, including lay people in school policy and program planning, organizes the required core of the curriculum around the major process and problems of living, makes the school plant a community center for all ages, leads in community co- ordination of educational effort, and practices and promotes democracy in all human relationship. Any school to be a community school following characteristics are necessary.(Olsen and other;1954).

- The community school improves the quality here and now.
- The community school uses the community as a laboratory for learning.
- The community school makes the school plant a community center.
- The community school organizes the curriculum around the Fundamental processes and problem of living.
- The community school's includes lay people in school policy and program planning.

- The community school practices and promotes democracy in human relations.
- It leads in community co-ordination.

Addition to ensuring academic progress, schools develops partnership with parents and others to support the learning process, to nurture self-esteem and confidence in young people. Mig.B. (1997) carried out an overview study of the relationships between schools and their communities, to clarify which agencies are involved with schools and families to achieve these goals. She found that children's entry to schools at an earlier age and the growing relationship between primary schools and pre-primary school provision are bringing schools in to closer contact with families partnership with parents means that schools are beginning to take an interest in areas of family need previously seen as the responsibility of other agencies; for example, there is an impact on children's progress, parents literacy. Targeted and general support programs which aim to empower parents in the primary years and young people later, draw on expertise from local specialist agencies; health visitors, therapist educational psychologists, businessmen, etc. The demand of the curriculum and unfamiliarity of this way of working, which requires a multi-agencies and facilitating approach new to teachers and school management, has resulted in the appointment of specialist staff in some schools to co-ordinate support Services. The logical extension of these trends is the re- structuring of the schools as a base for all the need of families. Especially in areas where there is a high demand for services. A few initiatives suggest some movement towards this full service school approach. There has been a growth in particularly these demands 'at risk' in which locally managed schools can participate. The relation between school community and family needs for following cases:

- Communication between home and school:

- Decision- making and management of the school:
- School support to families:
- Family and community help for school:
- Collaboration with community agencies / organization:
- Community education:
- Differing needs:

In Nepal the concept of formal school has started from British type 'Golbaithak' of Rana rules. In that school European and Indian teachers were appointed. The teaching strategies and curriculum of the schools are related to British school. After 1939, private and public schools brought in existence. After democracy in 195, many planning commission were come into exist. Community have been playing important role to the development of the schools. Before 2028 B.S. schools were established and managed by society. The National Education Planning Commission (2028 B.S) was seen in education system, but there was not progressive change to include community in school management. It is view of the importance of decentralization that the government adopted that policy. The ninth plan (2054-2059 B.S) emphasis on capacity building for self-governance of the local bodies and making them accountable to the local people in delivery of services. The plan was paved for the introduction of decentralization for enhancing local participation in the management of the schools to the local bodies by bringing the local self-governance. Act 1998 A.D. entrusted to VDCS and municipalities responsibilities to develop, manage and supervise basic and primary education programs. DDCs are strengthening for the operation of educational programs in districts. Also the seventh amendment of educational act empowers school decision making. The 10th plan (2059-2064 B.S) also focused on decentralization policy reform is continued in planning at the local

level. These practices show that government's priority is to transfer the local level. These practices show that government's priority is to transfer the school management responsibilities to local bodies and communities. Emphasis has been given to local capacity building and to promote micro planning process. The government made a decision to transfer the management of public schools to the community, such type of school we known as community- based school. In this connection the government of Nepal has developed and produced directive for these schools. So their interest is that matter of management transfer (Upadhyay, 2004).

'Every school is different in the view, version, mission and progress. Also each is unique by virtue of the distinctive characteristic of its stakeholders. A one-size-fit all tendency of top-down planning would be counterproductive for community- managed schools.' Therefore, recent school transfers initiative aims at facilitating the stakeholders to choose their own unique vision, mission and goals for their schools. The community, parents, teachers and SMC in partnership with the NGOs would design, monitor, evaluate and document school activities. The devolution of responsibilities for management and financing of schooling with the intension of raising overall accountability would be the primary means of reaching to the objectives of improving the poor quality of service delivery by public schools. Therefore, the transfer of public schools management to community is one of the most important and immediate steps to demonstrate its commitment to change way it serve the people.

Mainly, the schools would handover to community for following significant:

- To empower local community and enable them to participate in local schools.
- To create the feeling of ownership in community people on community schools.

- To enhance quality education.
- To improve access and achieve the goal of EFA.
- To create government-community partnership in local education.

School need to consider the parental concern about the school affairs and try to satisfy them for the betterment of the mutual understanding and respects. DOE(2058) has made a proposal to involve the community based organization (CBOs) in the development of community in order to facilitate and expedite the development process. The technical input from CBOs and NGOs would be beneficial to the community for the sound development of the school community (Upadhayay,2004).

The concept of community management school was taken out from the higher National Educational Commission (7th amendment 2058 B.S) .The act implemented in 2059 B.S in practice. The first community based school is Bhagawati Primary School located in Jhapa and transform community management in 2059/05/30 B.S. At the end of the fiscal year 2063/2064 B.S, there are all together 3219 schools are transformed to community management. Among such community based schools 164 are secondary, 378 are lower secondary and 2689 are primary (DOE 2007).

Hence the management of the school transfer to community is an effort to involve the local stakeholders in management and operation of the school programs. The parents and community members whose children were joined to the community school were members whose children were jointed to the community school were more concerned and participated to school activities, monitoring regularly and supervise continuously for quality education (Upadhyaya, 2003).

After restoration of democracy (2046 B.S), Nepal has modified in paradigm of development and administration. The stakeholders in school programs. It would be

possible only if the local people feel they do own the school and school programs. DOE (2058 B.S) took the initiative for management transfer of public schools. The main objectives of the management transfer are to enhance quality education, to improve access and achieve the goals of EFA, empower local community and enable them to participant in school.

To fulfillment such objectives the school and community school should develop and promote different strategies for teaching and learning. Also school should developed different strategies for teaching and learning mathematics. So this study intended to identify the teaching and learning strategies taken by community school for mathematics teaching and learning.

Statement of the Problem

Most of the people consider mathematics as a very difficult subject. It can be shown through their failure rate in mathematics. In the context of Nepal, most of the students are being failed in mathematics in SLC. Students have not get better achievement on mathematics. Due to this failure rate students teacher as well as guardians feel it as very difficult subject. It has seen as a burring problem of the learning mathematics. The mathematics education of Nepal is facing many problems such as the lack of qualified and trained teacher, lack of good implementation of teaching method, lack of teaching materials etc. mostly people believe that the teaching strategy is the main problems.

Most of the teaching learning strategies are found to be authoritative and autocratic. It is too vague to choice appropriate method according to student's need interest and level to subject matter. Moreover, we have still no clear awareness of applying the proper one. There is not a good analysis of how this method to implement and how they play role in learning situation. Most of the teaching

techniques applied in the class room are best on teacher centered that makes the students passive in push them in to the role learners . Most of the teachers still are applying the traditional approach although they have pedagogical knowledge are trained.

The government of Nepal is intended to transform management of public school to local community. The main objectives of transfer of management to local community are to enrich the school, enhance quality education, enhance decentralization policy, to archive goal of EFA and so on. So it was felt that parents whose children jointed to community schools were more concerned about the school and school programs. This study was mainly concerned on investigating the following researchable questions.

1. What types of teaching and learning environment of the mathematics in classrooms are based in community school?
2. How to establish the relationship between teacher and parents to support mathematics achievement of students?
3. What additional supports are promoted by community school for low performer in mathematics?
4. How do the community schools evaluate mathematics achievement of their students?

Objectives of the Study

The main objective of this case study is to identify the learning strategies taken by community based school for mathematics teaching and learning. To reach the focal mission the following would be the specific objective of this research:

1. To find the teaching and learning environment of the mathematics classroom in community school.

2. To find the ways of parental involvement in learning Mathematics promoted by community school.
3. To identify the additional supports promoted by school for low performer in mathematics.
4. To find the process of evaluation system of mathematics achievement of students in community school.

Significance of the Study

Mathematics is an essential part of school curriculum. So it is being taught as compulsory subject at school education. Although the mathematics is being used by each person knowingly and unknowingly in their daily life the achievement of students in mathematics is very poor. After the restoration of democracy, the decentralization policy was implemented in education, and then the government of Nepal is intended to transfer the management of public school to local community to enhance quality education. So this study is tilted to find teaching and learning strategies developed by the school for mathematics teaching and learning. Hence the significance of the study can be listed as follows:

1. This study would be helpful for other school to improve their achievement in mathematics by using such strategies.
2. This study would be useful for the community, parents, teachers, students and other stake holders related to education.
3. This would be helpful to identify the instructional strategies developed by community based school for mathematics teaching and learning.
4. This study would identify the evaluation system of the community based school.

Delimitation of the Study

The delimitations of the study of the study are as follows.

- This Study was limited to a selected Community based School of Nawalparasi District.
- This study was limited in Shree Prithive Madhyamik Bidhyalaya.
- The data collection period was seven days.

- The researcher was observed the class X only.
- The study was conducted Strategies Taken by Community school for the Improvement of Mathematics Achievement.

Operational Definition of the terms

Community Based School

A public school, whose management is transferred to community, the government only provides the funds but managed by community.

Strategies

It is the specific process of running an organization. In this topic, strategies mean the process and different activities and mechanism, methods, which help in mathematics learning in community based school.

Environment

It means totality of physical and environment education. Since, the community manages and takes the every responsibility of the school; so the educational environment and quality of education are well maintained by the community people.

Low Performer

The students who obtain low score and fail in mathematics are called low performer in mathematics.

Mathematical Achievement

The results obtained and achieved in mathematics are called mathematical achievement.

Case Study

A process or record of research into the development of a particular person, group, or situation over a period of time.

Chapter- II

REVIEW OF RELATED LITERATURE

Literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of the research. The main purpose of this chapter is to develop some expertise in one's area to see what now contribution can be made and to receive some idea for developing a research design. The various related studies, reports and books have been received to justify present problem of the study. There are different research studies concerning rewards that help to draw necessary conclusion. In this chapter different types of literature to the rewards have been reviewed. It helps to conduct the new research in a systematic manner by providing the general outline of the research study and elimination the unnecessary duplication realizing the importance of literature review. This chapter includes theoretical literature and conceptual understanding of the study and they are discussed in the following paragraphs.

Empirical Literature

Maynard(1997) states that, when parents get involved in education, children work harder and achievement also increase at school. Parents who help and encourage their children to learn, and who help to develop positive attitude towards schools contributes to the personal growth and academic success of their children. Various approaches have been developed to help schools gain greater parent involvement. These approaches have several factors in common: programs that focus on parent's skills and the development of home conditions that support learning: School- home and home-school communication, participation of families in decision-making, governance, and advocacy. However, these approaches were not developed with rural

communities in mind. Parent's involvement programs for communities work best when they respond to particular factors of the communities they serve.

Vignoles, et.al (2000) explained that the London school of Economics and University is a part of a wider evaluation within the Department of Educational employment of the wider evaluation within the Department of Educational employment of the link between school recourses and result. The majority of the research reviewed was American. A number of British studies were discounted because the data was not underfed to be robust enough to be reliable. Overall, this review showed that it is Impossible to demonstrate from existing research that extra spending per pupil has a positive and significant impact on pupil outcomes. While class size did influence result, its effect was small. Experienced teacher had aa greater effect on pupil outcomes than class size. Although level of training was discounted as a factor, pay and experience of teachers had an important influence on result. The effect was marked when teacher ware both experienced and well-trained.

Higgins. e.t.a.l (2005) states that impact of learning environments on student's achievement, engagement affective state, attendance and well-being. It draws on a body of literates that is mainly based on the USA and UK. The analysis of the range of evidence shows that the existing research that exists on the impact of environment on teaching and learning tends of environment on teaching and learning tends to focus much more upon some elements and fail to synthesize understandings. Culture and geographical differences also highlights the importance of sensitivity to context. For these reasons it is very difficult to make judgments about which areas are worth focusing on. There is clear evidence that extremes of environmental elements have negative effects on students and teachers and that improving environment came up to minimum standards. This improvements made in schools may have less to do with

specific elements chose for change then with how the process of change managed. There also appears to be a strong link between affection engagement with staff, students and other users of school, buildings and the success of environmental change in having an impact on behaviors, well being or attainment. Overall this review outlines the research literatures in four areas: systems and process; physical environment; products and services; and communication. It then concludes with a number of recommendations for the research to fill gaps in existing knowledge.

Subedi (2005) conducted a research on 'Mathematics Learning Management in an Effective School' showed that a single intervention in the learning management cannot give better achievement. The teacher and teaching methods were not only the factors for high achievement in mathematics. Over all learning management of the schooling constituted for the high performance in mathematics including stimulating school environment, physical environment, high expectation of success; head teacher supervision, qualified teacher, lecture cum practice method, extra book, for practice, emphasis on, class work and homework, extra classes for low performers and parental involvement in ,mathematics learning.

Pokhrel (2005) conducted a research on 'student's achievement in mathematics for community based school and public schools a primary level'. Research showed that teachers were unknown about the strategies but most of them use lecture method in classroom teaching. The use of instructional material is very low in such schools. Although the most of the teachers are well trained, they were not using recent trends of teaching in their classroom. The involvement of management committee members in public schools is very low. Also the parental attention and involvement in their children's education is pitiable with comparison community

school. The classrooms are not managed properly for teaching and learning mathematics in public school.

Dahal (2006) conducted a study on ‘Achievement in mathematics of primary level school students from community based and pre-primary level at grade one’. The research showed that there is a significant difference between the mean score of primary level student’s from community based school and pre-primary school based students. There was no significant differences between the mean score of primary level students from community based as well as pre-primary school based school students with respect to gender.

Theoretical Literature

School Improvement theory

School improvement as a strategy for educational change that enhances students’ outcomes as well as strengthening the schools capacity for managing change. In this sense school improvement is about raising students’ achievements through focusing on the teaching learning process and the condition which support it. It is also strategies for improving the school’s capacity for providing quality education in time of change. This approach leads to some liberating ways of thinking about change. Schools and those who live out their daily lives within them are no victims of change.

Governmental policy symbolizes a sense of what a school should be and how it can improve. So it plays a significance role in making schools work better. The school is central part of learning as well as curriculum implementation. Better teacher, school and strong knowledge infrastructure can bring a difference desired in quality education. The main principles of school improvement are as follows:

- What is the goal of the changes?

- Who should be involved in the changes?
- How do these changes work out in our practice?
- When are the changes expected to be implemented ?
- Which resources would be needed?

Many school improvement projects presuppose changes in attitudes and behavior. As we discussed above there is much to indicate that such changes assume a very close interaction between planning and execution. As a rule, such collaboration gives the parties involved in the project a sense of belonging.

As we discussed the general development towards the new state a development which to a greater and lesser extent has promoted deregulation, decentralization streamlining and in part privatization of public services. It is not possible to discuss strategies for development within the public sector without having this general development in view. Tasks which only ten year ago were regarded as being of obvious central importance have since been decentralization or privatization. We would present not only projects that have clear elements of decentralization, but also those in which the state has an even clearer role than before.

In an analysis of the extensive American restructuring reforms at the federal level that have been carried out in recent years., the editors of Educational Week show in the study entailed “ From Risk to Renewal”- charting a course for reform that among the strategies which must be included if extensive reform are to succeed are the following:

- Changes in the culture of each and every school.
- Changes in the ‘rules of the game’.
- A joining of top-down and bottom –up reform strategies (Education week 1993, PP. 187-98).

In our dimension of strategies we would make use of the typology we introduced in the first edition of school improvement, (Dalin, 1982) in which we distinguished between:

Individual Strategies

Initiatives for promoting school improvement through the individual agent. The individual is the unit of change. In our discussion we would consider what we know about the effects of supplementary and continuing education of teacher in relation to school improvement and reflect on how leadership development can contribute to school improvement. Without individual there is no school improvement. However we are so accustomed to that this development takes place through the system or institution that we often forget the important role the single individual has played and still plays in school improvement. Here we are thinking first and foremost of names such as John Dewey, Rudolf Steiner, John Goodlad, and Maria Montessori. These are unique individuals who, in their own special ways, have exerted a major and long-lasting influence on school improvement in many countries. Fullan (1991) feels that we can draw the following conclusion about teacher's use of new ideas and methods in their teaching. It takes place:

- When information is relevant and specific enough to be used.
- When the transfer of knowledge is personal and there is enough personal Contact and support in the implementation phase.
- When the school and the municipality assume a positive attitude toward school implement and the workplace is characterized by administrative Support, collegial co-operation and problem-solving behavior.

By individual strategies we mean initiatives whose object is to change the schools by influencing individuals. This might influence attitudes, knowledge or skill

and this influence can be brought to bear both inside and outside the school. Up to now we have only discussed the teacher. In principle, the same strategies apply to head teacher, the pupil, the parents, or other individual who have a vital interest in the schools.

Pupil and Parents in School Development

The most important individual in school is the pupil. What could be more natural than pupils actively participating in the development of the schools, or to put it another way in the development of their own 'workplace'. In other context we pointed out that working with the unknown being a part of developing one's own workplace and the institution one lives with can be the most important means of preparing for the future (Dalin and ROLff 1993). So in discussion individual strategies it is only natural that we should also discuss ways in which the individual pupils and their parents can take an active part in renewing the schools.

We have seen that pupils seldom participate in decisions that concern their own learning. Rather they are treated as immature and unmotivated as unskilled labour that cannot take responsibility for their own learning. Arends et.al.(1980) have shown how a systematic exclusion of pupils from the decision making process led the schools into a vicious circle.

Usually we regard pupils as objects to be treated, as entities who ultimately stand to benefit from our projects. Pupils are looked at as products of school system. They are to be offered services, be protected, monitored, punished or in some other way 'brought up' by adults. They are rarely ever regarded as rightful members of school society members who can participate in planning, problem solving and the implementation of change.

Pupils are also taken up with school issues of a more general nature. They want to have a say in determining which electives are offered. They also wish to play an active part in the shaping of a school's profile. Furthermore they are concerned with creating better forms of co-operation and a better school atmosphere in general.

Fullan (1991) would have us understand that pupils must change if school improvement is to become a reality. And pupils are just as irked as teachers at merely being informed of what is going to happen. They should be allowed to participate as far as this is feasible. In reality they are never even asked that is why they often react with bewilderment. They might even ignore what is happening or they might regard it as a respite from all the tedium. Fullan points out several studies that all show the same thing. Many attempts at renewal have no effects on pupils learning or work situation. In fact they go altogether unnoticed by the pupils and in those cases where change actually does occur, it takes the pupils by surprise. One particular pupil whom Fullan refers to put it like this....suddenly the teacher tell us that they are going to start teaching us as though we were adults....after having taught us like babies for years. (Fullan1991)

While teachers comprise 'the stable core' of a school, pupils change schools regularly. We also know that certain classes can be very different to work with just how tenable then are these pupils evaluation? Provided they participate actively over a long period of time and provided a dialogue is arranged between teachers and pupils. In our opinion there is no reason to cast aspersion on pupils' evaluation. The reason these can be pronounced from one class to another with respect to very similar teaching situation is vital information. We know that classroom atmosphere is an important factor in learning and a sense of well-being. We should therefore expect that

what from the outside might be seen as an identical teaching program would in fact not necessarily be identical at all.

Most teachers would agree that a constructive dialogue with the homes is a pre-requisite for good school works. Rutter and his colleagues have shown. For example that common norms for homework are an important condition for learning .A number of school have made effort to get parents actively involved but with little success. There are a number of questions to be solved:

- What responsibility and whet role do we want parents to have in the Schools?
- What are the structural and financial conditions for active parent Work?
- How can we ensure the participation of parents from less well-to-do homes?
- When does parental responsibility for their children's schooling being and at what Level does it end?
- What practical condition must be fulfillment before teacher canwork together with Parents in a constructive way?

Organizational Strategies

The approaches used for promoting school improvement with the individual school as the unit of change. This means, in other words, that all schools must be developed from within, that it is pointless to other words, that all schools must be developed from within, that it is pointless to come up with something in certain schools and try to carry that over to all the other schools. Each school must implement and institutionalize its own development process. Only then can we be assured that good educational and organizational solutions will be developed.

We would discuss these initiatives within the framework of decentralization at the municipal and the school levels. Projects we would discuss include organizational

development and the development of the role of the head teacher. An organizational strategy affects every aspect of the school. The process can be political because it affects of individual people and group. It can be viewed from a humanistic perspective because it largely affects the relationship between human being and the motivation and needs of individuals. Organizational strategies require as a rule, a rational division of roles and tasks. Thus a structural perspective is probably also a prerequisite. As organizational strategies gain ground we also see examples of how a symbolical perspective can prove fruitful. What we are faced with then are strategies that cannot be easily confined to a single perspective. Only when we began to look at the specific strategy can we analyze which organizational perspective and which perspective of change the strategy is based on.

Organizational development processes which we would be dealing with in particular in this topic. Were originally based on a harmonistic perspective in the view of Bolman and Dael. But as the practice of organizational development grew it increasingly came to deal with all aspect of the organization, and therefore also represented a structural perspective as well. The same thing is true of schools, where we once had very little empirical knowledge about the different between schools; today we have a much more dependable grasp of the factors that makes schools different.

System Strategies

The tool that are employed in promoting school improvement and which have a bearing on parts of the system or the entire school system. It is the system that is the unit of change.

The school improvement is a way of creating conditions that enable teacher, parents, community members and learners to promote and sustain learning among

them. The import of the school improvement model is the centrality of learning, learner and learning achievement and focus is given to school driven strategies, which are as follows:

Focus on students' achievement, learning and employment. Create the condition and capacity for school improvement. Implement focused changed strategies. Built policy external support networks. Developed curriculum and teaching programs that are based on what is Known about learning.

To be a school, an organization, there are so many perspectives. To live any organization a number of functions must be safeguarded and developed. Not all functions are always same importance but organizations have certain task in common.

Production

The production deal with the way the work is carried out in order to achieve the organization's objectives. How productive is the learning processing in our classroom.

Management

Which deal with the way the organization is run. Including planning, decision making processes, coordination, guidance, development of an institutional culture and communication between individual and groups, the context of productive leaning.

Development work

Which deals with the way needs are analyzed, ideaare attended to new thing are discovered and the way the development process is supported and carried out.

Information treatment

Which deals with the way information is obtained,how it is taken, accommodated and the way the development process is supported and carried out.

Evaluation

Which deals with the extent to which what is describe is actually achieved and whether what has been achieved is desirable, what actually taken place and with the extent to which what happen has to value we attach to it.

Legitimization

It deals with giving a mandate to people and groups internally and with working for general acceptance of the image of the organization we wish to maintain or promote.

Since all the function mentioned above are also the function of school. So a school can be taken as an organization. Following are the dimensions for the school to be an organization.

School Value

School values refer to the basic values as they appear in ideologies, philosophies, ceremoninies and symbols. This dimension refers to the formally expressed objectives as well as informal values and norms of the school management. Teacher's students and others in the school community. This dimension has special reference to those values that are related to a view of learning and teaching.

Surrounding

Where the schools are concerned,the term surrounding refers to both the local community asociety at large,i.e. each person and organization in the surroundings that a school needs to have contact with in order to do is work.Schools are partly in a formal dependency relationship with certain institution in their surroundings. A mutual interaction is partly expected up to a point, school have an informal and non binding relationship to people and organizations.Most schools have a relatively large degree of freedom of action inrelation to their surroundings. If a school generally

manages to take care of the functions expected of it by parents and recipients, it would have great freedom to define its culture and form its day -to-day life. However if a school breaks with expectations with norms and traditions. and with our picture of what a school should be than a counter reaction would set in.

Structure

This dimension refers to decision-making structure, task structure and communication structures. The decision making structure defines who makes decisions about what. The task structure defines how the work is divided between management, teacher and students and the communication structures defines which people and groups would have dealings with each other.

Relations

This dimension refers to human relations in the school system as these are expressed in the informal organization. This includes circumstances that contribute to the overall school climate .In addition we include the individual person's sense of commitment to the schools and the quality of human relations including the way conflicts are solved.

Circumstances in the schools are often reflected in the quality of human relations between groups, including the relationship between teachers and students. Learning takes place through acting together. All schools should strive toward productive and good human relations. Often however problems in this area are easily regarded as the problem .The real problems might lie in unresolved value conflicts, in unsuitable structures in relations with the local community or the authorities. So there is no simple ways to solve inter -human problems. The market is flooded with solutions in this area. The danger is that these symptoms along would get treated which doesn't help their schools on their ways.

Strategies

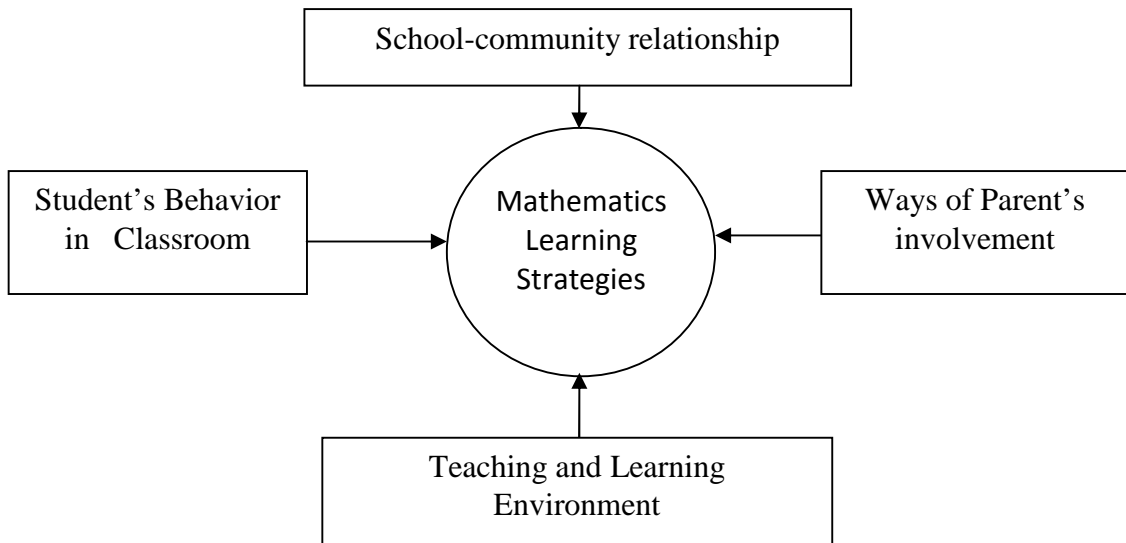
This dimension refers to the way the school is run to the mechanisms and methods for developing the schools and to strategies for solving problems making decisions, giving rewards and setting boundaries. It must be the school administration's task to find ways of creating a balance between the school's values, structures and human relations. It is also their task to find and develop suitable connection with the surrounding.

The inter-relationship of above dimension is very important for school improvement and is taken as the dimension of school as an organization. These dimension help to effective learning in such which is improving. So the dimension above discussed also very important for mathematics learning in community- based schools. Since community-based schools are also the practice of school improvement.

Conceptual Understanding of the study

Learning is one of the important things in our community school. This study revolves around community based school. This is mainly based on the school improvement theory. Among them organizational theory is selected. Since the aim of decentralization of educational management to local level is to increase the achievement, so the researcher use the organizational theory that takes school as an organization in which mathematics learning takes place. The following framework is proposed as the study on mathematics learning strategies in community based school.

Figure: Mathematics Learning Strategies in Community Based School



Source: Acharya, N (2007),

The school and community are like the two sides of the same coin. These are interdependent to each other. The community school is solely responsible for the welfare of the community. Parents are like the caretaker and protector of the school. The parents watch good and bad aspect of the school activities. The community school is the school of all children of the community. The school children in the community are well socialized; they interact like in the family. Interaction among the students and the teachers is very friendly. In the community school the teaching methodology is basically lecture method, the teacher is basically is found like a seminar conductor. Hence the school runs in a social integrated manner among the teachers, students and parents.

Chapter-III

METHODS AND PROCEDURES

This chapter deals with procedure of the study, which carried out to achieve the findings of the problem. Since the researcher followed the qualitative research method so it is descriptive in nature, which is a form of inquiry that explore phenomena in their natural setting and is used, multi methods to interpret, explain, understand and bring meaning to them. This chapter describes the design of the study, selection of the case and respondents, methods of data collection and tools used to collect the data. It also explains the methods of analyzing the collected data.

Design of Study

The appropriate research design of this study was case study. So it was carried out in a school, Shree Prithivi Madhyamic School Nawalparasi district. This was the study on different learning strategies that are developed for mathematics learning in community based school.

Selection of Case School

There are many public schools in Nawalparasi district. Community based schools are those whose management is transferred to community. These schools were achieving better results comparison to those which are managed by government. Shree Prithivi Madhyamic School was selected purposively. In this school the SLC result according to school was good.

The school gives regular coaching classes for all student's of class ten. The teacher emphasis to the low performer and suggest personally to learn mathematics. Mathematics teacher takes examination monthly, evaluates mathematical achievement

and gives homework regularly and check it from home work teacher who is able and who is not able to solve the problem.

The SLC result from last 5 years has been very good and the students passing the SLC examination has been doing in different sectors, they have been reinstate in different criteria. The school has been able to make good relation with the GCA.

Selection of Responds

This is a Case study of a school. The main responds of this study are mathematics teachers, students, Head teacher, parents, family and other community group which are directly related to school. Ten students were chosen accordance with gender, caste and records of the school. The parents were chosen according to the focused students. The mathematics teacher and the head teacher were the main respondents.

The following table shows the children who were focused.

Table 3.1

Demography of Focused Students

Students	Caste/Ethnicity	Sex	Permanent Address	Monthly income	Remarks
A.	Brahmin	Male	Nawalparasi	10,000/-	
B.	Brahmin	Female	Nawalparasi	15,000/-	
C.	Chhettri	Male	Nawalparasi	12,000/-	
D.	Chhettri	Female	Nawalparasi	10,000/-	
E.	Newar	Male	Nawalparasi	10,000/-	
F.	Newar	Female	Nawalparasi	30,000/-	
G.	Tamang	Male	Nawalparasi	14,000/-	
H.	Magar	Male	Nawalparasi	12,000/-	
I.	Magar	Female	Nawalparasi	8,000/-	
J.	Dalit	Male	Nawalparasi	7,000/-	

Tools/ Instruments of Data Collection

Interview schedule and observation form were the tools of the study. Data are collected from the first hand sources and observation gives the factual information as a primary source.

Interview Schedule

On the basis of objective of this study of community school. The researcher developed different semi Structured interview schedules (Appendix; A, B, C and D) to collect the information from head teacher, mathematics teacher, students and parents.

Observation Form

The already established classroom observation form (Appendix; E) was used to observe the mathematics classroom which was re-validated by using in the grade IX of the same school and necessary once with the help of supervisor replaced the unnecessary notation.

School Documents and Records of School, Related to Study

Student's regularity, result sheet, teacher and students' prevision performance and schools progress were noted from school records and documents as necessary.

Data Collection Procedure

To collect the required qualitative data, mathematics class was observed by the researcher for seven days. The researcher participated with students and teachers in class room every day. The researcher observed class of grade ten and record the behavior of students and teacher on the observation form. This work was done carefully and noted the special behaviors.

The interviews with head teacher, mathematics teacher, students and parents were taken with the help of semi-structured interview schedules. The conversation

with those respondents were carefully listened and noted. The records of the focused student regularity and their behavior, participation in extracurricular activities were noted by reviewing the school records and documents.

Data Analysis and Interpretation

The data analysis and interpretation is the process of systematic searching and arranging information from the interviews, observation form and other tools (Biklen 1998).

The collected data of this case study were categorized according to category of response of different respondents and different themes were given in the text of the interview and observation note. These things were considered as a code. The similar code versions of the respondents were collected together and explained in their perspectives. The validity and reliability of the result was maintained by cross matching them. The data were analyzed and interpreted by using the framework that the researcher had developed for this case study.

Chapter- IV

ANALYSIS OF DATA AND INTERPRETATION OF THE RESULT

This chapter deals with analysis and interpretation of the collected data from the case study i.e. from a community based school. Mainly the informations were collected with the help of the instrument described in chapter three. Such information were noted and listed carefully. School records and other related documents were noted and listed carefully. School record and other related documents were also reviewed for data collection. The learning and physical environment and other details were obtained by observing the school surrounding. The views of school staff and stakeholder are also taken for additional information. The date of the different responds was categorized accordingly to their response. The data were analyzed and interpreted according to following topics.

- Introduction of the case school
- Classroom activities of mathematics learning
 - Teacher and students work in classroom
 - Reinforcement in mathematics learning
 - Methods of teaching and learning mathematics.
- Mathematics teaching and learning environment
 - Parental involvement in learning mathematics.
 - Evaluation system of student's achievement in mathematics.
- Additional support provided by school for low performer students in mathematics
- Instructional strategies promoted by school.

Introduction of the Case School

The case study is described in terms of location. Historical background, Physical facilities demography of teaching and non teaching staff, past SLC result, and public image towards the school.

Historical Background of the School

The term community based school offers the broadest definition of the relationship between school and community. Community schools are intended to respond to the needs of the students, their families and community. Therefore the amount of cost needed would vary depending upon these circumstances. The process to hand over the management of public schools to community started in 2004. Over 8,000 public schools across the country have been handed over to local communities. DOE declared that 2,604 schools have been handed over to the communities in the eastern region, 2,284 in the central region, 1,747 in western, 627 in mid-western and 740 in far-western development region. Among them, 5,471 are primary schools, 1,695 are lower-secondary schools and 836 are secondary schools.

This school has been chosen as per the convenience of the researcher and this research shall find out the mathematical learning strategies used in Shree Prithivi Madhyamik Bidhyalaya. Furthermore, it would observe the holistic infrastructure and the teaching learning environment of the school and present a case study of the techniques employed. So this study is tilted to find out the advantages of the implications of mathematical learning strategies along with the students interest in terms of mathematical learning.

Location of the School

This project shall make a case study of the community school Shree Prithivi Madhyamik Bidhyalaya belonging to Pragatinagar-6, Nawalparasi and explore the

mathematical strategies employed in the school. The school was established on bhadra-20, 2037 and currently it has about 345 students from pre-primary to secondary level. It was handed over to the community in 2065 and since then it has been working as a community based school. Moreover, this study would scrutinize the strategies used in primary level since only the primary level was handed over to the community. It is located 1.5km away from Mahendra Highway to the north.

Teaching and Non teaching Staff of the School

Teacher plays an important role in the production of qualified outcomes in addition to physical and educational aspects. Different reviewed literatures have given important place to teachers in better achievement. The main agent of the better achievement of the school is well trained qualified and sufficient teachers in school. The ratio of the teacher and student in this school is 1:23. It shows that this school has sufficient number of teacher for teaching effectively. The details of teacher of this school are given as below;

S.N	Name of teacher	Subject	Qualification	Training	Remark
1.	PradiprajGhimire	Population	B.Ed.	Trainer	Secondary Level
2.	JainaranSapkota	Account	B.Com./B.Ed.	Trainer	Secondary Level
3.	Om BahadurThapa	Science and Social	I.Ed.	Trainer	Primary Level
4.	Bishna Sharma	Purwa Bewasaik	S.L.C	Trainer	Lower Secondary Level
5.	Ran BahadurAlle	Economics	B.Ed.	Trainer	Secondary Level
6.	DurgaDattaGautam	Nepali	I.Com.	Trainer	Primary Level
7.	MadhabiGhimire	Grade Teacher	S.L.C	Trainer	Primary Level
8.	DhanBahadurSaru	Health	B.Ed.	Trainer	Secondary Level

9.	Hom Narayan Thanet	Maths	I.A.	Trainer	Lower Secondary Level
10.	Dila Ram Bhusal	English	M.A.	Trainer	Secondary Level
11.	Bijaya Kumar Saru	English	B.Ed.	Trainer	Lower Secondary Level
12.	Sridhar Dhakal	Science	B.S.C./ B.Ed.	Trainer	Secondary Level
13.	Tika Ram Acharya	Nepali	M.A. / B.Ed.	Trainer	Secondary Level
14.	Ramesh Bahadursapkota	Social	M.A. / B.Ed.	Trainer	Secondary Level
15.	Shivahari Adhikari	Maths	M.Ed.	Trainer	Secondary Level

According to above demography, most of the teachers are graduate from different faculties. Although they are not from education background. They have taken some kinds of training provided by DOE and MOE. Some of them are post graduated in their relative subjects. There is no one female teacher in secondary level. The head teacher is well- experiences and trained population teacher. He had taken most of the training provided by Government of Nepal and other organization. The Mathematics teacher has been teaching mathematics for 4 years.

“School is going to appoint part time teacher for mathematics and English”

(Head teacher)

The theory on school improvement shows that the ratio of students and teacher must be balanced. To improve the organization the number of teachers should be sufficient.

The qualification of some teacher in secondary level is above the government status of Nepal. They are little trained and few are permanent. The demography shows that the ratio of male and female teacher is not proper.

Physical Facilities of School

Physical facilities are the physical infrastructure including building, teaching materials, furniture, ground, and other concrete material which help in teaching and learning.

This school lies at the central part of the Nawalparashi district. The school has cover about 14kattha lands. The school is surrounded by building and wall. There is a large iron gate in a school from which students can easily enter and leave out. The gate is also suitable to enter the vehicles. There are 6 building in school. The first building is largest among six building. There are 20 rooms altogether in large building. This building is for lower secondary and secondary level. For the primary section there is another building that is plastered. It contains 8 rooms. The third building is a canteen. In first building there is a computer lab which contains 20 computer and computer tables. Science lab, seminar hall program hall staff room, library and classroom for secondary and lower secondary level. The library contains about 1500-1600 books of different subject.

The ground of the school is sufficient for students to play in interval and conduct the weekly programs like volleyball, football, etc. It is sufficient for not only player but also for audience. The drinking water and the toilet are also available. But according to students, the toilet and drinking water is not sufficient. School has taken policy to improve drinking water and toilet, according to head teacher.

Table 4.2**Physical Facilities of the School**

Area of the school	14kattha
No of building	6 new plastered
No of room	20 well ventilated
No of library room	1 with about 1500/1600books of different subject and another references
Laboratory	2 (1computer +1 science)
Desk bench	About 180 pairs
No of table	43
No of chairs	49
No of cupboard	10
Sofa and cousin	3 set
Microsoft	2
No of blackboard	20
No of globe	2
No of chart	15 (including mathematical formula, science, Anatomy of human body and another)
Computer	20with 1printer
Information board	1
Geometry boxboard	1 set
First aid materials box	1 set
Electrical bell	1
ceiling fan	7

“The school has not sufficient teaching materials for mathematics. School has established a computer lab, library and has added equipment in science lab after handover to community. The school is going to establish a mathematics lab and add different books in library.” (Head teacher)

It is seen that there s no mathematics lab, but there is well equipped science lab and computer lab with 20 computers. School is going to establish a mathematics lab by collecting the materials from local community and from another field. Different mathematical journals will also place in mathematics lab. The school also has policy to add more extra books in library for the students.

The physical facilities are very important for improvement of school. Sufficient physical facilities and teaching materials help to gain more knowledge foe

students as school improvement. But in this school the physical facilities are not sufficient. The building and furniture for students are sufficient. There are not sufficient teaching materials for teaching and learning mathematics.

SLC Result of Past Five Year

This is a public school of Nawalparashi district, whose management is transfer to community. Although the school is public its success rate is very high since 2065 B.S. the school has been appearing in SLC examination since 2065 B.S. The past five years S.L.C. result is presented in following table.

Table 4.3

SLC Results of Past Five Year

Year	No of students appeared		Passed		Remark
	Boys	Girls	I division	II division	
2065	20	16	18	13	
2066	19	22	22	15	
2067	24	15	23	14	
2068	17	14	18	12	
2069	21	12	22	10	

According to school improvement theory the participation of the students in school and their achievement production is main agent of school improvement.

Hence school is improving according to the SLC result shown in above table.

Public Image towards School

Community plays a vital role in development of school because school is also a part of community. Also school is an miniature society. The school has to serve positive impact from society. Public image means the views of the school community, which includes the parents, student's teachers and head teacher's view about school.

“School provides free and standard education for our children and no any financial pressure to us for their education. We spent money only for uniform, stationary an examination fee. So this school is very suitable for us.”

(Parents view)

The above view shows that the school is suitable for the students from low economic status. Also the parents were satisfied with their children’s achievements. The parents expect their children’s best future.

“All teachers in school respect us and speak in polite language and ask about our work in this school and help us to our works”

(Parents’ view)

This indicates that the environment of the school is co-operative and the parent teacher relation is good. Also it was seen that all teachers are helpful and kind for students, parents as well as community members.

“The school is better in comparison to another school. All teacher and students are co-operative in learning as well as in different activities inside school and outside school. Teacher do not discriminate us.”

(Students’ view)

This indicates that the relation between students and teacher is well. Also the relation among students also good. All students are positive towards teacher, methods of teaching and teaching style of teachers. They are also motivated from teacher’s behavior for better performance.

“The school provides pedagogical training for us and we gain much experience from school and the school administration and leadership never dominate us.”

(Teacher view)

This view indicates that teachers feel professionally enriched and valued from school community. All staffs are co-operative and interact about the problems and their solutions that were faced and related to school and teaching.

“The students of school are from lower economic status. The guardian are from different part of Nepal .The school is able to obtain high performance in SLC exams.”
(Head-Teacher)

The students of school are from lower class family. The parents had not much money to spend their children’s education. The classes are multicultural and multiethnic due to diverse culture and geography. The result of the school is better in comparison to another government school.

The school improvement theory says that the positive thinking of members of school is important for its improvement. The relations between teacher, students and parents should also be well. All members of school must be co-operative and responsible to their task.

Classroom Activities for Mathematics Teaching and Learning

The class room activities are the total activities inside classroom. It is also the process of class running. It includes all activities of students and teachers in classroom. The relation between students and teacher among students is also presented in this topic. The researcher has also presented the teachers works, students’ works in classroom, reinforcement in classroom and mathematics teaching and learning methodology in this topics.

Teacher’s and Student’s Work in Classroom

Teacher is a main agent for classroom activities. He/she is also an implementer of mathematics curriculum. The mathematics teacher plays important role in the educational process. To guide students, provide reinforcement; motivate

students for mathematical learning provides different co- curricular and extra-curricular activities encourage and reward students, using suitable materials and methods. Monitor and direct students to better achievement, evaluation students etc are the main task of mathematics teachers.

Students are also the main agent for the education. Moreover students are the focusing points of mathematics curriculum. To do the work given by teacher, do extra activities, participating in teacher's interaction, participating in learning activities and to obey the rules and regulation formed by school are the main task of students. A sample of an observed class is presented here.

“In observed class, the teacher went to the class with materials of daily use and compass and scale. The researcher also entered in the classroom. Then all students stood up and said ‘good morning sir’. Then the teacher requested to sit. There were 28 students in the classroom. The furniture was sufficient for the school but not comfortable for students. The blackboard was kept at suitable place. The class room was well ventilated and well –lighted. The class for that period was geometry class and the topic was ‘construction of triangle.’ At first the teacher reviewed about the process of construction of triangles then he wrote a problem in the black board for construction of triangle. Then he made sketch figure of triangle by explaining the idea and telling process of construction without using scale and compass. After that he constructed the required triangle by using scale and compass. In this process the teacher explained the construction process step by step. At that time students were busy to copy and construct the triangle together with the teacher .Then the teacher gave same type of problem to students. After he moved among the students and checked students activities. The teachers also guide students’ activities. The teacher remarked good for students who are succeed and guided at the students who faced

obstacles in construction. At that time the teacher wrote some steps the copy of unsuccessful students' .At the end of the class the teacher summarized the class and gave homework for students.”

The above episode shows that the teacher used the lecture cum practice method in teaching mathematics. The presentation of the teacher showed that teacher was well prepared. The teacher also used discussion method with the help of class work, the teacher evaluated the students achievement. The students were actively participated in teaching learning process. He observed students who were success and who were not. Sometimes teacher tries to use students centered method for mathematics teaching. The students are highly participated and activated in mathematics learning process.

The recent view is that knowledge can be constructed and reconstructed by the student's themselves. The student's learning activities should generate knowledge, skills and attitudes by themselves. The teacher should act as facilitator in the classroom but not transmitter of the knowledge. The teacher emphasis on students-centered approach in classroom but in community based school the sometimes only tries to use such approach but not properly in classroom for mathematics instruction.

Reinforcement in Classroom

Encouraging the students is one of the effective processes to make better of student's standard. This process we call is reinforcement. Reinforcement is useful for further learning. There are two kind of reinforcement; positive and negative. To recognize the feeling and intuitions of the students, reinforcement is important. So reinforcement, both positive and negative is important to achieve better achievement and initiate the intuitive power. It includes the prizes and other things which were provide by the teacher or from school.

“When our children get prize, they become very happy and study home more than days before they used to study.”

(Parents’ view)

This view indicate that the school provides different materials for motivate students and students are also motivated when they obtain any kind of reinforcement.

“We provide some special prize for the students who stand in first position in class and weekly extra- curricular activities.” (Head teacher)

“We have managed a planed and implement it to reward students with pen, pencil, dairy, to the students who come regularly in classroom and stands in first position on class test, terminal, midterm and final examination.” (Teacher view)

“The teacher always gives us homework and checks it regularly. Then the teacher gives the ideas to question where faced problem.” Which helps me to complete my homework and further learning?”

“I am very poor in mathematics. So I am not able to solve the question in class work and then the teacher come to me and tells about the process of problem solving. So the teacher suggests me personally in mathematics learning.”

(Student’s view)

Form all above views, it indicates that school motivates students by providing different materials as prizes for succeed students. The teacher also provides different tasks in classroom to motivate students in mathematics class. Also, the teacher assign different tasks honestly. Teacher provides sufficient ideas, processes and chance to solve problems. He guides students to teach objectives. Physical and mental punishment is not given to students. There is not any bias among students from teacher. Students are also motivated to study hard and by providing some kinds of prizes.

The school improvement theory says that reinforcement is important for better achievement in mathematics. The reinforcements encourages to the students to practice the problems which they feel hard. Also the students who were reinforced with any kinds of prizes were psychologically motivated and achieve better result. The modern concept of learning belief that the positive reinforcement is effective then negative.

Learning Method for Mathematics Teaching and Learning

Methods are the particular ways of teaching and learning mathematics. There are different methods for teaching and learning mathematics. They are lecture, heuristic, discussion practical, problem solving, question answer, etc. the learning methods are very important for effective mathematics instruction. Some methods are teacher centered and traditional and other are students centered and modern. For mathematics teaching modern methods are effective. In this topic the researcher explain the method that used in community- based school for mathematics teaching and learning.

The observed class showed that the teacher used teacher-centered and he tried to use student centered approach as well in mathematics teaching. Sometimes, the discussion method was also used by mathematics teacher in mathematics teaching in which the student's involvement is acceptable. The teacher also encouraged the students by providing different examples but no concrete materials were used in mathematics teaching. The teacher was seen cooperative with students who is not succeeded in solving problem.

“we use different kinds of methods like problem solving, lecture, practical, discussion for mathematics teaching and learning according to the content if lesson.”

(Teacher view)

“The school provides well-trained teacher for mathematics and teacher had taken all kind of training about methods and materials using.”

(Head teacher)

“The teacher teaches according to his own chosen method and didn’t interact with students for method selection. Sometimes he interacts with students while solving problem.”

(Students view)

These views indicate that teaching method is an important in teaching and learning mathematics. The teacher uses lecture practices method and sometimes discussion method in mathematics teaching. He is free to select appropriate method of teaching. But the observed class shows that the teacher did not use problem solving and heuristic methods.

In this school the teacher uses mostly the traditional method of teaching. The teacher uses lecture practice method and sometimes he also uses discussion method in which students’ participation is also acceptable. But the mathematics teacher does not use heuristic method, problem solving method and child centered approaches of teaching mathematics effectively.

Mathematics Learning Environment in Community Based School

The learning environment means totality of educational atmosphere. Environment is a main agent to improve any organization. In community based school parent’s involvement in school activities, the formation of rules and regulation, relation between teacher and students between teachers and community, between school and external organization are main aspects of mathematics learning environments. It also includes overall physical status of school.

The physical status of school is an important aspect of learning environment. In visited school the physical infrastructure is sufficient for students and teacher. Playground is sufficient and surrounded by building and wall. The school is clean and classrooms are well-ventilated and well- lighted. But the toilet and drinking water facilities is not sufficient for students. Most of the teachers of the school are experienced and some are trained. All teachers are interacting about school and teaching. The teachers are helpful and co-operative.

The classroom activities are also important thing for better performance in mathematics. So classroom activities are main aspects of learning environment. The teachers' and students' work is important aspect of learning environment. The teaching methods are also important. School is providing free and standard education for all students of all class. This is also an important aspect in creation of good learning environment. The leadership is an important aspect of learning environment. In creation of sound and peace learning environment the academic leadership plays vital role. The head teacher is the chief executive officer of the school. He is responsible for development and preparation of policies and monitoring and supervises school, teachers and students. The staff are responsible for ensuring that policies.

“I call staff meeting to make rules and regulations. In this meeting I also invite the members of management committee. Such meeting is held at the beginning of new session. In which the routine and policies for new session are made and previous result is reviewed.”

(Head Teacher)

This view indicates that the meeting of management committee and staff of school makes the policies, rules and regulations of the school. Also previous result also previewed in that meeting.

“The head teacher calls staff meeting and shares his idea to us. He also accepts and appreciates our ideas. He does not compel us to accept his own ideas.”

(Teachers’ view)

This view of teacher indicates that the academic leadership is not autocrat. The head- teacher is academic leadership of school. He is liberal and cooperative. The rules and regulation are made by discussion all staff. Good ideas and views of all teachers are appreciated.

According to school improvement theory, there should be close relationship between the member of school for better achievement and improvement of learning mathematics.

In this school there is close relation between students and teachers. But this school has not any relation with external clubs and organization. Staffs and community members make the rules and regulations. Another important aspect of learning environment is parental involvement in learning process.

Parental Involvement in Mathematics Learning

Home is first school for students. Parents and family members are first teacher for students. The involvement of parents in learning helps students to get better performance. Parental involvement in school activities, monitoring and guiding student’s work at home and school are main areas of this topic.

“We invite parents regularly by sending information with their children. We provide the result of their children. Generally they come to school at the time of result publication of regular examination.”

“The management committee meeting passes the rules and regulation, solve the problem and test the school program.”

(Head teacher)

“Although we inform the parent all are not able to present at school because they are hard worker and labour.”

(Teacher view)

“We feel mathematics is harder subject than other subject so we practice it more than other at home. Our elders and parents guide us in mathematics learning.”

“I’m poor in mathematics. There is no one to guide me for mathematics learning at home. So, my parents advised me to take tuition class.”

(Student’s View)

The above views show that the students feel mathematics as a hard subject than other subjects. They practice mathematics more than other subjects at school and home. Their elder guide and monitor them at home if they are not successes in mathematics. It also indicates that the parent give attention to their children’s mathematics achievement. They advice their children to take extra coaching class of mathematics, through they are from lower economic status.

“The school sends invitation regularly to receive our children’s mark- sheet. But I am absent sometime because for my work.”

“Some time when I go school, I inform to teacher about my child’s study habit, home performance and weakness and ask to help him to provide extra class and focus him in learning mathematics.”

(Parents’ view)

The above views indicate that school welcome parents regularly and distribute mark sheets of their children. But they are unable to go school regularly. The parents also give attention to their children’s mathematics achievement. They request to the

leadership to provide extra class for their children. Also they inform about their children's study habit at home their weakness to leadership. So they think that school should provide extra coaching class for low performer in mathematics. Also they are careful in mathematical achievement of their children.

The community school research, CERID (2004) said that the direct involvement parents in school and learning process is necessary, parents and family members are also a part of learning of community based school. The student is able to learn equally at home as well as in school. So parents should provide sufficient time for their children's study.

Evaluation System of Students Achievement

Evaluation is the process of determining to what the educational objectives are being realized. Evaluation Procedure has great importance in the individual guidance of pupils. There are different techniques to evaluate student's achievement. They are class text, unit text, terminal, mid-term and formal, annual examination etc.

"I have not taken unit test yet but I regularly take monthly test."

"I always give homework to students and sometimes I check it also. From the homework I also observed that who is able and who is not able to solve given mathematical problem."

(Teacher's view)

"Teacher gives us different types of external and internal questions to check our ability of problem solving in mathematics learning. Sometime the teacher used surprise test."

(Student's view)

“To evaluate achievement of the students, different kinds of tests like monthly test, class test, terminal, final exam were used but to upgrade students only terminal and final exam are used.”

“No internal assessment system was implemented to measure students’ achievement.”

“Sometimes we organize speech program and different extracurricular activities to flourish out world knowledge.”

(Head teacher)

These views indicate that to evaluate students different techniques class test, terminal examination and final examination are used. To upgrade students only terminal and final examination are used. Extracurricular activities also measure the student’s performance.

In observed class the teacher used lecture method rather than problem solving. Sometimes he used discussion method. The teacher gave different questions to measure student’s performance. He gave class work and checked it regularly. At last teacher gave homework. Hence the school has adopted only formal examination to evaluate students. The teachers do not use non-testing devices for continuous evaluation.

The class test and homework are the important techniques used by teacher in classroom. Internal assignment techniques are not adopted by school as well as mathematics teacher.

The recent view on school improvement shows the regular monitoring the student’s progress is necessary to achieve better performance. The final examination is not sufficient for upgrading students. To measure the performance in mathematics continues and non-testing device should also be used.

Additional Support for Low Performer Provided by School

Each and every person is different due to his or her intelligence, family background, ethnicity, religion, culture, socio-economic status, etc. Individual difference is also seen in performance of the students. In a class there are mainly three types of students, the first are high performer who need not more guidance and time. The second are medium level, who achieve less than higher ones. The third are the students who are unable to get high score or performance. The third type of students needs extra support for mathematics teaching and learning and we call them as low performer students.

“We provide the mark sheet of student to their parents. Also we inform them about their children’s performance in mathematics. If they failed in mathematics, we advice them admit their children in extra coaching class provided by school in minimum cost. Also the fifty percentage of the fee is barred from school administration.

(Head teacher)

“The school provides the extra coaching class for low performer students if their parents request and inform to the school administration.”

(Teacher’s view)

The above view shows that there are better policies for low performer in mathematics. The school policies have also helped to improve student’s achievement as well as relation between school and parents. The focus was given to low performer in mathematics because of low economic status. The parents have no much money for their children. So this policy is very useful for them because fifty percent of coaching fee also barred by the school administration. The parents also request to administration to provide extra class for low performer in mathematics.

“The teacher generally gives equal emphasis to all students in classroom for mathematics teaching. The teacher emphasis to the low performer and suggest personally to learn mathematics. Teacher gives more questions for practice if we face problem in mathematics learning.

(Student’s view)

This view shows that teacher emphasis equally to all students. He encourages the low performer suggesting him personally. He also made such student practice more in classroom by giving extra additional questions.

“If my child got minimum score in mathematics, I go to school and talk with head teacher to give extra class for him/her.”

(Parent’s view)

The above views show that the teacher and parents equally give attention to the student’s lower achievement. Also school provides regular extra coaching class for all students of grade X for 4-5 months. If parents requested extra class for low performer also be provided.

In observed class the teacher teach mathematics by solving problem in blackboard. The teacher gave class work to students, moved among the students and looks all students’ copy one by one. After that he found that students were puzzling in problem solving. Then he receives that student's problem and wrote the steps of problem solving in his copy. Similarly the teacher has looked all students guided if necessary.

But effective school research indicates how much time students are actively engaged in not learning. The modern concept of learning emphasis on individualized teaching in the classroom. In which personal contact between students and teacher

increases and students participation in learning activities highly participate in learning activities. They would able to solve the problem. (Subedi, 2005;)

In this case study the teacher is not used individual learning methods for mathematics teaching. Although students were from low socio-economic status, the school provided extra coaching class for all students focusing low performer in minimum cost. Sometime, teacher guides low performer individually.

Instructional Strategies Promoted by School for Mathematics

An instructional strategy is particular procedure for teaching a specific topic or lesson. Teacher is a main agent to use instructional strategies in classroom. It deals with how mathematics learning in community-based school takes place. Mainly, it includes all classroom activities, relation between teachers and students, method and materials used for mathematics teaching and learning and evaluation procedure of students in mathematics achievement.

“Generally I use practice methods as well as lecture method in mathematics teaching. Sometimes I use problem solving method for solving problems.”

(Teacher view)

“The school has usually promoted students-centered teaching methods for mathematics teaching in which student’s participation in also acceptable in mathematics learning.

(Head teacher)

The above views of teachers indicate that there is lecture practices method for mathematics teaching. Sometimes the problem solving method is also used. In Spite of students-centered method is promoted by school, the teacher does not use the students-centered approach.

But, one day the teacher entered in the classroom with daily using materials. Then all students stood up and said "Good morning sir". Then the teachers requested to sit. Then the teacher wrote the topic on the blackboard. The topic was 'sequence and series; and the lesson was sum of first natural numbers: At first the teacher reviewed the definition of sequence and series and gave some examples. After then the teacher wrote the formulae for sum of arithmetic series. Then he defined different terms used in the formula one by one and gave an example to find sum. The teacher gave a similar problem to find the sum of natural number for teacher's students were busy to solve problem. At that time the teacher moved among the students. The teacher remarked good to those who were successes and suggest and guide those who face obstacle. At that time the environment of classroom was slightly noisy. After that teacher summarized the lesson and gave homework for students.

From the above observation it is seen that the teacher used lecture cum practice method for mathematics teaching. The teacher has motivated all students by giving extra questions to practice. The teacher also encouraged students by giving the ideas personally on their copy. To solve the problem, sometime, the teacher used problem solving method interacting with students. It also seemed that students were actively participated in learning process.

In classroom the appearance of teacher is more active to explain the solution of the problem. Subject matter is also sequentially presented. He encouraged students to participate in interaction and to do more practice in classroom. The students are seemed active for learning mathematics.

The physical facilities are sufficient for students. The classrooms are well ventilated and well lighted. But toilet and drinking water is not sufficient for students.

There is no mathematics lab in school. Policies for building toilet and establishment of mathematics lab in near future are taken by school.

After transfer to community, the school has established a computer lab with twenty computer sets. After that, school is providing general computer knowledge for lower secondary and secondary level students. The library consists of 1500-1600 books and different magazines, which help students to know about the recent incidents. School is going to establish a mathematics lab. The school has taken a policy of adding other books and journals in library in recent future.

The parent and community member are highly concerned about the school activities. Also they are concerned about their children about their performance. That is not any obligation in selection methods of teaching mathematics for teacher. Extra coaching classes are provided by teacher for all students with focusing the lower performer in mathematics in minimum cost. But the modern concept of learning says that more emphasis should be given on child-centered method, individualized teaching, problem solving method and co-operative methods of teaching in mathematics teaching and learning. In community-based school the classroom practice could not be seen based school, single method of teaching is not sufficient for mathematics teaching and learning.

Chapter- V

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of the Study

This is a case study on community based school. The purpose of the study was to analyze the teacher, parents and students work in learning mathematics inside and outside classroom, to describe the learning environment of the school for mathematics learning, to investigate the additional supports provided by the school, to identify the instructional strategies promoted by school for mathematics learning. The main tools of data collection are class observation form, semi-structured interview schedules and school documents. Respondents are students, parents, math teacher and head teacher of the school. The tool was prepared by the help of supervisor. The collected data were analyzed and interpreted according the theoretical framework that the researcher developed. The major finding of the study is as follows.

-) The physical condition of the school was satisfactory. There was a library, a computer and science lab but there is not any mathematics lab.
-) The students of that school were from low economic status and working group from different part of Nepal. The classroom is multicultural and multiethnic.
-) Parents are invited to fetch result of their wards and give suggestion of their children.
-) The mathematics teacher is qualified and high experienced. But lecture cum practice method is used by teacher mostly. Sometime the discussion method is also used.
-) The teacher takes class test and monthly test also, sometimes and formal examination. The teacher rarely uses any internal assessment techniques to measure students' achievement.

-) The rule and regulation of school are formed by staff meeting and including management committee.
-) The students are obedient and disciplined are reinforced with providing some prize and feedback for mathematics learning.
-) The students are actively participated in mathematics learning.
-) There is sound relationship between student's and teacher, parents and teacher. The mathematics teacher emphasize in classroom practice and homework of students.
-) To discuss and address the issues and problem of school, the meeting of management committee and teachers is organized regularly.
-) Although, the classroom environment is controlled by teacher it is cooperative. There is no discrimination in treatment in terms of gender and ethnicity.
-) The parents are directly and indirectly involved in their children's mathematics learning at home and school.
-) Extra classes are provided by school administration to students who were low performer in mathematics in minimum cost.

Conclusion

For the better achievement the physical infrastructure with ground need to be sufficient. The classroom need to be sufficient, well-ventilated as well as well lighted. The furniture is adequate for students. The teaching learning strategies are key part of better achievement. A different strategy has been used by mathematics teachers, head teacher and community members. The learning methods and materials are not only the better achievement in mathematics. The teacher's and students' work in classroom, parental involvement in learning process, regular meeting of management community and staff are also responsible for such result. The evolution system, extra books for practice, regular monitoring of student's performance also plays vital role in learning

improvement. The regular checking of students class work, homework is key points that has been considered by teacher and students in classroom for mathematics learning.

The learning environment plays vital role in better performance in mathematics. The leadership of school is creates suitable learning environment. In learning reinforcement is necessary for better achievement in mathematics. Both positive and negative reinforcement is used by teacher. But the positive reinforcement as rewarded, encouragement, personal suggestion and advice develops interest for study. Free and standard education provided by school is important for students of low economic status to gain comparative education. The co-operation leadership, staff and students, democratic nature of leadership also help in creation of learning environment. The extra coaching also helps to students who are low performer in mathematics for better achievement. The availability of experienced and well- trained teacher is key agent of school improvement.

Thus, these all strategies inclining different methods, materials, participation in learning process, parental involvement, extra classes for low performer ,etc. are key and vital parts of better achievement.

Recommendation for further Research

This is a case study of a community –based school about the mathematics learning strategies in Nawalparasi District. The finding and conclusion drawn from this study cannot be generalized in all the school. But it could be a strategy to other school in order to get better performance in mathematics learning.

A similar study can be done for primary and secondary level as well as other subjects.

To get more valid and reliable finding it can be extended to nationwide. The study focused on only the mathematics learning process of community based school. So, the further study can be done in terms leadership in community based school.

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APPENDIX: A

Guidelines of Interview for Head- Teacher

Name : Date:
Qualification : Age:
Teaching experience: Sex:

The Interview with head teacher was taken under following topics:

- School establishment
- Training of teacher
- Parental involvement
- Educational aspect and physical aspect
- School management committee
- Different Relationship
- School funds and financial management
- Change in school
- Leadership

APPENDIX: B

Guideline of Interview for Mathematics Teacher

Name : Date :

Qualification : Age :

Teaching experience : Sex :

The Interview with mathematics teacher was taken under the following area:

- Training
- Relation with students and parents
- Evaluation techniques
- Methods and materials
- Parental involvement
- Professional life
- Academic leadership

APPENDIX: C

Guideline of Interview for Students

Name: Date:

Class: age:

Address:

Interview with students was taken under the following areas:

- Feeling about Mathematics
- Teacher 's behavior
- Parents' support
- Regularity of students and teachers
- Learning environment
- Support for low performer

APPENDIX: D

Guidelines of Interview for Parents

Name:	Date:
Qualification:	Age:
Occupation:	Sex:

The interview with parents was taken under the following areas:

- Involvement in school activities
- Support in learning
- Investment
- Physical condition of school
- Monitoring school, students and teacher
- Management committee
- School environment
- Views about school

RESOURCES

NO NA NI OK EX

1.visuals are used extensively
2.resources add to the learning experiences
3.resources are used proficiently
4.care instructions are followed for resources

PLATFORM SKILLS

NO NA NI OK EX

1.nervousness managed
2.eye content is equal
3.gesture are non distracting
4.voice is clear and audible with inflection
5.enthusiastic and positive towards topic skill