

**IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT  
ON STUDENT'S ACHIEVEMENT**

**A  
THESIS  
BY  
KARNA BAHADUR KAWAR**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
MASTER OF DEGREE IN EDUCATION**

**SUBMITTED  
TO  
DEPARTMENT OF MATHEMATICS EDUCATION  
CENTRAL DEPARTMENT OF EDUCATION  
UNIVERSITY CAMPUS  
TRIBHUVAN UNIVERSITY  
KIRTIPUR, KATHMANDU  
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2014**

**ROOM MANAGEMENT ON STUDENT'S ACHIEVEMENT**

**N. 706**

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**LETTER OF APPROVAL**

**Thesis**

**By**

**Karna Bahadur Kawar**

**Entitled**

**"Impact of Mathematics Classroom Management on Student's Achievement"**

has been approved in partial fulfillment of the requirements of the Master's Degree of Education.

**Committee for the Viva-Voce**

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Date: 22<sup>nd</sup> September, 2014

## LETTER OF CERTIFICATE

This is to certify that Mr. Karna Bahadur Kavar, a student of academic year 2064-2065 B.S. with thesis number 706, Exam Roll No. 281141/066, Campus Roll No. 541 and T.U. Regd. No. 6-1-54-275-2002 has completed his thesis under my supervision during the period prescribed by the rules and regulations of T.U. Nepal. The thesis entitled "**Impact of Mathematics Classroom Management on Student's Achievement**" embodies the result of his investigation conducted during the period September, 2013 – September, 2014 at the Department of Mathematics Education, University Campus, Tribhuvan University, Kirtipur Kathmandu. I recommend and forward that his thesis be submitted for the evaluation to award the Master's Degree of Education.

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Supervisor

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Head

Date 22<sup>nd</sup> September, 2014

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**Karna Bahadur Kavar**

## ABSTRACT

This study focuses on classroom management and its' impact on student's mathematics achievement in grade X of Rukum District of Nepal. In particular, this study attempts to examine the physical resources management and discipline management in mathematics classroom. This study was intended to accomplish the following objectives:-

- To identify the physical and disciplinary problems of mathematics classroom management.
- To find the problems of classroom management and its impacts on student's achievement (or mathematics learning)

This study tries to explain the existing situation of physical resources, problems created due to the facilities in the school, disciplinary problems in the students and impact of disciplinary problems in mathematics learning. This is a case study approach and related to mathematics classroom management and it's impact on students achievement. Observation form for the researcher and unstructured interview schedule for students, mathematics teachers, head teachers, SMC presidents and parents were used to collect primary data from the two community (public) schools of Rukum District.

The study is concerned to the physical resources, facilities, classroom condition and disciplinary problems in mathematics classroom. It also tries to explore their impact in mathematics achievement.

The study shows that the condition of classroom was not good in not well managed schools. There was no use of sufficient teaching materials, clean drinking water etc. Due to the student's absence in their class, carelessness in preparing the next day lesson, making unnecessary noise, highly affects in their mathematics learning.

Those physical and disciplinary problems were found to be influential factors on learning and achievement of students. The analysis of data concluded that the achievement of students in mathematics is better in school with well physical and disciplined than not well physical and disciplined ones.

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## LIST OF ABBREVIATIONS

B.S.	-	Bikram Sambat
BPEP	-	Basic and Primary Education Programme
CDC	-	Curriculum Development Center
CERID	-	Center for Educational Research Innovative and Development
HQ	-	Head Quarter
HSS	-	Higher Secondary School
INGO	-	International Non Governmental Organization
MOE	-	Ministry of Education
NCED	-	National Centre for Educational development
NESP	-	Nepal Education System Plan
NGO	-	Non Governmental Organization
PTA	-	Parents Teachers Association
RCC	-	Rod, Concrete and Cement
SLC	-	School Leaving Certificate
SMC	-	School Management Committee
SS	-	Secondary School
VDC	-	Village Development Committee
TJHSS	-	Tribhuvan Janta Higher Secondary School
YNHSS	-	Yamunananda Namuna Higher Secondary School

## **Chapter - I**

### **INTRODUCTION**

#### **Background of the Study**

Many more factors effect in the process of learning and students achievement like as proper classroom management, proper environment, physical and mental health, economical status, materials, maturity of learner, roles of teacher, heredity, learning techniques, curriculum and content level, interest and aptitude etc. Proper classroom management plays vital role in learning process and student's achievement. Proper classroom management make learning more effective, transfer of learning smoothly, make meaningful learning, emphasize on long term memory and learn orderly and systematically.

School society is an organization of pupils and all organizations need to be well managed. Management as essence of all organized efforts and management co-ordinates resources to achieve goals (Aggrawal, 2000). Therefore, to achieve the educational goals, management should be properly done and cannot separate from education. Encyclopedia of education research (2001) states "Educational management is the adjustment in the presence of educational worker and process of utilizing the required materials to develop the human manner." Campbell and Friends(2001) defines, "Educational management includes way of managing personal, organization of physical facilities and development policy to conduct the teaching learning process." Agrawal (2002) defines, "The management process in education system consists of achieving the goal, by getting in the content of changing environment." Hanson (2002) states " Classroom management is dependent upon several independent components: engaging curriculum, working with anger, projection and depression, students as responsible citizens, teacher as a self knowing model, classroom management skills, working with resistance, conflict and stress and robust instruction."

I think it is safe to say that quality classroom instruction from the classroom teacher is the greatest factor in improving student achievement. As an educator and

administrator for over four years, I believe there is another factor that determines the failure or success of student achievement, it is called classroom management.

Classroom management is a critical part of effective and successful instruction. Effective classroom management, which initiates with well-organized and efficient lesson planning preparation, helps a teacher to teach and students to learn. Students perform well in an optimistic classroom atmosphere and an environment in which they feel secure, safe, cared for and involved. From a student point of view, effective and successful classroom management provides students with opportunities to socialize while learning interesting content. From teacher point of view, effective classroom management involves preventive discipline and interesting instruction (Lang and Hebert, 1995). To ensure a favorable classroom environment, it should be well managed and facilitated. The classroom physical arrangement provides students with effective instruction and promotes smooth teaching learning process. Physical facilities should be provided they are helpful in improving the overall performance of the school.

Classroom management first became a popular topic in education during the 1970's and 1980's, (Tavares, 1996 and Butchart, 1995). The focus in these early years was primarily on behavior management, used to control and shape students' behavior to conform to school rules.

Classrooms can not only be described as places for learning, but also as places for socialization and places for individual psychological development. Schools provide a mechanism for us to transmit the ideas and values of our society to children in preparation for their future adult roles. Also, classroom places contribute to the fostering of individualism, creativity, and self-esteem in young students. The physical design of the classroom space also interacts with these goals.

Classroom management refers to the wide variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, on task, and academically productive during a class. When classroom-management strategies are executed effectively, teachers minimize the behaviors that impede learning for both individual students and groups of students, while maximizing the behaviors that facilitate or enhance learning. Generally speaking, effective teachers tend to display

strong classroom-management skills, while the hallmark of the inexperienced or less effective teacher is a disorderly classroom filled with students who are not working or paying attention.

UNICEF (2060), states that the weak aspect of physical management of school may cause worse learning to students and appear the disciplinary problem. Further, it states that physical classroom management is essential for the effective learning and for the development of learning capacity.

Effective classroom management is the most significant contributing factor in student achievement. There is relationship between the achievement and classroom management in mathematics. The important factor related to the students' school achievement in mathematics are class room behavior, teachers background, school characteristics, student characteristics and family characteristics ( Richard, H. Phan, 1983). According to the literature, a teacher's actions in his or her classroom have twice the impact on student learning as do school policies on curriculum; assessment; staff collegiality; and community involvement. The keystone in creating a supportive environment for learning is effective classroom management strategies, set in place by the teacher long before students even enter the classroom on their first day of school.

Establishing and maintaining an appropriate mental set is the foundation of effective classroom management. According to Marzano, Gaddy, Foseid and Marzano, (2005), mental set deals with the ways a teacher thinks and behaves in the classroom from moment to moment. Essential to maintaining awareness of student actions and being proactive in heading off potential issues is having the appropriate mental set and emotional objectivity. Once effective classroom management strategies have been shared with students, their input incorporated as indicated, and everyone has an appreciation for pulling together in the same direction, the teacher can direct attention to getting to know their students as unique individuals. This strengthens the professional relationship between student and teacher while also providing acceptance of the person in a supportive atmosphere and a productive environment. The teacher's mental set includes keeping an open mind, refusal to be judgmental, and maintaining emotional neutrality.

Froyen and Iverson (1999) stated that classroom management focuses on three major components: Content Management, Conduct Management and Covenant Management.

Content management occurs when teachers manage space, materials, equipment, the movement of people and lessons that are part of a curriculum or program of studies. An example of content management is when students are working in partners on an assignment and the teacher monitors the group by circulating around the room. The teacher will give feedback and assist students as necessary.

Conduct Management refers to the set of procedural skills that teachers employ in their attempt to address and resolve discipline problems in the classroom. An example of conduct management is when one student is making fun and laughing at another students' work. The teacher responds by reminding students to respect each other and the teacher makes positive comments about the students' work.

Covenant management focuses on the classroom group as a social system that has its own features that teachers have to take into account when managing interpersonal relationships in the classroom. An example of a covenant management is when students work in a group and problems may occur amongst the group. The teacher encourages the group to work together to find a solution. The teacher reinforces and commends the group for their effort.

Effective classroom management should be the primary responsibility of the classroom teacher with the students accepting the responsibility of their inappropriate behavior. Effective classroom management does not consist of just a list of rules and procedures, but the sensitivity and caring attitude of the teacher. The classroom teacher often comes to mind when discussing classroom management. It is very important to the teacher when he or she feels that they have the support of the school administrator.

Few aspects of education have generated as much concern as classroom management and organization. They are among the most frequently addressed topics for teachers in service; they head the list of concerns of school administrators and have recently attracted more attention from teacher educators and researchers because

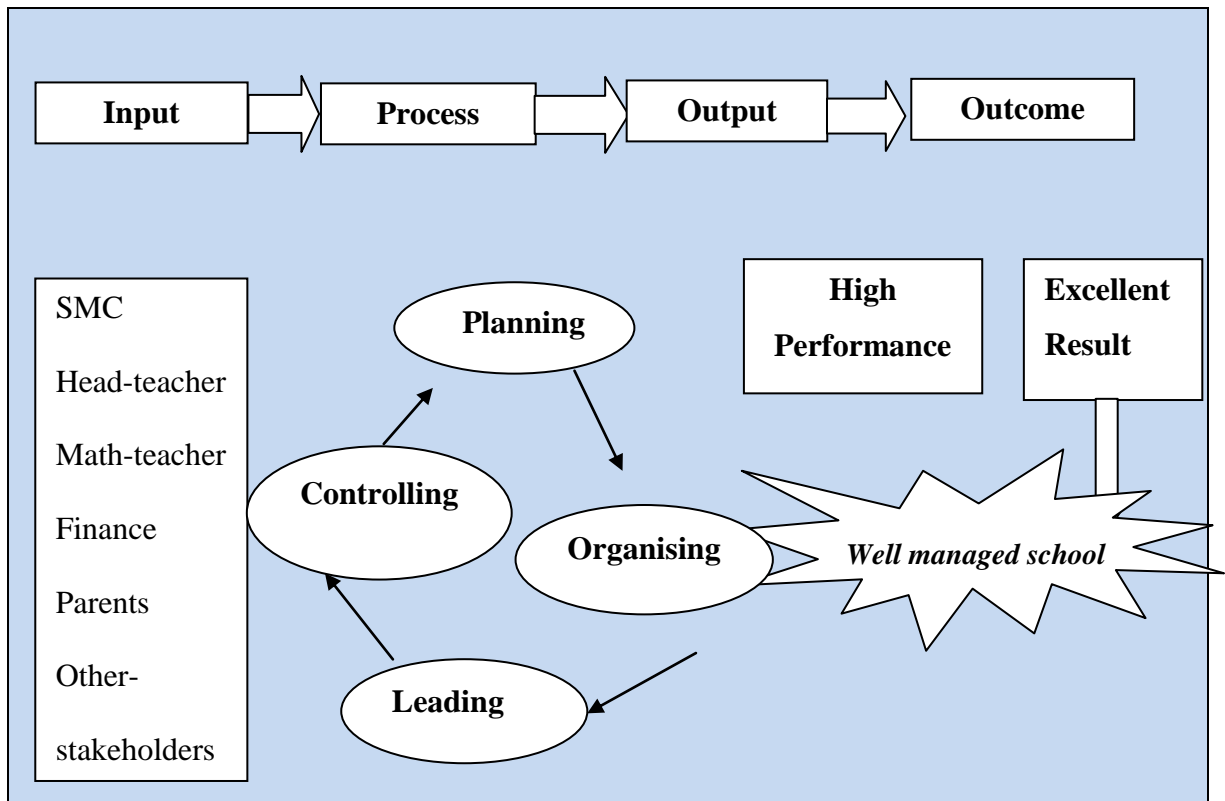
a teacher's ability to effectively manage the classroom and to organize instruction are basic components of teaching. Moreover as classroom management strategies have a strong potential to positively influence student achievement and learning, they are paramount concern for many teachers, especially novices and teachers who are contemplating new instructional approaches for the first time.

Zurich (2006) research report has shown that the secondary mathematics classroom must have at least the following requirements:

- ✓ Furniture
- ✓ Instructional materials (students daily used materials)
- ✓ Teaching resources (teaching materials) Centers
- ✓ Students work
- ✓ Students involvement

Well managed classroom give the students more opportunities for mental growth and development of good classroom management produces favorable marking conditions, conducive to good learning and makes school effective. The relation between the effective learning and the classroom management can show in the following figure:

**Figure: Classroom management for Learning**



Mathematics is contribution of nature and created by the mind of man and so is, therefore primarily concerned with ideas, process and reasoning. Mathematics learning in the classroom always demands more practice for students. Mathematics is based on the experiment in day to day life and is practical science. Learning environment for learning mathematics focuses on association between students' outcome and environment, evaluation of educational innovations, different students' and teachers' perception of classroom, different determinants of management etc.

Wing of modern scientific age, mathematics is more valuable and applicable for womb to tomb of human life. "Mathematics as we know of it today is the science of number and their operation interrelations and combination of space configuration and their structures, measurements etc. (Upadhyay, 2001). How to teach such type of mathematics in the school has been becoming a popular issues in the field of education. In the context of Nepal, the SLC result of students show that more than 44 percent students failed. Among them, more students are failed in mathematics and maximum number of students has the low score in mathematics than other subjects in public schools than private schools. This is always blamed that the school has used

traditional methods of school process, poor school and classroom management, lack of proper planning and policies of school, lack of instructional leadership, limit qualified and trained teachers, lack of physical facilities and narrow psychological atmosphere in school.

### **Statement of the Problem**

It has already been more than half decade that public schools started imparting the education in the country. Public schools are criticized for not being able to provide quality education. Though in percentage terms, public schools constitute around 80 percent of these schools and private schools only 20 percent (Thapa, 2011) but the quality or the performance of the public schools are still unsatisfactory. Many strategies, policies, plans have been changed for many times still the public schools are considered to be ineffective schools. Government is investing about 17% of total budget in education system at present but the output is not good as enough as compared to the private schools. As compared to the private school, the public school could not produce desired results in academic achievement (The World bank, 2001 as cited in Timsina, 2008). Along with government, other Non Government organization, community, parents, donor agencies and so forth have invested both money and efforts for the betterment of the public schools. However, public schools have not given the quality according to the investment done by various sectors. Especially, most of the students in public schools have low achievement in mathematics. Is it not necessary to find out the factors that are responsible for the poor performance of public schools?

The community of educators, parents, students, and citizens are all in the 'cycle of blame' for poor student achievement in mathematics. Teachers who are able to manage a class appropriately will greatly impact student achievement, and student achievement increases when students experience a learning environment that is free from harm. There are ways to increase safety, thus there are ways to create a learning environment where students feel free from harm, and it can be created inside the classroom.

Classroom is a heart of mathematics teaching. Mathematics classroom management is very important to facilitate children's learning. It is unknown about the

existing situations of mathematics classroom management in physical aspects and problems facing due to this, moreover, how are the impact of disciplinary in mathematics learning? Furthermore, this study was intended to answer the following research questions:-

- What are the physical and disciplinary problems of the mathematics classroom management?
- How are the impact of classroom management on student's mathematics achievement ?

### **Objectives of the Study**

The major focus of this research study was to find out the impact of mathematics classroom management on students achievement. For this intension, this study was intended to accomplish the following objectives:-

- To identify the physical and disciplinary problems of mathematics classroom management.
- To find the problems of classroom management and its impacts on student's achievement (or mathematics learning).

### **Significance of the Study**

Mathematics is widely used and most applicable discipline in everyone's life, but students and some are fear and feel difficult to understand and learn. The SLC result of student's in mathematics is poor in public schools. There are many affecting factors of student's achievement in mathematics. The one of the most affecting factor is classroom management.

Each and every research work has some significance. Likewise, this research study has following significances:

- The study would show to organize and manage the physical and disciplinary problems of mathematics classroom management.
- The result would find the impact of mathematics classroom management on student's achievement.

- The study would be useful for school administration, teachers, head teachers, researchers, curriculum designers and other related stakeholders.
- This study would suggest the schools which have low results in mathematics to create mathematical environment for their effectiveness.
- It would be milestone for these schools.
- It would help to finding the effectiveness of classroom management for learning mathematics which will most important for other schools to improve their results or students achievement.
- It would help aware about mathematics classroom management for government to improve their planning to schools.
- It would help aware about mathematics classroom management for government to improve student's achievement.

### **Delimitations of the Study**

This study was taken from two schools by researcher's convenience. So, the results and findings of this case study would not generalize for all schools. This case study would be an example but practice for classroom management. The study has the following limitations:-

- The study is focused on the physical facilities and disciplinary problems in mathematics classroom management.
- The study was conducted in Rukum district.
- The study was conducted to grade x students of public schools.
- This results was only generalized in grade x of Rukum district.

### **Definition of Related Terms**

The terms related to this study defined by the researcher are as follows:-

***Classroom Management:*** Process of coordination of students, activity, materials, time, task etc. to achieve mathematics goal in classroom.

***Disciplinary Problem:*** Those problems which are caused of punishment for students and those activities which are related to disturb the classroom activities.

***Physical Resources:*** Physical resources denote the physical facilities like as furniture, desk, bench, school building, wall, classroom size etc.

***Classroom Environment:*** Classroom environment consist the classroom management plus the educational management in classroom.

***Public School:*** public school is those schools which are conducted by government and fully funded by the government.

***School of good/well management:*** Those schools where high expectation for success, high achievement of student in mathematics, instructional leadership, opportunity to learn, safe and child friendly environment, positive attitude of society towards school.

***Activity Management:*** Management of teacher-student's interactions, communication management, team work management, group division etc.

***Achievement:*** Mathematics score of the students in public school at grade x.

***Well-managed Classroom:*** Proactive, democratic, humanistic classroom environment in which the teacher and students mutually set rules that are conducive to cooperative and relevant learning. Learning experiences are planned, incorporating cultural context, diversity, and allowing for a variety of individual and group processes. Intrinsic motivation and self-discipline are cultivated using encouragement, caring, and collaboration.

***Poorly - managed Classroom:*** Teacher controlled environment structured to elicit student compliance to fixed rules, often through coercion. Authoritative management used to enforce classroom structure, using reward and punishment in response to student behaviors. Extrinsic motivation and external discipline applied using praise or reprimand, silencing, and isolation tactics to remove disruptive students from the classroom environment.

***Academic Achievement:*** Evidence of knowledge acquisition, literacy, and learning assessed through student assignments, class participation, test scores, and individual and cumulative grades of mathematics.

## **Chapter-II**

### **REVIEW OF THE RELATED LITERATURE**

Mathematics is very important subject in the school curriculum. Classroom management is very important to effective teaching learning process. Proper classroom management makes easy to achieve the national goals of education. Management is the essence of all organized efforts. Each organization needs to be managed. It coordinates resource to get the jobs done to achieve goals. Resource can be human, financial, physical and informational. Therefore, to achieve the determined objectives of mathematics classroom should be properly managed.

There are many studies indicating that classroom management is one of the crucial factors that influence learning. For example, in their study, Wang, Heartel and Walberg (1993) identified classroom management as being the first in a list of important factors that influence school learning. Also, Marzano and Marzano (2003) reached the same results with Wang and his colleagues (1993) by identifying classroom management as the most important factor influencing school learning. Ben, (2006) states that, "effective classroom management strategies are significant to a successful teacher's delivery of instruction". This statement of the researcher explains the reason why classroom management is important. Effective classroom management prepares the classroom for an effective instruction which is crucial for the progress of learning.

One major aspect of the classroom climate that has fallen under the control of the teacher is that of classroom management and discipline. In recent years, a growing interest has emerged in the area of classroom management. Anderman et al,(1993) has also suggested that the use of rewards or prizes for participation, performance, or achievement may have improved students' perceptions of classroom climate.

Physical environment is simply defined as the physical characteristics of the room. International Journal of Learning & Development ISSN 2164-4063 2014, Vol. 4, No. 1 refers to the different things i.e., size of the room, lighting, degree of temperature, condition of classroom floor whether it is carpeted or just concrete etc (www.enotes.com). Physical classroom environment refers to the physical room in

which teacher and learners are the main element including its spatial elements i.e., floor, windows, walls as well as other classroom equipments i.e., desks, chairs, rugs, chalkboards, tack boards, easels, counters and computer equipment but not limited to these things (Fisher, 2008). Physical environment can affect are likely to get much information as compared to those who are uncomfortable. Besides, the physical atmosphere can also affect the morale of the learners. Unfavorable classroom environment can discourage the learners and they become less willing to learn (www.enotes.com).

Proper arrangement of furniture also plays a vital and crucial role in classroom functioning. (International Journal of Learning & Development ISSN 2164-4063 2014, Vol. 4, No. 1). Higgins, et al (2005) noted that desk arrangement can affect properly seated if he has a clear view of the instructor, is provided with suitable writing surface and a place for book storage, is reasonably comfortable and is so situated that persons going to the teachers use a semicircle or cluster to arrange the desks in their classrooms. The teachers responded that arrangement of desks in groups has several advantages i.e., encouraging cooperative learning, building a sense of class community and making the best use of the space. Proper desk arrangement provides opportunities for learners to be enthusiastically engaged in learning process and creates the opportunity to work cooperatively with their colleagues. Therefore it is imperative to make seating arrangement in such a way that it may ensure smooth functioning of instructional process.

Physical environment plays a central role in any activity and makes it more conducive, successful and achievable. According to Oni and Hallak (1992), physical facilities compose a strategic factor in the operation and functioning of an organization as they determine the excellent performance of any social organization or system including education. Taylor and Vlastos (2009) found the relationship between environment and design within the classroom from a theoretical and improve the learning process like the overt curriculum.

Lyons (2001) stated that poor school facilities also their performance. Consequently it negatively affects student achievement. MacAulay and Walker et al (1995) found that a well-academic and behavioral outcome. i.e. achievement, motivation and satisfaction. They further concluded that achievement in cognitive and

affective learning outcomes were repeatedly associated with classrooms environment, which were perceived as having greater cohesiveness, satisfaction, goal direction, organization and less friction.

Walberg and Greenberg (1997) indicated that students who rated their classrooms high on challenge using the Learning Environment Inventory achieved more academically, had 2 attitudes toward the subject matter, and engaged more often in non-required activities related to the subject matter. According to specialist Fryen and Everson in 1999, in the field of education, school and classroom management aims at encouraging and establishing students self control through a process of promoting positive students achievement and behavior. Thus academic achievement, teacher efficiency and teacher-student behavior are directly linked with the concepts of school and classroom management.

Lewis (1995) found that Japanese elementary teachers believed that building a sense of classroom community was essential to support instruction, and they devoted a great deal of time and energy to building friendships and involving students in classroom management. Proper arrangement of classroom environment plays a remarkable role in making instructional process more effective and establishes an atmosphere favorable and encouraging to learning.

According to Halstead (1994), it is generally accepted that high temperature and humidity creates physiological and psychological problems which expedite fatigue, causes people to work more slowly, apply much efforts and causes to make more mistakes and errors. The classroom climate should be cautiously managed not only to provide physical comfort but also to serve as a positive factor in the learning process by stimulating attentiveness and concentration. To maintain such a climate, the atmosphere must be treated to simultaneously controlled temperature, humidity, cleanliness and circulation. Earthman (2004) established that temperature, heating and air quality are the fundamental elements for the educational attainment of students. Phillips (1992) noted that lighting is one of the most important physical characteristics of classroom. He further stated that visual environment can affect the capability of students to perceive visual stimuli and also affect their mental attitude. Consequently their academic performance is affected negatively. Culp (2006) found that success can be ensured by using visual displays in classroom. According to Winter Bottom and

Wilkins (2009), there are numerous aspects of lighting to be kept in mind while taking into account this environmental characteristic of classroom. Classroom lighting consists of undetectable light, lighting negatively affects academic achievement and promotes distress and obstruction for students in the classroom.

Iqbal (2005) stated that Instructional technology plays a vital role in teaching learning process and makes it more successful, interesting and fruitful. Therefore it is imperative to arrange instructional technology in classroom to ensure effective and conducive environment for teaching learning process. Audio visual aids i.e., charts, graphs, maps, globes, radio, mock up, multimedia, computers, overhead projectors and internet are the part of classroom environment. In the most of the developing countries as well as in Nepal educational technologies are not utilized effectively during instructional process.

Robert C. Pianta, (2007), researchers observed over 1000 elementary aged students as they progressed from first to fifth grade (from roughly six years of age to 11). In this study, they examined how factors such as teacher's credentials, years of teaching experience, student activities, school settings, instructional quality, and emotional climate related to student learning gains in literacy and mathematics (Pianta et al., 2007). The researchers found that classroom dynamics were not related to teacher's degree status or years of experience. In many of the classrooms they observed the teachers met credentialing standards yet were mediocre in the quality of their instruction.

Garrett (2005) also studied the student-centered and teacher-centered classroom management strategies by employing qualitative research methods. As a result, she found that the way teachers think about the relationship between their instructional and managerial approaches was influenced by what they see as the overall goal of classroom management. While two of them have a classroom management strategy consistent with their way of instruction, one does not.

Jerry Lane Wetti (2000) in his article " How do I handle the disciplinary problem or what if the kids do not behave?". Say that during the past several years he had the opportunity to work with the large number of person both preparing to become teacher and actively in teaching profession. As a necessary part of his content

with teachers, he had attempted to help them deal with those situations which they perceived as most difficult and essential to their class

Few number of research studies relating to the classroom management of mathematics are found in Nepal. Reviews of some related literature in classroom management are as follows:

CERID (2002), report shows that about 80 percent of the total expenditure of an average primary school is spent in salary about 3 percent on stationary and instructional materials only 2 percent co-curricular activities and scholarship and about 60 percent on three activities such as prizes utilities, auditing and rent etc. The report further clarities that public schools spend most of the grand received on teacher' salary and stationary. They lack fund to provide minimum sanitary facilities. 41 percent of the sample schools have no toilet and 74 percent have no drinking water available in the school premises. There is also lack of budget to provide minimum teaching learning materials such as blackboard and classrooms of 25 percent are found sharing a blackboard with one more other classes. Light and ventilation conditions of the classroom are also not satisfactory in many classes.

Karmacharya (2001) did his M.Phil on topic "Democracy in classroom practice in the primary school of Nepal". This study is related to the way of life of children in the classroom. He adopted the critical hermeneutic tradition phenomenological and symbolic interaction to draw intense from the data collected through interviews and observation from schools of Kathmandu and Kavre. His findings are given priority to process in classroom practices and consequently the teachers threat the children as objects authoritatively. Teacher still have very rigid view of learning which has led them to be a powerful autocratic leader rather than democratic facilitator in the class. The relationship between teacher and students is like a governor and governed. Children have difficulty to like the lessons and activities with their everyday lives due to pedagogical legitimization and domination. That is governance through fear and punishment in classroom. The uncivilized discipline may not suit to the multicultural crowd and impart of hidden curriculum on the life in classroom needs to be taken into consideration for promoting democracy in classroom practice.

Karki (2001) did his M. Phil by thesis "A study on classroom practices in the primary schools of Nepal in relation to the environmental education." He tried to explore the factors that influenced classroom practices and ways to improve them. Data were collected through interviews with subject teachers, observation of classroom practice in selected schools and document analysis. It was found that the classroom practice were influenced by various factors related to teachers professional skills, academic background, training, educational policies and content and activities given in the textbook. This study concluded the environment educational classroom practices in grade five of selected public school were not concluded satisfactory due to lack of motivation and efficient teachers, availability or required resolves and effective educational practices.

Educational Management Report (2005) draws some issues in the field of resource management. It said that school management and classroom teaching are two important aspects for qualitative improvement in institutional education. In this respect, head teacher plays as the role in the schools is that they can direct their administration towards improvement of quality and provided the right leadership for instructional improvement in their schools. Proper attention must be paid to the availability of physical facility at school. Plans must be prepared for the construction and maintenance of necessary physical facilities. Like the administrative rooms, latrines, library, hostel etc. In Plans of this kind, efforts must be made to enlist public co-operation committee. The interest and the opinion of the people in the planning stage of physical facilities for the school must be duly respected and head teachers must personally supervise and make provision for the maintenance of all the rooms and premises of the school and of keeping them in good space.

Basnet (2003) conducted his thesis entitled "Teaching problems faced by the mathematics teachers in existing curriculum of grade eight." He concluded that the mathematics teaching and learning is not satisfactory at grade eight in Jhapa district. The teachers and students are facing many problems due to the lack of classroom discipline, inadequacy of textbook, lack of instructional materials, lack of physical facilities, large class size and so on.

Hada (2003) said the physical facilities play a vital role in the teaching learning process and for disciplinary problems. In most of the remote areas the

schools are even now government oriented. For lack of an effective teaching learning environment parents are not serious about sending their children to the schools. So it is necessary to improve the physical facilities of the schools. For this, of course, local resources have to be utilized.

Subedi (2005), studied on his thesis on "Mathematics Learning Management in an Effective School". He described that; the school environment needs to be more stimulating for mathematics learning with adequate physical management, activity management and material management for the students. School has provided more qualified and experienced teacher for mathematics training, for the professional development of participate in the mathematics training. The head teacher of the school is also a policy designer and implementer. School has developed a mathematics committee in which issue and problem of mathematics are discussed and shared their ideas of mathematics teaching. Teaching is good tradition of making the parents aware about the mathematics examination results and parents gets student's progress in mathematics. This overall concerns and management is the most supportive atmosphere for promoting math learning in the school. Single intervention in the learning management cannot give better result.

From the above selection of related literature, it was found that most of the schools within the nation were facing the problems of resource management especially for the physical facilities management, human resources and financial management. These studies had been done in general classroom but not in special math's class and the study about classroom management has not been done in the context of school level.

In order to be successful in teaching, teachers need to have a planning for effective classroom management. Teacher must be good planner for effective teaching and learning. Good planner makes best plan, best plan makes effective teaching and learning and effective teaching and learning makes better achievement in the field of education. Classroom management cannot be complete without planning. There are six suggested planning for teachers to effectively manage a classroom as illustrated in figure. Planning of physical environment and disciplinary environment are the main components of planning for effective classroom management. This case study tries to discuss and test the classroom management of sample schools under the Rukum

district within the main components of given framework. Furthermore this study intends to explain and interpret what and how the elements of planning for effective classroom management working for mathematics learning in the public schools.

**Figure: Planning for effective classroom management**



*Sources: Gordon Lyons, Margot Ford & Michael Arthur-Kelly, Classroom Management, Third Edition.*

The above arguments supports that the well managed classroom unit which gives the pupils good classroom management, it produces favorable working conditions conducive to good learning opportunities for the pupils. The classroom management is one of the important aspects of school management and physical resource management in mathematics classroom.

## **Chapter-III**

### **METHODS AND PROCEDURES**

Methodology is the main part of the study. The appropriate method of mathematics was used to analyze the data collected from the related fields. In this study various type of method was used for data analysis. In this section, the researcher deals about design of the study, population of the study, the method of sampling and the instrument used to collect the data, reliability and validity of tools, also explains the method of analyzing the data and interpretation of result.

#### **Research Design**

This is the case study approach related to the impact of mathematics classroom management on student's achievement of Rukum district. A case study is an intensive investigation and description of the study unit. It is similar to survey but instead of gathering data for a large number of study units, the investigator, in a case study, makes an intensive study of a limited number of units. In this study, two schools were selected from Rukum district and detailed about mathematics classroom management. It covers all the relevant aspects especially physical and disciplinary classroom management of related schools. This case study deeply analyzes and interprets the interaction between the different factors of classroom management that influences/impacts the student's mathematics achievement. This is also a qualitative research as well as descriptive in nature.

#### **Respondents of the Study**

Rukum district was the field of data collection. Two public secondary schools of Rukum district and the mathematics teachers and students of grade x of concerned schools were the respondents of this study. And, parents, head teachers and school management committee of selected schools were also the respondents of the study.

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

The sample of the study was determined by purposive and also convenience sampling. In this study, two schools were selected from Rukum district. The schools

were selected according to criteria to categorize the schools developed by Education Act, 2028 (with revision) and Education Rule, 2059 (with revision) (Appendix-H). Where one school was selected having grade 'A' and achieving better results in SLC examination and another school was selected having grade 'B' and achieving poor results in SLC examination. Two schools were selected from the head quarter of Rukum district. Two mathematics teachers, two head teachers, two school management committee president, two parents and two students of grade x from different sample schools under Rukum district were selected as the sample of this study. Where two parents were selected from PTA member and two students of class x were chosen the first students of the class accordance to result of class nine. This is given below in details table no. 1:

**Table 1: List of the sample study**

S. N.	Name of schools	Place & Grade	Head teacher	Math-teacher	SMC president	Parents	Students
1.	Tribhuvan Janta H.S.S., Khalanga	H.Q. & 'A'	Min Bdr. Pun	Sangam k.c.	Rudra Devkota	Kuber k.c.	Ghanashym Oli
2.	Yamunanan da Namuna H.S.S., Serigaun	H.Q. & 'B'	Damodar Paudel	Hari Bdr. Giri	Devilal Gautam	Punam Gautam	Prabat Chand

### **Instrument**

For the purpose of this study the main tools were observation form, interview and Schools documents and record files for the data collection of this study.

- ***Observation form***

Observation is the process of recognizing and nothing people, objects and occurrences rather than asking for information. It is the careful watching and recording of something or somebody by systematically. The researcher used the observation form to observe the physical and disciplinary setting of school

management, natural setting of students behavior, classroom interaction etc. The observation form was used to collect the data for existing situation of physical resources management in mathematics classrooms. This tool was prepared on the basis of Zurich's model of physical management of classroom. Also the researcher did the participant observation to identify the disciplinary problems. The observation form is given in Appendix- G and components of physical mathematics classroom management (Appendix-A) and disciplinary classroom management (Appendix-B) also be based.

- ***Interview***

The interview is an oral questionnaire. Instead of writing the response, the subject gives the needed information orally and face to face (or telephone). The researcher had a tentative list of questions to be covered during the interview. Unstructured interview was taken from students, mathematics teachers, head teachers, SMC presidents and parents to find the impact of classroom management on student's achievement. The guidelines of the interview schedule is given in Appendix- C, D, E & F) and components of physical mathematics classroom management (Appendix-A) and disciplinary classroom management (Appendix-B) also be based.

- ***Schools documents and record files***

The record files of school, SIP, flash reports, attendance, portfolio record and other documents of school were used the researcher in this case study. The information taken from documents and records of school are given in Appendix-K.

### **Data Collection Procedures**

The researcher visited each of the sample school to collect data. Using classroom observation form (Appendix-G) and components of physical and disciplinary mathematics classroom management (Appendix-B), the researcher observed the mathematics classes of selected secondary schools. The researcher himself attained in each mathematics class and recorded the information in his check list about the availability of physical facility. This observation was done in the mathematics classes of each selected school. Participatory observation was done to collect the information about disciplinary problems. The researcher had attained in

mathematics teaching hour in the selected school. Researcher has noted the students' discipline violence activities in his personal diary. In the same period the researcher also noted teacher's way of punishment for the students' discipline violence activities. Mathematics classroom of each sample schools was observed for 10 days and note about the class room management events. The researcher himself attained in each mathematics class of sample schools and wrote the information in his observation about the classroom management. The observation was carried in mathematics teaching class over the whole period.

The researcher requested the principal to conduct the interview (on the basis of Appendix-A, B, C, D, E & F) for students, mathematics teachers, head teachers, SMC presidents and parents by saying the purpose of the study. All the selected respondents were introduced about the objective of study. The students were encouraged to response to the researcher without any hesitation and the respondents were combined that the researcher would not convey their responses to their teacher. The interview schedule was unstructured. From interview schedule, the researcher had asked some questions in groups and some questions individually to the selected respondents. From this interview schedule the researcher collected the information about the physical problems of classroom management, causes of getting punishment, appearing disciplinary problems in classrooms, students' expectation of punishment, discipline violence activities in students' sense, effects of discipline problems in mathematics learning. Also the researcher brought the students' mathematics achievement score to find the impact of disciplinary problem in mathematics learning.

The student's attendance, regularity and other behavior were noted from the record of school's files and other documents of the schools were also used. Interview would be taken partially with math-teachers, head teachers, SMC presidents, parents and students of sample schools about mathematics classroom management at different place and time. The research was focused on impact of mathematics classroom management on student's achievement.

### **Analysis of Data**

The information was collected from the observation and interview schedule for students, mathematics teachers, head teachers, SMC presidents and parents and

achievement score of students in mathematics subject to determine the problems of physical management, disciplinary management and students score in mathematics subject. This information was categorized into problem of physical management, problem of disciplinary management and its impacts in students' achievement. Each category was analyzed and interpreted in the tabulation form of the data and in the descriptive way.

The impact and effects are the interchanging words to each other. Impact study has three levels. The researcher analyzed the impact of mathematics classroom management on student's achievement on the basis of followings.

**i) Impression level**

The reactions of the respondents are in impression level. The researcher collected the reactions with the help of observation and interview. All the reactions of respondents about impact of mathematics classroom management on student's achievement are shown in opinion of respondents.

**ii) Influence level**

It is also said to be effect level. The learning activities are belongs to influence level. All the problems of classroom management related to learning are observed by researcher. The data are collected from also interview and record of schools.

**iii) Consequence level**

It includes the long term result of the unit. In this study, the researcher visited old students who is high profile in now. Incidentally, mathematics teacher of T.J.H.S. school and head teacher of Y.N.N.H.S. school are the old students of own schools. The researcher collected the information by observation, interview and other documents of schools.

## **Chapter - IV**

### **ANALYSIS OF DATA AND INTERPRETATION OF THE RESULT**

This chapter deals with the analysis and interpretation of the collected information from sample schools. The researcher used observation form (Appendix-G) and components of physical mathematics classroom management (Appendix-A) and disciplinary classroom management (Appendix-B) to observe the classroom regularly for 10 days. Direct observation was done everyday in the classroom and behavior and management condition was carefully observed by different outlook of setting and noted. With the help of interview schedule (Appendix-C, D, E & F) the interviews were taken with head teacher, mathematics teacher, SMC president, parents and students of the sample school. The information is also collected from documents and records of sample school (Appendix-K).

The data which come through observation and semi-structured interview terms were qualitatively as well as quantitatively interpreted. This study focused on the problem of mathematics classroom management. This study discussed, analyzed and interpreted on the physical, discipline and other problems of mathematics classroom management and its impact on student's achievement. Thus, the collected information were analyzed and discussed under the following guidelines:-

1. Physical Mathematics classroom Management
  - Physical resources and facilities
  - Actual physical mathematics classroom condition
2. Disciplinary Mathematics classroom Management
  - Disciplinary problems are appearing in the mathematics classroom.
  - Arising the disciplinary problem from physical facilities in the mathematics classroom.
3. SLC result and average mathematics achievement of students (impact of classroom management)

## **Physical Mathematics Classroom Management**

Here, the researcher analyzed and interpreted the collected information in the following parts:

- Physical resources and facilities
- Actual physical mathematics classroom condition

### **Physical Resources and Facilities**

Physical facilities are one of the stimulating factors that play a fundamental role in improving academic achievement in the school system. These include; school buildings, accommodation, classrooms, libraries, furniture, laboratories, recreational equipments, apparatus and other instructional materials. Teacher and students are considered the main elements of the classroom environment. Favorable physical environment has a significant positive effect on the efficiency of any organization and acts as catalyzing agent to provide a straight way for achieving predetermined objectives of an organization. But unfortunately, physical environment in our classroom is not conducive for smooth teaching learning process resulting fatigue and frustration among the students.

Physical environment refers to physical characteristics of the room. Physical classroom environment is a combination of different things i.e., lighting, temperature, ventilation system, size of the room, floor, walls, desks, chairs, drinking water, toilet, racks, information board, rugs, whiteboards, computers etc. Furthermore, their availability, relevancy and sufficiency affect academic achievement positively. On the other hand, poor school buildings and overcrowded classrooms affect academic achievement negatively.

Without these facilities, effective and fruitful teaching learning process is not possible. Students get more information from their teachers in well facilitated classrooms and consequently they show good performance. On the other hand, if students feel uncomfortable in classroom then they will fail to get more information from their teachers.

## Actual Physical Mathematics Classroom Condition

The information obtained through observation and interview about physical mathematics classroom condition. Twenty different aspects/components (Appendix-A) related to physical mathematics classroom condition were basis of the observation and interview to the mathematics teachers, head teachers, SMC presidents, parents and students of class x from the sample schools. Three point scales for each component was used in questionnaire namely poor, good and better which weightage score were 0, 1 and 2 respectively. The actual physical mathematics classroom condition of sample schools is given in Appendix-I.

According to Appendix-I and gives the following to collect the information is tabulated in the table below:

**Table No. 2: Physical score table**

S.N.	Name of Schools	Maximum physical score	Appeared physical score	Average physical score	Result
1.	Tribhuvan janta H.S.S., Khalanga	40	32	23	Well physical managed
2.	Yamunananda Namuna H.S.S, Serigaun	40	14	23	Well physical managed
	Total Obtained Score		46		

In the above table no. 2, there were 20 components and maximum weightage physical score was 2. So, the maximum physical score would be 40 on where physical problems never approaches in mathematics classrooms and the minimum physical score would be 0 on where physical problems are appearing in mathematics classroom. The average physical score of selected schools is calculated as the total appeared physical score which has been divided by total number of sample schools.

In the above table no. 2, the physical score of schools, Tribhuvan Janta H.S. Khalanga, has greater than average physical score. So that Tribhuvan Janta H.S.S. Khalanga is well physical managed school and other hand, Yamunananda Namuna H.S.S. has less physical score than average physical score so we conclude that this is not well physical managed school.

## Disciplinary Mathematics Classroom Management

The information was collected from the mathematics teachers, head teachers, SMC presidents and students by interview and researcher observation form on the basis of following parts:

- Disciplinary problems are appearing in the mathematics classroom.
- Arising the disciplinary problem from physical facilities in the mathematics classroom.

### Disciplinary Problems are Appearing in the Mathematics Classroom

The information was collected from the observation and interview about disciplinary problems of classroom management from each sample schools. Twenty aspects/components of disciplinary classroom management (Appendix-B) were the basis of observation and interview with the mathematics teachers. Three point scales for each component was used in namely never, sometimes and always which weightage score were 2, 1 and 0 respectively. The disciplinary problems appearing in the mathematics classroom of sample schools is given Appendix-J.

According to Appendix-J, the disciplinary score table is given below:

**Table No. 3: Disciplinary Score Table**

S.N.	Name of schools	Maximum disciplinary score	Appeared disciplinary score	Average disciplinary score	Result
3	Tribhuvan Janta H.S., Khalanga	40	34	24	well disciplinary school
2	Yamunananda Namuna H.S.S,Serigaun	40	14	24	Not well disciplinary school
	Total		48		

In the above table no. 3, there were 20 components and maximum weightage disciplinary score was 2. So, the maximum disciplinary score would be 40 and on where problems never approach in mathematics classrooms. In the above table 3, the

disciplinary score of schools, Tribhuvan Janta H.S.S., khalanga, have greater than average disciplinary score and is said to be well disciplinary managed school and other hand, Yamunananda Namuna H.S.S. have less than average disciplinary score so it is not well disciplinary managed school. The average disciplinary score of selected schools is calculated as the total appeared disciplinary score which has been divided by total number of sample schools.

The researcher collected the information from mathematics teacher, students, head teachers, SMC presidents and parents. The researcher himself also observed the actual physical facilities and resources and disciplinary problems occurred in mathematics classroom management of the sample schools. The researcher analyzed data and made interpretation of the results in the following selected schools.

### **Tribhuvan Janta H.S.S., Khalanga**

Tribhuvan Janta H.S.S., Khalanga, located at Khalanga VDC and head quarter of Rukum district. The school has 6 buildings and 32 rooms. All the classrooms were full of furniture and well ventilated. Windows, doors and blackboards are kept in proper place and size. The opinion of head teacher, mathematics teacher, SMC president, parent and student about mathematics classroom management of Tribhuvan Janta H.S.S., Khalanga is given below:

**Table No. 4: Opinion of Respondents**

S.N.	Respondents	Opinion
1.	Head-teacher	All staffs, students and stakeholders are satisfied of my leadership and administration/managerial role. We have sufficient physical facilities and resources. As soon as we fulfill the lacking of computer and mathematics lab. The classroom management problems are solve by team and group. I regular observe the mathematics class once in month. Our further plan is to make better and model school in nation.
2.	Math-teacher	Our school is physically well equipped except mathematics lab and sufficient instructional materials. Most of the students are well disciplined. I teach by

		<p>students centered method and support to low performer.</p> <p>We have rules of sitting and change it accordance to need.</p> <p>Teacher-student and teacher-parents relation is good.</p> <p>Sometimes students are coming late, absent in school, does not doing homework, talking in classroom, looking outside. The classroom management problems are solve by team and group.</p>
3.	SMC president	<p>Our school is most effective school in district. I coordinate and cooperates head teacher, staff, parents and other stakeholders. I am always thinking about school management and classroom management. We first prioritize the math-teacher for training. There is clean drinking water supply at the school and condition of toilet and playground is also good. There is good library and teaching materials.</p>
4.	Parent	<p>Our school is fully child friendly and safety learning environment. Most of the parents are involving the creating effective learning environment in school. The attitude of all the parents and community is positive towards school. The classroom management of this school is good and student's achievement in mathematics is also good.</p>
5.	Student	<p>The learning environment of our school is good and best relation between teacher and students. All students are actively participant in classroom practice. There is lacking of mathematics lab and sufficient instructional materials.</p> <p>The classrooms were clean, well ventilated as well as lighted. There were dustbins at the back corner of each room.</p>

From the above information in table no. 2, the researcher came to conclude that Tribhuvan Janta H.S.S., Khalanga was physically well managed. The school has its own physical resources, physical facilities and school buildings. The school had sufficient classrooms along with sufficient furniture. There were some instructional

materials; white board, Geo-board, some mathematical instruments, dustbin and other furniture were well managed.

### **Yamunananda Namuna H.S.S., Serigaun**

Yamunananda Namuna H.S.S., Serigaun, located at Khalaga VDC, Rukum was one of the sample school. The school has 3 buildings and 14 rooms. The roof was of tin but there were no fans. The opinion of head teacher, mathematics teacher, SMC president, parent and student about mathematics classroom management of Yamunananda Namuna H.S.S., Serigaun, Khalanga is given below:

**Table No. 5: Opinion of Respondents**

S.N.	Respondents	Opinion
1.	Head-teacher	We have no sufficient physical facilities and resources. There is no sufficient toilet, furniture and teaching materials. The classrooms were not well ventilated. The classroom management problems are solve by team and group. I sometimes observe the mathematics class once in year. Our further plan is to make effective school in district.
2.	Math-teacher	There were not sufficient materials. There was not sufficient clean drinking water. The building was damaged by landslide. Students should clean their rooms themselves. There was no sufficient toilet, mathematical lab and tools for extra activities. The physical condition of this school was very poor. Most of the students are well disciplined. We have no any rules of sitting .Sometimes students are coming late, absent in school, does not doing homework, talking in classroom, looking outside.
3.	SMC president	We have many physical and disciplinary problems of classroom management. I will try to coordinate and co-operate head teacher, staff, parents and other stakeholders but no one support me. I am always thinking about school management and classroom management. There is no clean drinking water supply at the school and condition of toilet and playground is not good. Doors and windows were in poor condition. The size of blackboards was small.

4.	Parent	Our school is said to be child friendly but most of the students and parents cannot realize it. Most of the parents does not interest about school. The attitude of all the parents and community is negative towards school. The classroom management of this school is not proper and student's achievement in mathematics is also poor.
5.	Student	There were not sufficient mathematical materials for doing the mathematical problems. There was small playground. The classrooms were very small so that students had felt uncomfortable on sitting during the teaching period. There were not furniture, libraries, racks, rules of sitting, mathematical materials and lab, presentation and display facilities etc. All students are actively participant in classroom practice. The classroom is clean and there is dustbins at the back corner of each room.

From the above table no. 2, 3, 4 and 5, we must conclude that, Tribhuvan Janta H.S. khalanga is well managed school and Yamunananda Namuna H.S.S. is not well managed school.

### **Arising the disciplinary problem from physical facilities in the mathematics classroom**

It is found that the disciplinary problem is arising from lack of physical facilities in mathematics classroom.

- Shree Yamunananda Namuna H.S.S., Serigaun, Khalanga has not available of pure drinking water inside of the classroom, due to this reason students go out for drinking water in teaching hours. Which is being the disturb of learning time.
- T.J.H.S.S. khalanga have suitable windows in the classroom, due to this reason all the students can easily see the letter written in whiteboard.
- Shree Yamunananda Namuna H.S.S., Serigaun, Khalanga has not sufficient of furniture, lighting and temperature due to this reason the classroom is over crowded and noisy.

- Yamunananda Namuna H.S.S., Serigaun, Khalanga have not teaching materials, mathematics lab, presentation and display facilities due to this reason teacher's could not provide teaching instruments and clear cut mathematical concept for the students.
- T.J.H.S.S. khalanga have proper size, clear and right place from students of blackboard in the class due to this reason the classroom is not noisy and uncontrolled.
- The both sample schools have not suitable play ground due to this reason students are coming late in classroom.

As a whole, the above collected data show that all schools have physical facilities problem and they are arising the student's disciplinary problems. These types of problems are gist of the classroom management problems. So, the classroom management problems are being the cause factor to understand mathematical concept and it is impacting/affecting the student's mathematical achievement.

### **SLC Result and Average Mathematics Achievement of Students (Impact of Classroom Management)**

The researcher collected the data of three years S.L.C. result and student's mathematics achievement score from each sample schools of class x (S.L.C.). The average mathematics score of students is calculated as the sum of all students score which has been divided by number of students. Which is given below in **table no 6**:

**Table No. 6: SLC result and average mathematics achievement of students**

S.N.	Name of schools Year	2068		2069		2070	
		SLC result	Average math score	SLC result	Average math score	SLC result	Average math score
<b>Well managed schools</b>							
1	Tribhuvan Janta H.S., Khalanga	75.64%	70.25	74.84%	71.69	79.43%	76.8
<b>Under managed schools</b>							
2	Yamunananda Namuna H.S.S, Serigaun	43.32%	42.36	46.14%	45.41	47.6%	44.24

*Sources from ledger of related schools 2068, 2069 and 2070.*

The analysis of the information in the above table no 6 shows that well managed schools obtained high score or percentage in SLC examination result and also high the average mathematics score of students. On the other hand, under managed schools have low percentage on SLC examination result and the average mathematics score of students is also low. The school, Tribhuvan Janta H.S. khalanga have sufficient physical resources and well disciplinary management, due to this reason students mathematics achievement of students and SLC result is high but Yamunananda Namuna H.S.S. have not physical resources and well disciplinary management, due to this reason mathematics achievement of students and SLC result is low.

Therefore, we sum up that, well managed schools students mathematical achievement is better than not well managed schools. So that, the mathematical classroom management impact on student's achievement.

## Chapter - V

### SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### Summary of Findings

This is the case study of impacts of mathematics classroom management on student's achievement. This study was concerned to the mathematics classroom management and its impact on student's achievement. This study also identifies physical resources, facilities, classroom space, actual physical classroom management condition, disciplinary problems in appearing of the mathematics classroom and arising the disciplinary problems from physical facilities in the mathematics classroom.

For the purpose of this study the main tools were teacher, head teacher, SMC president, parents and students interview and observation form for researcher. The tools to collect data about physical and disciplinary problems and that collected information were for interpretation of them.

After the analysis and interpretation of the data, the findings of the study can be summarized as follow:

- Above information shows that not well managed school had no appropriate size of classroom, blackboard, sufficient pure drinking water, furniture, door, window, mathematical materials etc. Due to this reason, disciplinary problems are being the cause factor to understand mathematical concept and its impacts on student's mathematical achievement.
- Not well managed school have the mathematics classroom environment is controlled by teacher but there is no discrimination in treatment in terms of gender, ethnicity in classroom.
- Well managed school has good tradition of making the parents aware about the mathematics examination results. Parents get information of student's progress in mathematics.

- Terminal exams, half yearly exams and annual exams are the assessments used by both schools to measure the student's achievement.
- The observation showed that some schools were physically managed but had not sufficient teaching materials.
- Both of the sample schools have not their own library and no mathematics laboratory.
- It was also found that mathematics teachers of not well managed school did not check their students' homework.
- There was lack of teaching materials in mathematics class and teachers were less interested to use teaching material.
- There were no schools without disciplinary problem. Absent in classroom, coming without book and preparation, concentrate for the lesson, chewing gums were the common disciplinary problems in all schools.
- School environment and classroom management encourage the students.
- It is realized that the physical problem generates some disciplinary problem.
- It is found that physical and disciplinary problems in classroom impact the mathematics achievement of the students.

From the above analysis and interpretation of data, disciplinary problems were being the cause factor to understand mathematical concept and its effect in student's mathematical achievement. We sum up that, well managed schools students mathematical achievement is better than not well managed schools. So that, the mathematics classroom management impacts on student's achievement.

## **Conclusions**

Different plans, programs, projects and strategies have been implemented for the improvement of the quality of the public education in Nepal. But the desired results have not been achieved till now. Poor school building, lack of classrooms,

unavailability of the textbooks in time, lack of school at proper place and so forth are physical factors contributing for the poor performance of the community schools.

Effective classroom management is the most significant contributing factor in student achievement. Classroom organization and management in the secondary mathematics classroom is the cornerstone of positive student achievement, acquisition of knowledge and effective teacher-student relationships. In the mathematics classroom, effective classroom management and organization strategies are necessary to the teacher's promotion of a safe student environment as well as the development of time management, inquiry-based learning and critical thinking. Effective classroom management, at every level and in every educational specialty, is necessary for the well-being of students, their families, the community and, most significantly, for the teachers themselves.

The term management refers to organize of the process and controlling or making the decisions. So, classroom management refers to procedure and instructional techniques which teachers use to manage physical and disciplinary problems of students. Mathematics classroom management includes the way of managing personal, organization of physical facilities and development policy to conduct the teaching learning process.

Well designed school infrastructures and well managed facilities, appropriate use of materials, lighting and other appropriate precautions make schools more secure, safe and promote learning environment. A positive learning environment in the school creates psychological atmosphere in classroom, student more willing to share their ideas and the student cohesiveness in class being made mathematics valued. Parent roles are to promote quality in mathematics learning and back force by supervision. School factors are encouraging students' better towards their successful learning. This overall concern learning environment and classroom management are the most supportive atmosphere for promoting math learning in the school.

The research on mathematics classroom management of Rukum district for class x most of the schools did not have appropriate arrangements of students necessary physical facilities. It is true that due to the lack of adequate facilities and disappropriate arrangements of students' disciplinary in the mathematics classroom

was increasing. It has disturbed in the achievement of mathematics students. Which is being disturb of students' mathematics achievement.

The achievement of mathematics score of students of grade x is high where the students are discipline, well physical management and materials regarding to mathematics are available. Hence it is conclude that the mathematics achievement of students as well as whole achievement of the school having well classroom management is better than having not well classroom management schools.

### **Recommendations**

On the basis of finding the study, the following recommendations are drawn in order to improve mathematics classroom management.

- Proper classroom management must be essential to achieve better result on mathematics in school.
- It was seen that the public school did not have satisfactory management (especially classroom management). So, all the stakeholders must be think that, how to meet our school at minimum enabling condition of classroom management.
- Most of the schools have physical, disciplinary and other problems of classroom management. Therefore, the related factors (students, teachers, SMC, school administration, parents, community etc) should be attentive and give suggestions about the mathematics classroom management to the government. The government should conduct the programs (seminar, gosti, meeting, training, financial support etc) to improve the mathematics classroom management.
- Most of the teachers argued that the reason of lack of physical facility is the lack of budget in education. So government should emphasis to increase investment in education.
- Teacher should be encouraged to identify disciplinary problems in the classrooms and to suggest measures for coping with them.

- Teacher-student-parent relationship is poor which makes the teaching learning activities unsuccessful. So it is required to make friendly relationship between teacher, students and parents.
- This study was limited only in Rukum district thus the findings of the study couldn't be generalized in the broad sense. Thus, it would be better if the study would be carried with covering broad areas.
- Similar nature of studies should be conducted in different aspect of classroom management.

### **Suggestions for Further Research**

This is case study of mathematics classroom management and its impacts on student's achievement in the context of two schools in Rukum district. The findings and conclusion of this study cannot be generalized in all the schools. But it could be possible learning practices to other schools in order to get best practices and better to obtained fruitful result in mathematics learning. On the basis of the study following recommendations are drawn for further research of mathematics classroom management.

- Correlation between the classroom management and students achievement on mathematics.
- Wireless learning classroom management and students achievement on mathematics in school level.
- The research would be taken in all aspects of classroom management.
- Research for how promote constructivist classroom learning environment on mathematics learning in school level.
- Any type of comparative research on mathematics classroom management and students achievement.

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## APPENDIX - A

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Components/Aspects of physical classroom management

S.N.	Components
1	Schools building
2	Furniture
3	Classroom space for per students(BPEPscale 0.75sq.m.)
4	Cleanness of classroom
5	Condition of doors & windows
6	Blackboard (whiteboard)
7	Drinking water
8	Play ground
9	Toilet
10	Available and use of mathematical materials
11	Mathematics lab & extra activities
12	Presentation and display facilities
13.	Lighting & Temperature
14	Libraries
15	Floor
16	Walls
17	Computers
18	Racks
19	Rules of sitting
20	Other instructional materials

## APPENDIX - B

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Components/Aspects of Disciplinary Classroom Management

S.N.	Components
1.	Making noise in classroom
2.	Looking outside
3.	coming late
4.	Does not concentrate in the class
5.	No preparation of the next day lesson
6.	Quarrying with eachother
7.	Getting out of seat during teaching time
8.	Talking one class to another class
9.	Fooding in classroom
10.	skipping classes
11.	Walking around the classroom in teaching time
12.	Absent in schools
13.	Getting out of classroom without permission
14.	Not respecting teachers
15.	Laughing in classroom
16.	Coming school without dress
17.	Does not doing homework
18.	Does not active participation on class work and group work
19.	Talkative in classroom
20.	Gossip in classroom

## APPENDIX - C

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Guidelines for Interview with Head-teacher/SMC president

Name of school:-

Sex:- male/female

Name of Head-teacher/SMC president:-

The interview with Head teacher/SMC president was taken on the following roles of him to support proper classroom management in school.

- School administration/management (planning, organizing, staffing, controlling and evaluating).
- Professional development of math teachers.
- Time, crisis, stress, change, budget and human resource management.
- Learning environment in the school.
- Communication between parents, teachers, students and other related stakeholders.
- Guidance for mathematics teacher for better achievement.
- Support for low performers (student/teacher both).
- Classroom management problem solving.(physical and disciplinary)
- Extra-curricular activities for students.
- Increase student's achievement on mathematics.
- Further policy of the school.
- Mathematics classroom observation, supervision and feedback.

## APPENDIX - D

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Guidelines for Interview with Mathematics teacher

Name of school:-

Sex:- male/female

Name of math teacher:-

The interview with mathematics teacher was taken on the following roles of him to support proper classroom management in school.

- Behaviours of students.
- Problems of mathematics classroom management.
- Classroom practice.
- Rewards and reforms to students.
- Encouragement of the student learning.
- Expectation for learning mathematics.
- Monitoring progress.
- Teacher –parent and teacher-student relation.
- Types of assessment used to find the student's achievement in mathematics.
- Progress of student's achievement.
- Learning environment for mathematical class.
- Mathematical materials according to curriculum.
- Supports for poor performer.
- Rules of sitting.
- Classroom management skills.

## **APPENDIX - E**

### **A STUDY ON IMPACT OF MATHEMATICS CLASSROOMMANAGEMENT ON STUDENTS ACHIEVEMENT**

#### **Guidelines for Interview with Parents**

Name of school:-

Sex:- male/female

Name of parents:-

The interview with parents was taken on the following roles of him to support proper classroom management in school.

- Motivate child/punish child.
- Expectation from school.
- Relation with school.
- Environment at home for learning.
- Involvement of parents to creating learning environment in school.
- Role to school management.
- Attitude towards school.
- What about the result of the child in mathematics.
- Opinion to classroom management to your school.

## APPENDIX - F

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Guidelines for Interview with students

Name of school:-

Sex:- male/female

Name of student:-

The interview with student was taken on the following roles of him to support proper classroom management in school.

- Learning environment in school.
- Interest in mathematics.
- Classroom management for mathematics learning.
- Opportunity to learn at home.
- Expectation about mathematical learning.
- Teacher's behavior towards students.
- Class behavior towards students.
- School rules (Oppressive/democratic).
- Views towards mathematics teacher and school.
- Students' cohesiveness.
- Extra-curricular activities.
- Involvement in classroom practice.

## APPENDIX - G

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Observation Form for Researcher

1. Number of classroom in school
2. Total number of students
3. Number of students in grade x
4. Number of present students in classroom
5. Number of desks benches in grade x
6. Situation of windows and door
7. School building
8. Situation of classroom
9. Facility of drinking water in school
10. Instructional materials:
  - ✓ Play instruments or recreational instruments
  - ✓ Teacher made materials
  - ✓ Other mathematical materials
  - ✓ Flatten board
  - ✓ Geometry box
11. Number of girls and boys
12. Relationship between teacher and student
13. Environment around school
14. Use of dustbin: Yes/No
15. Noise in the grade room: Yes/No
16. Sitting rules/system
17. Condition of blackboard
18. Student teacher relationship
19. Teaching method
20. Group/team work

## APPENDIX - H

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Bases of Categorization of Schools (Related to sub-rule (1) of Rule 145) Education Act, 2028 and Education Rules, 2059

Bases of categorization of school Score

1. Physical facilities -30 marks
  2. Teachers management -20 marks
  3. Students number -10 marks
  4. Academic achievement -20 marks
  5. Total expenditure -10 marks
  6. School operation period -10 marks
- Total: - 100 marks

Government Criteria for School Classification

Criteria	Grade
Above 80 marks	'A' grade
50-79 marks	'B' Grade
30-49 marks	'C' grade

## APPENDIX - I

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Actual physical mathematics classroom condition of sample schools

S.N.	Management Condition	Name of Schools	
		T.J.H.S. Khalanga	Yamunananda Namuna H.S.S., Serigaun
1	Schools building	better	good
2	Furniture	better	poor
3	Classroom space for per students (BPEPscale 0.75sq.m.)	better	good
4	Cleanness of classroom	better	better
5	Condition of doors & windows	better	better
6	Blackboard (whiteboard)	better	good
7	Drinking water	better	good
8	Play ground	good	poor
9	Toilet	better	good
10	Available and use of mathematical materials	good	good
	Mathematics lab & extra activities	good	poor
12	Presentation and display facilities	good	poor
13.	Lighting & Temperature	better	poor
14	Libraries	better	poor
15	Floor	better	good
16	Walls	better	good
17	Computers	better	good
18	Racks	good	poor
19	Rules of sitting	good	good
20	Other instructional materials	good	poor
	<b>Obtaining Score</b>	32	14

## APPENDIX - J

### A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT

#### Disciplinary problems of mathematics classroom

S.N.	Problems	Name of the schools	
		T.J.H.S. Khalanga	Yamunananda Namuna H.S.S. Serigaun
1.	Making noise in Classroom	never	always
2	Looking outside	sometimes	always
3	Coming late	never	sometimes
4	Does not concentrate in the class	never	sometimes
5	No preparation of the next day lesson	sometimes	always
6	Quarrying with each other	never	always
7	Getting out of seat during teaching time	never	sometimes
8	Talking one class to another class	never	sometimes
9	Fooding in classroom	never	never
10	Skiping classes	never	sometimes
11	Walking around the classroom in teaching time	never	sometimes
12	Absent in schools	sometimes	sometimes
13	Getting out of classroom without permission	never	sometimes
14	Not respecting teachers	never	sometimes
15	Laughing in classroom	never	sometimes
16	Coming school without dress	never	sometimes
17	Does not doing homework	sometimes	always
18	Does not active participation on class work and group work	never	sometimes
19	Talkative in classroom	sometimes	always
20	Gossip in classroom	sometimes	always
	<b>Obtaining Score</b>	34	14

## APPENDIX - K

# **A STUDY ON IMPACT OF MATHEMATICS CLASSROOM MANAGEMENT ON STUDENTS ACHIEVEMENT**

## **Information Collected from Documents and Records of School**

- Number of students
- Number of boys and girls
- Name list of school management committee and parents teacher association
- Name list of school staffs
- Record of mathematics classroom observation
- Planning of making effective learning environment
- Rule and regulations of school (student and teacher)
- Regularity and irregularity of students
- Students achievement on math subject
- Other related documents of study