Chapter-I

INTRODUCTION

Background of the Study

Mathematics is not an invention but actually it is the collection of finding or discoveries. With the beginning of human life and civilization, mathematics has been its integral part. According to the Mathematics dictionary, "Textbook is a material to study which deals with definite subjects of learn systematically arranged things, intend for use at specified level of instruction and it is used as given course." Mathematics concern with the development and implementation of appropriate mathematics curriculum and all issues associated with the concept of lifelong learning. Mathematics education directly concerns with classroom teacher, learners, curriculum, school and contemporary Society.

Mathematical knowledge is essential to human life for better living in modern scientific and technological period. Mathematical skill should be provided to the every society for development. As a whole , mathematics increases the logical thinking, understanding capacity and efficiency of human being. Therefore, the subject mathematics is most important and essential part of human life. In the context of Nepal, mathematics teaching has been started through the ancient period but there weren't a rigid curriculum and definite objective. On that period, education was divided into Sanskrit Siksha where astronomy was included in teaching which is branch of mathematics. Similarly, in the middle period mathematics was used for the development of 'astronomy' as well as art. But there were problem of mathematics curriculum, subject teacher, instructional materials

and method of teaching at that time. Also in modern period, the development of mathematics has been rapidly increased.

Curriculum is dynamic in nature which is changeable according to the need of nation and situation . In context of Nepal, mathematics curriculum has been changed in different periods to improve the standard of education. The National Education Commission (NEC) establish in 2049 B.S and changed the curriculum of mathematics according to the need of the present society. Changing curriculum can be describe as the transformation of the curriculum scheme such as goals and objective, content, design or it could be done in more minor sense by modifying the curriculum such as changing the learning activities. In fact as to educate society towards the change in the world, curriculum change is inevitable. Curriculum change, however standing alone is not adequate for providing high quality of education rather there is a need for good implementers of those developed curriculum.

National Council of Teacher of Mathematics (NCTM) recommended that problem solving should be the focus of mathematics teaching because they say, it encompasses skills, which are an important part of everyday life. Furthermore, it can help people to adapt to change unexpected problems in their carriers and other expects of their lives. More goes on all aspects of mathematics in the world around them. They see problem solving techniques as a vehicle for student to construct, evaluate and refine their own theories about mathematics and the theories of other.

The content numerical integration is the study of how the numerical value of an integral can be found. The beginnings of this subject are to be sought in antiquity. A fine example of ancient numerical integration, but one that is entirely in the spirit of the present volume, is the Greek quadrature of the circle by means of inscribed and

circumscribed regular polygons. This process led Archimedes to an upper and lower bound for the value of Pi. Over the centuries, particularly since the sixteenth century, many methods of numerical integration have been devised. These include the use of the fundamental theorem of integral calculus, infinite series, functional relation-ships, differential equations, and integral transforms. Finally, and this is of prime importance in this volume, there is the method of approximate integration, wherein an integral is approximated by a linear combination. (Rabinowitz, 1984)

Numerical implies something that is associated with numbers; and integration is finding a sum or total value. Numerical integration thus literally means sum of total in terms of numbers. In mathematics, numerical integration is the name given to numerical computation of integral when it becomes very difficult or infeasible or impossible to find its exact value. In other words, numerical integration is concerned with the computational of an approximate value for the definite integral rather than finding an exact value. Various methods to solve numerical problem are used in teaching learning process known. We shall however be concerned with two methods, namely, the Trapezoidal Rule and Simpson's Rule. (Bajracharya, 2069).

The curriculum of grade XII has been changed several times. In present, grade XII mathematics is divided into group A, group B and group C. Among the three, it is compulsory group A while between group B and group C he/she have to teach any one of the two. Mostly teacher prefer to teach group C which has a chapter numerical integration. In this regards the researcher intends to find out the problem faced by the teachers while teaching numerical integration in existing curriculum of grade XII in Kapilvastu and Rupendehi district. The researcher selected the above topic because a very less work has been done to find out the problems in teaching the above

mentioned topic and the researcher intends to find out all the aspects causing the problems and the possible remedies to such problems.

Statement of the Problem

This study mainly concerns on the problem face by mathematics teacher in teaching numerical integration. Since talking with mathematics teachers has found that teaching numerical integration causes problems, I have chosen this topic to illustrate what the problems are.It intends to answers the following research questions.

- What are the present problems faced by mathematics teachers while teaching numerical integration in existing curriculum of grade XII ?

- What are the causing factors that affect teaching in numerical integration ?

- Are the problems faced by Community and Institutional school teachers similar ?

Objective of the Study

The main objectives of this study is to identify the problems faced by teachers on teaching numerical integration at grade XII, which can also be stated as :

i. To identify the problem face by mathematics teacher in teaching numerical integration at grade XII .

ii. To analyze the major causes related to the problems in teaching numerical integration.

iii. To compare the problems face by community and Institutional school teachers.

Justification of the Study

This study intends to explore the current teaching problems on numerical integration, in mathematics which is taught as optional subject at higher secondary level. Most of the teacher and students find mathematics as an abstract , difficult and boring subject. Many teacher have a wrong impression about the need of mathematics and have lost their interest in teaching and learning mathematics. The mathematics teacher are facing many problems in teaching numerical integration. So there is a great need to identify whether there are real problem or not, problems may arise because of confusion about subject matter, lack of physical infrastructure, teacher training and teaching materials, teaching learning activity and inadequate knowledge of curriculum and so on.

In this context, the teaching problems on numerical integration being faced by the mathematics teachers are the main focus of this study. Therefore , it may provide some good information about the present teaching problems on numerical integration in existing curriculum of grade XII mathematics .

a) It would be explain problems faced by the mathematics teacher in teaching numerical integration.

b) It would be helpful for mathematics educators and teachers to prepare models on numerical integration teaching and learning.

c) It would be help to improve the mathematics teaching especially for untrained teachers.

d) It would be beneficial to researcher for further research on numerical integration.

e) It would be help in designing a revised mathematics curriculum for grade XII.

Hypothesis of the study

The statistical hypothesis formulated in this study were as follows:

$H_0 : \mu_1 = \mu_2$

$H_1 : \mu_1 \neq \mu_2$

where μ_1 and μ_2 are the average problems faced by community school and institutional school teachers in teaching numerical integration at grade XII respectively.

Delimitation of the Study

Any study cannot capture all the fields by the time and resource constraints. Delimitation is a process of setting limitations or boundaries. When a study for delimitation is done they take all factors into account and set the rules, boundaries and limits that must be adhered to. The following were the limitations of this study:

a) This study was concerned only with the problem faced by mathematics teacher in teaching numerical integration.

b) This study concerns with the problems of mathematics teaching on numerical integration at grade XII.

c) This study was limited to only Kapilvastu and Rupendehi district.

d) This study was based on sample of 60 schools, including 60 mathematics teachers of grade XII only.

Definition of the Related Term

Existing curriculum. The mathematics curriculum which has been implemented since 2069 B.s in grade XII is considered as existing curriculum in this study.

Numerical Integration. It is a chapter name of grade XII in mathematics which taught by the math teacher.

Problems. Problems are that things which is difficult to deal with or to understand the subject matter during learning numerical integration.

Student. In this study, students means those who are enrolled in grade XII at academic year 2075.

Teacher. The person who teach mathematics full time or part time at higher secondary level after completing the master's degree were considered as teacher in this study.

It is an essential thing to review the related literature to compare the study, which provides strong knowledge about the related topic. Number of books, research reports, papers and other booklets can be found that concerns with curriculum teaching method, instructional materials, classroom management, physical facilities and so on. Especially, few of them can be found that related to the teaching of mathematics and its methods. Some selected literature has been reviewed by the researchers as follows:

Empirical Literature

Poudel (2016), carried a research entitled "Problem faced by mathematics teacher at higher secondary level" to find the problems and their cause at higher secondary level of Ramechhap district in particular. For convenience to conduct the study descriptive survey design was adopted and the nature of the study was quantitative followed by qualitative. The tools used were questionnaire, observation form and interview schedule. A total of 30 higher secondary level teachers were selected and the tools were applied to find out the related information. The researcher visited each of the selected higher secondary school along with the tools.

She found the problems in aspects such as classroom management, mathematical instruction, materials and methods, teachers proficiency and professional development, teachers training and evaluation and concluded that there was lack of students participation in the mathematics classroom, lack of supervision, no opportunity to get join mathematical conferences, seminar and other programs,

lack of proper training methods, lack of support to mathematics subject by the administration, lack of confidence and preparation of the teachers.

By supportive result, Rijal (2014) conducted his research in the topic "Problem faced by higher secondary mathematics teacher in curriculum implementation" which was focused to find the problem faced by higher secondary level mathematics teacher in curriculum implementation .The nature of the study is quantitative and qualitative and all together 42 mathematics teachers from all the higher secondary school in Salyan district who taught in grade XI and XII were taken as the sample of the study, the tools used in data collection procedure are questionnaire and interview guideline. Likert five point scale is included in questionnaire.

Rijal found that there are many problems were appeared in implementation of curriculum in higher secondary level in Salyan district. Among the seven different set of item described above shows that there are the following problems faced by teacher due to timely availability of the curriculum, lack of training, classroom environment, unavailability of reference teaching material, background of the students for implementing the curriculum. The researcher has found the problems faced by teacher in rural areas of Nepal. They are unavailability of curriculum, reference material, training opportunity, and unqualified teacher . The major reasons are unavailability of appropriate teacher training, student learning base, problem related to content , problem related to makings Plans and activities, problem related to student evaluation, social environment and physical facilities so on.

By the similar vein, Devi (2013) also carried out a research on the topic " Teaching and learning problem in mathematics grade IX (Trigonometry)" which had

the objective to identify cause of the problems in teaching and learning mathematics especially the chapter of grade 11 (trigonometry). The research was done taking only one government secondary school from remote area of Baglung, Dhullu Banskot VDC. The study was qualitative as well as descriptive in nature. The tools for the information collection were class observation, face to face interview.

This study found that teachers had not implemented the modern technique, method and materials for trigonometric teaching –learning. The students and teachers had faced problem on trigonometry teaching learning process because of the poor evaluation system, negligence of homework, lack of instructional material and so on. The traditional teaching strategies in trigonometry class by both trained and untrained teachers had remained as a main problem.

Likewise, Puri (2012) conducted a research entitled "Problem Faced By Secondary Level Mathematics Teacher and Student in Geometry" with the objective to identify the causes of problems behind poor mathematics achievements in school level. By hearing the negative response of student toward geometry while teaching secondary class and observing poor result in geometry the researcher decided to take a research work carrying this topic. By taking interview with experts, teachers, guardians, home visit, class observation including achievement test of about 200 candidates the data were collected. Participants were selected by purposive sampling method. Responses obtained from class observation and achievement test were analyzed by three point Likert scale with the help of mean weightage, textbooks contents, old documents, teachers, and guardians' responses, physical availability etc. were analyzed by factual description. From this, the researcher found the major shortcomings were lack of proper trainings and expertise to handle the classroom in the teachers and also the school administration, publications, academic policy of

nation were also to be blamed. The researcher suggested regular school observation by RP, standardized government policy, motivational evaluation of teachers to be the possible remedial measures.

Likewise, Erden (2010), has also conducted a research on the topic "Problems That Preschool Teacher Face in The Curriculum Implementation" The sample of the survey study consists of preschool teachers working in both selected public and private preschool and kindergartens from the different regions of Ankara. According to the list taken from Provincial Director ate of national Education in Ankara, based on the selected schools, the sample was composed of 223 preschool teachers working in public and private school in the center of Ankara during the education year of 2009-2010.. This study conclude that the problems area that preschool teacher face during curriculum implementation were as physical facilities, evaluation, plans and activities, teaching and learning process, social environment, goals and objectives and content.

Gautam (2009) conducted his thesis entitled " A study of problem face by higher secondary school teacher in mathematics." The purpose of the study was to find the problem faced by mathematics teacher at higher secondary level in general and also find the cause of the problem which are faced by the mathematics teacher at higher secondary level. The study was considered to be all mathematics teacher, who have been teaching mathematics in the Nawalparasi district in the grade XII. Eight teachers were chosen as a sample from 8 different colleges, 4 colleges were from rural area and from urban area. The teacher were chosen by the sampling method of purposing sampling . A questionnaire consisting of fifty two items developed by the investigator was finalized in consultation with mathematics expert and supervisor. Class observation form was also used for crosscheck information. Data were collected

by visiting sample colleges concerning the mathematics teachers. The collected data were analyzed and interpreted by the statistical tools like mean weightage.

Gautam concluded that the prescribed curriculum and the existing text book are not well managed, not ordered in simple to complex sequence. Practical problem are not well managed, not much applicable or appropriate, they are neither analytical nor numerical in nature. Language problem, poor economy, lack of refreshment training, examination oriented teaching, quality and size of blackboard, sequence of presentation and mathematics laboratory were the burning problem in that study. Comparing those problems between public and private college teachers in mathematics, it was found that public and private of the teachers was facing similar kinds of problem.

Koirala (1991) mentioned in a journal article "A comparison of problem faced by mathematics teacher educators in developing and developed countries a case study of Nepal and England". He claims in his article that is still a shortage of qualified mathematics teachers in schools in developed and developing countries. It may be because of the problems facing mathematics teachers in schools and the problems facing mathematics teacher-educators in colleges of education who are responsible in producing qualified mathematics teachers. Mathematics teachers and educators are more concerned about the former and the latter is usually neglected . This article tries to trace out the problems facing mathematics teacher-educators in both developing and developed countries on the basis of a study carried out in Nepal and a similar study in England. 15 out of 16 and 135 out of 247 mathematical educators in Nepal and England respectively took part in these study. It was found that lack of books and journals, teaching facilities and aids and negligible grants for research or personal studies are the main problems for mathematics teacher-educators both in Nepal and

England. However it was seen that the problems faced by mathematics educators in Nepal were more serious than those of England.

After studying overall literature, the researcher found many more literature related to problems faced by teacher on teaching learning mathematics. But researcher found that no research has been done regarding problem faced by teacher in teaching numerical integration content of grade XII, so to fulfill the gap, this study was focused on problem face by teacher on teaching numerical integration.

Theoretical Literature

Constructivist Learning Theory states that it should also be recognized that a person's pre knowledge may help the construction of meaning. People's pre knowledge comes from their past experience, culture, and their environment. Constructivist Learning Theory states that learning is an active process of creating meaning from different experiences. In other words, students will learn best by trying to make sense of something on their own with the teacher as a guide to help them along the way.(Brooks, J. and Brooks, M., 1993).

The national board for professionals teaching standers (NBPTS) had an overt social agenda to promote an image of teachers as accomplished professionals who reflected on their practice updated their knowledge, and drew from a variety of source in making decision. Central to the image of teacher as professional was the notion of teacher's collaboration. According to the policy statement of the NBPTS, accomplished teachers display a "readiness to work collaboratively " participates in " collaborative efforts to improve the effectiveness of the school " and "cultivate a critical spirit in appraising schooling." (International Labour Office, 2012).

Vygotsky (1978), an essential feature of learning is that it awakens a variety of internal developmental processes that are able to operate only when the child is in the action of interacting with people in his environment and in cooperate with his peers.

Conceptual Framework

Conceptual framework has been developed as per the objective of the research. This study has focused to identify the problem and the causes of problem on teaching numerical integration on grade XII. From the study of related literature above ,the researcher made the the framework for this study and the following framework.

Figure 1: Conceptual Framework
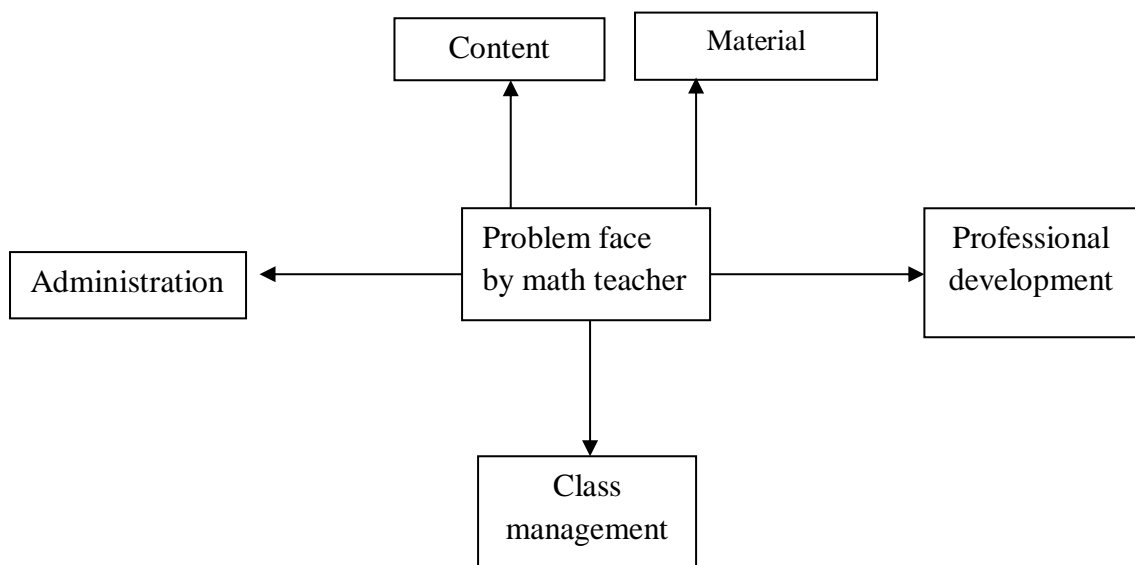
This asses and find the different problem of mathematics teacher while teaching by constructivism method. The researcher carried out different tools and instrument namely, they are opinionnaire and interview of the teacher. On the basis of these instrument data were collected for reaching to draw finding and conclusion of the study. Moreover, the teacher's problem were analyzed and interpreted with the theory of teaching as described previously.

Chapter- III

METHODS AND PROCEDURE

This chapter deals with procedure for data collection and analysis. It determines how the research becomes complete and systematic. The method applied in this study is discussed in the following sections: Research design, Population of the study, Sample of the study, tools, Data collection Procedure, Scoring procedure and Data Analysis Procedure.

Design of the Study

Research design is the specification of the method and procedure. It is also a way of the research that provides the direction for the researchers to achieve the goal of the research. This study intends to focus on the problem faced by teacher while teaching numerical integration. In this context, descriptive survey method and quantitative approach was applied in this research.

Population of the Study

The population of the study consists of all mathematics teachers who taught mathematics at higher secondary schools of Kapilvastu and Rupendehi district in academic year 2075/2076.

Sample of the Study

For this study, 20 schools from kapilvastu district area and 40 school from Rupendehi district were selected including with 33 community schools and 27 institutional schools. All the mathematics teachers of the sample schools were considered as respondents in this study.

Tools

For the collection of primary source of data opinionnaire form and interview schedule were used. The opinionnaire form was developed by the researcher himself with the help of supervisor. It included the opinion relating to the various problems which are being faced mathematics teacher in teaching numerical integration. The area of problems was related content, material, class management, professional development, administration.

The interview schedule was used for the qualitative information 10 teacher were interviewed for the purpose. The open ended questions were asked to them with the helpful interview guideline was developed by the researcher himself with the help of supervision. Interview guideline was constructed in such a manner that they could find the problem and it's caused related with mathematics teacher while teaching numerical integration.

Data Collection Procedure

For the collection of data the researcher was visits 60 higher secondary school of Kapilvastu and Rupendehi district one at a time along with the opinionnaire form and request letter. The researcher was selected the mathematics teachers teaching at grade XII mainly the chapter numerical integration concerned with the problem faced by those teacher while teaching Numerical integration. The opinionnaire were distributed and collected by the researcher himself and with the help of teacher. Opinionnaire helps to provide the objective of this study. The opinionaire were provided the quantitative data which helps to find out the core problem of the teachers while teaching numerical integration. Also the researcher was visits 10 schools and interviewed with the mathematics teacher of the respective schools.

Scoring Procedure

For the scoring of the data weightage of 5, 4, 3, 2, 1 were assigned to the response of ' strongly agree', 'agree', 'undecided', 'disagree', and strongly 'disagree' respectively. Weighted mean of each statement was calculated, and compared with the average score 3. If the calculated value is greater than 3, then it is concluded that the statement contains in favor to the problem. If the value weighted mean was less than or equal to 3, then it is unfavor to the problem. Also the problems faced by community and institutional school teachers were compared by applying t-test at 0.05 level of significance.

Data Analysis Procedure

After collecting data the researcher was analyzed and interpret using both quantitative and qualitative method. Collected data was scored with the help of Likert's five point scale. The quantitative data was collected from opinionnaire. Weightage mean and percentage was used to analyze and interpret the data. Then the researcher grasped and capture the main theme of the data for the meaningful analysis.

The collected qualitative data through interview schedule was analyzed on the basis of the framework that the researcher had already developed in the review of the related literature section. The researcher tried to interconnect with the previous finding and the way of analysis in the similar content. Again the problems of community and institutional school teachers were compared by applying t-test.

Chapter-IV

ANALYSIS AND INTERPRETATION OF DATA

The data were collected for the study from sixty Higher Secondary School of Rupendehi and Kapilvastu district. The collected data were tabulated and analyzed according to the objectives of the study. The tabulated data were statically analyzed and interpretation by using statically tool means weightage.

The researcher used opinionnaire form and interview schedule and took interviews of mathematics teacher. The collected information were categorized in different views in the text of interview, opinionnaire form and literature review.

Problem Related to Content

Content is the main part of the subject matter for the effective teaching. Content is also affected by the learner's abilities and teacher's teaching environment. Among the various aspects of content are presented in the following table.

Table 1: Teachers Response on Content

S.N.	Statement	SA	A	UD	D	SD	Total	W.M
1	Students are motivated to learn numerical integration, meaningfully.	20	64	24	40	12	160	2.6
2	It is practicable to prepare lesson plan daily while teaching numerical integration.	0	28	36	50	16	130	2.16
3	The content numerical integration is relevant for the higher secondary level	0	4	75	36	16	131	2.18

	student.							
4	Teaching hour for all content is enough.	50	80	45	20	5	200	3.33
5	Some of the topics are difficult to teach.	90	40	27	26	10	193	3.21

The above table 1 shows the teacher's response on their problem related to content. In the 1st statement the weighted mean is 2.6. This statement focused on the students' motivation on learning. In this statement, students were not motivated in learning numerical integration. It indicated that the student can't easily understand the numerical integration. Thus, it has been considered as a problem of mathematics teacher. On the 2nd statement the weighted mean is 2.16. Thus the statement is considered as problematic for the teacher. It indicated that majority of the teachers were not prepared daily lesson plan to teach numerical integration. Thus, the statement is considered as problematic for the teacher. On the 3rd statement the weighted mean is 2.18. It indicated that the contents were not relevant to pre-knowledge of students because this topic was newly introduced. On the 4th statement the weighted mean is 3.33 which showed that the Teaching hour for all content was enough. About 60% teachers respond that, there was no problem to complete the course in time. On the 5th statement the weighted mean is 3.21 this statement is not problematic. As it is a new chapter, the teacher has paid more attention to it, so there is no problem to teach this unit effectively in .Beside this more than half of the teacher respond that some of the topic in this section is difficult to teach.

Hence, the study showed that students were not motivated to learn numerical integration and teachers were not preparing lesson plan daily, were not relevancy of

the content. This show that the teacher should focus on why the students are not motivated. Students are only aware if the teacher focuses on solving a student's problem. These three statements were considered as problematic in the content. Most teachers are busy at home, it is good to make lessons in free time at school.

Causes of the Problem in the Content

The teachers were interviewed regarding the causes of problems in the content. In this regard some of the about similar views and other teacher should be followed by different kind of view.

"*Students were not regular in the class and they did not solve the assigned problem. Students have poor numerical knowledge so they can't easily understand the numerical integration. In teaching process, they used Nepali and English languages as medium of instruction, and English only while writing on the board.*"

(Math teacher)

The data obtained from Interview schedule shows that most of the teachers are well qualified and they said that they are eligible in teaching numerical integration. The question "have already been completed the required qualification to teach numerical integration?" is asked to the teachers, and only ten percent respondent responses "No". The researcher has intended to know the relevancy of the content in the present time. In this query, most of the respondent do not get more relevancy of the present content of numerical integration. The reply that the content of numerical integration it does not related previous knowledge, language is very difficult do not prepare the lesson plan. So, the this chapter numerical integration has to be done on the previous classes, use of simple language and must do topic, student, interest

determine what method they need to be used. Regarding the preparation of lesson plan they responded that it was time consuming and there were no proper teaching materials for it also.

Based on the opinionnaire and interview, the basic causes of the teacher's problem on content were student's irregularity, low motivation in the subject, poor background on numerical integration and mathematical language.

Problems Related to Material

Teaching materials are the object that are useful in the teaching- learning activities. Teaching materials are of different types on the basis of its size, use, effect etc. To address the need and aspiration of the present learner, the teacher must be equipped with the subject theory and its proper way of implementation. For the proper implementation, the effective use of teaching materials is a must. Among the various kinds of materials, following were asked in the opinionnaire.

Table 2 Teachers Response on Material

S.N.	Statement	SA	A	UD	D	SD	Total	W.M
6	Teachers support books are available in school.	50	64	54	26	3	197	3.28
7	Computer support and teaching material are available in school.	20	32	39	44	13	148	2.46
8	Raw material are not easily available	8	28	36	68	45	185	3.08

The above table 2 shows teacher's response on the related materials. There was no problem about the 6th statement. . The weighted mean is 3.28. It indicated that respondent teachers were satisfied with the teacher's support book. About 58 %

teachers respond that there was no problem teachers support book available in school. The 7th statement weighted mean is 2.46 Thus, the statement was considered as problematic for the teacher. About the support of computer and teaching materials, most of the respondent teachers disagreed. The teacher felt difficulty when mathematics can't be taught practicably and without projector and computer support. It indicated that the computer should be sufficiently available in school and use of technology is complex. The 8th statement weighted mean is 3.08 Thus, the statement was considered as not problematic . More than 52% teacher which was about reference books and magazines was not a great problem. If the teachers and students wanted to study the references book and mathematical journal, they would have studied it by the help of internet.

Hence, the study showed the teacher must show interest in teaching using the teaching metrial, The computer should be sufficiently available in school, since the use of technology is complex, the teacher should be trained. If the above-mentioned points are met, the problem of the teaching materials teacher may be reduced to some extent.

Causes of the Problem in the Materials

Based on information obtained from opinionnaire and interview, the teachers were interviewed regarding the causes of problem in the material. The researcher asked a question to the teacher. "In your opinion, why the computer supports system and teaching materials are not available in school?" some of the about similar views and other teacher should be followed by different type of view.

"*Most of the schools are economically poor, lack of physical facility, lack of electricity, lack of participate in computer training."* (Math teacher)

The researchers also asked a question to the teacher, "In your opinion, why the raw materials are not easily available in school? some of the about teacher similar views and other teacher should be followed by different type of view.

"*Lack of adequate skills and experience"*, *lack of enough time for construction of materials."* (Math teacher)

The next category of the question tried to find out the teachers preparation in the materials. The question about preparing computer support and teaching material are available in school, raw material are not easily available in the classroom asked to the teacher. In the response of these queries, respondent replies schools are economically poor, lack of adequate skills and experience, lack of enough time for construction of material .This means that the government has invest in schools and the teacher must be trained as well as the school should give time for extra activities.

Based on the opinionnaire and interview the basic causes of the teachers' problem on materials were lack of enough practical knowledge, lack of adequate skills and experience, lack of enough time for construction of materials, school are economically poor, lack of physical facility, lack of electricity.

Problems Related to Class Management

The quality of classroom management is an important factor to pupil's achievement and teaching success. We wrote about management rather than control in classroom because management emphasizes that learning and teaching are complementary activities . In classroom, successful teacher always tries to provide remarkable learning activities. So that the students can develop their conceptual

thinking in overall situation concerned with classroom management. Among the various aspects of class management, following were asked in the opinionnaire:

Table 3 : Teachers Response on Class Management

S.N.	Statement	SA	A	UD	D	SD	Total	W.M
9	Students are laborious, interested and disciplined in class.	25	48	48	36	9	166	2.76
10	School is well equipped with desk and bench in the classroom according to the number of students.	40	60	54	22	8	184	3.06
11	We face difficulty in classroom management because of individual difference, different intellectual abilities and age.	35	64	36	30	10	175	2.91

The above table 3 shows teachers response on their problem related to class management. Suitable classroom environment is an important part of classroom teaching. The classroom should be cleaned and sanitized properly. Normally, the management is the process of organizing, directing, controlling the public. Classroom management is the process of setting the class room in a good learning posture. On the 9th statement sample teachers responded with mixed comment. The weighted mean is 2.76. It showed most of the students were not laborious and disciplined and they were not interested and aware in mathematics class. Thus, the statement was considered as problematic for the teacher. On the 10th statement most of the teachers agreed. The weighted mean is 3.06 and it was clear that, this statement was not problematic. It means school building was suitable according to the number of

students. Thus, there was no problem of physical infrastructure in the school. About 51% teachers respond that there is no problem School is well equipped with desk and bench in the classroom according to the number of students. Also the 11th statement most of the teachers problematic. The mean weighted mean is 2.91. It was clear that, students' abilities are not similar in learning mathematics due to various backgrounds such as intelligence, gender maturity, socio-economic status.

This show that Numerical Integration Since the new chapter is a little difficult for the student to understand, interest may not be there, so the instructor must be perfect in that chapter and give a importance about how it can be easily taught to the student. Various capacities, background such as economic conditions, etc., may affect class management, so that class management can be better if it can be divided according to the nature of the student and taught to them. If the above-mentioned points are met, the problem of the classroom management teacher may be reduced to some extent.

Causes of Problem in the Class Management

The researcher asked a question to the teachers, "Why are the students not laborious, interested in study and undisciplined these days? Some of the about similar views and other teacher should be followed by different type of view.

"*These days students are not laborious, interested, and disciplined because they use too much mobile, internet, face book, video and chatting in and out of school's time. Most of the school's classroom was out of teachers' control*".

(Math teacher)

The researcher also asked a question to the teacher, "In your opinion, teachers are able to manage the classroom properly? Some of the about similar views and other teacher should be followed by different type of view.

Since there are students of different abilities, weak students are confused because they do not understand therefore noise increased then it is embarrassing to class manage. Even though the student come from different backgrounds, it is difficult for them to manage the class properly due to their own problems.

(Math teacher)

The researcher has also intended to know the relevancy of the class management in the in teacher teaching numerical integration. In this query, most of the respondent students are not laborious, interested, and disciplined. It is generally agreed that problems related to class management of students are due to different background such as gender age, socio economic status, ethnic ,cultural, family background etc. The present researcher wanted to know the impact of class management of the student in their teaching learning process. Most of the respondent replied that they found most of the students face difficulties in class room due to their background. They are not motivated and interested in mathematics classroom teach numerical integration. The respondents also reply students use to much mobile, internet, face book, video, and chatting in and out of school time. Provide extra classes for students with poor abilities and If parents allow students to use mobile less, class management may be better.

Problem Related to Professional Development

The development of skills and ability of teacher to perform well in related sector is known professional development. As brief, while talking about teachers' professional development, one should be aware to bring modern means of teaching-learning activities into practical use. The teacher should make the teaching profession more meaningful by using the modern tools, techniques and practical activities. One can't be professional without bringing the practical application of theory. In this regards, the response of teachers are presented in the following.

Table 4 Problem Related to Professional Development

S.N.	Statement	SA	A	UD	D	SD	Total	W.M
12	There is provision of training for teacher.	15	36	52	26	12	141	2.35
13	Lack of opportunity to participate on the interactions, workshops related to the subject matter.	35	48	21	42	15	161	2.68
14	There is difficulty in students evaluation at the end of the lesson	90	36	9	38	11	184	3.06

According to the 12th statement, most of the teachers were facing problem on professional development. There is provision of training opportunity to update their knowledge and skill. The weighted mean is 2.35 on this statement shows that this is problematic for teachers. More than two third teachers were not favor of statements. The teachers do not participate on workshop and seminar, which cause problem to introduce new knowledge and teaching technique in mathematics classroom. On the 13th statement, Teachers had accepted that they don't have opportunity to participate

on the interactions and workshop. The mean weightage was 2.68 which strongly supported the problem. On the 14th statement the mean weightage is 3.06 it was clear that, this statement was problematic. The majority of teachers involved in the study responded that even if there was a lack of time to check daily homework, some time would be spent evaluating the end of the lesson. This show that The mathematical structure may have changed with the change of society, so teachers should be given the opportunity to be trained on mathematical subjects.

Causes of Problem in Professional Development

The researcher asked a question to the teachers, "Why are the no provision of training for teacher ? and lack of opportunity to participate on the interactions, workshops related to the subject matter ? Some of the about similar views and other teacher should be followed by different type of view.

"Both the cases were lack of up to date teaching rules and regulations from the government sector. Lack of initiative from the respective school .The teachers to lack of conduct or participate in training and workshop programs."

(Math teacher)

The next category of question tries to find out the problem related to professional development. In this query, most of the respondent provision of training for teacher and lack of opportunity to participate on the interaction, workshops, related to the subject matter. In the response of these queries, respondent replies lack of up to date teaching rules and regulation, lack of conduct or participate in training and workshop program. This shows that there is the need

of training for the teacher in the teachers to solve the problems what the teacher face teach the numerical integration.

Problem Related to Administration

Administration is the part of organization that organizes the classes, teachers, required training for rigor and difficult topic, curriculum and other necessary thing for teaching. The following table present the information of the response of teachers.

Table 5 Problem Related to Administration

S.N.	Statement	SA	A	UD	D	SD	Total	W.M
15	Administration is less responsible to manage instructional materials.	70	44	27	22	15	178	2.96
16	There are no incentives to motivate the teachers to put in their best.	40	56	39	24	13	172	2.86
17	Unavailability of mathematics journal, dissertation and reference books in library.	100	60	30	16	7	213	3.55

The 14th statement which had the weighted mean is 2.96 showed that there is problematic. It means school administrations are irresponsible to manage and construct instructional materials. According to 15th statement there were no incentives to motivate the teachers. The weighted mean is 2.86 it was clear that, this statement was problematic. The school administration should be able to arrange rewards for good teaching of teachers. "Unavailability of mathematics journal, dissertations and reference books in library" which was the 16th statement about two third of the teacher agreed with this statement. The weighted mean is 3.55. This statement was not

problematic. That means school administrations should be arrange the mathematics journal and related mathematics reference book.

This show that administration has a crucial role to play in solving the teacher's problems, it is important to discuss with the teacher what educational materials are needed. The administration is considered to be more effective if it is able to reward the competent teacher by constantly monitoring the administration to encourage the teacher. Most of the schools have poor financial condition and lack of mathematics articles, so if the government is serious about this issue then it is important to bring a policy that will adapt to mathematics.

Causes of the Problems in Administration

The researcher asked the question to the teacher "why are the administration is less responsible to manage instructional materials?" Some of the about similar views and other teacher should be followed by different type of view.

"Not all the administrative manpower was well informed about the necessity of the proper instructional materials for good teaching-learning experience.lack of interaction with related sector. Time is not enough for teacher"

(Math teacher)

The researcher asked the question to the teacher "why are no incentives to motivate the teachers to put in their best" some of the about similar views and other teacher should be followed by different type of view.

"The *poor economic status of the school. Very tight budget. More work to do with limited expenses."*

(Math teacher)

The next category of question tries to find out the problem related to administration. In this query, most of the respondent administration is less responsible to manage instructional materials, no incentive to motivate the teachers put in their best. This show that there is the need of administration and teacher interaction what the teacher face to manage instructional materials. Likewise, it is important to have a review seminar on the problem of teachers' learning. Teachers who come to school regularly should be encouraged, for which the school must budget.

Position of Community and Institution Schools Teachers

The third objectives of this study was to compare the problems of community and institution schools teacher. The comparison of community and institution schools teachers problem can be presented in the following table.

Table 6. Comparison of the Response between Community and Institution Schools Teachers

Comparison	Sample size	Mean	Standard deviation	t-value	Conclusion
Community	33	56	9.52	0.76	t<1.96
Institution	27	53	7.78		

From the above table ,we see there were 33 community and 27 institution schools teacher. The mean response of community school teachers is 56 with standard deviation of 9.52 whereas the mean of institutional school teachers is 53 with standard deviation of 7.78 . The calculated t- value with respect to difference of mean is 0.76 which is less than tabulated t value 1.96 that there is no significant difference between the average problems of teacher teaching community and institutional schools on numerical integration.

Chapter-V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter is related with summary, findings, conclusion and recommendations. After the analysis and interpretation of collected data, an attempt has been made to summarize and list the finding, conclusion and some recommendations:

Summary

This study was based on mixed method design. In addition to conduct the quantitative nature by "problems faced by teacher on teaching numerical integration" Not only focusing the problem, the researcher also tries to find the cause of problems.

These specific objectives of this study were to identify the teaching problems on numerical integration faced by the mathematics teacher of grade XII in existing curriculum, to analyze the major causes related to the problems in teaching numerical integration, to compare the problems of public and private school teachers.

The population of the study consists of all mathematics teachers who taught mathematics in higher secondary in Kapilvastu and Rupendehi district. For this study, 20 schools from Kapilvastu district area and 40 school from Rupendehi district were selected including with 33 community schools and 27 institutional schools. All the mathematics teachers of the sample schools were considered as respondents in this study. Opinionnaire and interview schedule were the main tool of this study. The opinionnaire was constructed after the detail study of related literature, articles, documents and previous thesis. Interview were used as a tool that will provide qualitative information. Total of Ten teachers were interviewed separately to find the problems faced by teachers. The guidelines of the interview were prepared in such a

way that it helps to get factual information regarding the teaching problems of teachers.

Findings of the Study

On the basis of data analysis and interpretation of the result, the summary of major findings were as follows.

- Students were not motivated to learn numerical integration meaningfully. Teacher had no even formal planning for the lesson.

- Support of computer and teaching materials were not available and school did not support and construct to assist and helping in making using materials.

- Students were not laborious and disciplined because they use too much mobile, internet, face book, video and chatting in and out of school's time most of the school's classroom was out of teacher's control.

- There is the problem on respecting the individual difference in the classroom while teaching.

- The reasons for the shortcoming in the cases was lack of up to date teaching rules and regulations from the government sector and lack of initiative from the respective school and the teachers to conduct or participate in training and workshop programs.

- Not all the administrative manpower was well informed about the necessity of the proper instructional materials for good teaching-learning experience. There was not any incentive facility because it would have burdened the poor economic status of the school. They were found to have very tight budget, more work to do with limited expenses.

- The lack of availability of the journal, dissertation and reference book was poor economic condition and also lack of initiative from school and teachers to coordinate with other schools, university and government to do so.

- There is no significant difference between the average problems of teacher teaching community and institutional schools on numerical integration.

The cause of above problems are : few number of students participation in the mathematics classroom, lack of administrative support for the development of mathematical materials, students are utilized in a political program, lack of friendly relation with teacher and student, lack of opportunity to join mathematical conference, seminar and other program related the education sector, lack of parents responsible towards child were the causes to find the problem.

Conclusions

From the above findings, it is concluded that mathematics numerical integration teaching and learning is not satisfactory in Kapilvastu and Rupendehi district. Among the five different categories described above it is found that there are numerous problem faced by teachers due to content, materials, class management, professional development and administration.

More interestingly, it is found that both community and institutional school teachers have been facing more, or less similar problems. Teachers are facing many problems due to lack of participate in training and workshop programs, language problem, teaching materials were not available, poor economic status of the school, student use too much mobile, internet,facebook out of school time, very tight budget, lack of availability of the journal.

Recommendation for Educational Implication

This research found out the problems and their causes which are faced by teacher. Based on the finding and the conclusion from this study, the following recommendation is developed.

- Students should be motivated to learn numerical integration, meaningfully.

- Teachers should use proper materials and prepare lesson plan before starting the topic.

- The school should manage mathematical lab, materials and computer.

- Class work and home assignment should be checked day by day to make sure that students are genuinely putting their effort in learning.

- Proper guidance according to the students' ability should be given to ensure better learning for the whole class.

- Proper training programs, workshops, seminars should be conducted by the school to enhance teaching-learning methods. Also the teachers should participate in all kinds of programs related to the subject matter.

- The administration should be made aware about the importance of modern teaching-learning practices so that they will focus on better managing the instructional materials.

- Teachers should be encouraged about better teaching practices by providing handsome remuneration or incentives.

Schools should focus on making the subject related journals, dissertation and reference books available for the students and teachers for better teaching- learning experience. Also proper coordination is required amongst the subject teacher, school and the government for enforcing best.

Recommendation for Further Study

The conclusion of this study may not generalize to all mathematics teachers due to limitation contained in the study. On the basis of the study the following recommendation have been given:

- Similar study should be carried out with large sample and various schools of different part of Nepal.
- To conduct similar studies related to the problems faced by teachers for numerical integration.
- To compare the problems faced by community and Institutional school teachers.

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Appendix A

Opinionnaire form for teacher

Respected teacher,

I am master degree student of Mathematics education, central department of mathematics education, central department of education, kirtipur, Kathmandu. I am writing thesis entitled on 'problems face by teacher on teaching numerical integration in higher secondary level of Kapilvastu and Rupendehi district' as the partial fulfillment of my degree of master of education. Teaching and learning activities cannot be effective without finding the actual problem of the teacher in teaching numerical integration. So to complete my thesis, I have prepared some opinionnaire. I will be very much thankful for valuable help and I would like to express gratitude to you and your institution in advance. The reliability and validity of this study is based on your responses. There is no right wrong answer in your response.

Researcher

Pradeep Adhikari

Department of Mathematics Education

Kirtipur,Kathmandu

Opinionnaire

Name of the teacher/respondent……………………………………………………

Academic qualifications……………………………………………………………

Teaching experience…………………………………………………………………

Age……………………………………………………………………………………

Please give the tick marks (√) which you feel the best options, where,

S.A.= 'Strongly Agree', A =' Agree', U = 'Undecide',

D = 'Disagree', and S.A = 'Strongly Disagree'

Content

S.N.	Statement	SA	A	UD	D	SD
1	Students are motivated to learn numerical integration, meaningfully.					
2	It is practicable to prepare lesson plan daily while teaching numerical integration.					
3	The content is relevant to previous knowledge of student					
4	Teaching hour for all content is enough.					
5	Some of the topics are difficult to teach.					

Material

S.N	statement	SA	A	UD	D	SD
6	Teachers guide book available in school.					
7	Computer support and teaching material are available in school.					
8	Raw material are not easily available					

Class management

S.N.	Statement	SA	A	UD	D	SD
9	Students are laborious, interesting and disciplined.					
10	School is well equipped with desk and bench in the classroom according to the number of student.					
11	Difficulty in classroom management because of individual difference, different intellectual abilities and age.					

Professional development

S.N.	Statement	SA	A	UD	D	SD
12	There is provision of training for teachers					
13	Lack of opportunity to participate on the interactions, workshops related to the subject matter.					
14	There is difficulty in students evaluation at the end of the lesson					

Administration

S.N.	Statement	SA	A	UD	D	SD
15	Administration is less responsible to manage instructional materials.					
16	There are no incentives to motivate the teachers to put in their best.					
17	Unavailability of mathematics journal ,dissertation and reference books in library.					

Any other problems:…………………………………………………

Appendix B

Guideline for Interview with mathematics teacher

Name of the teacher :   Date :

Qualification :   Sex :

Teaching experience :

College name :

The interview with mathematics teacher will take on the basis of following main topics :

- ➢ Content- relevant content , difficult to teach topic, students motivate or not, preparation of lesson plan etc.
- ➢ Materials-provisions of computer, enough teaching materials etc.
- ➢ Class management-discipline in the class, number of student, different ability etc.
- ➢ Professional development-training, seminar workshop etc.
- ➢ Administration-instructional manage, incentives provisions, journal, reference book available, library etc.
- ➢ Other special techinique, strategies, activities of teacher while teaching numerical integrations.

Appendix C

Name of the Participating Schools in the Study of

Kapilvastu and Rupendehi District

S.N	Name of the school	District
1	Chatrapali tirthadevi Higher Secondary School	Kapilvastu
2	Tauleshwornath Higher Secondary School	Kapilvastu
3	Ratna Rajya LaxmiHigher Secondary School	Kapilvastu
4	Boudhapadam Higher Secondary School	Kapilvastu
5	Kanakmuni Higher Secondary School	Kapilvastu
6	Sidharthaesmarak Higher Secondary School	Kapilvastu
7	Janta Higher Secondary School	Kapilvastu
8	Badganga Higher Secondary School	Kapilvastu
9	Bhirkuti Higher Secondary School	Kapilvastu
10	Rastiya Higher Secondary School	Kapilvastu
11	Samayethan Higher Secondary School	Kapilvastu
12	Shree Nepal Adarsh Higher Secondary School	Kapilvastu
13	Shivgadi Higher Secondary School	Kapilvastu
14	Mahendra Higher Secondary School	Kapilvastu
15	Odari Higher Secondary School	Kapilvastu
16	Suryadaye Higher Secondary School	Kapilvastu
17	Jan Joyoti Higher Secondary School	Kapilvastu
18	Gautamboudha Higher Secondary School	Kapilvastu

19	Bhadra Higher Secondary School	Kapilvastu
20	Ramgorkha Higher Secondary School	Kapilvastu
21	Oxford Higher Secondary School	Rupendehi
22	Scholors Home Higher Secondary School	Rupendehi
23	Axix Higher Secondary School	Rupendehi
24	Paramount Higher Secondary School	Rupendehi
25	Shree Shanti Namuna Higher Secondary School	Rupendehi
26	Kalika Higher Secondary School	Rupendehi
27	Shree Sainamaina Higher Secondary School	Rupendehi
28	Shree kerwani Higher Secondary School	Rupendehi
29	Nawa Ratna Higher Secondary School	Rupendehi
30	Shree durga bhawani Higher Secondary School	Rupendehi
31	Shree shivapur Higher Secondary School	Rupendehi
32	Shree devdaha Higher Secondary School	Rupendehi
33	Rammani Higher Secondary School	Rupendehi
34	Sidhartha Gautambudha Higher Secondary School	Rupendehi
35	Nayagau Higher Secondary School	Rupendehi
36	Naharpur Higher Secondary School	Rupendehi
37	Shree Janta Higher Secondary School	Rupendehi
38	Parbhat Higher Secondary School	Rupendehi
39	Sidheshwor Higher Secondary School	Rupendehi
40	Sagarmatha Higher Secondary School	Rupendehi
41	Annapurna model Higher Secondary School	Rupendehi
42	Public Higher Secondary School	Rupendehi

43	Galari Higher Secondary School	Rupendehi
44	Shree kanti Higher Secondary School	Rupendehi
45	New Horizon Higher Secondary School	Rupendehi
46	Manimukunda Higher Secondary School	Rupendehi
47	Everest Higher Secondary School	Rupendehi
48	Aims Higher Secondary School	Rupendehi
49	Yogdaye Dudhnath Higher Secondary School	Rupendehi
50	Tillotama Higher Secondary School	Rupendehi
51	Girvan Higher Secondary School	Rupendehi
52	Butwal Elite Higher Secondary School	Rupendehi
53	Rupendehi Lilaram Higher Secondary School	Rupendehi
54	Rudrapur Higher Secondary School	Rupendehi
55	Canon Higher Secondary School	Rupendehi
56	Glorious Higher Secondary School	Rupendehi
57	Shree HariyaHigher Secondary School	Rupendehi
58	Achievers Higher Secondary School	Rupendehi
59	Shree Thutipipal Higher Secondary School	Rupendehi
60	Lumbini Higher Secondary School	Rupendehi