

Chapter-I

INTRODUCTION

Education is the broadest means to transfer the idea, skills, attitude, experiences and knowledge of a people to another people of community of universe. Improving life standard is the main function of education. Then, it can be said that education is necessity of human life. In education there are many disciplines among them; Mathematics' has a vital role. Plato advocated about the inclusion of Mathematics in the curriculum

The term 'Mathematics' has interpreted and explained in various ways. It is the numerical and calculation part of day to day life. It explains that the science is the bi-product of our empirical knowledge. Historically, the term has been originated from an ancient Greek word "Manthancial" this meant "to learn". It seems to be indicated that mathematics was considered as process of learning. It is also define as the science. According to Jhon Lock, "Mathematics is way to settle in the mind of habit of reasoning. According to Encyclopedia "mathematics Education has been accepted as a component of a formal education form ancient period. It occupies a well-established position in the school curriculum of all countries."

Background of the Study

Attitude is a hypothetical construction that represents an individual's like or dislike for an item. Attitude may be positive, negative or neutral views of an "attitude object". Most often the term attitude is used to describe an emotional reaction, either favorable or unfavorable towards some object or conceptual in nature. An individual who has associated with positive effect or feeling with some psychological object is said to be like that the object. I.e. he/she Favorable attitude towards that object. An individual who

has associated with negative effect or feeling with some psychological object is said to be dislike that object, I.e. he/she has unfavorable attitude towards that object. Thus attitude can be reduced to having a continuous from highly positive attitude in between including a neutral zone. Which indicate neither favorable not unfavorable attitude?

Meaning of Attitude

Attitude plays an important role in individual reaction to particular entity. Attitude shape the behavior, positive altitude leads towards favorable response and negative attitude develops unfavorable response. Attitudes are also attached to mental categories. Mental orientations towards concept are generally referred to as values. Furthermore, an attitude is a point of view about situation. It is made what we think, what we do, and what we fell. An attitude is the degree of positive or negative effect associated with some psychological which we may be symbol, phase, and slogan person.

Attitude is usually classified in there different categories which are affect, cognition and behavioral intention. These there determinants confine the clear meaning of attitude. Attitude is one of the most pivotal determinants of achievement in academic career (Ma and Kishore, 1997). Attitude is all about someone linking or disliking of particular object. Studies show, as compared to male, females have less positive attitude for mathematics. This negative altitude tends to increase, as student move towards higher education (Daniel, 1998).

Attitude towards Mathematics

Based on a simple definition, attitude towards Mathematics is positive or negative felling towards mathematics (Mc Leod, 1994). Based on a multidimensional definition, attitude towards Mathematics is "an aggregated measure of a liking or

disliking of mathematics, a tendency to engage in or avoid mathematical activities, or useless" (Ma & Kishor, 1997). Students' interest in mathematics, their everyday life determines the mathematical of student's towards mathematics, but this become less positive during school years (Ma & Kishor, 1997).

In the 21st century, the activities of human are depending on technology. Cellular phones, text messaging, email and social media are primary tools of communication for human. The term 'media' includes the whole range of modern communications media: television, the cinema, video, radio, photography, advertising, newspapers and magazines, recorded music, computer games and the internet. Media education focuses on the media we all encounter in our everyday lives outside school – the TV programmer's we watch and enjoy, the magazines we read, the movies we see, the music we listen too. These media are all around us, and they play a significant role in our lives. The Media help us to understand the world and our place in it. This is why it is so important for us to understand and study them.

Learning is a process to acquire knowledge. It needs hard work and sometimes will make students frustrated and get bored, that's why they lose their attention to learn a lesson. In this case the use of media in teaching learning process is needed to attract the student's attention and to make teaching learning activities more interesting and effective. The use of media in teaching learning process is not a new thing. Many teachers know that media will be helpful. Media give students something new, but not all teachers know how to implement it correctly, so sometimes media disturb learning process instead of helping students in learning process.

Defines media as teachers helper tool in conducting the teaching learning process. In her opinion, media can be teachers best friend in teaching because they will helper teacher to control student's attention (Bates, 2000). Media can used in almost any discipline to enhance learning, both in class, and also for out-of –class assignments, short film and television clips, written articles, and blog positive can viewed to reinforce concept and spark discussion. Interactive media has the potential to help us meet learners "where they are" and move them to a deep understanding of mathematics (Cohen, 1996). Media is an ideal way of getting a message across. Video, Photos, Maps, Diagrams and Graphs can convey complex ideas at a glance and can give written message more impact. Media also encompass audio and animation. When using any type of media, it is purpose in relation to your learning and teaching aims.

Research suggests that people learn abstract, new and novel concepts more easily when they presented in both verbal and visual form (Lewis, 2001). Visual media make concept more accessible to a person that text media and help with recall (Rivet, 2001). In Kaput (2009) research he asked a simple question to make his point. "Why do Students remember everything that's seen television and forget what we lecture?" because visual media helps students retain concepts and ideas. Involving students in creating media encourages collaboration, accountability, creativity and mastery of ideas and concepts. Media are flexible because they can be use for all level to students and in all subjects. Teaching media also can encourage students to take more responsibility for and control over their own learning, engage in joint planning of the syllabus, and take longer-term perspectives on their own.

- Media as a communication tool to further streamline the process of learning teaching.
- The function of the media in order to achieve educational goals.
- The relationship between teaching methods with educational media
- The value of benefits of media education in teaching.
- Selection and use of media education.
- Different type of educational media tools and techniques.

Finally in our context of the Nepal it is widely accepted that all elementary learning has a motor basis, reinforced by sensory experience, from which concepts are formed by making discrimination. Media of all sorts are therefore bound to play an important role in mathematics education. Internet provides unlimited access to students no longer only half access to textbooks, but to content materials located far beyond the walls of the school building by e-mail & internet for a long time media for the teaching of mathematics have been fairly limited: Blackboard & chalk, textbook, tools for measuring, geometrical models, pictures or charts, graph, familiar or environmental objects etc. More recently audio visual types of teaching materials such as overhead projector transparencies, films, film strips, audiotapes, videotapes etc. have been proliferating but in many countries they are not yet much used due to cost or equipment problem (Upadhyaya, 2004).

In Asia, the 44 radio and TV universities in China (including the China Central Radio and Television University), Universitas Terbuka in Indonesia, and Indira Gandhi National Open University have made extensive use of radio and television, both for direct class teaching and for school broadcasting, to reach more of their respective large populations (Reardon, 1996). For these institutions, broadcasts are often accompanied

by printed materials and audio cassettes. Japan's University of the Air was broadcasting 160 television and 160 radio courses in 2000. Each course consists of 15 -45minute lectures broadcast nationwide once a week for 15 weeks courses are aired over University-owned stations from 6 am to 12 noon. Students are also given supplemental print materials, face-to-face instruction, and online tutorials (Glean, 1997).

Statement of the Problem

Mathematics is one of the major branches of knowledge. It provides logical and critical capacity to individual. It is useful in human daily life as well as advancement of science and technology. By realizing the importance of mathematics each secondary schools all over the world has been given more value to mathematics and introduced mathematics as compulsory subject. In the same way government of Nepal has also provisioned mathematics as compulsory subject in secondary level. Although mathematics as compulsory it cannot fulfill the students needs for learning science and technology in future. Therefore Government has also provisioned mathematics as the optional subject. Parents, teacher and society have high expectation from the students. Therefore this study has tried to identify the Teachers Attitude Towards Media in Teaching Mathematics.

Research questions:

- What do community teachers think about using media in teaching mathematics?
- What do institutional teacher think about using media in teaching mathematics?
- Is there same opinion among community and institutional school mathematics teacher in teaching mathematics?

Objectives of the Study

The objectives of this study would be following:

- To find out the attitude of community secondary school's mathematics teachers towards media in teaching mathematics.
- To find out the attitude of institutional secondary school's mathematics teacher towards media in teaching mathematics.
- To compare the attitude of community and institutional school's mathematics teachers towards media in teaching mathematics.

Research Hypothesis

H₀₁: There is no significant difference attitude of community and institutional secondary school mathematics teachers towards media in teaching mathematics.

H₀₂: There is no significant difference the attitude an opinion towards media between community and institutional secondary schools mathematics teachers.

Significance of the Study

Although using media while teaching is an effective & advance trend to access the students in mathematics, its implementation condition & attitudes of stakeholders towards it plays the vital role for its achieving actual outcome. This study identifies the secondary level's mathematics teachers attitudes towards importance of media in teaching mathematics. It evaluates the comprehensiveness, usefulness, guiding procedure & continuation in using media on the basis of teachers opinion that would be more powerful to reform its overall the qualities. This study investigates the various problems faced by the teachers in using media in mathematics teaching that would be helpful to reduce

teachers problems & to encourage its effective implementation. It helps to examine the relationship of media on the mathematics achievement that would be helpful to know its effectiveness which provides direction for all stakeholders. This study will be significant for media in teaching mathematics

1. It would be significant for students to know the teachers attitude towards using media in teaching and learning mathematics.
2. It would be helpful to understand the factors affecting the learning achievement in mathematics in community and institutional school regards to media.
3. It would be useful for those researchers who will want to make a further study in this field.

Limitation of the Study

The fundamentals delimitations of this study are as follows:

1. This study was concerned with community and institutional secondary schools of Kathmandu district.
2. This study was based on mathematics teachers who are teaching mathematics with using media or not for secondary level students.
3. Most of the parts of this study was based the opinion of the teachers so that attitudes of teachers towards using media is described as a quantitative way

Definition of Key Terms

Media

Media is as a tool that can be used for sending and receiving information through radio, T.V. internet, computer, and projector and so on. Communication channels through

which news, entertainment education data or promotional message are disseminated, media includes every broadcasting and narrowcasting medium such as internet.

Attitude

Secondary level teacher towards media in using for teaching towards media using for teaching mathematics. Attitude are generally conceived as embodying favorable or unfavorable components representing on the one hand positive feeling appraisal and tendencies to approach or support the object and the other hand negative feeling appraisal and tendencies to avoid or harm the object. An attitude is a point of view of the situation that may be positive or negative.

Community School

The school which are established and sponsored by Government of Nepal and also managed by public.

Institutional School

The school established, funded and run by individual unions, agencies trust or particulars groups with the boarding facilities for students and teachers.

Teaching

Teaching is the stimulation, guidance, direction and encouragement of leaning of teaching in secondary level of Nepal.

Teachers

Teachers refer to those teachers who teach mathematics in secondary level.

Chapter-II

REVIEW OF RELATED LITERATURE

A collection body done in earlier scientists is technically called the literature. Any scientific investigation starts with a review of literature. In fact, working with the literature is an essential part of the research process which generates the idea, helps in developing significant question and is regarded as instrumental in the process of research.

The research for related literature is one of the first steps in the research process. It is valuable guide to defending the problem, recognizing its signification, suggesting promising data gathering device, appropriate study design and sources of data (Best and Khan, 2006).

Empirical Review

Pandit (1999), in this study "A study of attitude of secondary level students toward geometry" which he made in nine public and four private school on ninth grade students of Tanahu district school, concluded that mathematics teacher of secondary school had negative attitude towards geometry but the students studying in secondary level had positive attitude towards geometry and also concluded that there was a gender difference in attitude towards geometry.

Kafle (2001), completed his study on the titled "A study on attitude of secondary level students and teacher towards compulsory mathematics curriculum." he was aimed to identify the teachers and student compare their attitudes. To achieve the objectives and one hundred sixty students from kavre district by simple random

sampling to obtain the required data. He was done a quantitative research and finally concluded that

- The secondary level student had a positive attitude where as teachers had negative attitude towards secondary level compulsory mathematics curriculum.
- The secondary level boys and girl had similar attitude towards compulsory mathematics curriculum.
- The mea altitude score of students towards compulsory mathematics had no difference than their teacher attitude scare on compulsory mathematics.

CERID (2001), in the report "Instructional Improvement in primary School" has mentioned that quality of education that a student receives depends not only upon the relevance and appropriateness of curriculum, textbook and school activities. It also affected by attitude and behavior of his/her parents' positive attitude towards various aspects education and their capacity to provide necessary facilities for children education are tow factors in ensuring quality education and another is parents' support at home.

Tiwari (2005), in the study "A compararative study of boys and girls altitude in mathematics" which he made in seven secondary school of ninth grade Lalitpur district concluded that both boys and girl hold positive attitudes that mathematics could be learned by anyone bout seemed to exhibit higher percentage, in ace[t of this view. The correlation between attitude of students and achievement of students were found to be significant. It shows that Bothe was closely related with each other.

Bhattarai (2006) did his thesis on "Attitude of Secondary level students towards mathematics". The aim of this was to compare the attitude of boys and girls towards

mathematics. A set of questionnaire entitled Modified Fennema-Sherman Mathematics attitude scale was tool for collecting data. The opinionnaire consisted of four level of statement personal confidence about subject matter, usefulness of subject context, subject is perceived as a mail domain and teacher perception about subject matter. The questionnaire consists of 4 statements which were distributed among 112 boys and 95 girls. The data were using descriptive as well as inferential statistics. The test was employed to find out the attitude of students and t-test was used to compare to attitude of boys and girls. The result of this study was the positive attitude of the students towards mathematics. Girls and boys both were positive attitude towards mathematics. No vast difference between.

Yadav (2008) completed his study on the titled "A Study of Attitudes of Farmers and Non -farmer's parents towards the school mathematics". He used Likert scale and analyzed by descriptive method. He found that farmers and non farmer's parents had positives attitudes towards their male child and female child about the school mathematics. And also he found that farmers and non farmer's parents had greater attitudes score towards their male children then female children in secondary school mathematics.

Mahamed and Hussian (2008), did his research on secondary Students' attitude towards mathematics in a selected school of Maldives" The propose of this study were to find out students' attitude towards mathematics and find out gender difference in attitude towards mathematics. He selected 200 students from selected school of Maldives. Data collection procedure was questionnaire. Data was analyzed by Chi-square, t-test with 0.005 level of significance. The result shows that the students'

positive attitude towards mathematics is medium and there is gender difference in their attitudes.

Pudel, (2010) conduct a research on “Attitude of teacher and student towards secondary level mathematics and student’s achievement in Dhankuta District”. The study was to investigate various information regarding to the relationship between attitude of trained and untrained teachers, attitude and achievement of student taught by trained and untrained teachers. The sample of this study included 20 teachers and 240 students in total from 20 schools of Dhankuta District. He classified the attitudes of teachers and students providing five category rating scales are as follows;

i)strongly agree ii) agree iii) undecided iv) disagree v) strongly disagree for each item arranged in the Likert format. The analysis was based on the responses of 240 students and 20 mathematics teachers. The rating scales were -2,-1, 0, 1, 2 in favor of strongly agree, agree, undecided, disagree and strongly disagree for positive statement respective. He found that Secondary level trained mathematics had positive attitude than untrained teacher. Students taught by trained teacher had high achievement than the students taught by untrained teacher. Attitude of students taught by trained teacher was good.

Olufemi and James (2014), in this study "Gender Comparison of Attitude of Senior Secondary school Students Towards mathematics in Ekiti State, Nigeria" This study investigated the comparison of male and female students towards mathematics. This study employed descriptive research design of the survey type. The population for the study consisted secondary school of Ekiti State, Nigeria. The sample for the study was [600] senior secondary school students consisting of 300 male and female

selection from 12 senior secondary school using multi stag, stratified and purposive random sampling technique. The researcher was adopted and uses an instrument for gathering data. The study show that the attitude of students towards mathematics did not depend upon sex.

The above researches have been shown that the teachers attitude affects on learning achievement as students. These studies have strongly advocates that the teachers and students belief and attitude has significant affect on learning mathematics. So by realizing these facts this research also intends ended to dig out the attitude of teacher in different aspect than above research namely Media. Since the Media have been widely used in every sectors of life in 21st century. No aspects of life are beyond from the use and influenced of media. So teaching is also lightly influenced by Media. In many countries media has been used in classroom frequently to teach mathematics but it is very critical in Nepal. In most of the school the traditional teaching method is being used. Among of this Community school is more with respect to institutional school. Some institutional schools have been introducing media in classroom for teaching and learning. That's many can be one reasons so that the students achieve meant is higher than community school students. In this regard this study will compare the Teachers Attitude towards Media in Teaching Mathematics.

Theoretical Review

Constructivism

The main theoretical framework for this present study is Constructivism, an educational philosophy that may contribute towards understanding how Media can

help students learn mathematics in introductory courses. Constructivist philosophy posits that individuals learn within personal contexts of experiences and interpersonal interactions. The contemporary generation has been raised on technology and experiences a lesser degree of personal interaction than previous generations, due to electronic modes of communications. According to constructivism, it is appropriate to examine the contributions of computerized programs as well as the educator's role within the context of the current student body as those-called "next generation."As such, this philosophy provides the appropriate framework to examine the learning affects of computerized programs within the classroom in conjunction with teacher interaction.

Constructivism is a theory of knowledge founded on the premise that by reflecting on our experiences, we construct our own understanding of the world we live in. As constructivist Ausubel stated, "If I had to reduce all of educational psychology to just one principle I would say this: The most important single factor influencing learning is what the learner already knows" (Morris, 2002).This is particularly relevant to mathematical learning as real world situations can form the basis for classroom lessons and help teach how the lessons are relevant to the learner.

Media as a Constructivist Example of Learning

Within this philosophical model is Social Constructivism, which has been strongly influenced by the work of Vygotsky as cited by (Huber, 1985) and suggests that knowledge is first constructed in a social context and then appropriated by individuals. Social constructivism encourages the learner to search for the truth using their own

experiences. Social constructivism also views each learner as a unique individual with exceptional needs and backgrounds. In a constructivist mathematics classroom, learners are encouraged to participate actively to construct their own knowledge and reflect on their own learning. This approach describes the ineffectiveness of standardized

Curriculum as one size fits all and encourages the implementation of unique, individualized and customized curriculum even when teaching highly standardized material such mathematics. Assessment in constructivism is not based on standardized tests; instead the self paced learning process becomes a tool of assessment in itself. The emphasis is not changing standardized mathematics but changing the way in which standardized material is taught into customized methods to accommodate individualized needs.

Media in Special Education

Various educational studies have been conducted on use of Media towards learning. There are positive and negative views concerning effectiveness. A recent study published by the International Dyslexia Association (2009), revealed that computer technology may also be part of the long-term solution for dyslexic and other at risk students. The use of software technology may have the capacity to provide unique learning options and specific methods of instructions at individual pace. However, due to the special needs of this student segment, researchers (Perknins, 1992) argued that it is unsatisfying and insufficient to simply state that students must utilize software technology to learn and to communicate in today's academic settings. That is, just learning to utilize technology based activities may not prepare students well for academic

practices. Students may need additional drill and practice with the use of software programs and how it may reinforce content retention and more importantly mastering practical skills useful in everyday life.

Student Roles in a Constructivist Approach.

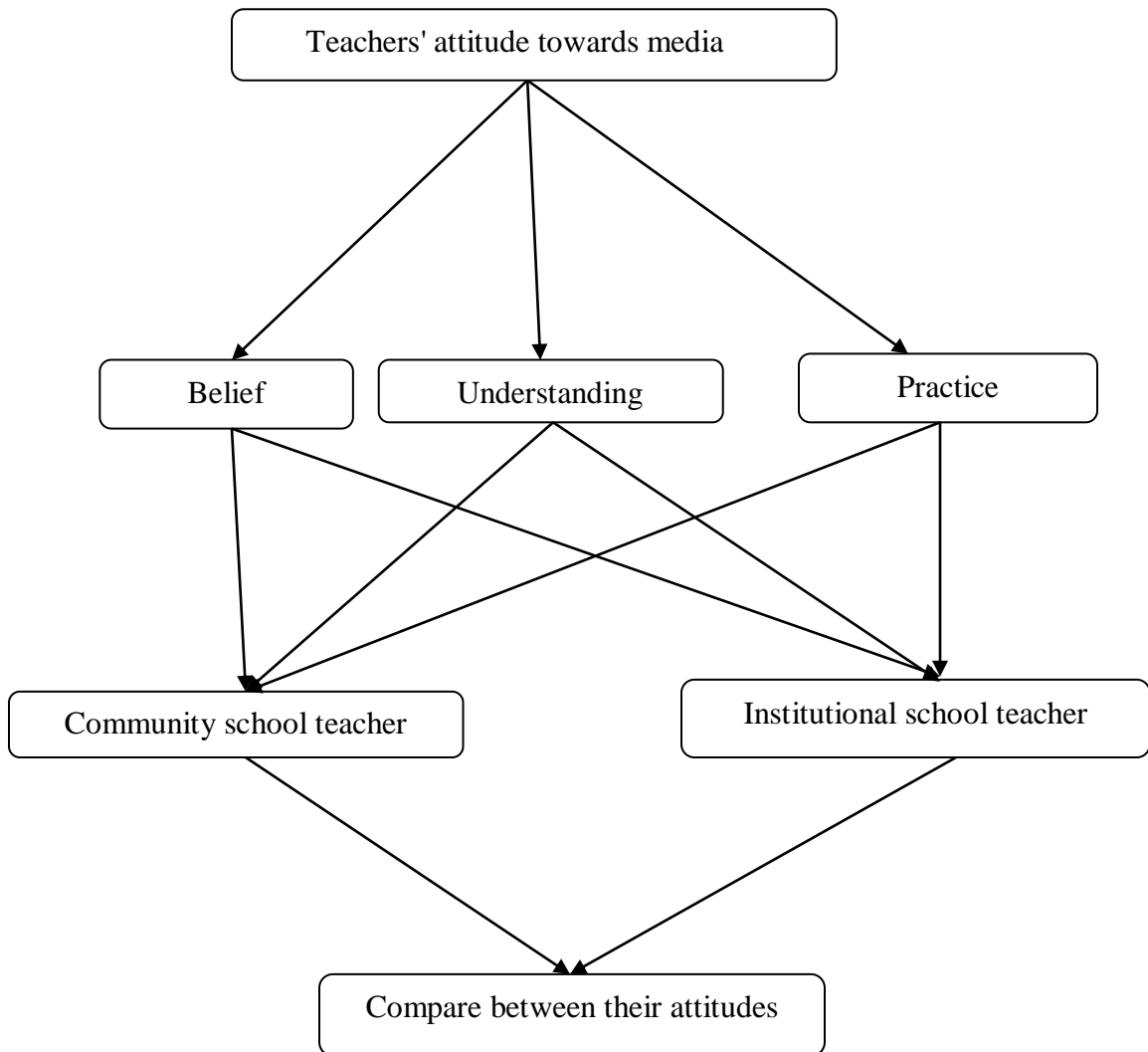
Learners often have multiple paths to content and they want learning that is fast paced, multimedia and interactive (Pal near, 1998). As the traditional classroom setting is transforming, student are encouraged to communicate and interact intimately with their instructors, peers and more importantly with the subject matter. In an effort to increase the students' success and engagement in the learning process, many instructors are re-design engender-developing their roles in the classroom. As access to information becomes more available, through software technology, the role of instructors must shift from primary sources of information and content knowledge to facilitators and coaches. As an example of coaching the learning process, mathematics educators may briefly present new concepts and then allow students to practice individually in small groups using Media. Students will then have an opportunity to inquire about newly learned skills and practice until mastery is achieved. This method of instruction will also be great for educators since it frees him or her from preaching and allows more time to monitor students' progress. Likewise, the technologically changed method of teaching changes not only the way that students learn but also the role of the learner in this new educational context which is more interactive and responsible.

Conceptual Framework

According to Germann and Sasse man (1996), conceptual framework is written or visual representations that "explain either graphically or in written from, main things to study- the key factors, concept or variables and the presumed relationship among them".

The following would be conceptual framework of this study.

Table No. 1: Teachers Attitude towards in Media



Sources: Germann and Sasse man (1996)

To fulfill the objectives of this study, there were three domains were taken as attitude of teachers. They were belief, Understand and Practice of community and institutional school teachers. For the belief, Understand and Practice, researcher would be collected data by opinionnaire, observation and interview. The opinionnaire would be developed on the basis of Likert's scale and then their attitudes beliefs, understanding, and practices towards using media in teaching and learning mathematics would be compared.

Chapters – III

RESEARCH METHODS AND PROCEDURES

This chapter is designed for describing the methodology. Research methodology is useful bridge to solve the research problem in a systematic way. Methods-tools or techniques applied in the research process and procedure- a way we put the tools and techniques together in sequence or combinations to achieve objectives. In this chapter, Design of the study, Population of the study, Sample of the study, Tools of data collection, Reliability and validity of tool, Data collection Procedure and analysis of interpretation of data are presented in detail.

Design of the Research

Research design is the plan, structure and strategy of investigation conceived so as to answer to research question and to control variance. Research design is the map or guideline for the research work. It provides the basic and fundamental ways to conduct the research work successfully. It guides the whole process of the intended research. Thus, the survey research design was used to attain the objectives of this study. This study had adopted the mixed method research design. To attain the first and second objective, the quantitative as well as qualitative methods were adopted. Similarly, for the third objective the quantitative research design was used.

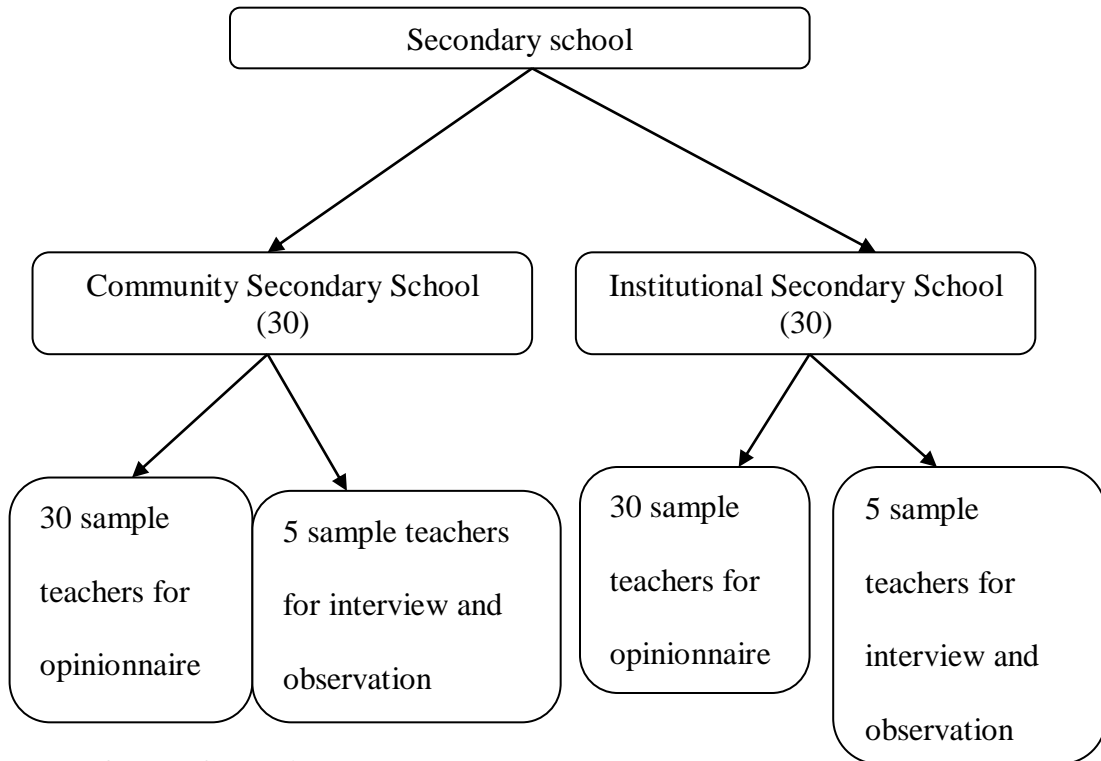
Population of the Study

The population of this study was consisted all the mathematics teachers of the secondary school who teach mathematics in grade IX of Kathmandu district in academic year 2073.

Sample of the Study

There are at least community 152 and 781 institutional secondary schools in Kathmandu district (District Education office Kathmandu 2073). 30 mathematics teachers out of the total community and 30 teachers out of the total institutional school mathematics teacher were selected by the simple random sampling. Only 10 (5 from community school and 5 from institutional school) teachers were selected for the interview and class observation by the purposive sampling. The process of sampling procedure would be follow.

Table No. 2: Sampling Processing



Tools of Data Collection

It is an important part of the study. To fulfill the objectives, some necessary data should be needed so, there are many data collection tools. The researcher was used different data collection tools which are described as followed.

Opinionnaire

Opinionnaire is one of the important tools used for data collecting for the research. The questionnaire was used for this study. The opinionnaire was Prepared on the basis of Liker't scale. The different main category opinionnaire would be prepared and they would be given on the basis of Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD).

Interview

Interview is the formal or informal communication between interviewee and interviewer. This is also one of the major data collecting tools which provide basic and personal information towards anything. In this regards it also would be one data collection tools for this study.

Observation Form:

Observation is the one of the powerful tools primary data collection which researcher directly visit the field and collect the data from his own careful watching of the events happened or happing in the field. Cohen, and Manion (2007) say, "The distinctive feature of observation as a researcher process is that it offers an investigation the opportunity to gather "live data from naturally occurring social situations. People do may differ from what they say, and observation provides reality cheek" (cited in Cohen, Monion). So, observation is a tool to collect authentic data lively.

Further easy observation enables the researcher to researcher to gather data on: the physical setting, the human setting the interactional setting and the program setting. Observation is one of the tools that I shall be using while gathering data on the proposed research. I would observe their real classroom situation where they practice their teaching and learning Mathematics using Media. It provides opportunity to researcher not only to get the verbal data but also non- verbal behavior of the information's. I would observe the teaching process in the classroom situation in Community and Institutional school to develop Mathematical skill.

Reliability and Validity of Tools

Reliability and validity of the research instruments are they necessary qualities of the instrument. The observation and interview were taken opinionnaire was also taken from the theory of previous researches done by different researcher. So, the researchers assumed that tool are reliable and valid.

Data Collection Procedure

After selecting the sample and preparing opinionnaire, observation and interview protocol, the sample schools administration would be requested to take out the required data. Getting permission from the administration the data collection procedure was started.

After the preparation of required instruments the school was randomly selected by researcher using simple random sampling technique because the study was depended on opinion of teachers about the media in teaching mathematics for secondary level. The teacher of both community and institutional schools was given

questionnaire and their response was evaluated on the basis of the Likert's scale. Then among of them schools teachers was taken interview to measure their attitude towards media and finally evaluated and their responses would be audio recorded some field note also would be taken. To meet the first objective the opinionnaire, observation and interview was conducted among the selected sample. These three different tools was used to attain only one objectives to validity one response with another response. Due to the nature of second objective as first objective same procedure as first objective was carried out. To obtain the third objective the opinaionnaire was conducted among the selected sample. The samples were grouted percussion with mutual conversation and have been take the required data for the objectives of this study.

Scoring Procedure

The scoring procedure of each items i.e. statements of the instruments as follows:

Table No. 3: Liker's Five Point Scale

| Meaning of Rating | Rating |
|--------------------------|---------------|
| Strongly Agree | 5 |
| Agree | 4 |
| Undecided | 3 |
| Disagree | 2 |
| Strongly Disagree | 1 |

Weight-age of 5, 4, 3, 2, & 1 score to a statement if the response is "Strongly agree", "Agree", "Undecided", "Disagree" or "Strongly disagree" Respectively in case of positive statement.

Procedure of Data analysis

The data obtained by the above process was analyzed by using Z-test. The teachers response was given numerical value on the basis of Liker's scale. The mean, variance and S.D. marks of community teacher and institutional teacher would be calculated and then Z-test would be used to test the hypothesis at 0.05 significant levels would be used to show the attitude of the teachers towards using media for teaching mathematics at secondary. The response of the teachers' was listed up to 1 to 25. Then they were assigned 5, 4, 3, 2, & 1 respectively to SA, A, U, D & SD then the total mean average marks of each statement was calculated and described numerically with average mean value. The response of teachers was also discussed on the basis of percentage. The percentage score of each statement was discussed each statement. To find attitude of teachers towards using media in secondary level. Again to compare the community school teachers and institutional school teachers' attitude towards using media in teaching mathematics, the mean, SD variance was calculated. The attitude of teachers' was compared on the basis of mean variance and standard deviation. Finally, the hypothesis was tested by using Z- test with 0. 05 significance level. To verify this result a qualitative approach was also used. Teachers were asked some open ended questions and their responses were analyzed thematically.

Chapter - IV

ANALYSIS AND INTERPRETATION

This chapter deals with the analysis of the collected data with their interpretation.

The data is collected for the study from the community and institutional secondary schools of Kathmandu district in the year 2073 BS. The collected data was analyzed by using average mean, standard deviation and variance.

The collected data were tabulated and analyzed according to the objectives of the study and to test the hypothesis. The collected data were analyzed under the following headings, which correspondence to the objectives of the study.

- Analysis and interpretation community secondary school mathematics teachers' attitude towards using the media in teaching mathematics.
- Analysis and interpretation of institutional secondary school mathematics teachers attitude towards using media in teaching mathematics.
- Comparison of responses of community and institutional secondary school mathematics teachers' attitude towards using the media in teaching mathematics.

Analysis and Interpretation of Community Secondary School Mathematics

Teachers Attitude Towards Using Media in Teaching Mathematics

To achieve the first objective of this study 30 secondary mathematics teachers of 30 community secondary schools were selected. The opinionnaire were given in (Appendix -A) and their responses were calculated by Likert's scale. The obtained score of teachers attitude is used to find the weightage mean and compared each statements responses separately.

Table No.4: Teacher Attitudes towards Community Secondary School Mathematics

Teacher

| S.N. | Statements | S.A. | A. | U. | D. | S.D. | W.M. | Remarks |
|------|---|------|----|----|----|------|------|---------|
| 1 | Media plays important role in teaching mathematics at secondary level. | 25 | 96 | 3 | 0 | 0 | 4.1 | A |
| 2 | I am favor of use of media; it will help to encourage the students | 40 | 40 | 36 | 0 | 0 | 3.8 | A |
| 3 | Students will show their interest while teaching mathematics by media students. | 20 | 76 | 12 | 6 | 0 | 3.8 | A |
| 4 | Training is needed to proper use of media essential for all the teachers' of secondary level. | 35 | 52 | 27 | 2 | 0 | 3.8 | A |
| 5 | The knowledge of importance of media is essential for all the teachers' secondary. | 15 | 80 | 18 | 0 | 1 | 3.8 | A |
| 6 | The greater priority should be given to media in teaching | 20 | 56 | 33 | 0 | 1 | 3.5 | A |

| | | | | | | | | |
|----|--|----|----|----|---|---|-----|---|
| | mathematics at secondary level. | | | | | | | |
| 7 | Teachers accept the value of media in teaching learning mathematics. | 20 | 68 | 27 | 0 | 0 | 3.8 | A |
| 8 | Media is handled easily only by trained teacher which will help the learning. | 20 | 84 | 9 | 2 | 1 | 3.8 | A |
| 9 | In the mathematics classes by the media students will be intrinsically motivated for the learning | 15 | 60 | 36 | 0 | 0 | 3.7 | A |
| 10 | The main focus of media will help the development of students' ability in mathematics | 30 | 60 | 21 | 2 | 1 | 3.8 | A |
| 11 | Use of media is necessary in teaching mathematics at secondary level by this students will not fell bored while reading mathematics. | 20 | 60 | 33 | 0 | 0 | 3.7 | A |
| 12 | It is possible to use media at all types of teaching method and chapters of mathematics at secondary level. | 30 | 72 | 12 | 4 | 1 | 3.9 | A |
| 13 | Media helps to achieve the objectives of mathematics classroom. | 45 | 48 | 18 | 6 | 0 | 3.9 | A |
| 14 | Media is the best strategy for fast and slow learning of mathematics at secondary | 15 | 72 | 24 | 2 | 0 | 3.7 | A |

| | | | | | | | | |
|----|--|----|----|----|---|---|-----|---|
| | level. | | | | | | | |
| 15 | Government should conduct trainings and seminars for increasing the use of media in mathematics class room at Secondary level. | 30 | 60 | 18 | 6 | 0 | 3.8 | A |
| 16 | Media is not sufficiently use in teaching mathematics at secondary level. | 30 | 40 | 33 | 2 | 1 | 3.6 | A |
| 17 | While media students their attention may draw out of the teaching items and may have negative thought. | 5 | 80 | 12 | 6 | 1 | 3.4 | A |
| 18 | Learning by using media is permanent and useable too. | 50 | 36 | 27 | 4 | 0 | 3.9 | A |
| 19 | It is possible to use media in each and every topic of mathematics but course may not be finished in time. | 15 | 72 | 21 | 4 | 0 | 3.7 | A |
| 20 | Mathematics class with Media is effective and attractive because of the students' participation. | 35 | 84 | 3 | 0 | 1 | 4.1 | A |
| 21 | Understanding of mathematics is effected by the use of media | 25 | 48 | 36 | 2 | 0 | 3.7 | A |
| 22 | Teachers can develop his professional ability by using the media in class room teaching at secondary level | 35 | 60 | 24 | 0 | 0 | 3.9 | A |
| | Student's activity will be | | | | | | | |

| | | | | | | | | |
|----|---|----|----|----|---|---|-----|---|
| 23 | increase for learning mathematics. | 50 | 40 | 24 | 6 | 0 | 3.9 | A |
| 24 | They can apply in their practical life if they learn mathematics by highly media. | 20 | 88 | 12 | 0 | 0 | 4 | A |
| 25 | I believe that media is the main part of mathematics teaching at secondary level. | 20 | 60 | 27 | 4 | 0 | 3.7 | A |

According to table 1, the scores of responses of the different items related to the teachers' attitudes towards using media in teaching mathematics at secondary level were analyzed.

From the table the weightage mean of first statement was found to be 4.1, which is more than the mean weightage 3. This value represents that the teachers have positive attitude towards statement one. About 80% teachers have positive attitude towards the statement. The mean score of response of teachers towards the second, third, fourth, fifth seventh, eighth, tenth and fifteenth statements was found to be 3.8, which is greater than the weightage mean 3. This means that teachers have positive attitude towards these statements. Similarly, the mean score of twelfth, thirteenth, eighteenth, twenty two, and twenty three were calculated to be 3.9, which indicate that teachers have positive attitudes towards these statements. About 69% teachers were found to be positive towards these statements. The mean score of the responses of teachers' attitude towards the statements 6th & 16th were calculated to be 3.5, which is more than the weightage

mean 3. This value represents that teachers' were agreed upon these statements. The mean score of 9th, 11th, 14th, 19th, 21th & 25th statements were calculated to be 3.7, which is also more than the weightage mean 3. Therefore, the community school teachers' attitude was found to be positive towards these statements. Above 66% teachers attitudes were found to be positive towards these statements. The mean score of the statements 20th and 24th were calculated to be 4.1 and 4 respectively. These values were also found to be greater than the average weightage mean value three. That indicate that teachers' have positive attitude towards these statements. About 81% teachers have shown their positive attitude towards these statements.

Two Highly Significant Statements

- (i) Media plays important role in teaching mathematics at secondary level & Mathematics class with Media is effective and attractive because of the students' participation.

The statement "*Media plays important role in teaching mathematics at secondary level & Mathematics class with Media is effective and attractive because of the students' participation*" was first highly significant statement with the weightage mean value 4.1. The 1st statement 16.7% agree with strongly agree, 80% agree with agree and 3.3% agree with undecided. Also 20th statements 23.3% agree with strongly agree, 70% agree with agree, 3.7% agree with undecided and 3% agree with strongly decided.

- (ii) They can apply in their practical life if they learn mathematics by highly media.

The statement "*They can apply in their practical life if they learn mathematics by highly media*" was second highly signification statement with the weightage mean

value 4. The 20th statement 13.3% agree with strongly agree, 73.4% agree with agree & 13.3% agree with undecided.

Some Equally Signification Statement

- (i) Statement number 12th, 13th, 18th, 22th & 23th with the weightage mean value: 3.9
- (ii) Statement number 2nd, 3rd, 4th, 5th, 7th, 10th, 8th & 15th with the weightage mean value: 3.8
- (iii) Statement number 9th, 11th, 14th, 19th, 21th & 25th with the weightage mean value: 3.7

The mean score of each statements of opinionaire were calculated to be more than three, which indicates that the community teachers of Kathmandu district were positive. The score of teachers attitude towards the using media was calculated to be more than the weightage mean three. Therefore, from the above table it can be concluded that teachers have positive attitude towards the using media in teaching mathematics.

To validate the above quantitative data, the observation was also made of five teachers of public school mathematics teachers. The observation schedule (see appendix-C) was prepared whether the teachers are consistent with their mathematics or not. To evaluate the teachers attitude towards using media. I prepared an observation from containing four different topics and conducted among 5 teachers' from each community. For the descriptive purpose I have named T₁, T₂, T₃, T₄ & T₅ Of community school teachers and T₆, T₇, T₈, T₉, & T₁₀ to the institutional school teacher. From the observation of community school teachers, I found T₁, T₂, T₃, T₄ & T₅ had prepared their lesson plan on the basis of available materials. Their objectives of teaching was found to be consistence with the teaching materials, but only T₁, T₂ & T₅ were using the teaching materials where as T₃ and T₄ were not using such material in classroom. The situation

was different in institutional school teachers. All the teachers' institutional school had lesson plan with consistent with teaching material. They were using all the required teaching materials required for to meet the objective of classroom. The classroom was full of bar graph, table, charts, etc.

I found that only T₃ and T₅ were using computer to teach mathematics whereas T₁, T₂, and T₄ were completely not using these types of materials. In institutional all the teachers were using these materials and also encouraging students to use the media properly for the teaching learning mathematics. It was observed that there were availability to tools media like computer both were used but institutional school was more used than community school in institutional school than that of community school. Teachers T₁ and T₄ use these tools teaching mathematics whereas T₂, T₃ and T₅ are not using such material.

From the observation, it was found that use of media in secondary level was significant less. The teaching materials were used least in classroom teaching. The use of media like film, web-sites and other audio-video materials were not used at all. Teachers were not using any kind of materials in teaching. They were just using textbook as a teaching materials. The media was rarely seen to be used. I found that most of the school has not well facilities of media in classroom. I found that there were availability of computers, projectors and other tools of media but teachers were using them in less event. They used media for primary purpose only. Students were also not motivating to use media based materials. But the teachers were encouraging students to use media like internet, you tube and other sources of media to learn mathematics effectively.

I got that the teachers were not fully motivated and dedicated to use media in classroom teaching. To know the realities about teachers attitudes towards media in teaching mathematics. I conducted an interview with three community school teachers. I prepared an interview schedule (see appendix-D) and conducted the interview with them.

Teacher (T1) explore his ideas and Knowledge of Media telling that " For Media first of all a separate room is needed and other materials local or readymade should be developed". He agrees Media is recourse of mathematics teachers and students. So, Media is needed.

Teacher (T2) says "Media is a good recourse for math teachers and students. Media is useful in the class where the number of students is less". She also indicated Media as recourse of students and teachers

Teacher (T3) has not yet practiced Media approach but Bring genuine knowledge telling that there should be a separate room to teach mathematics for all the classes that are handled by a single teacher and teacher should stay in the same room. The room should be designed in such in a way theory and practical can be taught. Media is essential in his view.

Yes. I have my own idea and concept about it but till now I have not used it due to Different difficulties.

If we have to develop Media we have to make a single big room where we can manage all the materials and sufficient space for student to participate in the practical actives. Teachers will always stay in media students of all the classes come to the media in there media in their respective periods. Teacher will teach students will observe and participate. Teachers never run here and there.

Teacher (T4) is the teacher who is currently practicing Media approach. He told his own story about the knowledge of media "Before joining this school I had no knowledge of Media. Here, in my school we have two separate Media rooms for Senior and junior. Teachers stay in Media student rooms. Teachers can teach practical and theory in the same room which is big enough. Recourse of all my materials is Media. To clarify the basic concept of their concept of the contents tool and materials in the room are sufficient in media

Teacher (T5) is also an experienced in the practice of laboratory approach he expressed "We don't say classroom, we say Media. Wide tables are managed so that students can use manipulative freely. Flexible benches are arranged for group work. To store instruments and tools sufficient space is there also available in the Media., a computer with online internet for teacher and multimedia projector are also available in the Media. Students move to the classes and Media Lab. But Teachers stay in their own room. Media Practice and theory reading should be in the same room with appropriate space. Commitment of teachers and monitoring of its use is needed to develop ideal Media. Buying materials and keeping in a place is not the concept of development."

They expressed that media is one of the important aspects of modern teaching and learning. The media improve the teaching and learning procedures, but they did not have much more ideas and skills to use these materials in classroom in teaching. They expressed that media should be used in classroom but without essential knowledge and skills it may be harmful and time consuming. They also expressed that physical facilities are important aspects of using media in teaching and learning but the problem is that there

is lack of such facilities in schools. Another problem they had notified is that students were also not much more conscious and motivated to learn mathematics by using media, that's why they were leading back themselves in the of media. They blamed themselves also for not using such materials and tools in real classroom teaching. They emphasized over training and change in attitude towards using media in teaching mathematics can leads a first step towards betterment in mathematics learning.

From the above three paragraphs it can be concluded that teachers have positive attitude towards using media in teaching mathematics but they are not using them properly due to different reasons like lack of physical facilities, lack of proper knowledge and skills, lack of responsibilities.

Analysis and Interpretation of Institutional Secondary School Mathematics

Teachers Attitude Towards Using Media in Teaching Mathematics

To find the institutional school teachers' attitude towards using media in teaching mathematics, the opinionnaire was conducted among 30 teachers teaching at secondary level in 30 different schools. Their responses numerical value on the basis of Likert's Scale. The mean score of each 25 statements was calculated and presented in table below and finally compared with the weightage mean score.

Table No.5: Teachers Attitude towards Institutional Secondary School of Mathematics Teachers

| S.N. | Statements | S.A. | A. | U. | D. | S.D. | W.M. | Remarks |
|-------------|--|-------------|-----------|-----------|-----------|-------------|-------------|----------------|
| 1 | Media plays important role in teaching mathematics at secondary level. | 115 | 28 | 0 | 0 | 0 | 4.7 | A |
| | I am favor of use of media; it | | | | | | | |

| | | | | | | | | |
|----|---|----|----|----|---|---|-----|---|
| 2 | will help to encourage the students | 25 | 88 | 9 | 0 | 0 | 4.0 | A |
| 3 | Students will show their interest while teaching mathematics by media students. | 75 | 44 | 12 | 0 | 0 | 4.3 | A |
| 4 | Training is needed to proper use of media essential for all the teachers' of secondary level. | 80 | 48 | 6 | 0 | 0 | 4.4 | A |
| 5 | The knowledge of importance of media is essential for all the teachers' secondary. | 65 | 52 | 12 | 0 | 0 | 4.3 | A |
| 6 | The greater priority should be given to media in teaching mathematics at secondary level. | 50 | 56 | 6 | 4 | 2 | 3.9 | A |
| 7 | Teachers accept the value of media in teaching learning mathematics. | 65 | 52 | 9 | 2 | 0 | 4.2 | A |
| 8 | Media is handled easily only by trained teacher which will help the learning. | 95 | 44 | 0 | 0 | 0 | 4.6 | A |
| 9 | In the mathematics classes by the media students will be intrinsically motivated for the learning | 35 | 84 | 6 | 0 | 0 | 4.1 | A |
| 10 | The main focus of media will help the development of students' ability in | 90 | 28 | 15 | 0 | 0 | 4.4 | A |

| | | | | | | | | |
|----|--|----|----|----|---|---|-----|---|
| | mathematics | | | | | | | |
| 11 | Use of media is necessary in teaching mathematics at secondary level by this students will not fell bored while reading mathematics. | 30 | 68 | 18 | 2 | 0 | 3.9 | A |
| 12 | It is possible to use media at all types of teaching method and chapters of mathematics at secondary level. | 80 | 48 | 0 | 6 | 0 | 4.4 | A |
| 13 | Media helps to achieve the objectives of mathematics classroom. | 40 | 68 | 15 | 0 | 0 | 4.1 | A |
| 14 | Media is the best strategy for fast and slow learning of mathematics at secondary level. | 85 | 36 | 9 | 0 | 1 | 4.3 | A |
| 15 | Government should conduct trainings and seminars for increasing the use of media in mathematics class room at secondary level. | 75 | 52 | 6 | 0 | 0 | 4.4 | A |
| 16 | Media is not sufficiently use in teaching mathematics at secondary level. | 60 | 44 | 18 | 2 | 0 | 4.1 | A |
| 17 | While media students their attention may draw out of the teaching items and may have negative thought. | 65 | 52 | 12 | 0 | 0 | 4.3 | A |
| 18 | Learning by using media is permanent and useable too. | 70 | 48 | 6 | 0 | 3 | 4.2 | A |

| | | | | | | | | |
|----|--|-----|----|----|---|---|-----|---|
| 19 | It is possible to use media in each and every topic of mathematics but course may not be finished in time. | 40 | 68 | 12 | 0 | 1 | 4.0 | A |
| 20 | Mathematics class with Media is effective and attractive because of the students' participation. | 125 | 20 | 0 | 0 | 0 | 4.8 | A |
| 21 | Understanding of mathematics is effected by the use of media | 20 | 96 | 0 | 0 | 2 | 3.9 | A |
| 22 | Teachers can develop his professional ability by using the media in class room teaching at secondary level | 70 | 56 | 12 | 2 | 2 | 4.7 | A |
| 23 | Student's activity will be increase for learning mathematics. | 65 | 52 | 6 | 4 | 0 | 4.2 | A |
| 24 | They can apply in their practical life if they learn mathematics by highly media. | 65 | 52 | 9 | 0 | 1 | 4.2 | A |
| 25 | I believe that media is the main part of mathematics teaching at secondary level. | 65 | 60 | 0 | 4 | 0 | 4.3 | A |

From the above table, it was found that the mean score of statements one & twenty tow was 4.7, which is nearly five. This means that almost all the teachers of

private secondary school teachers were agreed upon the statement one. About 98% teachers have positive attitude towards the statements one.

Similarly, the mean score of statement six, eleventh and twenty one was calculated to be 3.9, which is more than the weightage mean value 3. This also indicates that about 88% teachers have positive attitude towards using media in teaching mathematics at secondary level. The mean score of the statements 3rd, 5th, 17th, and 25th were calculated to be 4.3. This means score value is more than three, which indicates that institutional school teachers have positive attitude towards these statements. The mean score of the statements 4th, 10th, 12th & 15th were calculated to be 4.4, which is more than average mean score three. Therefore, it was found that teachers responses were found to be positive towards these statements. About 84% teachers were agreed with these statements. Similarly, the mean score of the statements 7th, 18th, 23th & 24th were calculated to be 4.2, which indicates that about 95% teachers have positive attitude towards these statements. Likewise, the mean score of the statements 2th and 19th were calculated to be 4.0, which indicates that about 80% teachers were agreed upon these two statements. The mean score of statements 7th, 18th, 23th & 24th were calculated to be 4.2, which is greater than the weightage mean 3. This value indicates that teachers level positive attitude towards these statements. The mean score of the statement eight was calculated to be 4.6 which is more than three. Therefore, it can be concluded that about 87% teachers were found to be positive towards this statement. Similarly, the mean score of statements 9th, 13th & 16th were calculated to be 4.1, which indicates that about 81% teachers were agreed upon these statements. Finally, the mean score of statements 8th & 20th were calculated to be 4.6 & 4.8 respectively where all these three values were more

than weightage mean three. Therefore, it can be interpreted that teachers had positive attitude towards mathematics. About 64% & 96% teachers had positive attitude towards these statements.

Three Highly Significant Statements

- (i) Mathematics class with Media is effective and attractive because of the students' participation.

The statement "*Mathematics class with Media is effective and attractive because of the students' participation*" was first highly significant statement with the weightage mean value 4.8. In the statement 83.3% agreed with strongly agree, 16.7% agreed with agree and no one agrees with undecided, disagree and strongly disagree.

- (ii) Media plays important role in teaching mathematics at secondary level & Teachers can develop his professional ability by using the media in class room teaching at secondary level

The statement "*Media plays important role in teaching mathematics at secondary level & Teachers can develop his professional ability by using the media in class room teaching at secondary level*" was second highly significant statement with the weightage mean value 4.7. In the 1st statement 76.7% agreed with strongly agree & 23.3% agreed with agree also 22th statement 46.7% agreed with strongly agree, 30% agreed with agree, 13.3% agreed with undecided, 3.3% agreed with disagree & 6.7% with agreed strongly disagree.

Some Equally Significant Statements

1. Statement number 4th ,10th ,12th & 15th with the weightage mean value:4.4
2. Statement number 3rd ,5th ,14th ,17th & 25th with the weightage mean value: 4.3
3. Statement number 7th ,18th ,24th & 23th with the weightage mean value: 4.2
4. Statement number 9th ,16th ,18th , &13th with the weightage mean value:4.1
5. Statement number 2nd &19th with the weightage mean value:4.0
6. Statement number 6th ,11th & 21th with the weightage mean value:3.9

From the above table 2, it was found that the mean score of each of the statements in the opinionnaire form was found to be more than three. It indicates that private school teachers have positive attitude towards teaching mathematics by using media. The value of mean of almost all statements were near to five, it means that almost all the teachers were agreed and positive towards using media in teaching mathematics.

To validate the result drawn from the above table, I made an observation form to observe their classroom in teaching behavior with respect to teaching mathematics through using Medias.

I observed five institutional schools of Kathmandu district to find the teachers' attitude towards using media in teaching mathematics. I found that the objectives of the classroom teaching were based on the teaching through media. It was observed that T₆, T₇, T₈, T₉ and T₁₀ were more motivating and encouraging to use media in teaching mathematics at secondary level. T₇ and T₈ were also using some more technological tool in mathematics. They use mathematics and PowerPoint presentation and word for teaching geometry at secondary level. Whereas T₆, T₉ & T₁₀ were just use to visualized the geometrical concept. They used computer to teach mathematical concepts in

classroom teaching. They also used many website and PowerPoint presentation. They seemed to more concentrated and interested toward using it. It was observed that they were professionally teachers using media in class room. The responses and actives of students were also found to be motivated and activated. Students were also found to be actively participated in teaching and learning activities. It was found that teachers T₆, T₉ and T₁₀ also used media like computer projector, disk etc. but their aims was only to virtualize rather than dynamize them. They had made different geometrical objects on computer and virtualizing through projector to define, characterize these geometrical objects. The response of students was also found to be positive but they felt that these were no different than that of figure in textbook so they were expecting something more than that community school.

Not only teaching but also in evaluating system, teachers behaviors were found typical different. The community school teachers T₁, T₂, T₃, T₄ & T₅ were giving paper pencil oriented tasked. They provide such evolution tool that were based on paper pencil practice but the institutional school teachers behavior regarding to use of media for evaluating student was found to be different. They were using paper pencil oriented task for evaluating students bur the teachers who were using geogebra and excel for teaching mathematics were providing media oriented task students. The teachers were encouraging students to use media to solve the problem and internet and websites to make it more conceptualize.

The objectives were significantly based on media like computer and internet. I found that there was well infra-structure of multi-media in classroom, but teachers were not using films, video and other audio materials in classroom teaching. As the community

school teachers were using text books as major teaching materials, the institutional school teaching were also using the same materials. Teachers were using few concrete teaching materials although there were good facilities of physical infrastructure of teaching materials. It was found that four private school teachers out of five were using media in teaching mathematics at secondary level. I observed that the Medias were supporting the classroom teaching. Both teacher and students were seemed to be motivated and interested in teaching and learning process. Teachers were encouraging their students to use the Medias like internet; you tube other social sites for meaningful learning. In some schools, I observed that teachers were giving some assignment based on use of media.

By observing the teaching in institutional school through media was improving. To triangulate the responses of teachers' attitude towards using media in teaching mathematics, I conducted on interview with five teachers of institutional school.

Teacher (T1) say mind makeup is focused in planning but written lesson plan just for formality.

A mathematics teacher should have strong command over subject matter and content before entering to the classroom. The teacher should have a mind make up about the teaching lesson of the day. Even if there is no written lesson plane there should be a perfect plan in mind about what to deliver in the class

Yes, we have not used written lesson plan system. The written daily lesson plan is just for formality. But a Perfect mind make up is needed that we have been downing.

need of the lesson is already store in the Media Lab. So, I should not be Worried In preparing materials. Some paper cutting types of task are prepared and designed in the classroom". He focused the of grade IX and X cannot be completed on time if teachers focus material based teaching or hands on activities. So prepare materials for the essential topic to built basic concept.

Teachers (T3) make teaching materials in the required lessons. we buy some readymade materials and prepare possible materials is the school itself. A teacher (T1) is prating in the use of readymade materials. In my question about preparation and use of materials he said that expensive and some solid materials are bought from market but local materials are prepare by student and teachers. Classroom is designed in such a way everything is there.

Teacher (T4) said that basic concept can develop by using materials. Teaching abstract concept will be faster and easier if we used meterias (T1). Teacher (T2) indicates teaching basic concept of the different chapters using materials is useful. In the argument of theory of concept formation mathematical object and the concept formation. In my view mathematical object in the Media if are associated with the theory of concept formation mathematical knowledge of students can be stronger.

Teacher (T5) also indicates use of Media just for concept formation. Here is dialogue with him for further understand of his meaning.

I used materials at the beginning of the chapter to demonstrate the preliminary concept and to develop the mathematical concept of students. Sometimes students use the materials themselves to experience the practical work like the measuring dimension. In the beginning of the chapter mostly I used to focus the basic concept

Media is used to demonstrate preliminary concept and exhibit the experiment like meaning and manipulating. Still there is difficulty of concept formation of mathematics in high school after the change of curriculum (T1) to avoid this problem he is taking help of materials so he states, "Materials are really useful for mathematics teachers to develop basic concept". Teacher (T4) is also agreed that they are unable to led mathematics teaching in practical aspect. He means teaching teaching a subject matter involving student in direct related practice is practical mathematics is a practical subject so application part of it should be highlighted (T3) Linking mathematics to real life, visualization of contents and concept formation is major work in Media (T5). We are using mathematics in every field so he feels it is practical visualization of theory in practical teaching. Practical focus in the Media approach starts from the designing lesson.

I found that the private school teachers were more motivated towards using media in teaching mathematics. They expressed their commitment towards teaching which absence in community school teachers was. They expressed that they used such materials not only for the purpose making teaching learning activities but also for their professional development. They felt easy and interested to use media like computer and internet in classroom teaching. They expressed that teaching should be based on modern technologies. Such teaching method improves students learning achievement. They felt easy to teach students and expressed that students also got benefit with such teaching methods. They demanded for some training should be managed to provide the required knowledge and skills.

From the opinionnaire, observation and interview with the institutional school teachers, it was found that they were motivated towards using media in teaching mathematics. The teachers had positive attitude towards using media in teaching mathematics. They had not only positive attitude but also using in real classroom teaching.

Comparison of Community and Institutional School Teachers Attitude Towards Using Media in Teaching Mathematics

The third objective of this study was to compare community and institutional school teachers' attitude towards using media in teaching mathematics at secondary level. For this the research hypothesis was there is significance difference between community and institutional school teachers towards using media in teaching mathematics. To verify the hypothesis mean, variance, SD of the community and institutional school teachers were calculated and tabulated below.

Table No.6: Comparison between Community and Institutional Secondary School of Mathematics Teachers

| Group | Sample Size | Mean | S.D. | Computed Value |
|----------------------|--------------------|-------------|-------------|-----------------------|
| Community School | 30 | 114.2 | 18.48 | -4.48 |
| Institutional School | 30 | 127.77 | 72.25 | |

The tables No.3 mean, SD and computed **Z**-score of the community and institutional school teachers response towards using media and teaching mathematics. The mean score of community school teachers and institutional school teachers were calculated to be 114.2 and 127.77 which indicates that institutional school teacher attitude

was found to be more than community school teachers. Similarly the SD of community school and institutional school teachers were found to 18.48 and 72.25, which indicate that the SD of institutional of school teacher is almost four times than that of community school teachers. The standard deviation of score community school was calculated to be much least than institutional school teachers. This figure shows that institutional school teachers had more positive attitude than community school teachers toward using media in teaching mathematics.

By calculating (Appendix-F), the computed value at 0.05 level of significance it was found that the value was -4.48 which less than the tabulated value ± 1.96 . The computed value was found to be less than the tabulated value, which lies out of significance level. This verifies the null hypothesis is rejected that there is significance difference between community and institutional school teachers attitude towards using media for teaching mathematics.

Therefore, it was concluded that there is significance difference between attitude of community school teachers and institutional school teachers. It was found that institutional school teachers have more positive towards using media in teaching than that of community school teachers.

Chapter - V

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATION

After having analyzed and interpreted data according to the main objectives of the study the findings have been given in concluding chapter. Therefore, this chapter consists of the following sectors.

Summary

The study was carried out examine the teachers attitude towards media in teaching mathematics. Especially the objectives of the study were to find out the attitude of community and institutional secondary schools mathematics teachers towards median in teaching mathematics, to compare the attitude of community and institutional schools mathematics teacher towards media in teaching mathematics. To achieve these objectives of the study, the investigator gathered data by the method of opinionnaire, observation & interview. I have used Liker attitude scale as a tool of the teaches opinionnaire. The developed an opinionnaire, observation and interview protocol from taking the help of research supervisor. Then the researchers administrated of all the teachers from in related field. The score of 5, 4, 3, 2 & 1 were allotted to the scale in favor strongly agree, agree, undecided, disagree and strongly disagree. The population of study was considered as all the teachers of secondary school level teachers Kathmandu District of academic year 2073/74. For the sample of 60 teachers were selected from community and institutional secondary school of mathematics teachers.

Many changation and innovation occurs in different sectors of different disciplines due to the development in science and technology. The progress of science and technology also impact on teaching and learning process. New trends of teaching

method are getting more priorities. Different Medias are impacting on teaching methods. On the ground of this, this study was intended to find the teachers' attitude towards using media in teaching mathematics. This study was intended to compare the attitude of both groups. For this, altogether 60 teachers (30 from community & 30 from institutional) were selected for opinionnaire, 10 teachers were selected for observation & 10 teachers were selected for interview. The 10 teachers were conducted and they were analyzed on the basis of weightage mean score. The observation of classroom teaching was used to validate the numerical data and thematic review was made of interview. Finally, the conclusions were drawn by triangulating the data brought from these three different sources. Then Z- test was used to test the hypothesis at the significance level 0.05.

Findings

The statistical analysis of the collected data yielded the following result of the study:

The mathematics teachers had positive attitude towards using media in teaching mathematics at secondary level.

1. Community secondary school's mathematics teachers had positive attitude towards media in teaching mathematics at secondary level.
2. Institutional secondary school's mathematics teachers had positive attitude towards media in teaching mathematics at secondary level.
3. Using media in teaching mathematics at secondary level was appropriate.
4. There was significance difference between the opinions of community and institutional secondary schools teachers towards media at secondary level.
5. Teachers' attitude towards using media was found to be irritating and challenging.

6. Teachers' expressed that they did not have idea and skills to use media as preparing in teaching mathematics.
7. They expressed that the lack of the availability of physical teaching material.

Conclusion

On the basis of finding presented in the previous section, some very signification conclusion can draw about teachers attitude towards media in teaching mathematics. The conclusions are as follows.

1. Teachers responded positive attitudes towards using media in teaching mathematics at secondary level.
2. Teachers opinions of community and institutional secondary schools' teachers have significant difference towards media at secondary level.
3. Most of the teachers have highly positive attitudes towards the statement; "the standard of the achievement becomes better with using media to teach mathematics at secondary level."

Recommendations for Further Study

On the basis of findings the following recommendations are made:

1. The similar study should be done regional wise as well as national wise in order to establish the findings of the study.
2. The similar study should be carried out to find the performance of the students in mathematics at higher level.
3. The similar study should be done to find the attitudes of the teachers of urban and rural area towards using media.

4. The comparative study of trained and untrained teachers responses regarding the use of media.
5. This study studied the teachers responses only. Further study is needed in this topic considering the responses of students, mathematics experts and guardians.

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Appendix-A
Opinionnaire for The Teachers
Tribhuvan University
Central Department of Education

Department of mathematics Education, Kritipur, Kathmandu, Nepal

Dear Sir /Miss / Madam,

I would like to inform you that I am, student of masters fourth semester of central department of mathematics education, Tribhuwan University. As a part of the requirement for the partial fulfillment to achieve the master degree with specialization in mathematics Education, I am going to do study on the topic "*Teachers Attitude towards Media in teaching Mathematics*"

As objective of the study, the researcher is intended to find out the attitude community and institutional secondary schools mathematics teachers towards media in teaching mathematics. This set of opinionnaires is administered to you including 25 statements. The answer is your opinion of feeling sought for sake of the study. The reliability of the study will depend on your unbiased responses. Your response will be only for this study and will be kept hidden. Please study the statement carefully and give your opinion by putting tick mark (✓) on any one of the five rating for each statement. I am indebted to you for help.

Sudesh Kumar Sah
Researcher
Department Mathematics Education
Faculty of Education
TU, Kirtipur
Date:-

Name of Teacher: -

Name of school:-

Address:-

Please study the statement carefully and give your opinion: by checking the box against each statement given below:

| S.N. | Statements | S.A. | A. | U. | D. | S.D. |
|-------------|---|-------------|-----------|-----------|-----------|-------------|
| 1 | Media plays important role in teaching mathematics at secondary level. | | | | | |
| 2 | I am favor of use of media; it will help to encourage the students | | | | | |
| 3 | Students will show their interest while teaching mathematics by media students. | | | | | |
| 4 | Training is needed to proper use of media essential for all the teachers' of secondary level. | | | | | |
| 5 | The knowledge of importance of media is essential for all the teachers' secondary. | | | | | |
| 6 | The greater priority should be given to media in teaching mathematics at secondary level. | | | | | |
| 7 | Teachers accept the value of media in teaching learning mathematics. | | | | | |
| 8 | Media is handled easily only by trained teacher which will help the learning. | | | | | |
| 9 | In the mathematics classes by the media students will be intrinsically motivated for the learning | | | | | |
| 10 | The main focus of media will help the | | | | | |

| | | | | | | |
|----|--|--|--|--|--|--|
| | development of students' ability in mathematics | | | | | |
| 11 | Use of media is necessary in teaching mathematics at secondary level by this students will not fell bored while reading mathematics. | | | | | |
| 12 | It is possible to use media at all types of teaching method and chapters of mathematics at secondary level. | | | | | |
| 13 | Media helps to achieve the objectives of mathematics classroom. | | | | | |
| 14 | Media is the best strategy for fast and slow learning of mathematics at secondary level. | | | | | |
| 15 | Government should conduct trainings and seminars for increasing the use of media in mathematics class room at secondary level. | | | | | |
| 16 | Media is not sufficiently use in teaching mathematics at secondary level. | | | | | |
| 17 | While media students their attention may draw out of the teaching items and may have negative thought. | | | | | |
| 18 | Learning by using media is permanent and useable too. | | | | | |
| 19 | It is possible to use media in each and every topic of mathematics but course may not be | | | | | |

| | | | | | | |
|----|--|--|--|--|--|--|
| | finished in time. | | | | | |
| 20 | Mathematics class with Media is effective and attractive because of the students' participation. | | | | | |
| 21 | Understanding of mathematics is effected by the use of media | | | | | |
| 22 | Teachers can develop his professional ability by using the media in class room teaching at secondary level | | | | | |
| 23 | Student's activity will be increase for learning mathematics. | | | | | |
| 24 | They can apply in their practical life if they learn mathematics by highly media. | | | | | |
| 25 | I believe that media is the main part of mathematics teaching at secondary level. | | | | | |

Note: SA- Strongly Agree, A-Agree, U- Undecided, D- Disagree, SD- Strongly Disagree

Appendix-B

Opinionnaire for The Teachers
Tribhuvan University
Central Department of Education
Department of mathematics Education
Kritipur, Kathmandu, Nepal

Name of Teacher: -

Date:-

Name of school:-

Address:-

Please study the statement carefully and give your opinion: by checking the box against each statement given below:

| S.N. | Statements | S.A. | A. | U. | D. | S.D. |
|------|---|------|----|----|----|------|
| 1 | Media plays important role in teaching mathematics at secondary level. | | | | | |
| 2 | I am favor of use of media; it will help to encourage the students | | | | | |
| 3 | Students will show their interest while teaching mathematics by media students. | | | | | |
| 4 | Training is needed to proper use of media essential for all the teachers' of secondary level. | | | | | |
| 5 | The knowledge of importance of media is essential for all the teachers' secondary. | | | | | |
| 6 | The greater priority should be given to media in | | | | | |

| | | | | | | |
|----|--|--|--|--|--|--|
| | teaching mathematics at secondary level. | | | | | |
| 7 | Teachers accept the value of media in teaching learning mathematics. | | | | | |
| 8 | Media is handled easily only by trained teacher which will help the learning. | | | | | |
| 9 | In the mathematics classes by the media students will be intrinsically motivated for the learning | | | | | |
| 10 | The main focus of media will help the development of students' ability in mathematics | | | | | |
| 11 | Use of media is necessary in teaching mathematics at secondary level by this students will not fell bored while reading mathematics. | | | | | |
| 12 | It is possible to use media at all types of teaching method and chapters of mathematics at secondary level. | | | | | |
| 13 | Media helps to achieve the objectives of mathematics classroom. | | | | | |
| 14 | Media is the best strategy for fast and slow learning of mathematics at secondary level. | | | | | |
| 15 | Government should conduct trainings and seminars for increasing the use of media in mathematics class room at primary level. | | | | | |

| | | | | | | |
|----|--|--|--|--|--|--|
| 16 | Media is not sufficiently use in teaching mathematics at secondary level. | | | | | |
| 17 | While media students their attention may draw out of the teaching items and may have negative thought. | | | | | |
| 18 | Learning by using media is permanent and useable too. | | | | | |
| 19 | It is possible to use media in each and every topic of mathematics but course may not be finished in time. | | | | | |
| 20 | Mathematics class with Media is effective and attractive because of the students' participation. | | | | | |
| 21 | Understanding of mathematics is effected by the use of media | | | | | |
| 22 | Teachers can develop his professional ability by using the media in class room teaching at secondary level | | | | | |
| 23 | Student's activity will be increase for learning mathematics. | | | | | |
| 24 | They can apply in their practical life if they learn mathematics by highly media. | | | | | |
| 25 | I believe that media is the main part of | | | | | |

| | | | | | | |
|--|--|--|--|--|--|--|
| | mathematics teaching at secondary level. | | | | | |
|--|--|--|--|--|--|--|

Note:

SA- Strongly Agree, A- Agree, U- Undecided, D- Disagree, SD- Strongly Disagree

Appendix- C

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher's: Astha Mahajan

Class: IX

School's Name: Balpati Primary S.S

Students Number: 35

Topic: Triangle

Time: 11:00

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|---|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Objective are based on using media and verbally given. |
| 1.2 | Objective and materials is match able. | Yes, the objective and materials is match able. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | Not at all. |
| 2.2 | Text book is only material for students. | Yes, text book, computer and internet are material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | Not at all. |
| 2.4 | There is appropriative availability of media in school. | Yes, availability of media in school. |
| 3 | Instructional method | |

| | | |
|-----|--|--|
| 3.1 | Teacher's used media teach students. | Yes, Teacher's used media teach students. |
| 3.2 | Media is supporting the teaching learning activities. | Yes, but not understanding fairly. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers is taking help of media to present the content | Yes, a teacher is taking help of media to present the content. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | All students' media based task to. |
| 4.2 | Media are used to evaluate students | Yes, the teachers help of all students' evaluation. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, But not all students satisfactory media to solve mathematics problem. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher's: Saytthchandra Lal Karn

Class: IX

School's Name: Ganpati S.S. Kalimati

Students Number: 35

Topic: Inquality

Time: 10:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|---|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Yes, Objective are based on using media and verbally given. |
| 1.2 | Objective and materials is match able. | No |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | A lital bit. |
| 2.2 | Text book is only material for students. | Yes, text book is only material for students. |
| 2.3 | Concrete materials used to delivery intended objective. | A little bit. |
| 2.4 | There is appropriative availability of media in school. | A few. |
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach | Yes, Teacher's used media teach students. |

| | | |
|-----|--|--|
| | students. | |
| 3.2 | Media is supporting the teaching learning activities. | Yes, media is supporting the teaching learning activities. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Only few students. |
| 3.4 | Teachers is taking help of media to present the content | Few. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | A, little bit |
| 4.2 | Media are used to evaluate students | Yes, but not all students. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, But not all students. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher's: Anu Mahajan

Class: IX

School's Name: Koteswar S.S

Students Number: 35

Topic: Triangle

Time: 11:00

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|---|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | A little bit. |
| 1.2 | Objective and materials is match able. | Yes, the objective and materials is match able. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | A little bit. |
| 2.2 | Text book is only material for students. | Yes, text book, computer and internet are material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | No. |
| 2.4 | There is appropriative availability of media in school. | Yes, there is appropriative availability of media in school. |
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach | A little bit. |

| | | |
|-----|--|---|
| | students. | |
| 3.2 | Media is supporting the teaching learning activities. | Yes, media is supporting the teaching learning activities. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers is taking help of media to present the content | Yes, a teacher is taking help of media to present the content. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | Yes, teacher provided media based task to student. |
| 4.2 | Media are used to evaluate students | Yes, but little but. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, teachers encourage students to media to solve mathematical problems. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher's: Jamuna Bhandari

Class: IX

School's Name: Astha Bidha Mandir

Students Number: 40

Topic: Open on Set

Time: 10:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|--|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Objectives are based on using media. |
| 1.2 | Objective and materials is match able. | No. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | A little bit. |
| 2.2 | Text book is only material for students. | Yes, text book is only material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | A little bit. |
| 2.4 | There is appropriative availability of media in school. | Yes, availability of media in school. |
| 3 | Instructional method | |

| | | |
|-----|--|---|
| 3.1 | Teacher's used media teach students. | Yes, Teacher's used media teach students. |
| 3.2 | Media is supporting the teaching learning activities. | Few. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers is taking help of media to present the content | A little bit. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | Yes, teachers provided media based task to students |
| 4.2 | Media are used to evaluate students | A little bit.. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, teachers encourage students to media to solve mathematical problems. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher's: Deepak Sapkota

Class: IX

School's Name: Gaunesewr S.S

Students Number: 40

Topic: Relation and Function

Time: 11:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|--|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Objectives are based on using media. |
| 1.2 | Objective and materials is match able. | Yes, a material is match able. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | A little bit. |
| 2.2 | Text book is only material for students. | Yes, text book is only material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | No. |
| 2.4 | There is appropriative availability of media in school. | Yes, there is appropriative availability of media in school. |
| 3 | Instructional method | |

| | | |
|-----|--|---|
| 3.1 | Teacher's used media teach students. | Not at all. |
| 3.2 | Media is supporting the teaching learning activities. | Yes, media is supporting the teaching learning activities. |
| 3.3 | Teachers are in encouraging students to use media for learning. | A little bit. |
| 3.4 | Teachers is taking help of media to present the content | A little bit. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | No. the teacher provided media based task to student. |
| 4.2 | Media are used to evaluate students | A little bit. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, the teacher are encourage students to media to solve mathematical problems.. |

Appendix- D

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher: Homnath Sapkota

Class: IX

School's Name: Morden Nepal Academy

Students Number: 40

Topic: Pie Chart

Time: 12:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|---|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Objectives are based on using media. |
| 1.2 | Objective and materials is match able. | Yes, Objective and materials is match able. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | No, but PowerPoint, excel and materials have a clear propose. |
| 2.2 | Text book is only material for students. | Yes, text book/ hand out material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | No. |
| 2.4 | There is appropriative availability of media in school. | Yes, there is appropriative availability of media in school. |

| | | |
|-----|--|--|
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach students. | Yes, teacher's used media teach students. |
| 3.2 | Media is supporting the teaching learning activities. | Yes, Media is supporting the teaching learning activities. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, Teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers are taking help of media to present the content. | Yes, Teachers is taking help of media to present the content. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | Yes, Teachers provided media based task to students. |
| 4.2 | Media are used to evaluate students | Yes, but some students are not motivated. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, but some students are not used of media |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher: Sushil Bhandari

Class: IX

School's Name: Baluwatar School

Students Number: 40

Topic: Surface Area of a cone

Time: 11:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|--|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Yes, objectives are based on using media. |
| 1.2 | Objective and materials is match able. | Yes, but teachers are not sure how can use materials. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | No, but presentation of computer etc. |
| 2.2 | Text book is only material for students. | Yes, text book/ hand out material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | No. |
| 2.4 | There is appropriative availability of media in school. | Yes, there is appropriative availability of media in school. |
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach | A little bit. |

| | | |
|-----|--|--|
| | students. | |
| 3.2 | Media is supporting the teaching learning activities. | Yes, Media is supporting the teaching learning activities. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, Teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers are taking help of media to present the content. | Some few students. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | A little bit. |
| 4.2 | Media are used to evaluate students | Some students evaluate |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | A few students to media to solve mathematical problem. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher: Ajay Lama

Class: IX

School's Name: Gauri Shankar H.S.S.

Students Number: 40

Topic: Area of Triangle

Time: 12:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|--|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Objectives are based on using text book and media. |
| 1.2 | Objective and materials is match able. | Yes, Objective and materials is match able. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | The teachers are only use of Ms-Word and PowerPoint has a clear propose. |
| 2.2 | Text book is only material for students. | Yes, text book, computer and projector etc. |
| 2.3 | Concrete materials used to delivery intended objective. | No. |
| 2.4 | There is appropriative availability of media in school. | Yes, there is appropriative availability of media in school. |
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach | Yes, but sometimes teacher's disturbs. |

| | | |
|-----|--|---|
| | students. | |
| 3.2 | Media is supporting the teaching learning activities. | Yes, Media is supporting the teaching learning activities. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, Teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers are taking help of media to present the content. | A little bit. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | No. |
| 4.2 | Media are used to evaluate students | Some student's participant. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, Teachers encourage students to media to solve mathematical problems. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher: Yamuna Rijal

Class: IX

School's Name: Kamana English B.S.

Students Number: 35

Topic: Simple Ineqquities

Time: 12:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|--|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Yes, objectives are based on using media. |
| 1.2 | Objective and materials is match able. | Yes, but teachers disturb to uses. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | PowerPoint materials have a clear propose. |
| 2.2 | Text book is only material for students. | Yes, text book is only material for student. |
| 2.3 | Concrete materials used to delivery intended objective. | No. |
| 2.4 | There is appropriative availability of media in school. | Yes, there is appropriative availability of media in school. |
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach | Yes, teacher's used media teach students. |

| | | |
|-----|--|---|
| | students. | |
| 3.2 | Media is supporting the teaching learning activities. | Yes, but some students are disturbs. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, Teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers are taking help of media to present the content. | Yes, Teachers is taking help of media to present the content. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | No. |
| 4.2 | Media are used to evaluate students | A few students evaluate use media. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, Teachers encourage students to media to solve mathematical problems. |

Observation form or Guideline for Teacher

Tribhuvan University

Central Department of Education

Department of mathematics Education

Kritipur, Kathmandu, Nepal

The researcher used the following guidelines to observed teacher attitudes towards media.

Name Teacher: Arun Yadav

Class: IX

School's Name: Manakamana H. S. S.

Students Number: 40

Topic: Circle

Time: 12:15

"Teachers' Attitudes towards Media in Teaching Mathematics"

| S.N | Statement | Qualitative Information(Thick description) |
|-----|---|---|
| 1. | Developing of learning objective. | |
| 1.1 | Objectives are based on using media. | Yes, objectives are based on using media also verbally. |
| 1.2 | Objective and materials is match able. | Yes, Objective and materials is match able. |
| 2. | Selection and uses of instructional materials. | |
| 2.1 | Films, web-site and other audio-video materials have a clear propose. | Films, web-site and other audio-video materials have a clear propose. |
| 2.2 | Text book is only material for students. | No, computer and projector material for students. |
| 2.3 | Concrete materials used to delivery intended objective. | No, |
| 2.4 | There is appropriative availability of media in school. | Yes, there is are some appropriative availability of media in school. |
| 3 | Instructional method | |
| 3.1 | Teacher's used media teach | Yes, teacher's used media teach students. |

| | | |
|-----|--|---|
| | students. | |
| 3.2 | Media is supporting the teaching learning activities. | A few students are motivated to teachers. |
| 3.3 | Teachers are in encouraging students to use media for learning. | Yes, Teachers are in encouraging students to use media for learning. |
| 3.4 | Teachers are taking help of media to present the content. | Only few. |
| 4 | Evaluation | |
| 4.1 | Teachers provided media based task to students. | Yes, Teachers provided media based task to students. |
| 4.2 | Media are used to evaluate students | A few students. |
| 4.3 | Teachers encourage students to media to solve mathematical problems. | Yes, teachers encourage students to media to solve mathematical problems. |

Appendix-E
Interview Protocol

Interview Guidelines

1. How long have been teaching mathematics?
2. Have you ever used teaching materials to teach mathematics?
3. Do you believe that the use of media in teaching mathematics promotes students learning?
4. Do you think that students as well as teachers feel easy to learn and teach mathematics?
5. Do you think that there is difference in student's achievement who are taught by using media with those who are not?
6. What do you think that the role of media in learning mathematics?
7. What kind of media do you support for teaching mathematics?
8. How of then do you use media for teaching mathematics?
9. What is your experience about using media to teach mathematics?
10. How do you manage media related plans to teach mathematics.

Is there anything that would you like to add?

Dou you have any question or comments?

Thank you for your participation.

Appendix – F

Formula of Z - test given by:

$$Z = \frac{(\bar{X}_1 - \bar{X}_2) - (u_1 - u_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where,

n_1 = Total Number of teacher's of community school.

\bar{X}_1 = Sample of mean of data obtained from community school.

u_1 = Mean of Population

s_1^2 = Variance of data obtained from community school

n_2 = Total Number of teacher's of institutional school.

\bar{X}_2 = Sample of mean of data obtained from institutional school.

u_2 = Mean of population

s_2^2 = Variance of data obtained from institutional school