

Chapter - I

INTRODUCTION

Background of the Study

Research is the more formal, systematic and intensive process of carrying on a scientific method of analysis (Best 1978, p.8). Research starts from the dissatisfaction of existing phenomena. When a man involves in any system or activity he feels some incompleteness in that system. Then s/he starts to think about the way to complete this system. From there research starts. Research is based on observable experience or empirical evidence. Research always directed towards the solution of problem. From the feeling and experience of human being about the existing phenomena, they know; there are some problems and then they start to think for solution, then research begins.

According to Crawford, research is a systematic and refines technique of thinking, employing specialized tools and procedures in order to obtain a more adequate solution of a problem (Neure, 2012, p. 4). It has the systematic and scientific process.

Action research (AR) is one of the important and distinct types of research. The idea of action research was developed by Kurt Lewin (1946) who advocated four phases of action research viz. planning, acting, observing and reflecting (Rao, 2007, p. 8). Action research is a form, which refers to a practical way of looking at your own work to check that it is, as you would like it to be because action research is done by practitioner-based research; and because it involves you thinking about and reflecting on your work (Ferguson, 2011).

Action research was developed mainly by academics in higher education, who find it as useful way of working in professional education, particularly in teacher education. Action research is today prominent not only in teacher professional education, but also in management education and organization studies, school and health care work and other professional contexts (Ferguson, 2011, p. 11). Action research is used in many professional learning contexts, both formally and informally. Action enquiries begin with question, 'How do I improve my work?' It provides a systematic way to look at the problem that they face in their classroom.

If a teacher conducts the action research, it can enhance the professional status of teaching. Moreover, results of action research project are often shared and reported by classroom teachers within the educational community through conferences, workshops, and publication. This type of professional activities, presents teachers in a research is based in the assumption that teachers will improve classroom practices and enrich their understanding of teaching. Action research is directly related to the solution of problems, here and now in the local setting. Action research is an attempt by the classroom teachers to focus on problems that they confront. It is the research in action, a form of school research in which the teacher, principal and other administrators solve their problem using scientific step of research (Rao, 2007, p. 7).

Action research is a process that promotes the positive impact that teachers and administrators have on students achievement, which is also sometimes called as "on the job" research (Rao, 2007, p. 10). The main propose of Action research is to identify the relevant problem, search their cause and give the solution of the problem. It helps to increase the achievement of students and develop the proficiency of teachers. Action research is the latest trends in the field of education, which is the process where the individual or several teachers collect evidence and make decision about their own knowledge performance belief and efforts in order to understand and improve them. Thus the main reason for teacher engaging in Action research is to learn and improve their own teaching activities (Upadhyay,et al. 2010, p. 41). Action research is conducted by a teacher in order to enable him/her to achieve his/her purpose more effectively and improve his own teaching.

Mathematics is very useful discipline for human being, which is closely related to other social subjects. We frequently use mathematics to solve our daily life problems. Mathematics was developed with the beginning of human civilization. It was adopted the deductive approach and systematic way in 3rd century BC from Greece. After this, it was being included within formal educational system as separate subject. As a same manner, in our country mathematics is taken as the important subject in total curriculum. After the establishment of NESP (2028), all educational system along with the mathematics curriculum was systematized. For the first time, national, level and subject wise objectives were formed. Mathematics is taken as compulsory subject up to secondary level and there is additional optional mathematics in secondary level too.

To train the pre-service as well as in-service teacher, the responsibility was given to the institute of education. After that, many efforts are made to improve the educational system. However, the achievement level of students is not so far. SLC examination is taken as the evaluation point of school education but there is high rate of unsuccessful students in mathematics. Recent SLC result of 2070 B S showed that only the 57.40% of student passed in mathematics, which approved the high rate of failure students in mathematics. Among the failure students, mathematics takes the highest frequency. In total 43.92% passed the SLC examination 2070 B S where as in the year 2066 B S, 2067 B S, 2068 B S and 2069 B S, the total pass percentage was 64.95, 55.95, 47.65 and 41.87 respectively (Shrestha, 2071 p.1). It indicates the failure of our total educational system.

To address the raised issues in education, many commission and taskforce were constitute by the government of Nepal (Sharma, 2007). In spite of several efforts, the achievement level of students is not improved. Mathematics is such subject, which takes the highest frequency of failure students. Students develop mathematics as the most disliked subjects. As a result, in the one hand, there is the great dropout problem and on the other hand, the number of students in mathematics in higher level decreases day by day. If we able to reduce the rate of failure of students in mathematics then that leads the high rate of success in SLC examination. So, to change the negative attitude to mathematics, to make the most like subject and to increase the student success rate in SLC, first of all we should increase the achievement level of student in mathematics from the beginning of school education. For that, Action research may be the one way. So, this study was directed to understand the belief, attitude and experience of secondary level mathematics teachers towards action research.

Statement of the Problem

Attitude is the affective byproducts of an individual experience, have their bases in his inner urges, acquired habits and the environmental influences by which he is surrounded (Crow, 1973, p. 240). Attitude results from personal desires and group simulation. It operates specific behavior patterns and is associated closely with emotional reactions.

Social psychology dictionary of education defines the attitude as "the attitude is the degree of positive or negative effort associated with some psychological object,

which may be slogan personal intuition, ideas towards which people can differ with respect to positive or negative effect with the conceptual understanding.

Action research is very useful tools to improve the classroom activity and professional career of teacher. It helps to increase the proficiency of teacher and achievement level of students. The literature portrays action research as an effective professional development strategy to improve teachers' practices. However, it is not clear that how teacher perceive it. Action research is found as very beneficial, practical and as a useful kind of professional development tools because of its direct applicability to a teacher's classroom practice in teaching mathematics. Many professional development programs teach various courses on action research. This study follows up the secondary level mathematics teachers to certain what is their attitude towards action research.

In our country, it is compulsory to conduct the action research for their promotion in job, also in professional training program of teacher. The main purpose of such task is to improve the students' achievement and to increase the quality of education but there is great problem of student failure in mathematics and as a result negative attitude to mathematics emerged. If there is positive attitude and knowledge of mathematics teacher towards action research, it may be helpful tools to increase the achievement level of students in mathematics. So, it is necessary to understand the actual attitude and experience of mathematics teacher towards action research. Thus, for this study following research questions were formed:

- What is the attitude of mathematics teachers towards action research in teaching mathematics?
- How does teachers experience action research in teaching mathematics?

Hypothesis of the Study

For this study, the attitude of secondary level mathematics teacher towards action research, the researcher formed the following research and statistical hypothesis.

Research Hypothesis

There is positive attitude of secondary level mathematics teacher towards action research

Statistical hypothesis

H_0 : teachers do not have positive attitude towards action research i.e. $H_0: \mu = 3$

H_1 : teachers have positive attitude towards action research i.e. $H_1: \mu > 3$

Where,

μ = Mean attitude score of mathematics teacher of public secondary school of Baglung District towards action research

Objectives of the Study

There must be the certain objectives before doing any work. Objectives direct the way for any work. Now the ministry of education, Government of Nepal made the policy to use action research to solve the problems of teaching learning activities. For that, teachers are given the TPD training and make involve in action research. So the researcher has made the following objectives for this study.

- To find the attitude of secondary level mathematics teacher towards action research in teaching mathematics.
- To find the teacher experiences on action research in teaching learning activities of mathematics.

Significance of the Study

In the field of education, there is the great role of action research. The implantation of action research is from the unsatisfaction of the existing phenomena of education. It helps the teacher to diagnose the problem and search the solution. As the result, achievement level of students is to be improved. Furthermore, mathematics is taken as the most difficult subject in school. It is taken as the subject of gifted students, there is the myth or misconception that mathematics is not for all, it is only for talent students and girls cannot read mathematics. It is too hard for average students; mathematics is actual thing our culture never got it (Upadhyay et al. 2010). Therefore, students want to stay far from mathematics. Because of such reason, there seems the low achievement in mathematics. Thus, mathematics teacher should conduct the action research for the appearing problems and identify the solution. For that, mathematics teachers should aware about action research. Thus, this study has the following significances.

- To give the information of the attitudes and experience of mathematics teacher in action research in teaching learning activities.
- To help the teacher to know their position from which they get the opportunity to improve themselves in teaching mathematics.
- To help the District Education Office to make the plan for training of teacher.
- To help the teacher for their professional development.

- To improve the students' achievement in mathematics, this further leads to develop the positive attitude in mathematics.

Delimitation of the Study

Any study cannot overcome all the fields due to the lack of time, human resources and financial resources and other constraints. In such a way, there is also the several limitations in this study. First of all, a noticeable limitation was related with population of the study. Data were collected from the mathematics teachers of secondary level in public schools of Baglung District who were participated in TPD program launched by District Education Office Baglung and conducted the action research for the problem in teaching learning activities. The second limitation was the data were relied on the teachers' self reported data. These data were supported with teacher's interviews. The findings of the study do not reflect what actually happens in the classroom because observations of the real classroom setting were not included. This study was limited on the followings.

- This study is limited in the secondary level mathematics teachers of Baglung District.
- Only the teachers that handled the action research in teaching learning process in public school were included.
- Data were collected through questionnaire and interview.

Operational Definition of Key Terms

Attitude – The feeling and perception of secondary level mathematics teacher on action research is considered as attitude.

Action research – The research or work which is done by mathematics teacher to improve his/her classroom practice, teacher's work to diagnose the problem and find the solution for the problem which he/she face in the time of teaching learning in classroom.

Teachers – The persons who are currently teaching either compulsory or optional mathematics at secondary level of government school of Baglung District.

Statement – The item or sentence related to action research that was used to measure the attitude of mathematics teacher towards action research

Rural area – The geographical region out of Baglung Municipality of Baglung District is consider as the rural area

Urban area – The geographical region of Baglung Municipality is considered as urban area.

Chapter – II

REVIEW OF RELATED LITERATURES

Review of Literature

The review of related literature is an important source of further study of research. It takes the researcher task to be undertaken better perspective and is essential for guidance of research planning. The purpose of this rivew is that it gives the theoretical bases to the research as well it helps to avoid the unintentional replication of the study. In this chapter, the researcher tried to review some researches, which have been done on the attitudes towards teaching profession, mathematics teaching and learning and theory about action research.

Cohen, et al. (2010) describe in the book "Research Method in Education" about action research. According to them, action research is a powerful tool for change and improvement at the local level. Action research can be used in variety of areas such as, teaching method, learning strategies, evaluative procedures attitudes and values, continuing professional development of teacher. Action research is formed for the connection to research and practice. The contribution of action research is not only practice but also for the theory of education and teaching which is accessible to others teachers, and make educational practice more reflective. It combines diagnosis, action and reflection and focus on practical issues found in participants.

According to Noffke and Zeichner (1987) the contributions of action research with teachers are:

- It brings the changes in their definitions of their professional skills and roles.
- It increases their feelings of self worth and confidence.
- It increases the awareness of classroom issues.
- It improves their dispositions towards reflection.
- It changes their values and beliefs.
- It improves the congruence between practical theories and practices.
- It broadens their views on teaching, schooling and society.

Cohen et al. (2010) further describe that action research is the important tools to empower the teacher. Now days, it is taken as the alternative of training of teacher. It helps the professional development as well as to improve the classroom practice. By diagnosing the problem faced in classroom through action research, teacher can enhance the achievement level of student, which finally leads the success of complete educational system. Even though, there are some difficulties in action research.

Winter, (1982) Writes, the action research study tradition does have a methodology for the creation of data but not for the interpretation of data.

Best and Kahn,(2007), discuss about action research in their book "Research in Education". According to them, action research is done for immediate application. It focuses on the problem in the local setting and the findings are generalized in the local context. The main aim of action research is to improve the school practice but at the same time it develops the habits of thinking, ability to work harmoniously with others and professional sprit. Action research is not more than the application of common sense by applying scientific methods and thinking to real life problems and based on limited personal experience, it improve the teacher's subjective judgments.

Action research is a process in which individual or several teachers collect evidence and make decisions about their own knowledge, performance, beliefs and efforts in order to understand and improve them. Thus, the main reason for teacher engaging in action research is to learn and improve their own teaching activities (Upadhyay et al, 2010).

Joshi (2008) conducted a research for master degree thesis entitled " Attitude of teachers towards teachers' guide at lower secondary level" with the objectives to find out the attitude of mathematics teachers about teachers' guide, to compare the attitude of public and private schools' teachers and to collect the suggestions from conceded teachers for further improvement of teachers' guide. He had used survey method on his study and selected 40 lower secondary level mathematics teachers from Kanchanpur District as sample by stratified sampling method. He used questionnaire of Likert type with 40 statements to gather the data and used χ^2 test and t - test to analysis the data. From his study, he found that the mathematics teachers have negative attitude towards teachers' guide at lower secondary level and there is no

significance different between the average attitude of rural public, rural private, urban public and urban private schools teachers towards teachers' guide.

Regmi (2010) did a survey research entitled "Attitude of Tamang students towards mathematics and its relationship with their achievement" for master degree thesis. The purpose of his study was to find the attitude of Tamang students towards mathematics and to determine the relationship between attitude towards mathematics and achievement in mathematics. For his study, he selected 110 (48 boys and 62 girls) students of grade nine from public schools of Dhading District as sample. He used Likert type questionnaire with 40 statements as a tool to collect data. χ^2 test, mean, standard deviation, t - test were used to analysis the data. From his study, he found that Tamang students have positive attitude towards mathematics and there is no significant relationship between attitude and achievement of Tamang students.

Joshi (2010) conducted a survey type research entitled "A study on attitude of parents towards homework in learning mathematics at primary level students" for master degree thesis. In his study, he aimed to find out the attitude of parents towards homework in learning mathematics and to compare the attitude of literate and illiterate parents towards homework. He considered all primary level childrens' parents of Salyan District as population and selected 102 parents (51 literate and 51 illiterate) as sample. He used questionnaire with 25 statements and interview as tools to collect data and tabulated the data by using Feennema – Sherma techniques. χ^2 test was used to analyze the data at 5% level of significance and found that parents have positive attitude towards homework and there is no significant difference between mean attitude score of literate and illiterate parents.

G.C. (2013) did a survey research entitled "Attitude and practices of primary level mathematics teachers towards teaching mathematics" with the objective to find out the relationship between primary level teachers' attitude towards mathematics and their classroom practices by using the Likert type questionnaire with 32 statements and class observation as a tool on 30 teachers of Parbat District. χ^2 test was used to analyze the data at 5% level of significance and found that there was positive attitude of primary mathematics teachers towards teaching mathematics and there was moderate relationship between teachers attitude and their classroom practices.

Parajuli (2013) explained in his master thesis entitled "Attitude of Primary Level Mathematics Teachers towards Teaching Mathematics and Their Classroom Practices" with objectives to identify the teachers' attitude towards teaching mathematics and their classroom practices. This was the survey type research and data were gathered by opinionnaires interpret with Likert's five point scale. From his research, he concludes that there was positive attitude of primary level mathematics teachers to teaching mathematics and there was the moderate correlation between teachers' attitude and their classroom practices.

Khatiwada (2010) conducted a research for master degree thesis entitled "A Study on Attitudes of Secondary Level Students and Teachers towards Probability" with objectives to find out the teachers' and students' attitudes towards probability at secondary level and compare the attitudes of boys and girls. This quantitative study use opinionnaire to collect the data and analyze them with the help of t – test, mean and standard deviation. He found that there were positive attitudes of teachers and students on probability.

Dhungana (2009), did a survey research entitled " A Study On Teachers' Attitudes Towards The Curriculum Of Compulsory Mathematics Of Grade X" with the purpose to find the attitude of teachers about the appropriateness, usefulness and sufficiency of mathematics curriculum of grade x and compare the attitudes with public, private, rural public and urban public school teacher. He found the positive attitudes towards mathematics curriculum but teachers feel difficult to teach some topics. Rural public school teachers have better attitudes then that of urban. Moreover he found public school teacher and private school teacher have not same attitude.

Shrestha (2009), did a survey research entitled "A Study On Secondary School Teachers' Attitudes Towards Summative Evaluation In Mathematics " with objectives to find out the attitudes of secondary school teachers' towards summative evaluation in mathematics, compare the attitudes of public and private schools teacher and rural and urban school teachers in Dhading District. From his study, he concludes that teachers have positive attitude towards summative evaluation in mathematics at secondary level. Teacher of public and private school have similar attitudes and of rural and urban areas school teachers. However, not all teachers are satisfied with the way of using summative evaluation at secondary level.

After reviewing all of the above-mentioned researches, it is found that no researches have been done particularly on teachers' attitude towards action research at secondary level. Moreover, action research is very useful tools for teacher to improve their teaching and develop professional status. Therefore, I aimed to find the attitudes of mathematics teachers on action research at secondary level.

Conceptual Frameworks for the Study

From the above literature, there is no doubt that action research is an important tool to enhance the teachers in their professional career and improve the classroom practice. It would help the improvement of total result in education. However, there are many factors influencing the teacher attitude towards action research. In our context, mathematics teachers feel difficult to finish the course content in time of the academic session. They used to say there is not proper combination of the course content and the allocated time to complete the course. Action research consume the extra time. Teacher should invest extra time for action research. They should be self-motivated to engage in action research by investing their extra time. Bonner (1996) describes the condition, which affect the teacher attitude for professional growth (action research). They are as:

- Time
- Autonomy and choice of teacher
- Opportunity for collaboration
- Culture of inquiry and collaboration

Although, the main factor that affect the teachers attitude is from which research paradigm s/he is guided. There are mainly three types of research paradigm. They are- Positivist, Interpretive and Constructivist (Upadhyay et al. 2010).

Action research is the research under the constructivist paradigm. According this paradigm, action research is about the actors trying to improve the phenomena of their surroundings because constructivist teacher love to do action research. The beauty of action research is to try to improve the situation (Upadhyay et al. 2067). But Leong conclude that, "the interpretive research paradigm is also referred to under a variety of names such as the qualitative, naturalistic, constructivist, or alternative research paradigm (Leong, 2007)". So, if the teacher is guided by the constructivist

paradigm of research s/he has the positive attitude towards action research then the teacher who are guided by positivist research paradigm.

Autonomy and Choice of Teacher

To motivate the teacher to conduct action research autonomy is an important factor. Autonomy refers to the self-willingness of a person to do any activity. If the teacher is self motivated and interested in teaching profession and want to diagnose and solve the faced problem in classroom then s/he will engage in action research. So, in this study, researcher wants to know the autonomy of informant towards action research.

Time

Time is most important things for any activities. Action research required extra time for thinking about causes of problem, their solution and implication of solution. So, teacher may take the action research as extra load. Researcher interested to know the view of informants related to time for action research.

Reflection

Reflection refers to the implementation of learned knowledge in practical field. Teachers may have the knowledge about action research but they may not able to apply in conducting action research for the faced problem in their classroom. The researcher wants to investigate the reflection of teachers about action research.

Opportunity for Collaboration

Action research is a collaborative work. Collaboration is such situation where two or more people do something together. Action research is also collaborative inquiry. If teacher gets the opportunity for collaboration while conducting action research then he feel comfortable to search solution and then developed the positive attitude towards action research.

Culture of Inquiry

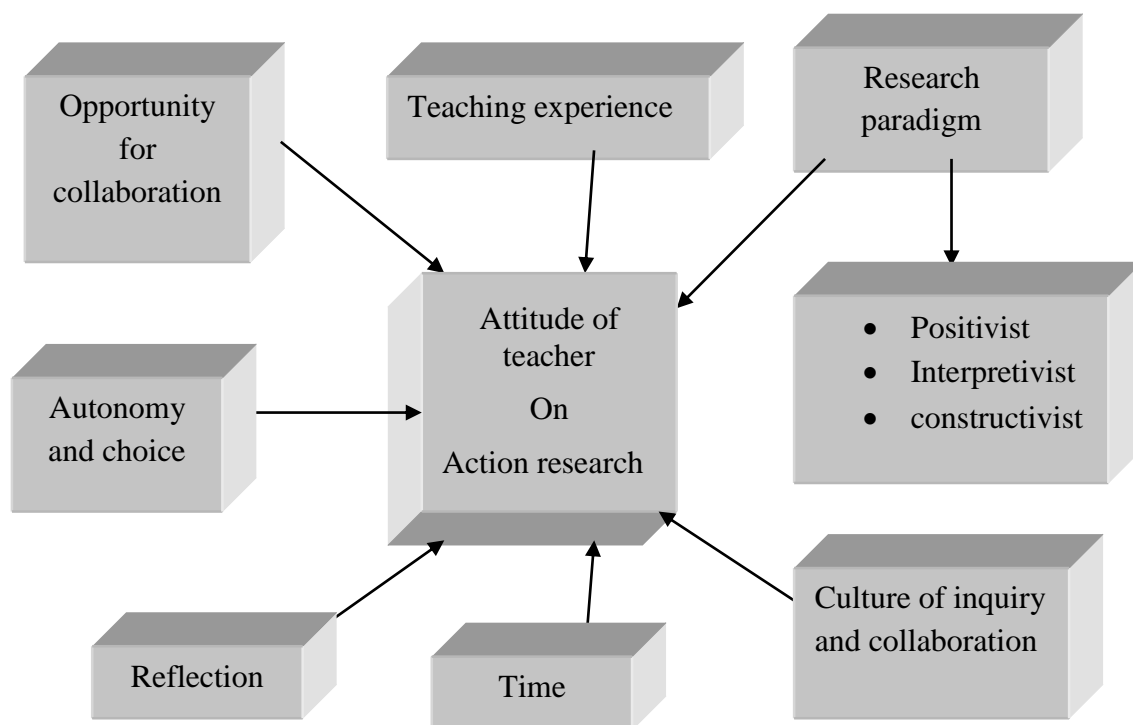
Action research is also one type of research or inquiry. If there is the system for the scientific search of any problem in school then it make the teachers habitual to engage in research activities, which further develop the positive attitude towards action research.

Teaching Experience

Teaching experience affect the attitude of teachers towards action research. More experience teachers may have more idea to solve the classroom problem, which help the teachers to conduct the action research easily. Thus, experience teacher may have positive attitude towards action research.

Thus, the researcher tried to find the attitude under the basis of above-mentioned factors. Thus, the above mentioned factors give the fundamental bases to the researcher for his investigation. So, based on basic premises of Bonner that are mentioned above helps the researcher to make the conceptual framework by collaborating such concepts. The conceptual framework of researcher for this study can be shown diagrammatically as follows. These factors coin up to conclude the attitude of teachers on action research in teaching learning activities of mathematics.

Conceptual framework of the study



Source: Bonner (1996), Transformation of Teacher Attitude and Approach to Math Instruction through Collaborative Action Research

This conceptual framework is prepared on the basis of Bonner assumption for action research in teaching learning activities. These components are the major factors that affect the action research. Thus, the researcher adopted here for the analysis of the attitudes of teachers in action research.

Chapter-III

METHODS AND PROCEDURES

This chapter includes the procedures of the study, which would help to achieve the objectives of this study and get the answer of research questions. It describes the design of the study; define population and field area of the study, case respondents, data collection tools and procedure and data analysis procedure.

Design of the Study

The main purpose of the study was to find the attitude and experience of secondary level mathematics teacher towards action research. Researcher used the survey method for his study by using the questionnaire as a tool of data collection and use descriptive statistics to analysis and interpret the data so, the design of this study is descriptive survey.

Population and Sample

For the research, all the mathematics teaches of secondary level who are currently teaching either compulsory mathematics or optional mathematics in Baglung District and conducted action research is considered as the population. There were 102 public and 29 private secondary schools on this academic year. There were 102 secondary level mathematics teachers in Baglung district (District Education Office, Baglung). But among 102 mathematics teacher 73 of them conducted action research so that the teacher who had conducted the action research in their teaching stratigies was considered the target population of the study. the total number of population of this study was 73.

Sampling Procedures

According to district education office Baglung, out of 102 secondary level mathematics teacher 73 teachers were participated in teacher professional development (TPD) programme and they conducted the action research and submitted to district education office (DEO). The researcher focused on those teachers who were participated in TPD programme. For the researcher convenience and the representative sample the researcher selected the sample by the method of stratified sampling. In Baglung Munucipality there were 8 public secondary schools and respective mathematics teacher so researcher included all of them in his research sample that represent the urban area's mathematics teacher of Baglung district. Next, the

researcher selected the sample from the Galkot area and western part of Baglung which represent the rural area of Baglung District.

From the rural area researcher selected 32 schools in those schools there are 32 mathematics teachers. The reason to select the Galkot and western part of Baglung was that Galkot is the researcher's home place so researcher can visit the sample school easily from his home which help the researcher financially for his study. Thus the sample of this study was 40 teachers. The researcher was select two teachers from urban school and three teachers from rural school of selected school for the interview by purposive sampling.

Data Collection Tools and Instruments

One of the most important parts of the study is data collection. The researcher tried to fulfill the objectives of the study by analysing and drawing conclusion from the collected data. This is the survey type research which usually gives the factual information. Survey research generally use different types of data collection tools but in this study the Likert scale type of questionnaire was used for the data collection. The researcher himself develop the set of questionnaire. First, researcher collect different statement related to action research and consult with supervisor to select most appropriate statement to measure the attitude towards action research among them then finalize the questionnaire. Each statement had five option of Likert scale. They were strongly agree (SA), agree (A), neutral (N), disagree (D), strongly disagree (SD). The interview questions were also used for selected teachers to collect the data about the experience of mathematics teachers towards action research. For that, researcher will develop the open type of interview questions.

Reliability and Validity of Instruments

The instruments that are used for data collection in the research must be reliable and valid. So the researcher tried to make his tools reliable and valid. Researcher had conducted the pilot study on the mathematics teacher of secondary level in Kathmandu District. For the pilot study, researcher visit the District Education Office Kathmandu and bought the information about mathematics teachers. He selected 16 secondary level mathematics teachers of Kathmandu and administered the questionnaire. After that, he divided the teachers into two groups by odd and even. He had calculated the correlation of these two group and find the coefficient of reliability.

He found the correlation 0.42 and coefficient of reliability 0.59 which is acceptable (Singh, 2008). Thus the researcher concluded his tool is reliable. For the validity of the tools researcher consults his tools with supervisor and finalised.

Data Collection Procedure

The researcher visited the sample schools to collect the data. First, the researcher met the school head master, clarify the objectives of the study, and take the permission for information collection. Then, researcher met with mathematics teacher of those schools and clarifies the objectives of the study and request to help. Researcher gave the questionnaire and told him/her the way of response to the questionnaire. After collecting the data from questionnaire, the researcher took the interview with selected five teachers. The selected teachers for interview were requested to give their action research report which is prepared by them to solve the problem faced while teaching in classroom.

Analysis and Interpretation procedure

After collecting the data from sample teachers, the data was tabulate by using the following scale for statistical analysis.

Table No. 1
Scoring Process of Questionnaire

Alternatives	Positive statement	Negative statement
Strongly Agree (SA)	5	1
Agree (A)	4	2
Undecided (U)	3	3
Disagree (D)	2	4
Strongly Disagree (SD)	1	5

After scoring the collected data according to the above table, the data analyzed for the finding and conclusion. The first objective of the study was to find the attitude of mathematics teacher towards action research. To achieve this objective the researcher used *t* test as well as calculate the total score of each respondent. If most of the respondents score would more than 84 then that indicate that the mathematics teacher have positive attitude towards action research (Niure, 2012).

In addition, the researcher calculated the response percentage of each alternative for each statement and analyzes the attitude towards this statement. The researcher used score of each respondent, percentage of each alternative, total mean, mean of each statement to analysis the data collected from questionnaire. The null hypothesis was test through the t - test at 5% level of significance. The null hypothesis is formed as teacher have neutral attitude towards action i.e. $\mu = 3$, where μ is the assumed mean attitude score of population. If this null hypothesis would reject then the researcher concluded that teacher have positive attitude towards action research.

The information collected from interview was analyzed separately on the basis of respondents. The respondents of interview were coded as A, B, C, D and E respectively. The teacher who was interviewed first was coded A second was B respectively. There was not any special bases for codetion of teachers and interview with teachers as first, second, third and so on. That was random selection. The report of action research was studied and analysis and draw the findings which help to achieve the second objective.

Chapter - IV

ANALYSIS AND INTERPRETATION OF DATA

The data needed for the study as described in chapter III was collected from secondary level Mathematics teachers of Government school in Baglung District. The collected data were tabulated and analyzed for the study to achieve the objectives and verification of the hypothesis of the study.

The researcher has tabulated, organized, analyzed and interpreted the collected data to draw the conclusion and valid generalization. To present the analysis and interpretation in a systematic way, the researcher used the following headings in this chapter.

- Secondary level mathematics teachers' attitude towards action research.
- Secondary level mathematics teachers' experience on action research.

Secondary Level Mathematics Teachers' Attitude towards Action Research

The first objective of this study was to find the attitude of secondary level mathematics teacher towards action research. The researcher was selected 40 secondary level mathematics teacher from the Baglung District for this study as sample. These teachers were participated in TPD program and conducted the action research and submitted to the administration.

To find the attitude of mathematics teacher the researcher were used the Likert type questionnaire including 28 statements. These 28 statements were divided into five categories, which makes easy to analyze and interpret the data about the action research. The Likert type questionnaire was five points as strongly agree (SA), agree (A), neutral (N), disagree (D) and strongly disagree (SD). The researchers visited all sample school, met the secondary level mathematics teachers, clarify about the study, and said the way to give their views for the study and teacher give their attitude towards action research by filling questionnaire. In that way researcher collected the data.

In five points Likert type questionnaire three represent the neutral view and average score. So, the researcher assumed three as the population mean (μ) and formulated the null hypothesis $H_0: \mu=3$ and alternative hypothesis $H_1: \mu > 3$. The researcher assumption in this study was secondary level mathematics teacher has positive attitude towards action research. After collecting the data, the researcher convert the teacher's view on numerical data by assigning 5, 4, 3, 2 and 1 for SA, A,

N, D and SD of positive statements and 1, 2, 3, 4 and 5 for SA, A, N, D, SD of negative statements. After that researcher calculated the total score of each statement, total score of each respondent, percentage of each alternative for each statement, mean for each statement, total mean, and standard deviation and use the single sample t -test to test the formulated hypothesis. The t -value presented in the table below:

Table No. 2
Testing the Null Hypothesis H_0

Mean(\bar{X})	SD (S)	Sample (N)	Df (N-1)	α	$t_{0.05,39}$	t
3.94	0.391	40	39	0.05	1.645	12.72

Df = Degree of Freedom

SD = standard deviation

α = Level of significance

Here, from above table, the sample mean attitude of 40 respondents in 28 statements (\bar{X}) is 3.94, Standard deviation of sample (S) is 0.391. The tabulated value of t at 5% level of significance in 39, (N-1) degree of freedom is 1.645. The calculated t value is 12.72. In comparing the calculated value and tabulated value of t , it is found that $1.645 < 12.72$ i.e. tabulated values is less than calculated value. So, the computed value of t lies on rejection region. Thus the null hypothesis is rejected and hence the alternative hypothesis is accepted. Therefore the researcher concluded that the secondary level mathematics teacher have positive attitude towards action research.

Furthermore, the data were analyzed by computing the total score of each respondent which is listed in the Appendix-C. In 28 statements, the neutral attitude score was $28 \times 3 = 84$ but all responded score is found more than 84. Therefore, the researcher concluded that all responded has positive attitude on these statements.

The response percentage of each alternative in each statement was calculated and shown in Appendix-D. The conclusion of this table is described as follows:

The statement no.1 is "Action research is necessary to solve the classroom problem faced while teaching". In this statement 65% are strongly agree and 35% are agree. The mean attitude score of this statement is 4.65. It shows that all respondent had positive attitude towards this statements. The statement no.2 is "Action research helps to solve the classroom problem". In this statement 42.5% responds in strongly agree and 52.5% respond in agree. The mean attitude score of this statement was 4.35. It shows most of the respondent had positive attitude towards this statement. The statement no.3 "Action research increases the awareness about the classroom issues".

In this statement 20% respond in strongly agree and 72.5% respond in agree. The mean attitude score of this statement was 4.1. It shows that most of the respondent had positive attitude towards this statements. The statement no.4 is "Action research helps the teachers to reduce the gap between knowing and doing". In this statement 30% respond in strongly agree and 42.5% respond in agree. The mean attitude score of this statement was 3.925. It shows that most of the respondent had positive attitude towards this statement. The statement of number 5 stated as, "Finding of action research is generalized in the class room" is 32.5% respond in strongly agree and 50% respond on agree. Also the mean attitude score of this statement was 4.1. It shows that most of the respondent had positive attitude towards this statement.

The statement no.6 is "Conducting action research is extra load for mathematics teacher". In this statement 47.5% are disagree and 10% are strongly disagree. The mean attitude score of this statement was 3.35. This shows that most of the respondent does not accept this statement and mathematics teacher does not take the action research as extra load. The statement no.7 is "Action research gives mental pressure for mathematics teacher". In this statement 55% are disagree and 22.5% are strongly disagree. The mean attitude score of this statement was 3.80. It shows that more respondent had positive attitude on this statement. The statement no.8 is "I have theoretical knowledge of action research but I feel bored to conduct the action research". In this statement 25% are agree, 25% are neutral, 30% are disagree and 20% are strongly disagree. The mean attitude score of this statement was 3.45. This shows that half of the respondent does not accept this statement and they apply their knowledge of action research in conducting action research. The statement no.9 is "Action research is part of teaching mathematics". In this statement 22.5% are strongly agree and 55% are agree. The mean attitude of this statement was 3.82. It shows that most of the respondent had positive attitude on this statement. The statement no.10 is "The result of action research helps to address the classroom issues and problem". In this statement 32.5% are strongly agree and 60% are agree. Also the mean attitude score was 4.225. It shows that most of the respondent had positive attitude towards this statement.

The statement no.11 is "Action research is important to tool to the professional development of mathematics teacher". In this statement 55% are strongly agree and 24.5% are agree. The mean attitude of this statement was 4.525. It shows that most of the respondent had positive attitude towards this statement. The statement no.12

is "After conducting action research I feel self worth and confidence". In this statement 42.5% are strongly agree and 47.5% are agree. Also the mean attitude score of this statement was 4.30. It shows most of the respondent accepted this statement and had positive attitude. The statement no.13 is "Action research changes my value and beliefs". In this statement 27.5% are strongly agree and 55% are agree. The mean score was 4.025. It shows that most of the respondent had positive attitude towards this statement. The statement no. 14 is "To know about action research I have to go and training". In this statement 12.5% are strongly agree and 45% are agree. The mean score was 3.475. It shows that most of the respondent wants the training about action research and had positive attitude. The statement no.15 is "In my school, other teachers also conducts action research and share the experience to each other". In this statement 10% are strongly agree and 50% are agree. The mean score was 3.425. It shows that more respondent had positive attitude towards this statement. The statement no. 16 is "Action research develops my confidence in my teaching abilities". In this statement 40% are strongly agree and 52.5% are agree. The mean score was 4.325. It shows that most of the respondent had positive attitude towards this statement. The statement no.17 is "Action research facilitates my understanding of what students know and how they learn". In this statement 22.5% are strongly agree and 52.5% are agree. The mean score was 4.05. It shows that most of the respondent had positive attitude. The statement no.18 is "Action research promotes me as empower professional". In this statement 45% are strongly agree and 47.5% are agree. The mean score was 4.375. It shows that most of the respondent has positive attitude towards this statement. The statement no.19 is "I want to share my action research report within educational community through conferences and workshop so the administration should manage the entire requirement to lunch such program". In this statement 12.5% are strongly agree and 62.5% are agree. The mean score was 3.925. It shows that most of the respondent had positive attitude towards this statement. The statement no. 20 is "My teaching experience help me to conduct action research'. In this statement 42.5% are strongly agree and 47.5% are agree. The mean score was 4.30. It shows that most of the respondent had positive attitude on this statement.

The statement no.21 is "I feel difficult to conduct action research". In this statement 10% are strongly disagree and 55% are disagree. The mean score was 3.425. It shows that most of the respondent had positive attitude on this statement. The statement no. 22 is "I read report of action research conducted by others". In this

statement 15% are strongly agree and 57.5% are agree. The mean score was 3.70. It shows that most of the respondent had positive attitude on this statement. The statement no.23 is "Teaching experience provides me different issues for action research". In this statement 17.5% are strongly agree and 77.5% are agree. The mean score was 4.075. It shows that most of the respondent had positive attitude towards this statement. The statement no. 24 is "I have not sufficient time to conduct action research". In this statement 17.5% are strongly agree, 20% are agree, 17.5% are neutral, 30% are disagree and 15% are strongly disagree. The mean score was 3.05. It shows that some teacher feel difficult to conduct the action research. The statement no.25 is "Action research is situation based and context specific". In this statement 32.5% are strongly agree and 42.5% are agree. The mean score was 4.025. It shows that most of the respondent had positive attitude towards this statement.

The statement no. 26 is "I have encouraged school administration to conduct action research". In this statement 17.5% are strongly agree and 45% are agree. The mean attitude score was 3.725. It shows that the most of the respondent had positive attitude towards this statement. The statement no.27 is "Action research focuses on the classroom problems". In this statement 32.5% are strongly agree and 57.5% are agree. The mean score was 4.175. It shows that most of the respondent had positive attitude towards this statement. The statement no.28 is "I get opportunities to collaborate about conducting action research". In this statement 15% are strongly agree and 52.5% are agree. The mean score was 3.75. It shows that most of the respondent had positive attitude towards this statement.

From the above analysis, each statement was accepted by most of the respondent. The formulated null hypothesis also rejected. The researcher also calculated the total score of each respondent which is shown in the Appendix- D. From that table and above analysis it is found that the secondary mathematics teachers had positive attitude towards action research.

Secondary Level Mathematics Teachers' Experience on Action Research

The second objective of this study was to find the teacher's experience on Action Research. To achieve this objective the researcher selected five mathematics teachers as sub - sample from 40 selected teachers and they are interviewed about action research. The researcher asked them about their experience about action

research. The interview questions which are asked them are listed in the Appendix -B. The selected teachers are asked five semi structured questions and the summary of their individual response on these five questions are described below.

The teacher A viewed that there is no any doubt that action research is an important tool to solve the problem of mathematics learning process. So that mathematics teacher should conduct action research at the time of low achievement of students or faced the problem and should be implemented properly to improve existence level of students. At the same time, Nepal Government has launching various training program and make compulsory provision for mathematics teacher to conduct action research. It is the best aspect but its implementation is not so effective. Reward should be given to those teachers who used action research in mathematics classroom. He also focused for the regular monitoring from administration side like as District Education Office, School Management Committee, Head master of school etc.

From the teacher A's view, mathematics teacher accept the action research positively. They think action research is essential to solve the classroom problem teacher faced while teaching. Action research helps to increase the achievement of students in mathematics. According to him all teacher must use action research to solve the problem of classroom. They know the usefulness of action research but they conduct action research only to submit on administration when launching training program. They want the effective supervision and encouragement for teacher who conduct action research from administration.

The teacher B viewed that teachers' duty is not only the instruction but also managing the classroom, addressing the students' problem and helping the students' learning difficulties. To complete this job, action research is a power to identify the genuine problem face in the teaching period. He also addressed that action research is a scientific tool to improve the teaching learning process in classroom. School administration also helps me by giving the opportunity to participate in training program like TPD.

From the teacher B's view, action research is the part of mathematics. Teacher job is not only give information to the students about the course content. Teacher must able to solve the raising problem in the classroom. To solve such problem action research is the most appropriate tool. Action research is important tools to address the

students' problem. Action research helps to promote the students achievement in mathematics. From his view his school administration also helps and encourages his for conducting action research. It was found that he is sure that if action research is used to solve the classroom problem like as students' difficulties then that help to improve the achievement of students in mathematics.

The teacher C viewed that Action research is one of the important factors of teaching learning process. There is no any way to solve and problem without research. So, we make plan according to the problem and achievement should be enlisted in the report. If it is unable to address all the problems we should repeat the same process for the solution. In order to change the attitude of the students towards mathematics, mathematics teachers should involve in various experiment and research. I came to know that no any student is weak by his/her birth. But it is all determined by the circumstance, environment and mainly of teacher's manner. Even in my way of solving problem, action research plays a vital role. Therefore, it is compulsory to all the teachers to conduct action research to make students more sensitive and to upgrade their existing level.

From the teacher C's view there is important role of action research to solve classroom problem and enriched the achievement level of students in mathematics. He think action research is the part of teaching mathematics so teacher shouldn't take it as extra load and must use it in teaching learning mathematics. Action research is useful to enrich the students achievement in mathematics as well helpful tool for the professional development of teacher. It is also helpful to change the students' attitude towards mathematics and to make the teacher self worth and confidence in their professions. He also said that different mathematical activities and research like action research would change the achievement level and attitude of students in mathematics.

In the same structured questions Teacher D viewed that Action research is not only useful to solve the problem of mathematics learning process but also any other subjects. It helps to solve the problem of classroom as well as it develops the professional skills of the teachers. It motivates the teachers to involve in research. Teachers need more extra time and think a lot to conduct action research. So, it is some trouble (Jhanjatilo). We found some teachers are not interested to conduct action research regularly to solve classroom problem but this should be done to upgrade the whole process of teaching learning.

From the teacher D's view we can see that teachers were aware about the usefulness of action research but they feel little bored to conduct action research. He think action research is useful to solve classroom problem. It develops the teacher as the researcher. It is little bit trouble for teacher because, to conduct action research teacher must invest extra time and sense eventhough he says teacher must use action research in the mathematics classroom. Although they had positive sense towards action research and used it to solve classroom problem.

The teacher E viewed that Action research is the appropriate tool to solve the problem of mathematics learning. Teacher should actively involve on it. Along with this administration should encourage teachers in action research by launching various training program (like TPD), which is still not sufficient. In order to achieve greater achievement in mathematics learning process, administration should manage extra facilities and program to the teacher.

From the teacher E's view, we can say that teachers have positive attitude towards action research. They accept the action research as the problem solving tools for improvement of mathematics learning. Most of the teacher teacher had taken action research as helping tools for them. They doesn't think action research as the difficult task and extra load but they want some facilities and help from administration like extra payment for expending extra time, opportunities to involve in training program; workshop etc. They think the existing help and encouragement from administration is insufficient for them. If the admistration provide them extra facilities and payment and strong supervision as well reward and punishment system for those who use action research and do not use action research in teaching mathematics they use action research regularly in teaching learning process of mathematics.

Also the teachers addressed the improvement of the student's participation due to implementation of action research in teaching mathematics. Since we hope by any implementation or uses of activities in teaching mathematics to be change the unfavourable conditions. Similarly by using action research students' behaviours also changed. Such cases also stated by teacher with their interview. The action research helps to reduce the off task behavior and to increase the on task behaviours. The deduction of off task behaviours and increment of on task behaviours support in students achievements. And they justify with showing the increment of score of

students after applying action research in teaching. The increase of achievement in mathematics of students from the use of action research is shown in Appendix-H.

Behavior modification assumes that observable and measurable behaviors are good targets for change. All behavior follows a set of consistent rules. Methods can be developed for defining, observing, and measuring behaviors, as well as designing effective interventions. Behavior modification techniques never fail. Rather, they are either applied inefficiently or inconsistently, which leads to less than desired change. All behavior is maintained, changed, or shaped by the consequences of that behavior. Although there are certain limits, such as temperamental or emotional influences related to Attention Deficit Hyperactivity Disorder (ADHD) or depression, all children function more effectively under the right set of consequences. *Reinforcers* are consequences that strengthen behavior. *Punishments* are consequences that weaken behavior. Students' behaviors are managed and changed by the consequences of classroom behavior. To manage behavior through consequences, use this multi-step process-The problem must be defined, usually by count or description, Design a way to change the behavior, Identify an effective reinforcer and apply the reinforcer consistently to shape or change behavior. Consequences of behavior are directly related to the events that either come immediately before or after them. The examples of behavioral outcomes as they relate to various events (Mather and Sam Goldstein: wikipedia). These changes can be found through action research.

Hence from the above teachers' view about action research most of the teachers know about the usefulness of action research. But they do not use action research to solve classroom problems regularly. They used to conduct action research only sometimes and mainly in time of training lunch by district education office (DEO). There is not regular observation from administration. The administration brings the policy but due to the weak implementation and follow up, this policy cannot become effective. Teachers also said that the DEO is not able to launch the sufficient training programs for teachers. There is not the reward and punishment system for the teachers who do best or not. From the researcher's investigation, he found that if the administration makes their policy implementation and strong follow up action research become the useful tool to solve the mathematics classroom problems.

Finally, the researcher asked the teachers to give their action research report. Some of them said that we already submit that in DEO and we have not. Some of them

said that we used to conduct action research only when DEO make it compulsory. The researcher collect some action research report and studied. Out of these reports, two reports are shown in the Appendix – G. From the report of action research, the researcher found that mathematics teacher know about action research and they can conduct action research for the solution of existing problem in the classroom. In conducting action research teachers used their own format of action research like as interduction, objectives methods and conclusion of research but finally these steps are related to the four steps of action research planning, action, observing and reflecting given by Kurt Lewin. So, we can say teachers used to conduct action research on the basis of Kurt Lewin's steps of action research. Kurt Lewin was a professor at MIT, first coined the term "action research" in 1944. In his 1946 paper "Action Research and Minority Problems" he described action research as a comparative research on the conditions and effects of various form of social action that uses a spiral of steps, each of which is composed of a circle of planning, action and fact finding about the result of the action.

Chapter - V

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATION

After making analysis and interpretation of data in chapter IV, this chapter has been devoted to summary, findings, conclusion and recommendation for the further study. Summary of the study, major finding, conclusion and recommendation have been considered in the sequence under the following sub- headings.

Summary

The study was carried out to examine the attitude of mathematics teachers towards action research in Government secondary school of Baglung District. Especially the objectives of the study were to find the attitude of secondary level mathematics teachers towards action research and to find the teachers' experience on action research. To achieve these objectives of the study, the researcher gathered data by the method of questionnaire survey and Likert type five points attitudes scale as a tool. The population of this study was considered as all the secondary level mathematics teachers of Government school in Baglung District who participated in TPD programs lunched by District Education Office, Baglung. The sample of the study was considered as 40 secondary level mathematics teachers as per listed in the Appendix-C. Out of 40 teachers, 32 were from rural area and 8 were from urban area's school of Baglung District. A set of Likert type questionnaire was developed as the tools for data collection which are listed in Appendix-A. This tool was developed by the researcher with the help of supervisor. The pilot study was conducted in 16 secondary level mathematics teachers in Kathmandu District to determine the reliability of the tool and found that the correlation coefficient 0.42 and reliability coefficient 0.59, which is acceptable by A. K. Singh. The *t*- test, mean attitude score and percentage was used to determine the attitude of mathematics teachers towards action research.

As per analysis of *t*- test, mean attitude score and percentage of each statement the majority of mathematics teachers are in favor of positive statements. It means that the entire teacher had positive attitude towards action research in teaching learning activities of mathematics. Furthermore, the data collected from interview with teachers is used to find the experience of teacher on action research. From that, teachers were aware about the usefulness of action research but they do not use action research

regularly due to many reasons like as timing, lack of extra facilities and lack of regular monitoring from administration etc.

Findings

In this study, the researcher was selected altogether 40 secondary level mathematics teachers as sample among them 8 were from urban area and 32 were from rural area. When the data was collected and tabulated then analyzed by using *t*-test, mean attitude score, percentage and standard deviation. From the action research conducted by teacher it is seen that before using the action research in classroom, students were involved in off task work but after using action research or in the time of implementing action research students were involve in learning activities in mathematics due to asking questions about students, time expending other than learning, preparing homework of mathematics. Action research also helps students to motivate on task activities of mathematics. This motivation helps to improve achievement of students in mathematics. After statistical analysis of the collected data, the researcher derived the following results as findings of the study.

- The secondary level mathematics teachers had positive attitude towards action research.
- The total mean calculated from mean attitude score of each statement was 3.94 and standard deviation was 0.391.
- The tabulated value of *t* at 5% level of significance and 39 degree of freedom was 1.645 and computed *t*- value was 12.72.
- Most of the teachers know about action research but they don't use it regularly to solve classroom problem.
- Teachers feel that action research is the tool to solve the classroom problem.
- After using action research the achievement level of student in mathematics is improved
- Teachers want extra facilities and payment for action research. Also they want the strong implementation of Government policy and regular monitoring from related fields.
- Teachers were used to conduct action research very less number and mainly to show the administration, which helps them to get some facilities such as promotion in job.

Conclusions

Based on findings presented in the previous section the following conclusions were drawn about the attitude of mathematics teachers towards action research. The secondary level mathematics teachers had positive attitude towards action research. All teachers know about action research but they do not use it to solve classroom problem. They conduct action research only to get some facilities from administration. In addition, teachers want the training programs about action research. They want the opportunities to collaborates among mathematics teachers through workshop, training. So, they want such program from administration and encouragement too.

Recommendation for Further Study

The finding of the study cannot be generalized to all level of school and in all region of nation due to the limitation of the study. Based on the study, the following recommendations have given.

- Similar study should be done regional as well as national wise in order to establish the finding of the study.
- Similar study should be made in lower secondary and primary levels teachers.
- It is recommended to study about the difficulties faced by teacher while conducting action research.

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Appendix-A

Questionnaire

Dear sir/madam,

As a part of requirement for the master degree in mathematics education, I am going to conduct a research on the topic "Attitude of mathematics teacher towards action research" at public secondary school. So, I came with you to ask for help by giving your view on the following statements which are related to the action research.

This paper is addressed to you 28 statements have been adopted. There is no absolutely right or wrong answer of each statement. You can choose any one alternative for each statement according to your beliefs towards this statement. So, please read these statements carefully and give your opinion by giving tick mark (✓) on any of the five options for each statement.

Name:

Sex:

School:

Address:

Date:

Teaching Experience:

Qualification:

SA = Strongly Agree A = Agree N = Neutral D = Disagree SD = Strongly Disagree

S. N.	Statements	SA	A	N	D	SD
1.	Application					
	Action research is necessary to solve the classroom problem faced while teaching					
2.	Action research helps the teacher to solve the classroom problem					
3.	Action research increases the awareness about the classroom issues.					
4.	Action research helps the teachers to reduce the gap between knowing about and doing,					
5.	Finding of action research are generalized in the classroom.					
6.	Research paradigm					

	Conducting action is extra load for mathematics teacher.					
7.	Action research gives mental pressure for mathematics teacher.					
8.	I have theoretical knowledge of action research but I feel bored to conduct action research.					
9.	Action research is part of teaching mathematics.					
10.	The action research helps to address classroom issues and problems.					
11.	Professional Developments					
	Action research is important tools to the professional development of mathematics teachers.					
12.	After conducting action research, I feel self worth and confidence.					
13.	Action research changes my value and beliefs.					
14.	To know about action research I have to go in training.					
15.	In my school, other teachers also conduct action research and share the experience to each other.					
16.	Action research develops my confidence in my teaching abilities.					
17.	Action research facilitates my understanding of what students know and how they learn.					
18.	Action research promotes me as empowered professional.					
19.	I want to share my action research report within educational community through conferences and workshop so, the administration should manage all the requirements to lunch such program.					
20.	Autonomy and experiences					
	My teaching experiences help me to conduct action research.					
21.	I feel difficult to conduct action research.					
22.	I read report of action research conducted by others.					
23.	Teaching experiences provide me different issues for action research.					
24.	Time and context					
	I have not sufficient time to conduct action research.					
25.	Action research is situation based and context specific.					

26.	I have encouraged school administration to conduct action research.					
27.	Action research focuses on the classroom problem.					
28.	I get opportunities to collaborate about conducting action research.					

If any give your Suggestions:

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Appendix-B

Semi-structured Questions for interview

1. Do you use action research to solve problems of classroom faced while teaching?
2. Did the action research help to improve the achievement of students in mathematics?
3. Did you feel any difficulties while conducting action research?
4. Does the school administration encourage you to conduct action research?
5. What do you want from administration for conducting action research?

Appendix-C

Selected sample schools, mathematics teachers and their attitude score

S.N.	Schools' Name	Address	Teachers' name	Score
1.	Laharepipal Sec. School	Ba Na Pa-5	Krishna Pd. Subedi	110
2.	Vidya Mandir H. Sec.School	Ba Na Pa-2	Shantamani Dhakal	109
3.	Rudrepipal Sec. School	Ba Na Pa-2	Rajesh Shrestha	96
4.	Kundule H. Sec. School	Ba Na Pa-10	Bishnu Pd. Sapkota	115
5.	Kalika Kanya Mandir Sec. School	Ba Na Pa-4	Ramchandra Adhikari	99
6.	Dhaulagiri Birendra H.Sec. School	Ba Na Pa-4	Keshav Prasad Poudel	116
7.	Bishwo Karma H. Sec. School	Ba Na Pa-6	Hari Pandey	106
8.	Mulpani H. Sec. School	Ba Na Pa-5	Chudamani Subedi	112
9.	Dhimi Karina Sec. School	Palakot-1	Deb Bdr. Chhetri	100
10.	Malika H. Sec. School	Malika-5	Shop Bdr. Roka	115
11.	Sigana H. Sec. School	Sigana	Pharindra Khadka	107
12.	Bhimsen H. Sec. School	Bihun-1	Raghunath Kandel	115
13.	Chauraha H. Sec. School	Dudilabhati-3	Bindra Bdr. Khatri	106
14.	Saraswati H. Sec. School	Dudilabhati-4	Ramchandra	116

			Acharya	
15.	Mahendra H. Sec. School	Narethati	Tikaram Gautam	93
16.	Kharuwa Sec. School	Hatiya-7	Lekhnath Acharya	110
17.	Galkot H. Sec. School	Hatiya-3	Umakanta Sharma	127
18.	Parwati Sec. School	Harichaur-9	Hem Bdr. Budhathoki	118
19.	Prihvi H. Sec. School	Harichaur-5	Sher Bdr. Thapa	107
20.	Janahit Sec. School	Malma-8	Bhabindra Gautam	111
21.	Bhairab Sec. School	Malma-5	Humlal Dhakal	122
22.	Pandavkhani H. Sec. School	Pandavkhani-6	Ganesh Adhikari	112
23.	Shiva H. Sec. School	Kandebash-3	Purna Thapa	108
24.	Jana Jagriti H. Sec. School	Kandebash-9	Nabaraj Kandel	113
25.	Ratna Laxmi H. Sec. School	Righa-1	Tul Bdr. Shrees	112
26.	Tribhuwan H. Sec. School	Dagatundada-7	Krishna Pd. Pokharel	115
27.	Bhanu H. Sec. School	Gwalichaur-3	Akbal Ahmad Khan	116
28.	Khara Sec. School	Gwalichaur-7	Sunil Ghimire	108
29.	Buddha Sec. School	Bhimgithe-8	Deepak Giri	97
30.	Bhimgithe H. Sec. School	Bhimgithe	Til Bdr. Thapa Magar	103
31.	Uttargang H. Sec. School	Burtibang-1	Dim Bdr. G C	126

32.	Devistan H. Sec.School	Devistan-2	Puran Dhoj Gurung	125
33.	Ratna Rajya Laxmi Sec. School	Devistan-7	Hiralal Khanal	92
34.	Prava H. Sec. School	Bohorigaun-5	Shivalal Regmi	114
35.	Jana Sec. School	Bohorigaun-9	Hut Raj Bhusal	119
36.	Gyanendra Sec. School	Nisi-1	Amrita Budha Magar	109
37.	Prakash Sec. School	Khunga-8	Ishwari Sharma	117
38.	Chhoregaun Sec School	Khunga-4	Rajendra Pd. Yadav	105
39.	Booji Sec. School	Adhikarichaur-2	Tham Nath Poudel	126
40.	Shiwalaya H.Sec. School	Adhikarichaur-8	Bul Bdr. Khatri	105

Appendix-D
Response percentage and mean of each statement of questionnaire

S. N.	Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	Mean
1.	Action research is necessary to solve the classroom problem faced while teaching.	65	35	0	0	0	4.65
2.	Action research helps the teacher to solve the classroom problem.	42.5	52.5	2.5	2.5	0	4.35
3.	Action research increases the awareness about the classroom issues.	20	72.5	5	2.5	0	4.10
4.	Action research helps the teachers to reduce the gap between knowing about and doing.	30	42.5	17.5	10	0	3.925
5.	Finding of action research are generalized in the classroom.	32.5	50	12.5	5	0	4.10
6.	Conducting action research is extra load for mathematics teachers.	7.5	17.5	17.5	47.5	10	3.35
7.	Action research gives mental pressure for mathematics teachers.	5	10	7.5	55	22.5	3.80
8.	I have theoretical knowledge of action research but I feel bored to conduct action research.	0	25	25	30	20	3.45
9.	Action research is part of teaching mathematics.	22.5	55	10	7.5	5	3.82
10.	The action research helps to address classroom issues and problems.	32.5	60	5	2.5	0	4.225

11.	Action research is important tool to the professional development of mathematics teachers.	55	42.5	2.5	0	0	4.525
12.	After conducting action research, I feel self worth and confidence.	42.5	47.5	7.5	2.5	0	4.30
13.	Action research changes my value and beliefs.	27.5	55	12.5	2.5	2.5	4.025
14.	To know about action research, I have to go in training.	12.5	45	20	22.5	0	3.475
15.	In my school, other teachers also conduct action research and share the experience to each other.	10	50	17.5	17.5	5	3.425
16.	Action research develops my confidence in my teaching abilities.	40	52.5	7.5	0	0	4.325
17.	Action research facilitates my understanding of what students know and how they learn.	22.5	62.5	12.5	2.5	0	4.05
18.	Action research promotes me as empowered professional.	45	47.5	7.5	0	0	4.375
19.	I want to share my action research report within educational communities through conferences and workshop so; the administration should manage all the requirements to lunch such programs.	12.5	62.5	22.5	2.5	0	3.925
20.	My teaching experiences help me to conduct action research.	42.5	47.5	7.5	2.5	0	4.30
21.	I feel difficult to conduct	10	12.5	12.5	55	10	3.425

	action research.						
22.	I read report of action research conducted by others.	15	57.5	10	17.5	0	3.70
23.	Teaching experience provide me different issues for action research.	17.5	77.5	2.5	0	2.5	4.075
24.	I have not sufficient time to conduct action research.	17.5	20	17.5	30	15	3.05
25.	Action research is situation based and context specific.	32.5	42.5	22.5	0	2.5	4.025
26.	I have encouraged school administration to conduct action research.	17.5	45	30	7.5	0	3.725
27.	Action research focuses on the classroom problem.	32.5	57.5	5	5	0	4.175
28.	I get opportunities to collaborate about conducting action research.	15	52.5	25	7.5	0	3.75

Appendix- E
Response and total score of each statements of questionnaire

S. N.	Statements	SA	A	N	D	SD	Total Score
1.	Action research is necessary to solve the classroom problem faced while teaching.	26	14	0	0	0	186
2.	Action research helps the teacher to solve the classroom problem.	17	21	1	1	0	174
3.	Action research increases the awareness about the classroom issues.	8	29	2	1	0	164
4.	Action research helps the teachers to reduce the gap between knowing about and doing.	12	17	7	4	0	157
5.	Finding of action research are generalized in the classroom.	13	20	5	2	0	164
6.	Conducting action research is extra load for mathematics teachers.	3	7	7	19	4	134
7.	Action research gives mental pressure for mathematics teachers.	2	4	3	22	9	152
8.	I have theoretical knowledge of action research but I feel bored to conduct action research.	0	10	10	12	8	138
9.	Action research is part of teaching mathematics.	9	22	4	3	2	153
10.	The action research helps to address classroom issues and	13	24	2	1	0	169

	problems.						
11.	Action research is important tool to the professional development of mathematics teachers.	22	17	1	0	0	181
12.	After conducting action research, I feel self worth and confidence.	17	19	3	1	0	172
13.	Action research changes my value and beliefs.	11	22	5	1	1	161
14.	To know about action research, I have to go in training.	5	18	8	9	0	139
15.	In my school, other teachers also conduct action research and share the experience to each other.	4	20	7	7	2	137
16.	Action research develops my confidence in my teaching abilities.	16	21	3	0	0	173
17.	Action research facilitates my understanding of what students know and how they learn.	9	25	5	1	0	162
18.	Action research promotes me as empowered professional.	18	19	3	0	0	175
19.	I want to share my action research report within educational communities through conferences and workshop so; the administration should manage all the requirements to lunch such programs.	5	25	9	1	0	157
20.	My teaching experiences help me to conduct action research.	17	19	3	1	0	172
21.	I feel difficult to conduct action research.	4	5	5	22	4	137

22.	I read report of action research conducted by others.	6	23	4	7	0	148
23.	Teaching experience provide me different issues for action research.	7	31	1	0	1	163
24.	I have not sufficient time to conduct action research.	1	8	7	12	6	122
25.	Action research is situation based and context specific.	13	17	9	0	1	161
26.	I have encouraged school administration to conduct action research.	7	18	12	3	0	149
27.	Action research focuses on the classroom problem.	13	23	2	2	0	167
28.	I get opportunities to collaborate about conducting action research.	6	21	10	3	0	150

Appendix-F

Statistical formula used for data analysis

$$t = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{N}}}$$

Where,

\bar{X} = Mean of Sample (calculated by using calculator)

μ = Mean of Population (assumed 3)

S= Standard Deviation of Sample (calculated by using calculator)

N= No. of Sample

Mean of each statement = $\frac{N1 \times 5 + N2 \times 4 + N3 \times 3 + N4 \times 2 + N5 \times 1}{N}$

Where,

N1 = No. of response in SA

N2 = No. of response in A

N3 = No. of response in N

N5 = No. of response in D

N6 = No. of response in SD

N = Total no. of respondents

Appendix-G

Action research conducted by mathematics teacher

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 ;+1fgfTds, efjgfTds / Jofjxf/s /x]sf 5g\ . efjgfTds Jo:ttf eGgfn] To:tf] lRgtgo'Qm
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ljBfyL{x₂}sf] l;sfOk|ltsf] rf;f] ;kmntf / >d k|ltsf] ljZjf; sdhf]/ aGb} uO/x]sf] cg'e"lt cleefjs Pj+ lzlfns] ul//x]sf] cj:yfdf, lzlfxs₂n] slffsf]7fdf l;sf?nfO{ l;sfOk|lt Jo:t agfpg s] ug]{ eGg] lRgtf / rf;f] ljleGGf cj:yfdf pNNf]v u/]sf] ;jfnf -lzlf klsfdf pNNf]v ePsf slffsf]7fsf r'gf}lt Pj+ ljBfyL{ Jofjxf/ ;DalGw ;jfnx₂_ of] cWoogn] slffsf]7fdf l;sf?sf] Jo:ttfsf] cj:yfnfO{ x]/ / o;df j[l4 ug{ s] ug{ ;lsG5 eGg] s'/f pNNf]v ug]{ x'Fbf of] ;fGble{s / cf}lRtOk"Of{ /xg] s'/fsf] kl'i6 ug{ ;lsG5 .

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v_ slffsf]7fdf b]vfk/]sf], ljBfyL{ l;sfOdf Jo:t gx'g] ;d:ofsf] ;dfwfg ug'}

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k|:t't cWoogdf slffsf]7fdf l;sf?sf] Jo:ttfnfO{ cWoog ul/Psf] lyof] . slffsf]7fdf b]vfp] Jofjxf/sf] cjnf]sg u/L ljBfyL{n] b]vfp] Jo:ttfsf ;+s]t -pT;fxL,slffsf]7fdf sfo{ ug]{ Wofgk"}j{s ;'Gg]_ b]vfp] ljBfyL{x? dWo] !% hgfnfO{ -*,(!) af6 % kfFr hgf_ pgLx₂nfO{ slffsf]7fdf s'g klfn] ;lqmo t'NofPsf] 5 eGg] k|Zg ubf{ !@ hgfsf] pQ/sf] ;f/ o:tf] /x]sf] lyof] .

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k|:t't k|ltlqmof cg';f/ ljBfyL{nfO{ slffsf]7fdf ;lqmo / Jo:t /xg pS;fpg] tTjx?, pgLxçnfO{ lzlfns] lbg] lgb]{zg eljiosf] ;DaGwdf pknAw u/fpg] ;Nnfx, k/Llffdf s;/L ;kmntf k|fKt ug{ ;lsG5 < eGg] s'/nfO{ k|i6\ofFpbf tyf / ljifoj:t'nfO{ eljio;Fu hf]8]/ k9fpg', pgLxçn] cfzfu/]sf] z}nLaf6 lzlf0f ug' /x]sf] lgZsif{ x'G5 .

Jo:t Jofjxf/sf] ;+s]t b]vfp] ljBfyL{nfOg} slffsf]7fdf l;sf? Jo:t gx'g] sf/0fx? s] x'g ;S5g] eGg] ;DaGwdf ul/Psf] cGtjftf{df w/] h;f] ljBfyL{x? -!% df (_ n] lbPsf] k|ltlqmofsf] ;f/ o; k|sf/ lyof] .

slffsf]7fdf ;lhnf k|;Ëx?nfO{ cgfjZos ?kdf bf]xf]¥ofpFbf, yxf kfO/x]sf ljifoxçdf cgfjZos ;'emfj lbbfF, k/Llffdf s;/L ;kmntf k|fKt ug{ ;lsG5 eGg] s'/fdf s'g} k|Zg ;f]Wbf s'g} lgb]{zg pknAw gu/fpFbf, ;d:of ;dfwfgsf nflu tTsf] ;xof]u rfx]sf] ;dodf ;xof]u gubf{, u[xsfo{ c]nf]sg gubf{, jf]8{df cndlng] tl/sfn] n]Vg' / l56f] d]6\bf, hl6n lzif{sx?df jf]8{sf] k|of]u gubf{ ljifoj:t'nfO{ k|i6 x'g] u/L pNNf]v gubf{ cWoogdf pTkGg eO/x]sf] phf{ klg ;]nfP/ hfG5 .

pQm k|ltlqmofaf6 s] lgZsif{df k'Ug ;lsG5 eg] slffsf]7fdf l;sf?nfO{ lrQ aem\bf] 9Ëaf6 ;xof]u ug]{ ;lhnf s'/fxçnfO{ klg af/Daf/ bf]xf]¥ofpg] / ljifoa:t'sf k|;ËxçnfO{ cd"t{ 9Ëaf6 dfq k|:t't ugf{n] slffsf]7df ljBfyL{sf] Jo:ttf sdhf]/ aGb5 . To;u/ l;sf?nfO{ u[xsfo{ lbg] t/ To;sf] k/Llf0f u/] cfjZos k|i7kf]if0f ug{ g;Sgfn], jf]8{sf] plrt k|of]u gugf{fn] klg slffsf]7fdf ul0ft lzlf0f ubf{ l;sf?sf] Jo:ttf sdhf]/ aGg] ub{5 .

ul0ft lzlf0f ubf{ slffsf]7fdf Jo:ttf] Jofjxf/ sdhf]/ jf l;sfOdf Jo:t gx'g] vfnsf] Jofjxf/ b]vfp] ljBfyL{x? -slffsfo{ gug]{ cWofkg ubf{ Wofg glbg] clN5nfu]sf] cg'xf/ b]vfp], kf7\ok':ts gNofFpg] cfwdf klxrfg u/L pgLx?sf] Joj:ttf sdhf]/ x'gfsf sf/0fxç a'em\g vf]Hbf -!% hgdf k|fKt ePsf] k|ltlqmofsf] ;f/ o; k|sf/ lyof] .

lsg lsg clN5 nfu]/ cfpF5,sltko ;/xç l56f] af]Nbf vf; s'/f lbdudf /fVg ;lsb}g, k9fOdf /fd|f] ug{ ;lsG5 eGg] ljZj;g} nfUb}g, ;/xçn] lbPsf] lgb]{zgnfO{ kfngf ug{ ;lsb}g, lzlfns] k9fpFbf klg aflx/lt/ dg b'N5 sltko cj:yfdf ;/xçn] ghfGg] ljBfyL{ eg]/ cfjZos ;xof]u ;d]t ug' x'Gg u[xsfo{ ug{ hflgb}g slffsfo{ ug{ klg dg nfUb}g To;]n] slffsf]7fdf Jo:t aGg ;lsb}g

pgLxçnfO{ km]/L slffsf]7fdf l;sfOk|t Jo:t x'g s:tf] jftfj/0f rlxG5 eGg] s'/fsf] pQ/ vf]Hbf ldl>t k|ltlqmof k|fKt eof] ^ hgfn] yxf 5}g eGg] s'/f pNn]v u/], \$ hgfn]

;/n] xfdLnfO{ yk ;xof]u u/L hfGg] agfpg' k5{ eg], # hgfn] ;lhnf] tl/sfn] k9fpg'k5{ eGg] hjfkm lbP eg] @ hgfn] k9fOdf cfkm"x? ;w} sdhf]/ /x]sf] hjfkm lbP .

oL k|ltlqmofx;sf] ljZn]if0f ubf{ s] lgisif{ lgsfNg ;lsG5 eg] lzlfns] clxn];Dd ckgfPsf] /0flglt]n] sdhf]/ pknIAw ePsf l;sf?nfO{ pT;flxt Ufg{ ;s]sf] 5}g . pgLx;nfO{ l;sfOk|lt k|ofKt dfqdf k/fdz{ / lgb}{zg 5}g . pgLx?nfO{ l;sfOk|lt k|ofKt dfqdf k/fdz{ 5}g . pgLx;nfO{ l;sfOdf pTk]]/t ug{ pgLx;n] 5fg]sf] eljiosf] af6f];Fu hf]8\g' kb{5 . l;sf?sf eflj ;a]vfn] hLjgdf ljifoj:t'n] s:tf] e'ldsf v]Ng ;S5 eGg] s'/f pNn]v ug]{ / lzlf0f l;sfO lqmofsnfkdf pgLx?nfO{ klg k];:t; :yfg lbOPsf] x'g'k5{ . o;/L kQfnfu]sf s'/fx;sf] pkof]u u/]kl5 l;sfOdf ljBfyL{x;df ck]]lft :t/sf] kl/]t{g Nofpg ;xof]u u/]sf] dxz'; ul/Psf] 5 .

lgZsif / ;'emfj M

k]:t't cWoogaf6 slffsf]7fdf ljBfyL{sf] Jo:ttfnfO{ k|efj kfg]{ tTjx; lgDgfg';f/ kfOof] . lzlfssf] Jofjxf/, lzlfssf] z)nL, k/fdz{ / lgb}{zgsf] tl/sf u[xsfo{ x]g' / k[i7kf]if0f k|bfg ug'{ k/Llffdf ;kmntf k|fKt ug{ lbg] lgb}{zgsf] tl/sf ljBfyL{nfO{ ug]{ ;xof]u ljifoa:t'nfO{ hLjgsf lj]w klfx; ;Fu hf]8]/ lzlf0f ug]{ snf .

oL tTjx?nfO{ Jojl:yt u/L slffsf]7fdf ljBfyL{sf] Jo:ttfnfO{ a[l4 ug{sf lgDg pkfox; ckgfpg' kg]{ s'/f k]:t't cWooaf6 ;'emfjsf] ?kdf lnOPsf] 5 .

- slffsf]7fdf ul0ft lzlf0f ubf{ k|To]s ljif:t'nfO{ l;sf?sf] hLjgsf efux; ;Fu hf]8]/ lzlf0f ug]{ / k|To]s ljifonfO efjL hLjgsf s:tf klfx?df sfd nfU5 eGg] s'/f lgb}{zg lbP/ cWofkg ug]{,
- lgoldt u[xsfo{ k/Llffdf u/] cfjZos k[i7kf]if0f k|bfg ug]{
- ul0ftLo ljifoj:t'nfO{ s;/L cWoog ubf{ pRr c+s Nofpg ;lsG5 eGg] s'/f jf l;sfOsf z)nLx? atfpg]
- ;lhnf k|s[ltsf ljifox;nfO{ cgfjZos ?kdf gbf]xf]¥ofpg]
- cgfjZos y]uf] / cndn] tl/sfaf6 ljifoj:t'nfO{ k]:t't gug]{
- jf]8{df k|i6?kdf n]Vg] / ;dfu]Lx?sf] k|ofKt k|of]u ug]{
- slffdf a]nf a]nfd k|Zgx/ ;f]Wg]
- l;sfOsf sltko ljifox? -;lhnf k|s[ltsf_ ljBfyL{nfO{ hLDdf nufpg]

;Gbe{ ;fdu]L

- vgf n k]zn -lj=; @)^\$_, z]l]fs cg';Gwfg k4lt, sf7df08f}M ;gnfO6 klAns];g
- lkmg,h/]dL l8 / kfgf]Hhf], lhgf Pd -;g\ @))\$_, Snf;?d cu{gfOh];g P08
ljxfljc/ Og ls08/uf6{g, hg{n ckm Ph's];g l;/r{, ef]n (*
- j]:6 P08 sfg - ;g !(((, l;/r{ Og Ph's];g, ;ftf} ;+s/0fM Go' l8NnL, lk|G6fO;
xn Ol08of
- 8ldsf],p;=lj / /f]y -clk|n ;g !(((\$_, af]8]lg^a b sG;]K6 ckm O^au]hd]G6 M
OGSn'hg ckm k];k]S6e cg P8f]nf];G; M Pd]l/sg l;/r{ P;f] l;o;g
- cf]l]6h ;L - d] ;g\ !((&_, b l/n];g;k lj6jLg l6r/ ljx]ljo/ P08 :6'6]08
O^au]hd]G6 Og Pg OG6/ l;16 lk| :s'nM l;=Pg= Pr P /f]:6g
- :6'8]06 O^au]hd]G6 Og DofYDofl6S; l;/r{ hg{n O:6 rOgf gd{n o'lge];{l6
gf]e]Da/ @))#

Izif{s M dfWoflds txsf] -slff !)_ ul0ft ljifosf] pknIAw sd x'g' . -2

x]d axfb'/ a'9fyf]sL
ul0ft lzlfs
>L kfj{tL dfWoflds ljb\ofno

!= kl/roM

lzlfssf] k];fut tflndsf] bf];]f] v08 cGtu{t ljb\ofnodf ul/g] # sfo{ lbg a/fa/ Ps
dlxgfsf] ;dofjlwdf ul0ft ljifosf] pknIAw sd x'g'sf] sf/Of kQf nufO{ ;dfwfgsf]nflu lj:t{t
of]hgf tof/ ul/ ;f] of]hgf cg';f/ slffsf ljb\ofyL{nfO{ ljleGg rf/ ;d"xdf ljefhg ;d'x sfo{,
kl/of]hgf sfo{ / ljleGg cg';Gwfgaf6 ePsf k|fIKt / lgisif{ ;lxtsf] k|ltj]bg tof/ ul/Psf] 5 .

afun^a lhNnfsf] dWo klZrddf cjl:yt xl/rf]/ uf=lj=;= sf] jf8{ g+= (df cjl:yt o;
kfj{tL df=lj= sf] ;]jf lf]q o;} uf=lj=;= sf jf8{ g+= *, (/ g/]7fF6L uf=lj=;= sf jf8{ g+= ! /
sf s]lx efu kb{5g\ . c+u]hL efiffsf] cfsif{Of / cfly{s ǂkdf ;DkGg dflg;xǂsf] a;fO{
/x]sf]n] ;DkGg kl/jf/sf jfnjlnsf lghL ljb\ofnodf hfg] ub{5g\ eg] sd cfo ePsf ;fy} IgDg
ju{sf kl/jf/sf jfnjlnsfǂ o; ljb\ofnodf cWoogsf nflu cfp]g] ub{5g\ . ljb\ofnodf
cWoog/t ljb\ofyL{ dWo] sl/a %^ k|ltzt ljb\ofyL{ blnt ;d'bfosf /x]sf 5g\ . Go'g cfosf
sf/Of dflyNnf] slffdf k9g] ljb\ofyL{ ljb\ofno ;dodf Hofnf, dhb'l/ ug{ hfg], u[xsfo{
lgoldt gug{], ul0ft ljifodf sd ?lr /fVg] u/]sf] kfO{of] . h;sf/Of o; ljifosf] pknIAw sd
/x]s]f kfO{of] . t;y{ o;} ljifosf] ;]f/]km]/f]df /lx s]lx cleefjsnfO{ e]l6, cleefjs cGt/lqmf
ul/ ljb\ofyL{sf] ;d'x sfo{nfO{ hf]8 lbO{ pknIAw a9fpg] k|of; ul/Psf] 5 . cfufld lbgdf
afnaflnsf] eljio lgdf{0fdf cleefjssf] lhDd]jf/ x'g cfp]g] ljifodf ;r]t u/fO{ ;'wf/fTds
klfdf hf]8 lbOPsf] 5 eg] afnaflnsf / cleefjs ;d]t o; ljifodf rgfv]f b]lvPsf 5g\ .

@= p2]ZoM

lzlfssf] k];fut tflndsf] :jfWoog v08df /lx o; ljb\ofnodf cWoog/t df=lj= txsf
ljb\ofyL{xǂsf] ul0ft ljifosf] pknIAw a9fpg] g] o; sfo{d"ns cg';Gwfgsf] k|d'v p2]Zo
/x]sf] 5 . ul0ft ljifonfO{ sl7g ljifosf ǂkdf x]g{] ljb\ofyL{sf] wf/0ffdf kl/jt{g ul/ o; ljifodf
pgLxǂsf] ?lr hufO{ z}llfs pknIAw a9fpg] x]t'n] ljb\ofyL{df ;d'x ljefhg ul/
cleefjsxǂsf] e]nf u/fP/ ljljw k|of;sf ;fydf z}llfs ;fdu|Lsf] e/k/ k|of]u ul/Psf] lyof] .
h;sf ljzi6 p2]Zoxǂ o; k\sf/ /x]sf 5g\ .

➤ ul0ft ljifodf ljb\ofyL{sf] ?lr hufpg] .

- lgoldt PsfO{ k/Llff lng] .
- pTs[i6 ljb\ofyL{nfO{ k':s[t ug[] .
- lgoldt cleefjs e]nf /flv k[i7kf]if0f lbg] .
- ;d:of ;dfwfg tyf ljsNk kQf nufpg] .

#= sfo{ ljlw

k|ltj]bgdf pNn]lvt p2]Zo k|flKtsf nflu Ps dlxgfsf] lj:t[t sfo{of]hgf cg';f/ cufl8 a9]gsf nflu lglZrt sfo{ljlw tof/ ul/of] h; cg';f/ z}llfs pknIAw ljl4sf nflu sdhf]/ / rnfv ljb\ofyL{ ldnfP/ ;d"x lgdf{0f ul/ ;d"x sfo{sf ljif]z hf]8 lbOof] h;df rnfv ljb\ofyL{n] sdhf]/nfO{ ;xof]u ug[] pTs[i7 ;d"xnfo{ k':s[t ug[] / sdhf]/nfO{ k[i7kf]if0f lbg] sfo{ ul/of] . cleefjs 5nkmndf 3/df cfkm\gf gfgLafa'x;nfO{ ;dosf] Joj:yfkg ul/lbg] / cfjZos ;fdu|Lsf] Joj:yf ul/lbg] h:tf lg0f{o ul/of] . lzlfsn] ljb\ofyL{nfO{ xtf]T;flx x'g] vfnf eGbf :t/ cg';f/sf lqmofsnfk u/fpg] jf k|Zg ;f]Wg] jf slff sfo{ u/fpg] sfo{ ul/of] . ul0ft ljifodf ?lr a9fpgsf nflu kf7 cg';f/ z}llfs ;fdu|Lsf] k|of]u ul/ ;a} ljb\ofyL{nfO{ ;dfg cj;/ k|bfg ug[] sfo{ljlw tof/ ul/ ;a}df ;dfgtf eGbf klg sdhf]/nfO{ a9jf lbg] gLlt cjnDag ul/ pgLx;nfO{ psfl; z}llfs pknIAw a9fpgsf nflu lgDg sfo{ ul/of] .

- ❖ sdhf]/ / rnfv ljb\ofyL{ ldnfP/ ;d"x lgdf{0f ug[] .
- ❖ ljb\ofyL{sf] :t/ cg';f/ slffsfo{ jf k|Zg ;f]Wg] .
- ❖ lgoldt PsfO{ kl/lff lnO{ cleefjsnfO{ k|ult ljj/0f a'emfpg] .
- ❖ lgoldt u[xsfo{ kl/lf0f / k[i7kf]if0f k|bfg ug[] .
- ❖ lgoldt cleefjs e]63f6 ug[] .

\$= d'Vo k|flKtx;

o; cjlwdf ljb\ofyL{x;n] cfkm"nfO{ ul0ft ljifodf sdhf]/ 7fGg 5f8\b} uPsf 5g\ eg] ul0ft ljifo klg cGo ljifo ;/x 7fGg yfn]sf 5g\ . cfufl8 lbgx;df o; ljifosf] pknIAw a9g] lglZrt ePsf] 5 . gofF ;d:of jf ljifo j:t's]f k|:t'lt cufl8 ;a} gofF / ;dfg 5f}F eGg] 1fgsf] ljsf;n] ;a}df ;dfgtf dxz'; ePsf] kfOG5 . pgLx; ul0ft ljifodf cfkm} sdhf]/ jf hGdhft sdhf]/ xf]O{gg\ eGg] cjut eP kZrft cfkm\gf] lfdtf cg';f/sf] ;d:of ;dfwfgdf tlNng ePsf 5g\ . slff tyf 3/df ul0ft ljifosf] cwoogdf al9 ;do lbg yfn]sf 5g\ eg] lzlf tyf ;fyLsf] pko'Qm ;xof]u kfPkI5 lgDg k|flKtx; ePsf] kfOG5 .

- u[xsfo{ / slff sfo{ ug[] tyf ;xof]usf nflu cu|;/ /xg] .
- ;d'xut 5nkmn / ;d:of ;dfwfgdf ;lqmo ;xeflu .

- PsfO{ k/Llffx_zdf pknIAw j[14 .
- cWooglzntf / nuglznf] cfef; .
- cleefjx_z] afnafnsf] cWoog / kl/Ofd k|lt rf;f] a9]sf] .
- ljb\ofyL{sf] ul0ft ljifodf ?lr .

%= Igisif{

ljb\ofnodf ljleGg ?lr, ju{ / ;d'bfosf k|ltglw afnafnfx_z] z}lfs pknIAw / k/Llffsf cfwf/df ;d"x ljefhg ul/ lj:t[t sfo{of]hgf cg';f/ ul0ft ljifodf ?lr a9fO{ z}lfs pknIAw a9fpg nflu ul/Psf] k|of;df k|ltj]bgdf pNn]lvt p2]Zo xfl;n ug{ ;lfd /x]sf] 5 . h;sf/0f ljb\ofyL{n] ul0ft ljifosf] cWoogdf ;do a9fPsf], ?lr a9]sf], ;d:of ;dfwfg tyf ;d"x sfo{df ;qlmo ;xeflutf tyf ;kmn /x]sf] kfOof] . ljutsf] t'ngfdf o; ljifosf] pknIAw a9]sf] ul0ft ljifosf] cWoogdf ;do a9fPsf 5g\ eg] cleefjs ;d]t pT;flxt ePsf b]lvG5g\ . o; Ps dlxgfsf] ;dof]lwdf afnafnsf tyf cleefjs cfpFbf] P;=Pn= ;L= k/Llff k|lt cWooglzn / ;r]t b]lvPsf 5g\ . olb s'g] klzlfns] tflnd tyf uf]li7df l;s]sf s'/fx_znfO{ slffsf]7f ;Dd k'¥ofpg] x] eg] cjZo klzlfns] cg';f/sf] k|jt{g ;Dej 5 t;y{ cfuld lbgdf klzlfns] sfo{nfO{ lbb} k'gM of]hgf agfO{ gofF r'gf]lt ;dfwfgdf cu;/ x'g'kg[] Igisif{ k|fKt ePsf] 5 .

^= k|ZgfjnL

5nkmn tyf cGt/lqmofdf ljb\ofyL{ tyf cleefjnsnfO{ ;f]Wgsf nflu lgDg k|ZgfjnL tof/ kfl/Psf] lyof] .

- ItldnfO{ ul0ft ljifo s:tf] nfU5 <
- ;a} eGbf ;lhnf] nfUg] ljifo s'g x] <
- ul0ft ljifonfO{ 3/df slt ;do lbg] u/]sf 5f} <
- ul0ftdf cg'QL{0f x'Fbf s:tf] dx;' ; u5f{} <
- ul0ft k9fpg] lzlfns] s;/L cWofkg u/fcf]; eGg] rfxG5f} <
- 3/df afnafnfnfO{ s;/L ;dosf] Joj:yf ul/lbg'ePsf] 5 <
- cWoogsf] nflu 5'6\6} sf]7fsf] Joj:yf 5 ls 5}g <
- eljiodf cfkm\gf] aRrfnfO{ s] k9fpg] of]hgfdf x'g'x'G5 <
- s] aRrfsf] af/]df a'em\g lgoldt ljb\ofno cfp] ug{'ePsf] 5 <

APPENDIX-H

slffsf]7fdf ljBfyL{x?sf] Jo:ttf ;dGlw ul/Psf] sfo{d"ns cg';Gwfgsf] glthfkl5 ljBfyL{x?n] slffsf]7fdf b]vfp] cj/f]wd"ns Jofjxf/sf] lgoGq0f ul/ ljBfyL{x?nfO l;sfOdf Jo:t agfpg] /0flgltx? slffsfo{ u/fpg], ;d'x sfo{ eGbf AolQmut sfo{ a9L u/fpg], k':ts afx]ssf ;d:ofx? agfP/ laBfyL{nfO lbg] / Ps xKtfd h;n] al9 ;d:of ;dfwfg u5{ p;nfO k':sf/ Kf|bfg ug]{ cfbL agfP/ cuf8L a9\bf laBfyL{x?sf] l;sfO pknAIWf a9\of]. sfo{d"ns cg';Gwfgsf] glthfnfO k5\ofpb} hbf of] k|efasf/L glthf pknAw eof]. slffsf7fdf ePsf #% hgf laBfyL{ dWo] k|yd q]df];s kl/lffdf ul0ftdf hDdf !) hgf plt0f{ ePsf]df bf];|f] q]df];s kl/lffdf @% hgf laBfyL{ ;kmn eP eg] cGo laBfyL{x/n] k|fKt u/]sf] c^as klx]sf] eGbf al9 kfOof]. h;dWo] s]xL laBfyL{x?sf] c^as tn pNn]v ul/Psf] 5. laBfyL{x?sf] kl/lff #) k'Off^assf] lyof].

S.N.	Name of Students	Before using AR	After using AR
1.	Manisha Upadhyaya	16	22
2.	Ashish Gautam	14	25
3.	Prabesh Regmi	18	25
4.	Rabin Chhetri	14	18
5.	Sapana Kisan	12	17
6.	Sarmila Kisan	13	15
7.	Sanjita Thapa	5	12
8.	Prabin Kisan	10	13
9.	Kamal Kisan	6	10
10.	Sujan Kisan	8	13
11.	Pratiksha Regmi	8	10
12.	Sunita Nepali	14	18
13.	Kalpana Nepali	12	16
14.	Rohit Paudel	10	12
15.	Rajendra Bhandari	5	10
16.	Kumar Nepali	8	10
17.	Pradip Kisan	7	11