

EFFECT OF PRAISE ON STUDENT'S MATHEMATICS LEARNING AT GRADE V

A

THESIS

BY

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LETTER OF CERTIFICATE

This is certified that **Mr. Lok Bahadur GC**, a student of academic year 2067/68 with Campus Roll No.1713, Thesis No. 1159, Symbol No. 281441 and T.U. Registration No. 9-2-413-73-2006 has completed his thesis under my supervisor, during the period prescribed by the rules and regulation of Tribhuvan University, Nepal. The thesis entitled "**Effect of Praise on Student's Mathematics Learning at Grade V**" has been prepared based on the results of his investigation. I recommend and forward that his thesis be submitted for the evaluation for awarding of Master of Education.

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LETTER OF APPROVAL

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ABSTRACT

The researcher made a thesis entitled ' Effect of Praise in Student's Mathematics Learning at Grade V'. This is an experimental research with pre-test, post-test non-equivalent group design which is intended to find the effectiveness of praise in teaching learning mathematics at grade V. The objectives of the study were to examine the effect of praise on the mathematics achievement of students and also examine the effect of praise on changing behavior of learning mathematics. The study was conducted in Kailai district where Mot Secondary school of Munuwa VDC was chosen for control group and Pashupati Primary School of Tikapur municipality was chosen for the experimental group. Twenty five students from Pashupati Primary school were selected for sample in experimental group twenty eight students from Moti Secondary were selected for sample in control group. The data collection tools of this research study were achievement test, observation and interview. Experimental period was of 21days in which 18 days for regular classes and 3 days for achievement test. The collected data were analyzed by using statistical tools such as mean, standard deviation, variance and t-test. Also related theory were used to analyze qualitative data.

During the experimental phase and analysis of data, the researcher concluded that the use of praise in teaching mathematics at grade V is effective. While using praise, the students' achievement increased and the completion of homework, classwork, participation in teaching learning process, creativity of the students and regularity in the school were also improved. With this reason the researcher concluded that the effective use of praise in grade V bring positive change in teaching learning mathematics. So, it is recommended that every mathematics teachers should use praise while teaching mathematics especially in basic level.

TABLE OF CONTENTS

<i>Letter of Certificate</i>	<i>i</i>
<i>Letter of Approval</i>	<i>ii</i>
<i>Acknowledgement</i>	<i>iii</i>
<i>Abstract</i>	<i>iv</i>
<i>Chapters</i>	<i>page no.</i>
I- INTRODUCTION	1- 8
Background of the Study	1
Statement of the Problem	3
Objective of the Study	4
Research Hypothesis	5
Significance of the Study	5
Definition of the Related Terms	6
Delimitation of the Study	8
II- REVIEW OF RELATED LITERATURE	9- 18
Conceptual Framework	17
III- METHODS AND PROCEDURES	19- 30
Research Design	19
Population and Sample of the Study	20
Sampling Procedure	20
Praise Specification	20
Research Variables	24
Controlling of Extraneous Variable	25

Research Tools	27
Reliability and Validity of Test	28
Data collection Procedure	29
Data Analysis Procedure	29
IV: ANALYSIS AND INTERPREATION OF DATA	31-43
Analysis of Pre- test Result	31
Analysis of Post- test Result	32
Result Analysis of Pretest and Posttest in Bar Diagram	33
Homework and Praise	36
Classwork and Praise	37
Attendance and	39
Interaction with Teacher and Praise	40
Creativity and Praise	41
V- SUMMARY, FINDINGS, CONCLUSION	
AND RECOMMENDATION	44-48
Summary of the Study	44
Findings of the Study	46
Conclusion of the Study	47
Recommendation for Further Study	48
Reference	
Appendix	

Chapter- I

INTRODUCTION

Background of the Study

Education is the key to unlock the main gate of civilization and modernization. Education is the most important means to develop individual and nation in order to bring about the desired social reforms. Mathematics is a separate discipline in the field of education. The word “mathematics”, is derived from the ancient Greek word “mathematics”, which means “to learn”. In Nepali, mathematics is called “Ganit”, which means “the science of calculation”.

Teaching and learning is a process that includes many variables. These variables interact as learners work towards their goals and incorporate new knowledge, behaviors, and skills that add to their range of learning experiences.

Over the past century, various perspectives on learning have emerged, among them - behaviorist (response to external stimuli); cognitive (learning as a mental operation); and constructivist (knowledge as a constructed element resulting from the learning process). Rather than considering these theories separately, it is better to think of them together as a range of possibilities that can be integrated into the learning experience. During the integration process, it is also important to consider a number of other factors – cognitive style, learning style, the multiple natures of our intelligences, and learning as it relates to those who have special needs and are from diverse cultural background.

Traditionally, mathematics was taught as a collection of facts were learned through drill and memorization. Contemporary mathematics program frequently approaches the problem differently as learning activities are directed at the structure of the mathematical system. Thus it becomes increasingly more reasonable for mathematics educators to consider different

approaches to the teaching of mathematics. One of them may be the praise as the positive reinforcement.

A positive statement by the teacher contingent on a behavior that indicates approval or Satisfaction of student behavior is called praise (Simonsen, 2008).Teacher initiated statements that convey to children the specific academic or social behaviors in which teachers would like to see students continue to engage is praise (Conroy, 2009).

Even if teachers could praise students systematically, there is still some indication that such praise would not be effective. Researchers point out that at best praise is a weak reinforce. Not all young children are interested in pleasing the teacher, and as children grow older, interest in pleasing the teacher diminishes significantly. Esler (1983) reports that correlations between teachers' rates of praise and students' learning gains are not always positive, and even when correlations are positive, they are usually too low to be considered significant.

Some researchers (Martin, 1977; Stringer and Hurt, 1981) have found that praise can actually lessen self-motivation and cause children to become dependent on rewards. Green and Lepper (1974) found that once teachers began praising preschool children for doing something they were already motivated to do, the children became less motivated to do the activity.

Research demonstrates that various forms of praise can have different kinds of effects on different kinds of students. Students from different socioeconomic classes, ability levels, and genders may not respond in the same way to praise. The use of praise is further complicated by the fact that it may have differential effects depending on the type of achievement being measured.

Statement of the Problem

Mathematical knowledge is widely used in daily life and other specific fields such as physics, engineering, astronomy, chemistry, medicine etc. so it is important to deliver mathematical concept and ideas effectively to the students. Early grade education is the foundation of further study. Therefore teachers should provide mathematical knowledge clearly in early grade for better foundation of mathematical concept. On the other hand governmental policy is opposite to punishing students while teaching and various psychologists also recommend using positive reinforcement instead of using punishment.

As we know mathematical knowledge is very essential and important for everyone so the government has deployed mathematics as the core and fundamental subject in school curriculum in Nepal. Government of Nepal and various NGO'S and INGO'S are investing huge amount of money in education sector. But result of mathematics is not satisfactory. S.L.C. result 2072 showed that almost 21% students obtained A⁺ grade and 23% in E grade in mathematics (Kantipur daily- 2073/03/03). Similarly district education office of Kailali showed that 34% students of grade VIII failed in mathematics in district level examination 2072. Also we have seen that the result of other classes in mathematics in public school is not satisfactory. Research has shown that most of the low achiever in mathematics fear from mathematics. Although having qualified and trained teacher in public school the result have not seen as it would be. So this is the serious problem in the field of mathematics education in Nepal.

Also I have an experience that while I was studying in the school level teachers used to teach by teacher centered method. They only solved some problems of text book in the board and explained major steps and we copied the solution. If we unable to imitated, they punished us. They never encouraged us to learn mathematics effectively neither they reinforced us. At the present the problem is still the same. Most of the mathematics teachers in public school are just doing their job.

To raise the mathematics achievement in school level of Nepal various measures can be adopted. One of the solutions may be the effective use of praise. For this reason I have conducted the experimental research study with the title “Effect of Praise on Student’s Mathematics Learning at Grade V” to check whether it brings better result or not.

Research Questions

The researcher has tried to find the answer of the following questions

- Does praising to students helps to increase achievement score of students in mathematics at grade V?
- Does praise affect the student’s learning behavior of mathematics?

Objectives of the Study

The objectives of the research study are as follows

- To examine the effect of praise in the achievement level of mathematics.
- To examine the effect of praise in changing behaviour of learning mathematics.

Research hypothesis

The research hypothesis of the study is as follows

Null hypothesis (H_0): $\mu_1 = \mu_2$

Alternate hypothesis (H_1): $\mu_1 > \mu_2$

Where,

μ_1 = Mean achievement score of the students teaching through the use of praise.

μ_2 = Mean achievement score of the students teaching through usual method.

Significant of the Study

The research is concerned about the use of praise in teaching of mathematics at early grade. There have not seen more studied related to the effect of praise in teaching mathematics at early grades in Nepal. So it is not false to say that it may bring some changes in teaching mathematics at early grade in Nepal. It would not only be benefited to perspective teachers but also to the students who are interested in mathematic directly and indirectly. Also it may provide new ideas of teaching to teachers who are facing strategic problem. It would be likely to inspire researcher and stakeholders to give appropriate attention towards teaching mathematics .The researcher also hope that it may be served as supplementary knowledge for using praise in teaching mathematics. In summary the research study may have the following significance

- This study helps to show the effect of appropriate use of praise in mathematics achievement.
- The study helps teachers to bring change on their teaching strategy.
- This study suggests how to use praise in teaching mathematics at early grades.
- The study provides information to the concerned authorities to take the appropriate steps to improve mathematics teaching at early grade.
- It may add the extra knowledge in the field of praising students.

Definition of Related Terms

Achievement level

The level of students which can be determined by achievement scores of students

Effect

The changed occurred after experiment in experimental and control group due to the use of praise in teaching mathematics.

Intrinsic motivation

The motivation to engage in a behavior arises from within the individual because it is intrinsically rewarding.

Praise

A verbal statement or symbolic motivation that indicates approval of desired behavior students. For e.g. clapping, calling by name, providing stars, classified into grades.

Achievement Test

An instrument developed by researcher with the help of text book and curriculum to determine the achievement level of students

Experimental group

The group of students who were taught by using praise.

Control group

The group of students who were taught through usual method.

Pre-test

Pre- test is a test which measures the student's achievement before conducting the experiment.

Post-test

Post-test is a test which measures the student's achievement after experiment.

Behavior change

The change occurred in homework completion, classwork completion, attendance, interaction with teacher and creativity due to the use of praise in teaching mathematics.

Creativity

The ability to make new things or think of new ideas

Delimitation of the Study

Delimitations are those characteristics selected by the researcher to define the boundaries of the study. The researcher makes conscious exclusionary and inclusionary decisions regarding the sample (including such information as geographic location), the variables studied, the theoretical perspectives, the instruments, the generalization of findings, etc.

The research study has the following delimitations:

- The study was based on public school of Kailali district.
- The study had been conducted in two schools.
- The sample was selected from grade V students only.
- The study had been conducted with one experimental group and one control group.
- The research was based on only verbal and symbolic praise.
- The study covered arithmetic section only.
- Achievement test, observation and interview were used as data collecting instrument.
- Collected data have been analyzed by using mean, standard deviation and t- test.

Chapter- II

REVIEW OF RELATED LITERATURE

A collective body of works done by earlier scientists is technically called the literature (Singh, 2006). Review is a process of systematic and critical summary of the published literature in the field of the research (pant, 2012). A literature review discusses public information in a particular subject area. A literature review can be just a summary of sample sources. It may give new information from old materials by several books, journals, data and diaries etc.

The review of related literature helps us to make clear concept of the study and also to analyze and interpret the information of data. This helps us to find and select appropriate measurement tools. This chapter presents the review of books, journals, reports of the various researcher and other materials. The reviews of related literatures are as follows

Higher Education Commission Pakistan (2004), did a research entitled “Effectiveness of reward and punishment as Modifiers of students classroom behaviors” taking the population of the study comprised the teacher serving in governmental school of Panjab. The result of the study brought our clear picture of the reward and punishment practices being followed in schools, act as useful input improving these practices that influence development of students desired behavior.

Adhikari2007) did a research on “Teaching attitudes towards reinforcement in teaching mathematics at primary level” by taking population all the primary level mathematics teachers of kaski district with object to find the attitude of public school teachers towards praise teaching

mathematics at primary level. He founded that all the mathematics teachers teaching at primary school had positive attitude towards reinforcement.

Pokhrel (2007) did a research on “Effect of Reward On mathematics achievement of primary level” with experimental grouping giving reward and control group without reward. The statistical analysis and interpretation of the data indicated that the experimental group achieved better performance than control group. He concluded that the mean achievement score of the students taught by using reward becomes higher than the mean achievement score of the students taught without using reward in teaching mathematics. The rewarding activities must be appropriate in teaching mathematics at primary level students.

IBERA, USA (1974) did a research entitled “Effect of personality motivation and reward in learning process”. In two main ways one long term study which examined school achievement and gain in school achievement over a year period, utilized four major representative area of school and second short term study, which utilized single lesson period and planned to relate learning not only to fix personality and motivation traits but also to emotional state at the time, stimulation of arousal, level of fatigue, amount of reward and changes of motivation level for a period of two weeks. The result of long term was statistically significant in support of several bases hypothesis developed by outers in previous research. The lesson in the short term study produced highly significant increments between pretest and posttest of achievement but few differences were found for the diverse reward.

Tella (2007) did a study on “The impact of motivation on student’s achievement and learning outcomes in mathematics among secondary school students in Nigeria” with objective to explain learning outcomes in senior secondary mathematics in term of motivating students towards academic gains in the subject. The two null hypothesis which were tested at 0.05 level of significance of the study were ‘ there is no significance difference in the impact of motivation of

academic performance of male and female students mathematics' and 'there is no significance difference of academic performance of highly motivated and lowly motivated students in mathematics achievement test'. An ex-post facto design was adopted for the purpose of study. It compared all senior secondary students of north- west and Ibadan south- west local government areas of OYO state of Nigeria as population of the study. Whereas 450 students were randomly drawn from 10 selected secondary schools to make a sample of the study. A questionnaire which was divided into two parts was administered 450 participants to gather data. The first part required the participant's demographic information like age, sex, class, name of school etc. while the second part contained the items. After collecting the answer sheet retrieved from the respondent. They were analyzed by using inferential statistics like as t- test and ANOVA. The study concluded that motivation has impact on academic achievement of secondary school students in mathematics with respect to gender. It also revealed that highly motivated students perform better than the lowly motivated students.

Rijal (2011) did a research on "Effect of reward on learning mathematics at primary level." The objective of the study were to compare the achievement of students taught with reward and without reward in mathematics teaching and find the effect of reward in mathematics learning at primary level. The population of the study was all grade V students of public school at Tehrathum district and sample were collected on school of Terathum district. Achievement test was main tool for data collection. The researcher had conducted the pretest and posttest in experimental group was taught by using reward and control group was taught by without using reward. It was concluded that that the mean achievement of students taught by using reward became higher than the mean achievement score of the students taught without using reward. This has also shown that the students taught by using reward were more active and regular participate in all the activities than the students taught without using reward.

Panta (2010) did a research on the topic "A study on the effect of reinforcement in mathematics achievement at secondary level." The objectives of the study were to compare the achievement of students taught by using reinforcement and without using reinforcement in mathematics and to suggest the appropriate use of praise. For this he took 40 students by lottery method and used tools achievement test and observation. He analyzed collected data by using statistical method. At last he concluded that repetition of expected behaviour helps students score high.

Sapkota,(2013) did a research entitled "Effect of Reinforcement in Mathematics Learning at Primary Level." In her research she took 18 students from two schools each with objective to compare the achievement of students taught by using reinforcement and without using reinforcement in mathematics learning and to analyze the behaviour of students during experimentation. At the end of the research she concluded that reinforcement has a great role to motivate the students for learning mathematics and it helps to make active participation. She suggested that it is better to use the different types of reinforcement with proper knowledge of its schedule for effective teaching learning mathematics.

Sharma (2014) conducted a research on "Effect of reinforcement in mathematics achievement". Objectives of the study were to compare the achievement of the students taught by using the reinforcement and without using reinforcement and to analyze the behavior of the students in learning mathematics at classroom. In the research 32 and 36 students were chosen as sample from two schools and achievement test and observation were taken as the research instrument. The conclusion of the research study is reinforcement motivates students for mathematics learning. So it is better to use the different types of reinforcement with the proper knowledge.

Khanal(2014) did a research entitled “Effect of reward in mathematics achievement at early grade”. In his experimental research he used achievement test and observation as the data collecting tools. The data obtained through achievement test were analyzed by using statistical tools and observed data were analyzed qualitatively. At last he found the result that the use of reward in teaching mathematics increases achievement of the students.

Bickford (1993) conducted a research on the topic “Promoting Students’ Social and Academic Success through Teacher Praise.” The goal of this study was to design an intervention that would take into account the benefits of, and barriers to, using praise, and that would support teachers in using praise in the most effective way. A mixed method design utilizing both single-subject and group comparisons was used to evaluate the effects of teacher praise on students’ reading skills and self-ratings of school satisfaction. The conclusion of the research is it was anticipated that increased praise would result in a significant increase in students’ achievement.

McGuire (2013) studied on “A Phenomenological Approach to The Use of Praise in the Upper Elementary Classroom”. The objective of the study was to explore how teachers use praise in multiple sixth grade classrooms. The study provides reasoning for why teachers use praise in the upper elementary classroom. The study utilizes various data collection techniques to focus on how and why teachers use praise and the usage's associated results. Data analysis is conducted via triangulation, coding, and extensive memos over a period of two months. This qualitative study uses a hermeneutic phenomenological approach and data analysis to explore how teachers use praise in multiple sixth grade classrooms. Both novice and veteran teachers are involved in the study. The study examines the differences between these novice and veteran teachers’ use of praise. The study also examines how teachers use praise differently for effort versus achievement and the pros and cons of praise in the classroom. In addition, the study provides reasoning for why teachers use praise in the upper elementary classroom. The study utilizes various data collection techniques to focus on how and why teachers use praise and the

usage's associated results. Data analysis is conducted via triangulation, coding, and extensive memos over a period of two months. The study also includes implications for further research studies.

Meilahn (2007) conducted a research on the topic “Teacher Praise for Student Effort, Achievement and Ability”. According to the research, Research has been conducted by Carole S. Dweck that advises teachers to praise students for their effort in learning. She recommends not base so much emphasis on ability. Dweck's research indicates that teachers and parents can significantly encourage children's future efforts by praising children for effort rather than intelligence. The purpose of this study was to determine how elementary teachers' judgments of feedback statements are aligned with Dweck's research. The goal of this study was to explore all types of praise and determine the most appropriate use of praise to enhance child effort and confidence in order to allow students to persist in their efforts to master increasingly difficult and new challenges. The results of this study found that teacher praise for student effort resulted in student's persistence and willingness to take on new challenges than does praise for ability or achievement. Overall, the respondents rate highly statements of effort and ability, which include explanations for praise. Teachers also tended to rate each scenario based on each student's needs as opposed to rating each scenario based on effort, achievement, or ability.

Lepper (2002) wrote an article “The Effects of Praise on Children’s Intrinsic Motivation: A Review and Synthesis”. The authors argue against a purely behavioral definition of praise as verbal reinforcement in favor of the view that praise may serve to undermine, enhance, or have no effect on children’s intrinsic motivation, depending on a set of conceptual variables. Provided that praise is perceived as sincere, it is particularly beneficial to motivation when it encourages performance attributions to controllable causes, promotes autonomy, enhances competence without an overreliance on social comparisons, and conveys attainable standards and expectations. The motivational consequences of praise also can be moderated by characteristics

of the recipient, such as age, gender, and culture. Methodological considerations, such as including appropriate control groups and measuring post failure outcomes, are stressed, and directions for future research are highlighted.

Wright (2012), wrote an article “Teacher Praise: An Efficient Tool to Motivate Students”. In his article he explained that Effective teacher praise consists of two elements: (1) a description of noteworthy student academic performance or general behavior, and (2) a signal of teacher approval (Brophy, 1981; Burnett, 2001). The power of praise in changing student behavior is that it both indicates teacher approval and informs the student about how the praised academic performance or behavior conforms to teacher expectations (Burnett, 2001). As with any potential classroom reinforcer, praise has the ability to improve student academic or behavioral performance—but only if the student finds it reinforcing (Akin-Little et al., 2004). According to the article specific praise can be provided for specific goal. For example, effort of students can be praised as “I appreciate your hard work”, accuracy can be praised as “Terrific progress”, fluency can be praised as “impressive!”.

Robyn and Jennifer (2010) wrote an article “Specific and Contingent Teacher Praise”. In which they write steps of using praise while teaching which are

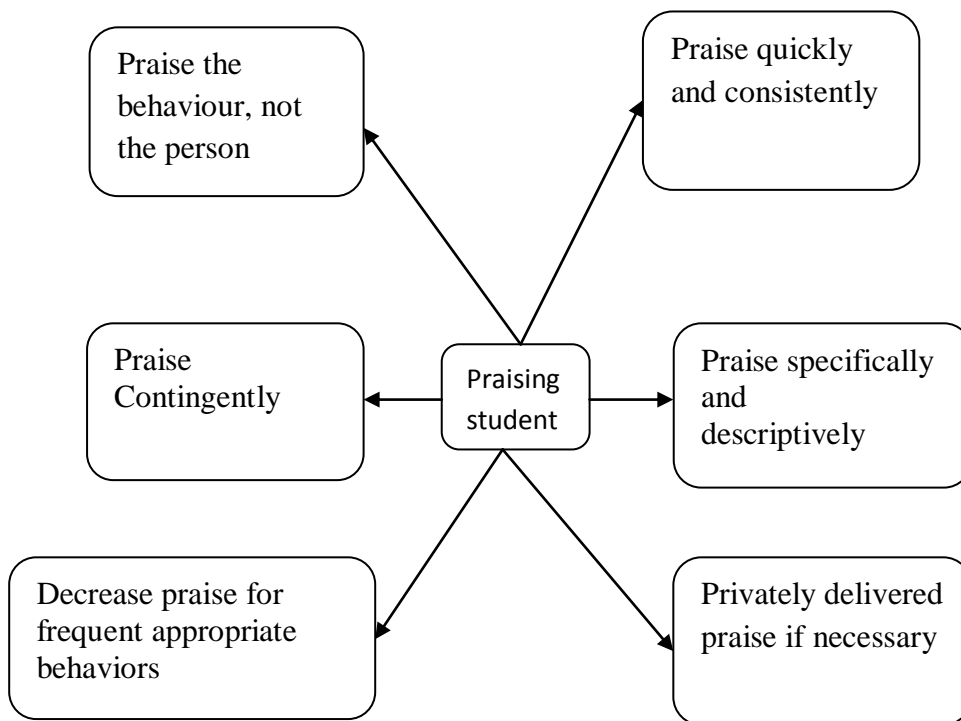
1. Praise the behavior, not the person
2. Praise quickly and consistently
3. Praise only actual instances of the desired behavior; ie praise contingently.
4. Praise specifically and descriptively.
5. Decrease praise for frequent appropriate behaviors.
6. Privately delivered praise may be more effective for older students

Also, they concluded that Effective praise is not about making continual positive statements unrelated to behavior (e.g. ‘Good girl’). Praise delivered non-contingently or directed to the person or product rather than to a specific desired behavior could be less effective. Similarly, lavishly praising behavior that is already learned and frequent may also be counterproductive. But praising students contingently for behaving appropriately is a powerful means of increasing appropriate classroom behavior.

Conceptual Framework

The conceptual framework is the summary of the theoretical framework which is the basis for research study. It is the map and idea to carry out the research. By studying the related literature and theory, the conceptual framework of this research can be presented as follows

Mechanism of giving praise



(Source W. Kevin, B. Robyn and S. Jennifer, 2010, article: Specific and Contingent Teacher Praise, Macquarie University Special Education centre, Australia)

Behaviors of students which were praised were pre-determined. Praise provided continuously for every correct response and group praise was used in interval. The students who need special care were praised privately sometimes. Specific praise was provided for specific behavior of students.

Chapter- III

METHODS AND PROCEDURES

Research is the systematic approach to obtain new and reliable knowledge (Ethridge, 1995). Research methodology is the science which determines how the research becomes complete and systematic. So, methodology is a branch of research. This chapter delineates the design of the study and methods that have used to collect information. The research study is quantitative in nature along with experimental design. In this chapter, the researcher has described the methods and procedure that have been used in research study.

Design of the Study

A research design is procedural plan that is adopted before starting the research study. Therefore research design is the main guideline for researcher. The design that was applied to the study is pre- test post- test non- equivalent group design. The pattern of the study was as follows

Group	Pre- test	Treatment	Post- test
E	T ₁	Teaching by using praise	T ₂
C	T ₁	Teaching without using praise	T ₂

Where

E= Experimental group

C= Control group

T₁ = Pre- test

T₂ = Post- test

Population and Sample of the Study

Population is the entire field of concern where the result and findings research are generalized. Also, sample is the representative portion of the population through which result is

drawn. The population of this research study was all grade V students of public school of Kailali district. Two public schools Pashupati primary and Moti Secondary of Kailali district were selected as sample school. All students of grade V of the sample school were taught by using praise in one school (Pashupati primary) and through usual method in another school (Moti Secondary). There were 27 students in Pashupati primary school and 35 students in Moti secondary school. Out of the 27 students of Pashupati primary school 25 students were chosen for sample and 2 students were excluded from sample because they were irregular in classroom. And, 28 students were chosen for sample from Moti Secondary School and 7 students were excluded from sample because they were taking tuition class.

Sampling Procedure

The process of selecting sample from population is called sampling procedure. In this research study the sample schools were selected by using convenient sampling. Also sample students were selected by purposive sampling method on the basis of regularity in classroom; attendance in test etc and other students were excluded from sample.

Praise Specification

A positive statement by the teacher contingent on a behavior that indicates approval or Satisfaction of student behavior is called praise (Simonsen,2008). Praise is positive statements provided by the teacher to the student's behaviour.

When educators use praise effectively it expresses positive emotions about a student's effort or performance. It can exist in the form of encouragement used to build confidence, and it also realizes that different students require different forms of praise. Used appropriately, praise offers appreciation for student's individual characteristics and helps develop the student's self-

confidence. Appropriate praise is specific and focused; it offers information about a particular student's competency and performance (Simonsen, Myers, & DeLuca, 2010).

According to Jim Wright (2010) stated in "Teacher Praise: An Efficient Tool to Motivate Students", Praise is a powerful motivating tool because it allows the teacher to selectively encourage different aspects of student production or output. For example, the teacher may use praise to boost the student's performance, praising effort, accuracy, or speed on an assignment. Or the teacher may instead single out the student's work product and use praise to underscore how closely the actual product matches an external standard or goal set by the student. By the following views of Jim Wright, the praise can be specified as follow

Table 1**Specification of Praise**

Basis of Praising	Praise specification	Praise frequency
1. Completion of Classwork <ul style="list-style-type: none"> - (75-100)% complete - (50-75)% complete - (25-50)% complete - Up to 25% complete 	1. <ul style="list-style-type: none"> - These students were praised by five stars - These students were praised by four stars - These students were praised by three stars - These students were praised by two stars 	1. Every time (continuous)
2. Completion of Homework <ul style="list-style-type: none"> - (75-100)% complete - (50-75)% complete - (25-50)% complete - Up to 25 % complete 	2. <ul style="list-style-type: none"> - They were praised by ‘ A+’ on their copy and name will be announce of every students who got ‘A+’ - These students were praised by ‘A’ - These students were praised by ‘B+’ - These students were praised by ‘B’ 	2. Every time (continuous)
3. Behaviour <ul style="list-style-type: none"> - Interaction with teacher subject matter 	3. <ul style="list-style-type: none"> - They were praised by saying “you are my one of the favorite student” 	3.

<ul style="list-style-type: none"> - Showing creative behavior - Regularity in classroom attendance 	<ul style="list-style-type: none"> - these students were praised with the word You're Very Responsible and all students will be asked to say thank you his/ her name - these students were praised by giving example of them You're a Great Example For Others 	<p>once a week (Interval)</p>
<p>4. Achievement test score</p> <ul style="list-style-type: none"> - (75-100)% complete - (50-75)% complete - (25-50)% complete - Up to 25% complete 	<p>4.</p> <ul style="list-style-type: none"> - These students were praised by clapping and announcing their name personally and will be praised with the word "Excellent" - These students were praised personally by using the words "I appreciate your work, good work" - These students were praised by the words "way to go", "you can do best" - They were praised by the words "good effort", "you can do better" 	<p>4.</p> <p>After each test (Interval)</p>

Research Variables

A research variable is defined as anything that has quantity or quality that varies. In this research study, the research variable were the following

Independent variable

The factor that will be manipulated and have genuine effect on the observed consequence in the experimental setting is called independent variable. In this research study independent variable are the teaching strategies that is teaching through use of praise and usual way.

Dependent variable

A dependent variable is the variable which is dependent in independent variable. In this research study dependent variable are the achievement score of students obtained by teaching through the use of praise and teaching through usual way.

Extraneous variable

Extraneous variables are factors other than independent variable that might affect the dependent variable. In other words, extraneous variables are undesirable variables that influence the relationship between dependent and independent variables. They are not variables that are actually of interest. In this research study the extraneous variables are subject matter, teacher variable, irregularity in the classroom, health status of the students, examination environment, test, scoring procedure, amount of homework etc.

Controlling of Extraneous Variables

An extraneous variable is a factor whose presence affects the variables being studied so that the result does not reflect the actual relationship. The extraneous variables related to the study were subject matter, teacher variable, attendance, health status of the, duration of teaching period, scoring procedure, test paper, amount of homework and classwork, exam environment, test and scoring procedure. These variables were controlled in the following way

Subject matter

In both the experimental and control group same content were taught with reference to the text book of grade V issued by CDC.

Teacher variable

The experimental and control both group were taught by researcher himself to control the teacher related variable.

Health status of the students

If the health status of sampled students became poor during experimental period or in examination period then it may affect the result of experiment. This situation has been controlled by excluding such students from sample.

Duration of teaching period

Both groups were taught for 45 minute per day to remove the effect of time on the experiment.

Exam environment

If exam environment is not fair then the marks secured by the students does not represent the actual situation of student's understand. So, to make experiment more reliable and valid it is necessary to make exam- environment fair and peaceful. The exam environment had been made peaceful and fair by guarding researcher himself. Cheating, asking with friend were completely controlled.

Test paper

The reliability and validity of test were established and also the difficulty level and discrimination level of each question were calculated to make test more reliable and to control the test related factor.

Scoring Procedure

Scoring was made reliable by using answer key for multiple choice questions and for subjective type question step wise marking scheme was prepared.

Amount of homework and classwork

If amount of homework given to two groups is different then that may affect the result. Therefore same exercise and equal number of problems were given to two groups as homework.

Research Tools

Research tools are the instrument that helps to collect the information for the research study. In this study researcher have used achievement test, observation and interview as the research tools.

Achievement test

Achievement test is the main instrument for collecting data or information for the research study. The researcher administrated two achievement tests one as the pretest and one as the posttest. Both tests contained 10 objective question of multiple choice of 1 mark, 10

questions of subjective type of 2 marks and 5 question of subjective type of 4 marks each. Two tests have been made equivalent by calculating mean and standard deviation on pilot test.

Observation

Observation is an act or instance of viewing or noting a fact or occurrence for some scientific or special purpose. In this research completion of homework, completion of classwork, regularity in classroom attendance, interaction with teacher and creativity of students were observed purposefully. Each category has been observed daily in both experimental and control group.

Interview

An interview is a conversation where questions are asked and answers are given. In common parlance, the word "interview" refers to a one-on-one conversation with one person to another person. In this research, researcher took simple interview with students. For this work 5 students were chosen by lottery method and each studentt was asked questions. The answers said by the respondent were noted in the diary.

Construction of Test

To conduct the experiment, the researcher constructed a test to examine the achievement level of sampled students. The tests were constructed with the help of subject teacher and in the basis of text book of grade V issued by CDC. The test has covered arithmetic section and that was of 50 marks in which 10 question of 1 mark, 10 question of 2 marks and 5 question of 4 marks.

Reliability and Validity of Test

Reliability is the degree to which an assessment tool produces stable and consistent result. There are many ways of determining reliability such as test- retest method, parallel form method, and spilt half method etc. In this research study spilt half method was adopted to examine whether the test is reliable or not. For this the test had been administered to 21 students of another school named Janata Secondary School Munuwa -1 Kailali before starting the experimental study. Then correlation between obtained mark of odd and even number were calculated. The reliability coefficient of pre test and post test are 0.91 and 0.92 respectively where both show that the test paper are highly correlated.

Validity refers to how well a test measure what it is purposed to measure. The validity of constructed test was established through criterion-validity by comparing the scores previously obtained in the school examination and the score of the constructed test. By comparing the achievement score and previous score of the pilot students the test paper was found validate.

Data Collection Procedure

The experimental and control group were taught by researcher himself. These instructional activities were made as a part of regular school activity. The experimental group had been taught by using praise and the control group had been taught through usual method.

At the end of the teaching, a test was administered to each group. Students were inspired to answer freely and without any discussion with each other. After then answer sheets were collected and checked by the researcher himself and obtained marks of the students were tabulated for further analysis.

Also the data were collected from observation by noting the student's activities like completion of homework, completion of classwork, regularity in classroom, interaction with

teacher and creativity in a diary for further analysis. And, the data were collected through interview by asking questions to sample students and answers were noted in diary.

Data Analysis Procedure

The collected data from achievement test were analyzed by using statistical tools. The researcher used the following statistical tools for analyzing the collected data

- Mean and standard deviation were calculated for both groups with their secured marks in pre- test and post- test separately. Mean was used to know the average achievement score of students in both tests and standard deviation was used to find the consistency of obtained marks in test and to calculate t- value.
- T-test for independent sample was used at 0.05 level of significance in achievement score of experimental and control group obtained in post- test to check whether the difference between means of two s group is significantly difference or not.

The data collected through observation and interview were analyzed qualitatively or verbally to produce the reasonable conclusion. The data were analyzed in the basis of direct observation what the researcher had seen in the experiment and the words said by the students in interview. Also, the related theory was used to analyze the data obtained through observation and interview.

Chapter- IV

ANALYSIS AND INTERPRETATION OF DATA

The process by which sense and meaning are made of the data gathered in qualitative research, and by which the emergent knowledge is applied to clients' problems. This data often takes the form of records of group discussions and interviews, but is not limited to this. Through processes of revisiting and immersion in the data, and through complex activities of structuring, re-framing or otherwise exploring it, the researcher looks for patterns and insights relevant to the key research issues and uses these to address the client's brief.

This is an experimental research related to the effect of praise in mathematics learning at grade V. The objectives of the study were to examine the effect of praise in the achievement level of mathematics and to examine the effect of praise in changing behavior of learning mathematics. The design of the study was pre test post test non equivalent group design. To conduct the study 25 students were chosen for sample from Pashupati Primary School and 28 students were chosen from Moti secondary school for control group.

Analysis of Pre- Test Result

In this section, the researcher has presented the data of pretest in detail. The scores of students have been given in Appendix 'G' with mean variance and standard deviation. The t- test analysis of pretest has been presented in the following table

Table 2

Comparison of the achievement scores of experimental and control group in pre-test

Group	N	Mean	S.D	Variance	t- value	Remarks
Experimental	25	20.72	6.78	45.96	0.023	Null hypothesis accepted
Control	28	20.78	6.99	48.89		

From the above table, the mean and standard deviation of the experimental and control group were approximately equal. The mean achievement score of both experimental and control group were compared statistically using t- test at 0.05 level of significance. The above table shows that the calculated value 0.023 is less than tabulated value 2.007 at 0.05 level of significance with degree of freedom 51 in two tail. Therefore the null hypothesis is accepted and the mean achievement score of two groups are equal in pre test. That means the mean achievement score of the experimental and control group in pretest are equal.

Analysis of Post- Test Result

At the end of the experiment, the designed posttest was administrated to both experimental and control group. The data such as mean, standard deviation, and variance have been shown in the following table

Table 3

Comparison of the achievement scores of experimental and control group in post-test

Group	N	Mean	S.D	Variance	t- value	Remarks
Experimental	25	28.24	5.27	27.77	3.69	Null hypothesis rejected
Control	28	22.68	5.67	32.00		

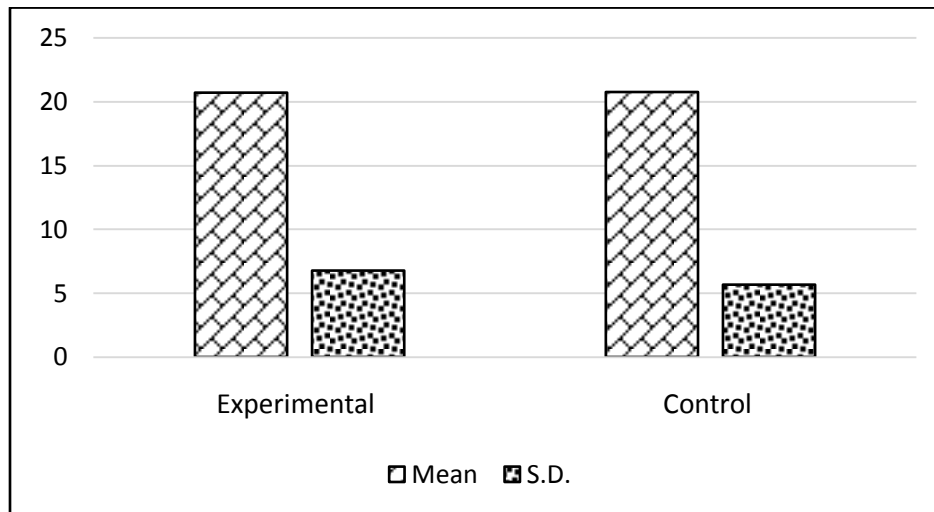
From the above table, the mean of experimental and control group are not equal and standard deviation also unequal. The mean achievement score of both experimental and control group were compared statistically by using t- test at 0.05 level of significance. The above table shows that the calculated t- value is 3.69 which is greater than the tabulated value 1.67 at 0.05 level of significance with degree of freedom 51 in one tail test. Therefore, the null hypothesis was rejected and the researcher concluded that the mean achievement score of the gorup teaching through praise is greater than the mean achievement score of the students who were taught by usual methodThis difference occurred due to the use of praise in experimental group and usual method in control group.

Result Analysis of Pre- Test and Post in Bar Diagram

Bar diagram is the visual of the data. It helps teachers, students, and others to understand the data result more effectively. The above information and interpretation can be easily understandable if they are depicted through bar diagram. The researcher presented the data in bar graph which is given below:

Bar Diagram 1

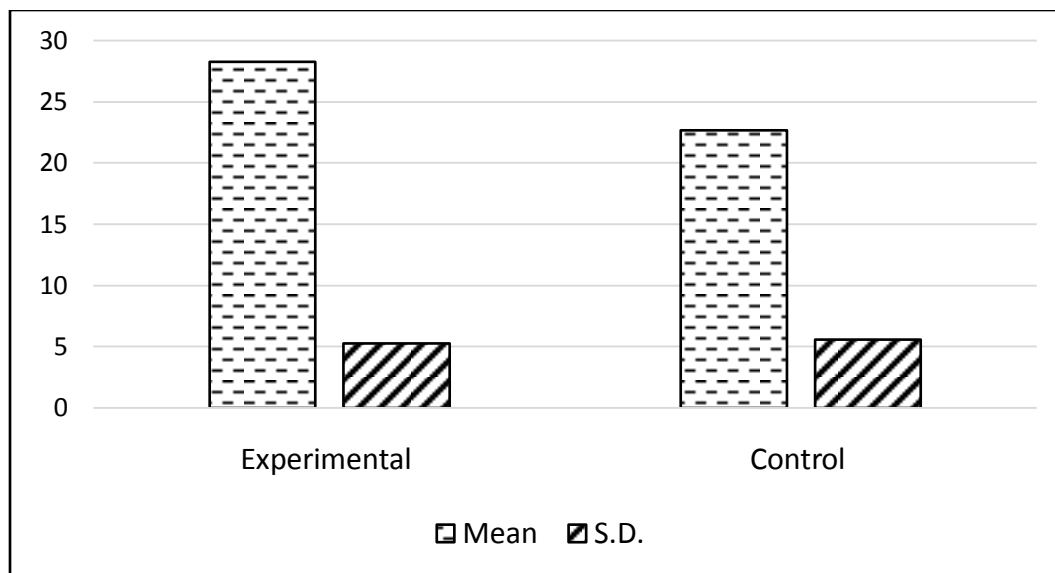
Mean Score and S.D Score Distribution of Pre- Test Result in Bar Diagram



The above bar diagram indicates the mean and standard deviation of experimental group and controlled group on pretest. The bar diagram 1 show that difference in mean scores and standard deviation scores obtained by the students of experimental and controlled group on pretest are 0.06 and 0.21. These show that there is no measurable difference.

Bar Diagram 2

Mean Score and S.D Score Distribution of Pre- Test Result in Bar Diagram



The above bar diagram shows that the mean and standard deviation scores obtained by the students of experimental and control groups on posttest are 5.56 and 0.40. These show that the standard deviation score of experimental group is not remarkably greater than the score of standard deviation of controlled group. This indicates that the individual student in experimental group was almost very near to each other than the individual student of controlled group. This indicates that the experimental group had better result than the controlled group. Therefore the bar diagram 2 depicts that the mean achievement scores of the students taught by usual method of teaching of grade V in Kailali district.

Homework and Praise

Homework or assignment is a set of tasks assigned to students by their teachers to be completed outside the class. Homework helps teachers to determine how well the lessons and material are being understood by their students. Homework gives students another opportunity to review the class material. Homework gives parents a chance to see what their child is learning in school.

In this study researcher had tried to examine the effect of praise on the homework completion rate of the students. For this researcher classified the students who had done their homework in

to four categories as below 25% complete, 25 to 50% complete, 50- 75 % complete and above 75% complete. And every day the students were classified into these four categories and total number of students in each category of both experimental and control group had noted. The Appendix I shows the record of each day of homework completion. From appendix I, it is found that the rate of completion of homework in experimental group has been gradually increased but in control group the rate of completion of homework is nearly constant.

Researcher conducted interview with sampled students. The question and answer related to homework are:

Researcher: *Does providing praise encourage you to do homework? And why?*

Respondent A: *“Yes, providing praise encourages me to do homework because I feel happy when I’m praised in front of my friend.”*

Respondent B: *“Yes, it encourages me to do homework because I always want to get praise.”*

Respondent C: *“Yes, providing praise when I do my homework encourages doing daily.”*

Respondent D: *“Yes, it encourages me to do homework because teacher gives A⁺”*

Respondent E: *“Yes, providing praise when I complete my homework encourages me to do more.”*

Therefore the data collected through observation related to completion of homework shows that using of praise in teaching learning mathematics brings positive effect. That means the rate of completion the homework becomes high. If teacher provide praise while completion of homework to the students they were encourage to do more and more. Also, the students who got praised feel proud in front of their peers which help to increase the rate of homework completion. The students who got A⁺ found very happy and the students who got A, B⁺, or B

tried to get A⁺. This is the positive impact of praise. Also, by the view of students providing praise, it encourages students to complete their homework. While observing, it is also found that the students were showing their grade to other students. That means they were feeling proud by getting the grade. We think providing A⁺, A,B⁺ or B into the students copy is small think, but they consider it as a great thing which motivates students to complete their homework.

Classwork and Praise

The written or oral work done in a classroom by a student is classwork. That is the work done in a classroom by the students and teacher jointly is called classwork. Classwork makes student active and provides opportunity to show knowledge and creativity for the students. The researcher observed the rate of classwork done by the students in the classroom and they were classified into four categories as below 25% complete, 25 to 50% complete, 50- 75 % complete and above 75% complete and they were praised by five stars, four stars, three stars or two stars in experimental group and only right or wrong was given to control group students. The researcher provided praise according to the categories of the students. From the Appendix J, we can see that the use of praise in teaching learning mathematics increases the completion of classwork. On the other hand the rate of doing classwork in control group did not increase. That means the use of praise increases the rate of completing classwork.

Researcher asked the following question to the experimental group students and their responses are as follow:

Researcher: *Does providing praise to your classwork encourage you to complete your classwork daily?*

Respondent A: *“Yes, praising to my classwork it encourage me to complete my classwork because I always want to be praised from my teacher.”*

Respondent B: *"I complete my classwork to get praise from teacher."*

Respondent C: *"Praise makes me active to do my class work."*

Respondent D: *"Yes, it helps me to complete my classwork because I'm happy when I got 5 stars."*

Respondent E: *"Yes, because it gives me energy to do my classwork."*

Thus we can say that if we provide praise when students complete or partial complete their classwork then it encourages students to do classwork daily. The rate of completing classwork in experimental group is higher than the rate of completing classwork in control group which is the result of using praise in teaching learning mathematics. From the students point of view, providing praise in completing classwork, it helps to encourage them to do more. Also, it makes the students active and encourage to complete their classwork. Therefore, we should provide praise to students which help them to complete their classwork perfectly.

Attendance and Praise

Attendance in classroom represents the presentation in the classroom. Attendance in classroom is essential for every students because without attend in the classroom nobody can perform well. In this study research had observed the attendance of control and experimental group each day. A form was generated to note how many students of both control and experimental group were present each day. From the Appendix K, we can see that the rate of attending class in experimental group is higher than the control group. At the initial stage of the experiment, the attendance of both group found inconsistency but after 5 days of experiment the attendance of experimental group found consistent and nearly all students were presented in the classroom but in the control group the attendance of the students remained inconsistency.

Researcher conducted an interview related with praise and attendance to the students of experimental group which is presented below:

Researcher: *Do you like attend your class everyday if you praised? And why?*

Respondent A: *“Yes, I would like to attend my class every day if I’m praised because it makes me happy.”*

Respondent B: *“Yes, it encourages me to attend my classroom every day.”*

Respondent C: *“Yes, because I feel proud myself to be praised.”*

Thus, the data collection through observation and interview we can say that the use of praise in teaching learning mathematics works as a pull factor. If we praised students who come every day then it is found that other students also tried to attend more and more days because they also wants to get praise. But in the control group it was found that that they attend their class without any interest. Therefore to make the students interested to attend their class the use of praise is a powerful means.

Interaction with Teacher and Praise

Interaction with teacher increases intimacy between teacher and students. In this research study the researcher observed the behavior of both experimental and control group during experiment related to interaction with teacher and the main questions asked by the students and no of such student were noted in dairy. The researcher praised the students who were actively participated in interaction with teacher every day in experimental group and did not provide any praise to the group of control group students. Number of students and what questions they asked were presented in Appendix L. From Appendix L, we can see that the number of students involved in interaction is high and they raised important questions but in control group such students were found less.

The researcher asked the question and the responses of the students were as follow:

Researcher: Does praise encourage you to involve in interaction? Why?

Respondent A: "Yes, it encourages me to involve in interaction with teacher because it increases intimacy with teacher and improve knowledge."

Respondent B: "Yes, when I got praised it inspires me to involve in interaction with teacher."

Respondent C: "Yes, because praise is important."

Thus the data collected through observation and interview shows that the use of praise increases the rate of active participation in interaction with teacher. It increases the intimacy between teacher and students. If the intimacy increases then it helps students to keep their feelings and questions clearly with their teacher which helps to increase their mathematical knowledge effectively.

Creativity and Praise

The action doing differently or the thought thinking differently is creativity. Creativity makes students different than other. Creative students always try to solve problems in different way. In this research, researcher observed the creative behavior of the students of both experimental and control group during experiment. The creative behaviors of the students of experimental group were praised each time and the creative behaviors of the students of control group were not praised. During the experiment the rate of showing creative behavior in experimental group is gradually increasing. Students of experimental group tried to solve problem differently when their behavior were praised.

Researcher asked question for experimental group. The question and the responses of the students are as follow:

Researcher: *Do you like to do more creative work if your teacher praised your creative behavior?*

Respondent A: *“Yes, if teacher provide me praise for my creative than I got energy to do more creative work.”*

Respondent B: *“Yes, to encourage students to do creative work, praise is best.”*

Respondent C: *“Yes, praise helps me to do more creative work.”*

From the data collected through observation and interview, we can say that providing praise to the creative behavior of the students helps them to raise such behavior. Creativity is important aspect in behavior. If students are creative in mathematics then they will also creative in other field and subjects. So, to encourage and promote creativity in students the use of praise in teaching learning mathematics is a good means. On the other hand the creativity level of the students of control group found constant. This shows that the teaching mathematics by using praise helps to increase creative behavior in students rather than the usual method.

Finally it was also fund students were participating actively. They were encouraged to solve the answer of given questions. Researcher and students interaction is friendly, interesting and students were participation in all the classroom activities. They attained the classroom regularly. On the basis of classroom instruction, the researcher observed that the use of praise in teaching mathematics concepts was found motivating and interesting to facilitate for active participation in the classroom activities. On the other hand, teaching mathematical concept by using usual method was less interesting and motivating to clarity mathematical concept. It was also difficult to activate students as well as crate interest in the problem.

Chapter- V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

After analyzing and interpreting the collected data it is necessary to draw the conclusion and reasonable inference. This chapter is basically concerned on the summary, findings and conclusions of experimental research on the topic “Effect of Praise in Mathematics Learning at grade V”.

Summary of the Study

Mathematics plays an important role in the development of human civilization and mathematics learning helps students to understand and interpret the important quantitative and qualitative aspects of living. Praise plays a vital role to achieve the goals and objectives. When praising the students behavior it is essential to know that in what time it should be presented. Thus praise bring better result if it is used properly in teaching learning mathematics. This study was concerned with the effect of praise on student’s mathematics learning at grade V. Mainly this research searched the answers of questions; does the use of praise in teaching learning mathematics affects the student's achievement? And how do they feel when they are taught by using praise and usual method? Therefore the objectives of this study were to compare the achievement of students taught with providing praise and taught through usual method and to explore the student's changed behavior while teaching with praise. For this aim the researcher developed the achievement test for the grade V on the basis of mathematics text book, teacher guide and curriculum in order to ascertain items.

The research was experimental in nature in which the researcher had developed achievement test and instructional teaching with different lesson plans. The design was pretest,

posttest nonequivalent group design. The achievement test has been administered to both experimental and controlled groups. For this study, the researcher had developed the test items with the help of prescribed curriculum and textbook of grade V. In order to ascertain item difficulty level, discrimination power and reliability of the item, pilot study was conducted. Grade V students of two schools of Kailali district were chosen for study area by convenience sampling. The t-test was applied in order to ascertain the difference between two groups. The researcher himself taught the selected unit to both experimental and controlled groups. The instruction period was 21 periods only. A posttest was administered to the sample of the students in both groups with the same questions.

Researcher prepared three research tools; constructions of achievement test, Observation and interview. The researcher taught the chapter arithmetic in class five's textbook prescribed by government of Nepal. And also the researcher himself kept the information about the students' behavior throughout the daily classroom observation and interview of sampled students of experimental group. After the completion of the experimental stage, an achievement test of three marks including 10 objective questions of one mark ten subject questions of 2 marks and 5 subjective questions of 4 marks were adapted to both experimental and controlled group. Then obtained data were analyzed and interpreted by using t-test at 0.05 level of significance in one tail. Experimental group was found to achieve better than the controlled group. Hence it is concluded that use of praise brings better achievement than usual method it develops intrinsic motivation in the students. Hence we can that positive motivation like praise reward makes the classroom effective.

Findings of the Study

The purpose of this study was to find effect of praise on student's mathematics learning at grade V. After analyzing the pretest and posttest result of achievement test, the data obtained

through observation and interview it is evinced that implementing praise in teaching learning mathematics in the classroom indeed increase the student learning ability and their practices. The motivational activities are important for mathematical classroom because they helped to increase the student interest in the mathematics. Praise helps to modify the student behavior.

On the basis of analysis and interpretation of the data and remarkable features on students classroom activities while providing praise, the researcher drew following information or results.

- The mean of experimental group and control group in pre test were 20.72 and 20.78 and in post test were 28.24 and 22.68 respectively. Therefore, the mean achievement score of experimental group increased than the mean achievement score of control group after experiment.
- Standard Deviation of achievement score of pre test of experimental and control group were 6.78 and 6.99 respectively and of post test was 5.27 and 5.67 which shows that the scores of post test of experimental group were more consistent than the score of control group.
- The t- value of pre- test achievement score was 0.023 where tabulated value of t is 0.67. This shows that there is no significance difference in pre test mean of experimental and control group. But the t- value of post test result is 3.69 where tabulated t value is 0.67 which shows that the mean score of experimental group than the mean achievement of control group.
- The rate of doing homework and classwork at the initial stage was same. After experiment the rate of doing homework in the experimental group is improved while the rate of doing homework and classwork in control group did not increase. The cause of increase in such rate is the use of praise in teaching mathematics.

- The students of experimental group found more interactive with teacher and creative than the control group. The main cause of such change is that they feel intimacy with teacher and motivated intrinsically to do new.

Conclusion of the Study

Use of praise in teaching geometry at grade V is significantly benefited. Thus we should use praise in teaching mathematics which improves achievement score of the students and also improves the rate of completion of homework, classwork, interaction with teacher and creativity in the students. If the learning behavior of students become positive then it helps to students develop achievement score. That is if students complete their homework, classwork everyday then students knowledge in subject matter becomes high and if students interact with teacher then the students feel closeness with teacher and do not hesitate to express their feeling about subject matter which helps to increase their mathematical knowledge.

Recommendation of the Study

On the basis of this study, the following suggestions have been put forward for further research. First more extensive research studies must be designed and carried order to investigate the effect and use of praise in teaching mathematics in large samples and various schools of different parts of Nepal. Second workshop seminars and conference of the teachers should be organized for the improvement of teaching activities and to promote the appropriate teaching technique with intrinsic motivation also be conducted for different level and different areas. Finally, similar studies should be conducted in other grades of Basis Education level and samples should be selected from different districts.

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APPENDIX A

Lesson plan: 1

Chapter: Concept of number Time: 45 min.

Topic: Prime factorization of Numbers

Period: 2nd

Class: 5

Date.....

Specific Objectives: After completion of the lesson students will be able to

- Find prime factors of the given numbers by continuous division method
- Find prime factors of the given number by tree diagram method

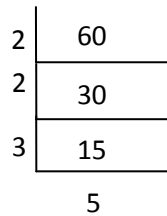
Teaching Materials: Daily use materials

Teaching Learning Activities:

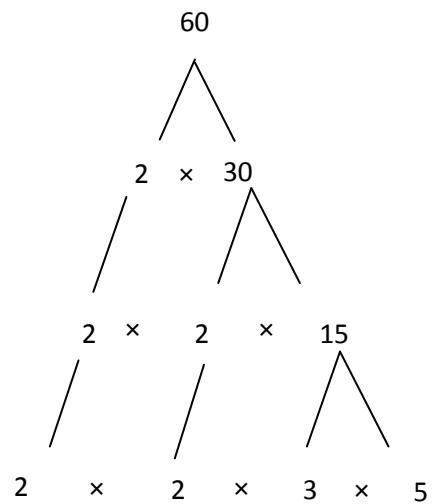
- At first homework will be checked and praise will be provided as A⁺, A, B⁺ in their copy according to the completion of the homework and the name of students who got A⁺ will be announced to encourage the good behaviour.
- After then some examples will be solved related to prime factorization by continuous method and tree diagram method as
Find the prime factors of 60 by using continuous division method and tree diagram method

Solution:

Continuous division method:



Tree diagram method:



Therefore, Prime factors of $60 = 2 \times 2 \times 3 \times 5$

- Then following works will be given as class work
 1. Find the prime factors of 90 by using continuous division method
 2. Find the prime factors of 144 by using tree diagram method
- After then class work will be checked and praise will be provided as 5,4,3,2 stars according to completion and correctness of the class work.

Homework: The question no 1, 2 and 3 of the exercise will be given as the homework.

Lesson plan: 2

Chapter: Operation in Mathematics Time: 45 min.

Topic: Fundamental Operation in Mathematics

Period: 2nd

Class: 5

Date

Specific Objectives: At the end of the lesson students will be able to

- Simplify given problem by applying rules of fundamental operation in mathematics
- Express given word problem in mathematical language and simplify the problem

Teaching Materials: Daily use materials

Teaching Learning Activities:

- Homework check: At first home work of previous lesson will be checked and praise will be provided as A⁺, A, B⁺, B according to the completion and correctness of the home work and the students who got A⁺ will be announced personally to praise them for further succession.
- Concept Formation: At first concept of simplify will be provided by taking specific example as

Simplify: $15 \div 5 \times 3 + 7 - 15$

Solution: $15 \div 5 \times 3 + 7 - 15$

$$= 3 \times 3 + 7 - 15 \quad [\text{Division is done at first}]$$

$$= 9 + 7 - 15 \quad [\text{After division multiply is done}]$$

$$= 16 - 15 \quad [\text{After multiplication addition is done}]$$

$$= 1 \quad [\text{At last subtraction is done}]$$

Express into mathematical form and solve it: 20 is subtracted from two times of 16 and add 13

Solution:

Mathematical form: $16 \times 2 - 20 + 13$

{Solve of the above problem will be given to the students}

- Class work:

1. Simplify: $6 \times 64 \div 16 + 7 - 21$

2. Express into mathematical form and solve: how many will remain if two times of one third of 9 is subtracted from 15?

After then class work of the students will be checked and praise will be provided as 5, 4, 3, 2 stars in their copies according to the completion and correctness of the classwork.

Home work: the question no. 1 and 2 of the exercise 3.1 will be given as homework.

Lesson plan: 3

Chapter: Operation in Mathematics

Time: 45 min.

Topic: Use of brackets in simplification

Period: 2nd

Class: 5

Date.....

Specific Objectives: At the end of the lesson students will be able to

- Simplify given problem having brackets
- Express given word problems into mathematical language and simplify it

Teaching materials: Daily use materials

Teaching Learning Activities:

- Homework checking: At the beginning of the class homework of the previous lesson will be checked and praise will be provided as A⁺, A, B⁺, B according as the correctness and completion of the homework. Also the group of the students who got A⁺ will be announced as the today's special group.
- Concept formation: The concept of simplifying problems involving brackets will be given through a specific example and the word problems related to brackets will be solved.

1. simplify: $8+14\times[10\div\{8-(15\div5)\}]$

Solution: $8+14\times[10\div\{8-(15\div5)\}]$

$$= 8+14\times[10\div\{8-3\}] \quad [\text{At first small brackets should be removed}]$$

$$= 8+14\times[10\div5] \quad [\text{After then curly brackets should be removed}]$$

$$= 8+ 14\times2 \quad [\text{At last big brackets should be removed}]$$

$$= 8+28$$

$$=36$$

2. Express into mathematical form and solve: how will remain if the sum of 5 and 2 is multiplied by 3 and subtracted 6?

Mathematical form: $(5+2)\times3-6$

{ solve will be left to the students }

- Classwork: The following problems will be given as classwork

1. Simplify: $80-5\{9-(14-12)\}\div 5$

2. Express into mathematical form and solve it: If the difference of the 16 and 7 is subtracted from the one fourth of the sum of 16 and 20, then how many will be remain?

After then classwork of the students will be checked and praised will be provided as 5,4,3 and two stars according as the completion and correctness of the homework.

Homework: The question no 1 and 2 of the exercise 3.2 will be given as homework

Lesson plan: 4

Chapter: Fraction and Decimal

Time: 45 min.

Topic: Addition of mixed Fraction

Period: 2nd

Class: 5

Date

Specific objective: at the end of the lesson students will be able to

- Add two mixed fractions

Teaching materials: Daily use materials

Teaching Learning Activities:

- Homework checking: At first homework of the previous lesson will be checked and praise will be given in their copies as A⁺,A,B⁺,B according to the completion and correctness of the homework and the special group of the students will be formed of the students getting A⁺
- Concept formation: the concept of fraction and mixed fraction will be developed by the following diagram



figure 1



figure 2

How many parts are there in the figure 1?

How many part of the figure 1 have been coloured?

How many part of the figure 1 have not beencoloured?

These questions will be asked to the students and correct answer giving students will be praised by the word excellent

- Classwork: The following problems will be given as classwork

1. Add: $2\frac{3}{5} + 1\frac{2}{5}$

2. Add: $3\frac{4}{7} + 2\frac{3}{14}$

After then the classwork of the students will be checked and praise will be provided as 5,4,3 or 2 stars according to the completion and correctness of the classwork.

Homework: Question no. 1 – 6 of the exercise 12.1 will be given as homework.

APPENDIX B

Pre-test paper

Class: 5

Time: 1 hr.

Sub: Mathematics Full mark: 50

Pass mark: 16

Group 'A' $10 \times 1 = 10$

1. In 34567, the place of 5 is:
a) once b) tens c) hundred d) thousand
2. Which is true according to international system
a) 12,34,30,316 b) 1,23,43,03,16 c) 1,234,303,16 d) 123,430,316
3. Which is prime number
a) 36 b) 37 c) 38 d) 39
4. The cube root of 64 is
a) 2 b) 3 c) 4 d) 5
5. In simplification which operation is carried out at first

- a) Division b) Multiplication c) Addition d) Subtraction
6. A fraction is called improper if
- a) Numerator is greater than denominator
b) Denominator is greater than numerator
c) Numerator is less than denominator
d) Numerator is equal to denominator
7. $2\frac{1}{4}$ equals to
- a) $\frac{6}{4}$ b) $\frac{7}{4}$ c) $\frac{9}{4}$ d) $\frac{2}{4}$
8. $\frac{2}{10}$ equals to
- a) 0.2 b) 2 c) 0.02 d) 20
9. If the cost of a copy is Rs. 5 , then the cost of 3 copies is
- a) 5 b) 10 c) 15 d) 20
10. While converting percent into fraction, we should
- a) Add 100
b) Subtract 100
c) Multiply by 100
d) Divide by 100

Group 'B' $10 \times 2 = 20$

11. Insert comma according to Hindu Arabic number system: 18110460
12. List the prime numbers between 20 and 30.
13. Rounding off 830 into the nearest hundred.
14. Write down the square root of 36 and 81
15. Simplify: $9 \div 3 \times 2 + 1$



16. Write down the fraction represented by the shaded portion:

17. Multiply: $\frac{3}{5} \times \frac{2}{5}$

18. Multiply: 0.6×12

19. Express into percentage: $\frac{17}{20}$

20. What will be the simple interest of Rs 300 in a year with 5% interest p.a.?

Group 'C' $5 \times 4 = 20$

21. Write 2476893 in place value table according to Hindu Arabic system.

22. Find the prime factors of 675 by continuous division method

23. Simplify: $80 - 5\{9 - (14 - 12)\} \div 5$

24. In a classroom there are 40 students. If there is 15 girls, find the percent of boys.

25. The cost of 2 dozen copy is Rs 240. Find the cost of 3 copies.

Post-test paper

Class: 5

Time: 1 hr.

Sub: Mathematics Full mark: 50

Pass mark: 16

Group 'A' $10 \times 1 = 10$

1. which is the place of 2 according to international system in 4263578
a) Hundred b) Thousand c) Ten thousand d) Hundred thousand
2. How many thousands are there in a lakh
a) 10 b) 100 c) 200 d) 300
3. Which is prime number
a) 66 b) 67 c) 68 d) 69
4. Which number is square as well as cube
a) 49 b) 64 c) 81 d) 100
5. What are the prime factors of 6
a) 1,2,3,6 b) 1,2,4,6 c) 1,2,4,6 d) 1,2,3,4
6. While simplifying which brackets is removed at first
a) Small b) middle c) big d) any of them
7. If you eat 3 breads out of 5 breads, then it can be written in fraction as
a) $\frac{3}{5}$ b) $\frac{5}{3}$ c) $\frac{8}{5}$ d) $\frac{5}{8}$
8. Which is proper fraction
a) $\frac{6}{5}$ b) $\frac{5}{4}$ c) $\frac{4}{3}$ d) $\frac{2}{3}$

9. The value of 1.2×100 becomes

- a) 120 b) 120 c) 12 d) 1.2

10. If you take Rs 500 borrowed from friend and return Rs 520 after 1 year @ 4% P.a., then which is principle

- a) 520 b) 1 c) 500 d) 4

Group 'B' $10 \times 2 = 20$

11. Write 123, 430,316 into words according to international system.

12. Simplify: $63 \div 9 \times 7 + 4 - 52$

13. Simplify: $8 + 14 \times \{(8 - 2) + 3\} \div 18$

14. Add: $2\frac{1}{3} + 1\frac{2}{9}$

15. Simplify: $0.06 - 4.27 + 5.38$

16. Write down the fraction of shaded region and express it into percentage



17. Find the value of : 5% of 60

18. Find the square number of: 5 and 7

19. Find the difference of cube and square of 4.

20. If the cost of 2kg sugar is Rs. 150, then find the cost of 5kg sugar.

Group 'C' $5 \times 4 = 20$

21. Write in the number and make the place value table according to international system:

Fifty- seven million nine hundred twenty- six thousand one hundred and thirty- three

22. Find the prime factors of 252 by tree diagram method.

23. Make mathematical sentence and simplify: subtract difference of 16 and 7 from one fourth of the sum of 16 and 20.
24. Ram took $\frac{1}{2}$ parts and shyam took $\frac{3}{10}$ of the total money having in a bag. If remaining money is taken by Mahesh, then how part of the money does Mahesh take?
25. Find the interest of 100 in 7 yrs. @ 11% p.a.

APPENDIX C

Item analysis of pre- test

students	Upper 27% students with correct response							Lower 27% students with correct response							P value	D value	Remarks
	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total			
1	1	1	0	1	1	0	4	1	0	0	0	1	1	3	0.58	0.17	Modified
2	1	1	1	1	1	1	6	0	1	0	0	0	0	1	0.58	0.83	Retained
3	1	1	1	1	1	0	5	0	0	0	1	0	0	1	0.50	0.67	Retained
4	1	1	1	1	1	1	6	0	0	0	1	1	0	2	0.67	0.67	Retained
5	0	1	1	0	0	0	2	0	1	0	0	0	0	1	0.25	0.17	Modified
6	1	1	1	1	0	1	5	1	0	1	0	1	0	3	0.67	0.33	Retained
7	0	0	1	1	1	1	4	0	1	0	0	0	1	2	0.50	0.33	Retained
8	1	1	1	0	0	0	3	0	0	1	0	0	1	2	0.42	0.17	Modified
9	1	1	1	1	1	1	6	0	0	0	0	1	0	1	0.58	0.83	Retained
10	1	1	0	0	1	1	4	0	0	0	0	0	1	1	0.42	0.50	Retained
11	1	1	1	0	1	1	5	1	1	0	1	0	0	3	0.67	0.33	Retained
12	1	0	0	1	1	1	4	0	0	0	0	1	1	2	0.50	0.33	Retained
13	1	1	1	1	1	1	6	0	1	1	1	0	0	3	0.75	0.50	Retained
14	1	1	1	1	1	0	5	1	0	0	1	0	0	2	0.58	0.50	Retained

15	1	1	1	1	0	1	5	0	1	1	0	1	0	3	0.67	0.33	Retained
16	0	0	1	0	1	1	3	0	0	0	0	0	1	1	0.33	0.33	Retained
17	1	0	0	1	0	1	3	0	0	0	0	0	1	1	0.33	0.33	Retained
18	1	1	1	1	1	1	6	0	0	1	0	1	0	2	0.67	0.67	Retained
19	1	1	0	1	1	0	5	0	0	1	1	0	0	2	0.58	0.50	Retained
20	1	1	1	1	0	1	5	0	1	1	0	0	0	2	0.58	0.50	Retained
21	1	1	1	1	1	0	5	1	0	0	0	1	1	3	0.67	0.33	Retained
22	1	1	1	0	1	1	5	0	0	0	1	0	0	1	0.50	0.67	Retained
23	1	1	1	1	1	1	6	0	0	0	0	0	1	1	0.58	0.83	Retained
24	1	1	1	1	1	1	6	0	0	1	0	0	0	1	0.58	0.83	Retained
25	1	1	1	1	1	1	6	0	0	0	1	1	0	2	0.67	0.67	Retained
26	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0.17	0.00	Removed

APPENDIX D

Item analysis of post- test

Students	Upper 27% students with correct response							Lower 27% students with correct response							P value	D value	Remarks
	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total			
Item no.																	
1	1	1	0	1	1	1	5	0	1	1	1	0	0	3	0.67	0.33	Retained
2	1	1	1	1	1	1	6	0	0	0	0	1	1	2	0.67	0.67	Retained
3	1	1	1	0	1	1	5	1	0	1	0	0	1	2	0.58	0.50	Retained
4	1	1	1	1	1	0	5	1	0	0	0	0	0	1	0.50	0.67	Retained
5	1	1	1	1	0	0	4	0	1	0	0	1	1	3	0.58	0.17	Modified
6	1	1	0	1	0	1	4	1	0	0	1	0	0	2	0.50	0.33	Retained
7	0	0	1	1	1	0	3	0	0	0	1	0	0	1	0.33	0.33	Retained

8	1	1	1	0	0	1	4	1	1	0	0	0	0	2	0.50	0.33	Retained
9	1	1	1	1	1	1	6	0	0	1	0	1	0	2	0.67	0.67	Retained
10	1	0	0	1	1	1	4	0	0	0	1	0	1	2	0.50	0.33	Retained
11	1	1	1	1	1	0	5	0	0	0	0	1	0	1	0.50	0.67	Retained
12	1	1	1	1	1	1	6	0	1	1	1	1	0	4	0.83	0.33	Rejected
13	1	1	1	0	1	1	5	0	0	1	0	0	1	2	0.58	0.50	Retained
14	1	1	1	0	1	1	5	0	0	1	0	0	0	1	0.50	0.67	Retained
15	1	0	1	1	0	1	4	1	0	0	0	0	1	2	0.50	0.33	Retained
16	1	1	1	1	1	0	5	0	1	0	1	0	0	2	0.58	0.50	Retained
17	0	1	1	1	0	0	3	0	0	0	0	1	0	1	0.33	0.33	Retained
18	1	1	1	1	1	1	6	0	1	0	0	0	1	2	0.67	0.67	Retained
19	1	1	1	1	1	1	6	0	0	0	0	0	0	0	0.50	1.00	Retained
20	1	1	0	1	0	0	3	0	0	0	0	1	0	1	0.33	0.33	Retained
21	1	1	1	0	1	1	5	0	0	0	1	0	1	2	0.58	0.50	Retained
22	0	0	1	1	1	1	4	0	0	1	0	0	0	1	0.42	0.50	Retained
23	1	1	0	1	1	1	5	1	0	0	1	1	1	4	0.75	0.17	Modified
24	1	1	1	1	1	1	6	0	0	1	0	0	0	1	0.58	0.83	Retained
25	1	1	1	1	1	1	6	0	1	0	0	0	0	1	0.58	0.83	Retained
26	1	1	1	0	0	1	4	0	0	0	0	1	1	2	0.50	0.33	Retained

APPENDIX E

Reliability coefficient of pre- test

Student	X(odd)	Y(even)	X ²	Y ²	XY
1	11	11	121	121	121
2	11	10	121	100	110
3	10	11	100	121	110
4	11	8	121	64	88
5	8	10	64	100	80
6	8	9	64	81	72
7	10	9	100	81	90

8	7	7	49	49	49
9	8	7	64	49	56
10	6	8	36	64	48
11	6	6	36	36	36
12	7	5	49	25	35
13	7	6	49	36	42
14	5	4	25	16	20
15	6	6	36	36	36
16	5	6	25	36	30
17	5	4	25	16	20
18	3	5	9	25	15
19	5	2	25	4	10
20	5	3	25	9	15
21	3	3	9	9	9
N= 21	$\sum X= 147$	$\sum Y= 140$	$\sum X^2= 1153$	$\sum Y^2=1078$	$\sum XY= 1092$

$$\text{Correlation coefficient}(r_{xy}) = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}} = 0.83$$

$$\text{Reliability of whole test } r_{tt} = \frac{2r_{xy}}{1+r_{xy}} = 0.92$$

APPENDIX F

Reliability coefficient of post- test

Student	X	Y	X ²	Y ²	XY
1	11	13	121	169	143
2	8	7	64	49	56
3	7	7	49	49	49
4	11	11	121	121	121
5	10	10	100	100	100
6	5	4	25	16	20
7	10	9	100	81	90
8	4	4	16	16	16
9	3	4	9	16	12

10	9	10	81	100	90
11	8	8	64	64	64
12	9	8	81	64	72
13	4	4	16	16	16
14	11	10	121	100	110
15	9	7	81	49	63
16	7	7	49	49	49
17	9	9	81	81	81
18	4	2	16	4	8
19	6	4	36	16	24
20	8	9	64	81	72
21	9	7	81	49	63
N= 21	$\sum X=162$	$\sum Y= 153$	$\sum X^2=1376$	$\sum Y^2= 1290$	$\sum XY=1319$

$$\text{Correlation coefficient } (r_{xy}) = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

$$= 0.85$$

$$\text{Reliability of whole test } r_{tt} = \frac{2r_{xy}}{1 + r_{xy}}$$

$$= 0.94$$

APPENDIX G

Pre- test score of the students of experimental and control group

(Obtained scores arranged in descending order)

Experimental group				Control group			
S.N.	Marks	S.N.	Marks	S.N	Marks	S.N	Marks
1.	35	17.	17	1.	33	17.	18
2.	32	18.	16	2.	32	18.	18
3.	29	19.	16	3.	31	19.	17
4.	28	20.	15	4.	31	20.	17

5.	28	21.	15	5.	29	21.	15
6.	26	22.	13	6.	28	22.	14
7.	25	23.	12	7.	27	23.	14
8.	25	24.	11	8.	25	24.	13
9.	24	25.	9	9.	23	25.	13
10.	23			10.	24	26.	12
11.	22			11.	23	27.	11
12.	22			12.	23	28.	8
13.	21			13.	22		
14.	18			14.	20		
15.	18			15.	19		
16.	18			16.	19		
Total	518			579			
Mean(X)=	20.72			20.78			
S.D. =	6.78			6.99			
Variance =	45.96			48.89			
T value	0.023						

APPENDIX H

Post- test score of the students of experimental and control group

(Obtained scores arranged in descending order)

Experimental group				Control group			
S.N.	Marks	S.N.	Marks	S.N	Marks	S.N	Marks
1.	38	17.	26	1.	30	17.	20
2.	37	18.	25	2.	28	18.	20
3.	37	19.	24	3.	28	19.	19
4.	35	20.	24	4.	27	20.	19
5.	33	21.	23	5.	27	21.	18
6.	32	22.	22	6.	26	22.	18
7.	32	23.	21	7.	25	23.	17
8.	31	24.	20	8.	24	24.	17
9.	30	25.	20	9.	24	25.	16
10.	29			10.	23	26.	16
11.	29			11.	22	27.	15
12.	28			12.	21	28.	15
13.	28			13.	21		
14.	28			14.	30		
15.	27			15.	28		
16.	27			16.	28		
Total	706			635			
Mean(X)=	28.24			22.68			
S.D. =	5.27			5.67			
Variance =	27.77			32.00			
T value	3.69						

APPENDIX I

Observation of classwork: Daily classwork completion of students of experimental and control

group will be observed and they will be recorded separately in the following table

Observation	(0-25)% complete		(25-50)% complete		(50-75)% complete		(75-100)% complete	
	E.G.	C.G.	E.G.	C.G.	E.G.	C.G.	E.G.	C.G.
1 st day	4	3	3	5	5	4	4	4
2 nd day	4	4	2	3	4	5	6	4
3 rd day	3	5	4	3	4	5	5	3
4 th day	3	3	2	4	4	3	7	6
5 th day	3	5	3	6	4	3	6	2
6 th day	2	5	4	5	3	3	7	3
7 th day	3	4	2	5	3	3	8	4
8 th day	1	5	5	3	4	5	6	3
9 th day	2	3	4	6	2	3	8	4
10 th day	1	5	3	4	3	4	9	3
11 th day	2	3	2	5	5	4	7	4
12 th day	1	5	3	4	4	4	8	3
13 th day	0	2	3	4	3	5	10	5
14 th day	0	3	2	4	5	5	9	4
15 th day	1	2	3	6	2	3	10	5
16 th day	0	1	1	5	3	6	12	4
17 th day	1	2	0	4	4	6	11	5
18 th day	0	3	1	6	2	4	13	3
19 th day	1	2	2	5	1	3	12	6
20 th day	0	4	1	2	3	6	12	4

APPENDIX J

Observation of Homework: Daily homework completion of students of experimental and control group will be observed and they will be recorded separately in the following table

Observation	(0-25)% complete		(25-50)% complete		(50-75)% complete		(75-100)% complete	
	E.G.	C.G.	E.G.	C.G.	E.G.	C.G.	E.G.	C.G.
1 st day	2	3	4	5	6	4	4	4
2 nd day	1	5	5	4	5	5	5	2
3 rd day	1	2	4	5	4	6	7	3
4 th day	2	3	3	3	6	5	5	5
5 th day	0	2	4	6	4	3	8	5
6 th day	1	4	3	5	3	3	9	5
7 th day	1	2	4	5	4	4	7	7
8 th day	0	2	4	5	2	4	10	5
9 th day	0	2	3	7	4	4	9	3
10 th day	1	3	2	5	4	5	9	3
11 th day	0	3	1	5	4	6	11	1
12 th day	1	4	2	3	3	4	10	5
13 th day	0	2	3	5	2	6	11	3
14 th day	0	5	2	4	2	3	12	4
15 th day	1	3	1	6	3	5	11	2
16 th day	0	4	1	2	2	5	13	5
17 th day	1	3	1	4	2	6	12	3
18 th day	0	2	1	4	1	6	14	4
19 th day	1	4	0	3	2	5	13	4
20 th day	0	5	0	4	2	4	14	3

APPENDIX K

Observation of Attendance: No. of present and absent students will be recorded in the following table

Observation	No. of present students		No. of absent students	
	E.G.	C.G.	E.G.	C.G.
1 st day	13	13	3	3
2 nd day	14	12	2	4
3 rd day	12	14	4	2
4 th day	11	15	5	1
5 th day	14	11	2	5
6 th day	15	12	1	4
7 th day	15	14	1	2
8 th day	13	13	3	3
9 th day	14	15	2	1
10 th day	15	16	1	0
11 th day	15	12	1	4
12 th day	14	14	2	2
13 th day	15	11	1	4
14 th day	15	13	1	3
15 th day	14	12	2	4
16 th day	15	14	1	2
17 th day	15	13	1	3
18 th day	16	15	0	1
19 th day	16	14	0	2
20 th day	15	15	1	1

APPENDIX L

Interaction with teacher: The no. of students who asked at least one relevant question on subject matter and discussing on subject matter will be recorded in the following table:

Observation	No. of students participated in interaction		Remark
	E.G	C.G.	
1 st day	1	0	
2 nd day	0	1	
3 rd day	2	1	
4 th day	2	0	
5 th day	1	0	
6 th day	3	2	
7 th day	2	1	
8 th day	5	2	
9 th day	7	3	
10 th day	4	3	
11 th day	6	2	
12 th day	5	1	
13 th day	6	3	
14 th day	8	3	
15 th day	5	1	
16 th day	7	4	
17 th day	6	2	
18 th day	9	3	
19 th day	6	4	
20 th day	8	5	

APPENDIX M

Interview Guidelines with Students

Name of the student:

Roll no. :

Class: 5

Gander:

The interview of the students will be taken in the basis of following questions:

1. How could you feel when your behavior is praised by teacher?why?

.....

2. Does praise motivate you in learning mathematics?

.....

3. Is it effective to use praise in teaching learning mathematics?

.....

4. Does your teacher use praise while teaching mathematic?

.....

5. Do you have any suggestions?

.....

6. : Does providing praise encourage you to do homework? And why?

.....

7. Does providing praise to your classwork encourage you to complete your classwork daily?

.....

8. Do you like attend your class everyday if you praised? And why?

.....