



# Effect of daily homework on achievement in mathematics of class- XII student

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## ABSTRACT

The study of daily homework student will be take less time in doing homework and their achievement will be high instead of doing cluster homework assigned on after two days. If teacher gives daily homework to a students then the said homework will be enjoyable experience and activities without much of mental burden on the students and their achievement will be high. Further homework enables the students to learn systematically emphasizing holistic development an individual and value oriented education.

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## Introduction

The study of mathematics is apt to commence is disappointment. The important applications of the science, the theoretical interest of its ideas, and the logical rigor of its methods, all generate the expectation of a speedy introduction to processes of interest. We are told that by its aid the stars are weighed and the billions of molecules in drop of water are counted. Yet, like the ghost of Hamlet's father, this great science eludes the efforts of our mental weapons to grasp it- 'Tis here; tis there', 'tis gone' – and what we do see does not suggest the same excuse for illusiveness as sufficed for the ghost, that it is too noble for nor gross methods. "A show of violence", if ever excusable, may surely be "offered" to the trivial results, which occupy the pages of some elementary mathematical treatises.

Mathematics so useful, mathematics is beautiful, and mathematics disciplines the mind. Mathematics is the science of number and space. It deals with quantitative aspects of our life. It helps us in reaching necessary conclusions and interpreting various ideas with useful meaning. It provides opportunity for intellectual exercise of our mind. Mathematics has been called "the queen of the sciences". It is more than the art of computation. In the real sense, it is science of space and quantity that help us in solving the problems of life needing numeration and calculations. It provides opportunity for the intellectual gymnastic of the man's inherent powers. It is an exact science and involves high cognitive abilities and powers. Mathematics is a pump, not a filter. Generally, the failures in the final school examination are more in mathematics. So it is the reason that people think that mathematics subject is a filter but really it is not a filter. It is a powerful implementation to help individual think critically, solve problems mathematically, and satisfy the needs for their daily lie (e.g. jobs) rather than hinder their learning.

Mathematics can neither be seen nor touched nor smelt. But one can easily understand that behind every shape amount us, behind any speeding care or flowing water, in every image that reflects from a mirror or every coins that is tossed in the air, there is a mathematical law govern our universe, our individual

and social life and what not ! Such is the magical power of mathematics ! Mathematics is the ability of a pupil to think, reason and solve problems. It is such a subject which starts from the secure "Home learning" established in the child before coming to the school. It exists from their very beginning of human race and plays very important role in the society from time immemorial till date. Different writers define mathematics variously.

"Math is defined as conjecturing and proving theorems in first order logic" – Joe Shipman "Mathematics is the indispensable instrument of all physical research"- Berthelot "To those who do not know Mathematics it is difficult to get across a real feeling as to the beauty, the deepest beauty of nature.... If you want to learn about nature, to appreciate nature, it is necessary to understand the language that she speaks in". – According to Richard Feynman (1918-1988, American Physicist).

"All science requires Mathematics. The knowledge of mathematical things is almost innate in us. This is the exist of sciences, a fact which is obvious in that no one's brain rejects it, for laymen and people who are utterly illiterate know, how to count and reckon".

- Roger Bacon (1214-1294, English Philosopher).

Mathematics is the mother of all sciences. Each and every science subject depends on mathematics to advance well as does a child on his mother. The importance of mathematics is next to mother tongue in the life of a person. Mother tongue is the best means to express and share our views with others. Mathematics is the best means to express our views accurately. We can share our views with less effort with the help of mathematics.

Homework is the time students spend outside the classroom in assigned activities to practice, reinforce or apply newly acquired skills and knowledge and to learn necessary skills of independent study. Homework comparison activities that enrich learning through reading, talking and living life. The best homework of all has nothing to do with textbooks and exercises. It is real family living, playing and sharing interests with relatives and friends. This includes lots and lots of family

conservation, share bed time storied, private reading before lights out, family games, activities and hobbies, visits to the local library, outings to all kinds of places of historic or natural interest and imaginative play that comes naturally to children of all ages.

In Mathematics, homework takes a role different from that in other curricula. Homework in Mathematics is intended as an opportunity for students to think further about the ideas in a lesson. Homework is a vehicle for teachers to help students to process, practice, connect, and extend the ideas from the lesson, on a typical day in a Mathematics classroom, for less time is spent assigning, doing and checking homework than may have seen the case with other programs.

Students achievement in schools has always been a concern for parents, students and educators. There have been several theories on what help students achieve in mathematics class. One of the main ideas for student achievement has been the use of Homework. All over the world, Homework is used to help students practice skills learned in the classroom. It has been said that "much research on Homework has been driven by the pragmatic need to understand its role in improving achievement out comes" (Warton, 2001, p.164). In other words, Homework has been studied many times in order to understand if it does indeed help students achievement.

Most mathematics teachers give students Homework so that they can provide the skill learned in class. The reason most often cited for giving homework is that it can improve students retention and understanding of the covered materials. Many educators would agree with this statement that homework helps students retain information and therefore helps students/achieve. Homework has been researched many times to verify that students achievement is directly related to doing homework.

#### **History of Indian Mathematics**

Mathematics has played a significant role in the development of Indian culture for millennium. Mathematical ideas that originated in the Indian Subcontinent have had a profound impact on the world. Swami Vivekananda said "You know how many sciences had their origin in India. Mathematics began there. You are even today counting 1,2,3 etc. to zero, after Sanskrit figures, and you all know that algebra also originated in India.

In ancient time, mathematics was mainly used an auxiliary or applied role. Thus mathematical methods were used to solve problems in architecture and construction (as in public works of the Harappan civilization) in astronomy and astrology (as in the words of the Jain mathematics) and in the construction of vedic altars (as in the case of the Shulba sutras of Baudharyana and his successors). By the sixth or fifth century BCE, mathematics was being studied for its own sake, as well as for its applications in other field of knowledge.

#### **The Nature of Mathematics**

Mathematics is the science of measurement, quantity and magnitude. Mathematics is the abstract science which investigates deductively the conclusions implicit in the elementary conceptions of spiral and numerical relations. Mathematics is the number and space. Mathematics is the science of logical reasoning. Mathematics is the way to settle in the mind and habit of reasoning.

The basic characteristics of Maths is to analyse and interpret the world on the basis of the numbers. The ideal of more rational sequence of maths seems to be nearer to fulfillment today than in the past due to the progressive civilization. Every individual needs to use mathematics while observing the surrounding for

counting ordering etc. and many transactions like in commodity purchases, discounts, commissions interest taxes etc. and estimating the works. Besides these one has to learn basic mathematics to understand the higher mathematics and to develop their skills in technology..

#### **Relation of Mathematics with other subjects**

Mathematics is gateway of learning sciences. Neglect of mathematics work injury to all knowledge.

- Knowledge of Mathematics help to understand and analyze the physical sciences. Quantitatively in primary level of education, it also helps to derive the formulae and generalization of facts.
- All chemical combinations and their equations are governed by mathematical laws.
- Industrial extractions and preparation of different chemicals need much of the mathematical calculation and estimations.
- Knowledge of mathematics is the primitive source of rationality for Biologists, resort formers to carry on their researchers.
- Data handling and statistical analysis of mathematics helps to understand the geographical and economical concepts.
- Mathematics is the knowledge of truth and realities.
- Grammatical concepts of any language make use of mathematics.

Mathematics promises to be one of the most creature field for curricular study and improvement. The desire to bring about such improvement as a serious recognition of the importance of the field not only science and technology but also in the intellectual development of the individual.

#### **Education and its present position**

Children are the future of the nation; according to A Fax "children are the sticks of dynamite, energy and potential power. Waiting to be ignited. Guide them carefully to a place where their potentialities and strengths will be used to build a better world",

Education plays a key role in all round development of the child. World over it has been realized that no country can progress without the qualitative development of its human capital. Since men's future depends to a large extent on Mathematics advances and development of productive activity, mathematics is considered as an important subject in school curriculum. The Education Commission (1964) has also stated that mathematics school be included as a compulsory subject through out the school education.

Education is the birth right of each and every child (Article-29<sup>th</sup>). Education is the wholesome development of an individual's body, mind and spirit. It aims at full development of an individual's potentiality and also it aims to develop one's abilities, skills as well as attitudes, value and personality. Article 29<sup>th</sup> also emphasizes that education should be directed for the development of personality, talent, multiple abilities and preparation of the child to be responsible for a free society. School education is perceived as compulsory education for the all round growth and development of building citizens of the society.

Tremendous expansion of educational system at the primary stage has taken place during the post-independence period in India. Its expansion has been supported by the Government as it was to abide by the directive principles enshrined in the constitution. Article 45<sup>th</sup> of the Indian constitution says that the stage shall endeavor to provide within a period of 10 years from the commencement of the constitution for free and compulsory

education for all children until they complete the age of 17 years.

National Policy of Education (NPE-1986) is a land mark in Indian Education. It has emphasized that "A warm welcoming and encouraging approach in which all concerned share a solicitude for the needs of the child is the best motivation to all children up to the age of 14 years which is known as "Universalisation of Elementary Education (UEE)" which performed the basic goal of NPE (1986) and its program of action (POA-1992). The National target of UEE for the 9<sup>th</sup> plan has been identified as universal access to schooling, universal retention and achieving universalisation of quality of primary education.

The Education Commission (1964-66) emphasized mathematics as a compulsory subject through out the school education. In the field of science and technology one of the outstanding characteristic of scientific culture is qualification. At present mathematics play an important role for the development of biological science. The National Curriculum Framework (NCF-2005) states that –

"At the elementary stage children should learn mathematics to enjoy rather than fear".

Over the last five decades the country has under taken a long stridle in the development and spread of educational facilities especially during the plan periods. As a result, during 1961 only 13 percent of literacy has increased to 65 percent during 2004-05, till we are not providing education to all children in the age group of 6-14 years. Government of India has introduced the programme free and compulsory education to all children of 6-14 years. According to Right to Education Act-2010.

"It is the duty of parents, teachers and state Govt. to give the free and compulsory education to all 6-14 years age group children". Indian researcher estimated that in 1995 more than 78 million children are between 6-11 years were not attending school. During the academic year 1993-94 the gross enrollment ratio among boys at primary school level regardless at age of the students between 6-11 years excluded 100% in 26 out of 32 states and territories. Among the more populated states this ratio varied from 93% in Punjab to 150% in Tamilnadu. But the state like U.P., Bihar, Rajasthan, Haryana, Jammu and Kashmir as well as Odisha, the gross enrollment rate is below the national average. Again it is found that dropout rate is more in the above state. This may be due to improper understanding of subject which is a great obstacle for Uee.

The study on learning achievement of primary school subject were conducted by NCERT (1994) in Haryana, Madhya Pradesh, Assam, Maharastra and Orissa. It was found that mathematics achievement is poor than the other subject. The National Institute of Educational Planning and Administration (NIEPA) conducted a study in Karnatak, Kerala and other states. The finding of the study on mathematics education is given –

#### **Mathematics and its importance at elementary level**

Developing children's abilities for mathematics is the main goal of mathematics education. The narrow aim of school mathematics is to develop 'useful' capabilities, particularly those relating to numeracy-numbers, number operations, measurements, decimals and percentages. The higher aim is to develop the child's resources to think and reason mathematically, to pursue assumptions to their logical conclusion and to handle abstraction, it includes a way of doing

things, and the ability and the attitude to formulate and solve problems.

S. No.	Name of the States	% of minimum achievement	% of maximum achievement
1.	Haryana	13.85	15.82
2.	Madhya Pradesh	7.01	17.48
3.	Orissa	13.30	16.60
4.	Tamil Nadu	11.08	11.61
5.	Assam	7.23	8.31
6.	Karnataka	11.66	19.04
7.	Kerala	13.60	19.09
8.	Maharastra	10.88	12.29

Mathematics is an indispensable part of education. Not only because of its great disciplinary value but also because of its many other educational values. That is why every body needs some knowledge of mathematics in one way or the other. A mathematical approach is essential for any progress of an individual. Any approach devoid of mathematical consideration is likely to lead to failure. If anybody wants to be successful in life he must have to know mathematics at the primary stage of education which has been emphasized by several educationists. According to Wrinkle "learning of basic concepts of mathematics is not only required for academic achievement but also essential for day-to-day life of pupils.

Mathematics knowledge and skills are learned in the school and in day-to-day life situations. It helps every one to give exact interpretation, idea and conclusion of specific concept. It deals with quantitative and qualitative facts and relationship with problem solving ability of pupils.

The 21<sup>st</sup> century mark the beginning of new scientific, industrial revolution and makes it all the more imperative that special attention be devoted to study of mathematics and proper foundation of the knowledge of the subject should be paid at the primary level. One of the amazing features of the 21<sup>st</sup> century is that mathematics is recognized as in the power of abstract approach.

There is a closed relationship between learning of mathematics at primary and secondary stage. Pupils who do not grasp the basic concept and process at the primary stage, find immense difficulties in understanding to higher level concepts at upper primary and secondary stage of school education. In fact the roots alarming failure in mathematics in secondary class students is because they have weak foundation regarding basic arithmetical concept and operations.

Critically analyzing the NPE (1986) emphasized that mathematics should be visualized as the vehicle to train a child to think, reason, analyse and to articulate logically to particular concept. Apart from specific subject it should be treated as a commitant to any subject involving analysis and reasoning. Teaching mathematics will be suitable is redesigned to bring it in line with modern technology devised by introducing computer education at the school level. Also the basic reason for induction of mathematics as a school subject. The mathematical association prepared a report as follows –

- It is tool of language of science. It is essential in the development of scientific and technological equipments in modern civilization.
- Mathematics is a language of order thinking and made possible such things like reaching of train time table, identification of page of book, road on a map etc. Mathematics helps to records any thing make use of number sequences of letter and systematical arrangement.

- Mathematics is included of the primary stage because of its needs and important in giving pleasure to pupils. It could not only pupils need but also delighted them.
- The pupil of primary stage uses the language of number measurement and solving everyday task. This language has grown through activities but a child becomes master about their need of towards mathematics in few years.

#### **Vision for School Mathematics**

**According to NCF –2005 there are the following vision for school Mathematics –**

- Children learn to enjoy mathematics rather than fear it.
- Children learn important mathematics, Mathematics is more than formulas and mechanical procedures.
- Children see mathematics as something to talk about, to communicate through, to discuss among themselves, to work together on.
- Children pose and solve meaningful problems.
- Children use abstractions to perceive relationships, to see structures, to reason out things, to argue the truth or falsity of statements.
- Children understand the basic structure of Maths: Arithmetic, algebra, geometry and trigonometry, the basic content areas of school Mathematics, all offer a methodology for abstraction, structuralization and generalisation.
- Teachers engage every child in class with the conviction that everyone can learn mathematics.

#### **Reasons for low Achievement**

One of the reason for low achievement of pupils in mathematics is inadequate understanding of the subject teacher in teaching-learning process. Assessment as a process of collecting evidence of learning, analyzing the evidence and improving learning has not been seen as an essential and integral part of teaching-learning process. Assessment should not be taken as one or two times activities meant for grading pupils, compare the performance of one with another for placement or screening students but a clinical activity aimed at improving the learning of students. Assessment is not an end in itself but the means of providing information for the action plan to be developed for ensuring the desired level of learning.

Homework play a vital role in students achievement. If a student doing appropriate, clear and precise amount of Homework thus their achievement will be high with respect to those student who do not doing proper homework.

When a teacher teaching in the classroom then that time it is not possible that student do all the sum related to present topic so far that point of view homework is necessary. So it is the duty of teacher has to give the appropriate amount of homework to student, otherwise his/her achievement will be affective.

#### **Daily Homework**

Student learning improve when homework serves a clear purpose and it is matched to both the skills of each individual student and to the current topics being taught in class. Feedback improves the student learning by correcting misunderstanding, validating process, and highlighting errors in thinking. Embedded comments provide much better feedback than a mere grade at the top of the paper. Homework must be concentrated to be effective. Mastering takes days or weeks of practice. Fifty percent mastery may be achieved after and practice sessions, but it takes 28 practice sessions to achieve approximately the eight percent mastery level.

A review of over 60 research studies showed that, within limits, there is a positive correlation between the amount of homework done and student achievement. The research

synthesis also showed that too much homework could be counter productive. The research supports the “10-minute role”, the commonly accepted practice of assigning 10 minutes of homework per day per grade level. For example, under this system, 1<sup>st</sup> grades would receive 10 minutes of home work per night, while 5<sup>th</sup> grades would get 50 minutes with; 4<sup>th</sup> grades 90 minutes of homework.

For the above point of view daily homework is necessary for the development of students, i.e. for the achievement of students.

#### **Principles of designing different type of Homework**

##### **Concept of Home work**

Homework is defined as tasks assigned to students by school teachers that are intended to be carried out during non-school hours. Homework assignments aim to help students to obtain the maximum benefit when the new material is covered in class. Extension homework involves the transfer of previously learned skills to new situations. But the integration of homework requires the students to apply separately learned skills to produce a single product, such as book, reports, science projects or creative writing.

Homework also established communication between parents and children and inform parents about what is going as in school. In other words, homework has been a part of students lives since the beginning of formal schooling.

More indirectly, homework can improve student’s study skills and attitude towards school building. The non-academic benefits of homework include fostering independence and responsibility. Finally homework can involve parents in school process enhancing their appreciation of education and allowing them to express positive attitude towards the value of school success.

##### **Appropriate amount of homework**

The amount and type of homework should depend on the developmental level of the student. The National PTA and the National Education Association suggest that homework for children is grade k-2 is most effective when it does not exceed ten to twenty minutes each day. In grades three through six, children can benefit from thirty to sixty minutes daily. Junior and high school students can benefit from more time on homework and the amount might vary from night to night. These recommendations are consistent with the conclusions reached by studies on effectiveness of homework.

##### **Criteria for homework**

According to NCF 2005, the concept of time on task is an essential reckoner for taking stock of the total time that children spend actively on learning. This would include time spent on listening, reading, writing, doing activities, discussing, etc. It would not include waiting for one’s turn, copying from board or revising. Total study time that is expected from students or both face-to-face and self study or the syllabus or course of study for students, specially as they go into higher grades.

##### **Total Homework time: (suggested by NCF 2005)**

Primary school: No Homework upto class II and two hours a week from class III.

Middle school : One hour a day (about five to six hours a week)

Secondary and Higher secondary: Two hour a day (about 12 hour a week). Teacher need to work together to plan and rationalize the amount of homework that they give to children.

##### **Types of Homework:**

1. Practice Homework:

This is homework that helps reinforce skills learnt at school. It normally includes drill work and lots of exercises. Example would include maths questions, etc.

#### 2. Preparation Homework:

This is homework you need to do before your next class, usually on a new topic. An example of this would be "Read chapter 2 and we will discuss it tomorrow".

#### 3. Extension Homework:

This type of homework asks you to use the information in class in a different way. Examples would include designing a poster or writing an essay.

#### 4. Integration Homework:

This is project type homework and can include assignments.

#### **Purpose of Homework :**

Teachers often give assignments consisting of reading, problem solving or writing that the students must do after class usually at home. Ideally the purpose of homework is to help reinforce what was taught in class. Sometimes it is gathering extra information above and beyond what was taught in class. Unfortunately, there are some teachers that do not understand the meaning of homework and give it as something to keep the students busy.

#### **Reinforce Knowledge :**

The teacher can provide information and explain the subject in class. The problem is that you typically will only remember 50% of the information you get by seeing and hearing explanations. Also, you may not completely understand the principles or facts involved. You need to apply that knowledge to really learn the subject.

**Beyond taught in class :** Sometimes teachers will only give an overview of materials and assign reading to get the major part of the information. Then the next day, the teacher may answer any questions students may have or perhaps verbally quiz them on the material. History, English literature and sociology are examples of classes that require extensive reading outside of class.

Hence the purpose of homework is to help you learn what was taught in class or to gain information by reading and answering questions. One type is reinforcing what was taught in class, another type is studying beyond what was explained in class, and the third type is primarily meant to keep the students busy. In any case, it is necessary to do your homework and do it well to get a good grade in the class.

#### **Need of the Study**

Student learning improves when Homework serves a clear purpose and is matched to both the skills of each individual student and to the current topic being taught in class. Feedback improves the effectiveness of Homework, especially when given in a timely manner (within 24 hours) effect.

A review of over 60 research studies showed that, within limits, there is a positive correlation between the amount of Homework done and students achievement. The Research synthesis also showed that too much Homework could be counter productive. [Bempechat, (2004, p.191), Keith and Cool (1992, p.211-212), J. Xu (2005, p.47), Cooper and Valentine (2001,p.144), Diersen, Kimberly (p.69, 2000), O'Rourke-Fenara 1998].

In Mathematics if student will not do daily Homework then their achievement will be affected. And Homework should be in precise that student can take it as joy so research is needed. The research supports the "10 minute rule", the commonly accepted practice of assigning 10 minutes of Homework per day per grade level. [United Kingdom, recommendations on Homework

quantities were outlined by the then Department for Education in 1998, Sharp (2001)].

Although time on Homework has been associated with student achievement, it is possible for students not to achieve when there is too much Homework. A lot of Homework takes more time but it has negative effect on achievement. "The Homework Literature Review" state that "excessive Homework may impact negatively on student achievement" ["Homework Literature", 2004, P.5, p.3]

In these days it can be seen that most of students don't like Homework i.e. they have phobia of Homework and similarly teacher is also have the problem of correction of Homework copy in improper way because number of students are large. So it is the responsibility of teacher that how they give Homework in economic and adequate, so that it will enjoyable to the students instead of taken it as burden. But maximum teachers were not follows it.

On the basis of literature review, it is clear that Homework is the main factor of achievement of student. Some research findings shows that the daily Homework is necessary and some research has also revealed that if students will do more Homework, then their achievement will be high proportionality. In case of daily Homework number of question would be less, so that students can take it as easy without any mental burden and negative attitudes towards Homework.

Contradiction occur many a times between the researchers and academician regarding the Homework and some of them are of opinion that daily and less amount of Homework increase the achievement of a students and at the same time more amount of Homework (cluster Homework) and alternate day Homework leads to enhancement of achievement of students. Therefore to reach at a scientific and logical conclusion with statistical evidence research work is indispensable to be under taken for justifying this statement and to discover the truth.

#### **Statement of the Problem**

On the basis of the above discussion, the researcher took the present study entitled "EFFECT OF DAILY HOMEWORK ON ACHIEVEMENT IN MATHEMATICS OF CLASS-XII STUDENT".

#### **Objectives of the Study**

- (1) To findout the effect of daily Homework on achievement in mathematics.
- (2) To study the effect of daily Homework on boys and girls with respect to there achievement in mathematics.

#### **Operational Definition**

Daily Homework: Daily Homework means precise amount (maximum four question) of different level of understanding in same day taught topic.

Cluster Homework: Cluster Homework means Homework provided by the teacher after finishing the lesson (or two days taught topic).

Mathematics Achievement: In this research Mathematics achievement will refer to achievement in Mathematics in terms reasoning, logic and score in Mathematics.

#### **Delimitation of the Study**

In view of the contains of time and resource scope of present study is delimited to some extent.

- (1) The study is restricted to maturation of class XII syllabus of BSEMP.
- (2) The study is also restricted to Hindi medium school of Khargone district, (M.P.)
- (3) The study is limited to only one school.

### Introduction to Related Studies

Researcher takes the advantage of the knowledge which has accumulated in the past as a result of constant human endeavors. It can never be undertaken in isolation of the work that has already been done on the problems which are directly or indirectly related to a study proposed by researcher. A careful review of the research journals books, dissertations thesis and other sources of information on the problem to be investigated is one of the important steps in the planning of any research study. Therefore a review of the related literature must precede any well planned research study. By reviewing the related literature the researcher can also come to know about the recommendations of previous researchers, listed in their studies for further research. Review related literature is an essential aspect of research project. The investigator gets assured that the problem in hand does not exist in vacuum, rather the study made by the previous researcher is undoubtedly along way in successfully. The researcher needs to acquire upto-date information about what has been done in the particular area from which he/she taken up a problem for research.

Jainzhong (2010) published an abstract entitled "Predicting homework time management at the secondary school level". A multilevel analysis".

The following objectives are –(1) to study the empirical models of variables posted to predict homework time management at the secondary school level.

The major findings are – (1) Student and class-level predictors of homework time management were analyzed from the survey of 1895 students from III class.(2) Most of the various in homework time management occurred at the student level, with parent education appearing as the only significant.

Pothered et al. (2009) published an abstract entitled, "Good homework Policy".

The following observation were made :

1. Homework is often a hot-bottom issue for the schools. Even with a school homework policy, the homework practices of teachers vary in quality, with some teachers applying best practices standards, while others assign homework too difficult for some students or collect homework without providing feedback to students.

2. In addition, families in which parents work and children participate in an array after –school activities purpose an environment where homework times parental assistance is often source.

### Review of studies as a basis for formulation Research Question

On the basis of above review study researcher come to formulate some hypotheses:

The present study was proposed to verify the following hypotheses.

(1) There would be significant effect of daily Homework on achievement in Mathematics.

(2) There is no significant difference in achievement between boys and girls in Mathematics with respect to daily Homework.

### Methodology

#### Sample

Sample for the present study was obtained from Govt. school Maharathpur, Begusarai, Bihar students studying in class XII. In order to achieve the objectives and test the hypotheses of the study, the school was selected randomly. The sample for this study was selected from the population of 105 students. The investigator has selected the sample through random sampling procedure. Sixty students were randomly selected (using a table

of random number), and randomly assigned (using letters), to two groups of 30 each.

**Table-1. Distribution of Sample**

Sex	Experimental group	Control group	No. of sample
Boys	17	16	35
Girls	13	14	25
Total	30	30	60

#### Treatment Group

The selected children were equally divided randomly into two groups. The two groups were randomly assigned to a treatment group. One group was named as experimental group and other as control group.

#### Design

Research design implies the process of reaching a reliable solution of the problem. The present study is an experimental type of study. Experimental research includes collecting data in order to test hypotheses concerning the related variables. Generally, experimental research includes member of groups which are open for treatments. Here in the study, the researcher was assigned students into two different groups by following the first step of "Pre-test-post-test control group design".

**Table-2. Pre-test-post-test control group design or true experimental**

Random Assignment of group	Pre-test	Treatment	Post-test
Experimental Group	Achievement test in Maths	Daily Homework	Achievement test on Maths
Control group	Achievement test in Maths	Cluster Home Work	Achievement test on Maths

#### Tools

For this study, the researcher used two different tools to measure the achievement of students. Both the instructional and measuring tools were used as major tools for this study.

(i) Instructional tools

(a) Homework plan of Class XII

(II) Measuring tools :

Researcher used self made question for pre-test and post-test an achievement in math's.

The teacher made achievement test was used as a measuring instrument. The test was assigned to measure student programme in math's. It was constructed by the researcher on the basis of blue-print. It consists of 37.5% MCQ, 25% fill in the blank, 27.5% true/false and 10% matching type questions to measure knowledge, understanding and problem solving activity of the students.

Achievement test having forty items were formulated each dimension such as 42.5% knowledge, 30% understanding and 27.5% application area related to the selected topics. The items were presented before a panel of expert to judge its content validity. The nature of the achievement test is question-cum-answer sheet.

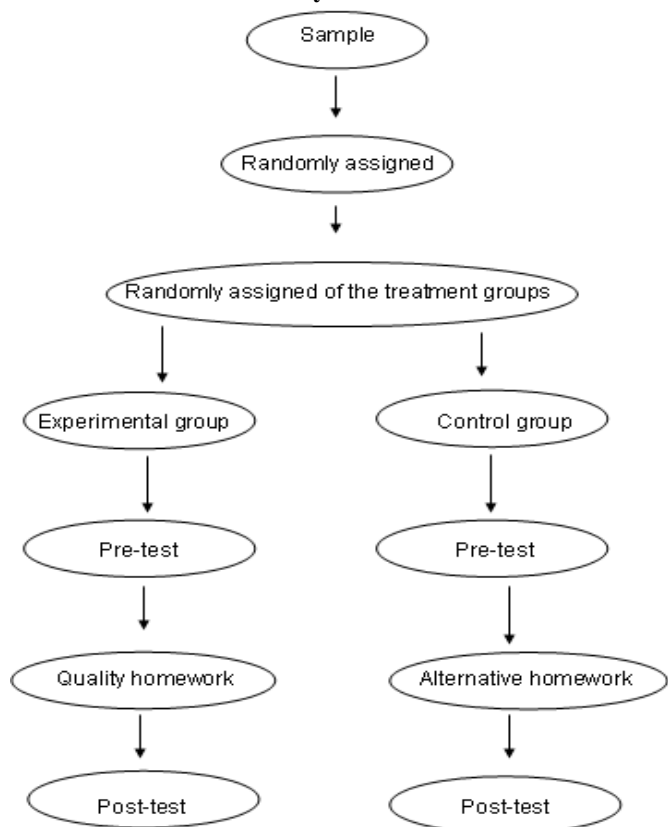
#### Procedure of data collection

After selecting required number of samples randomly assigned into two groups. Out of the this groups are group was randomly assigned to experimental group and the other to control group. The initial achievement scores of both the groups were recorded by the teacher made achievement in Mathematics.

The investigator provided daily homework and precise amount (i.e. 3 question) to experimental group whereas the control group by traditional method of providing homework (i.e. ultimate day i.e. after 2 day). After the completion of the treatment, both the groups were tested. Pre-test scores of the

groups were compared to see the effect of a activity based approach on achievement in mathematics.

Thus the scheme of the study followed was as shows below :



The post-test scores of experimental group were further analyzed to study the effect of daily homework on the mathematics achievement.

**Data Analysis**

Post-test scores were analyses to see the effect of daily homework on achievement in math's. For interpretation of results both descriptive inferential.

**Data analysis, discussion and interpretation of results**

**This chapter deals with results and discussions. The collected data, that is scores of pre-test and post-test were analyzed with the help of t-test**

Since control group and experimental group were selected through randomization, effect was made to equate the groups before treatment. The t-test has applied on the scores of achievement of both the experimental and control group to see whether both groups were equal in all the aspects before exposing to the treatment.

**Testing of Hypothesis**

“There would be significant effect of daily Homework on Achievement in Mathematics”.

**Comparison between control and experimental group of pre-test scores :**

For the comparison between control and experimental group of pre-test scores researcher calculated ‘t’ test to find the significant difference between gain scores of pre-test. The table No.3 presents the same.

**Table No. 3. Mean, SD, ‘t’ value of Gain score of pre-test of experimental and control groups.**

Group	M	N	SP	t-value	SE <sub>D</sub>	df
Experimental group	10.5	30	3.59	0.175	0.91	58
Control group	10.66	30	3.45			

The obtained t-value is less than the table values 1.67 and 2.39 at 0.05 and 0.01 level respectively. Which indicate that

there is no significant difference between experimental and control group before treatment.

Thus we can say that before treatment the experimental and control group both are same with respect to achievement in mathematics.

**Comparison between experimental and control group of post-test scores :**

For the comparison between experimental and control group of post-test scores researcher calculated ‘t’ test to find the significant difference between gain scores the table No. 4.

Group	M	N	SP	t-value	SE <sub>D</sub>	df
Experimental group	17.8	30	3.89	2.69*	0.96*	58
Control group	15.2	30	3.59			

\* Significant at 0.05 and 0.01 level

The obtained t-value is greater than the table values 1.67 and 2.39 at 0.05 and 0.01 level and 0.01 level on one tailed test respectively. Which indicate that there is significant difference between the post-test scores of experimental and control group.

From the mean scores it can be conclude that achievement score of experimental group is better than the control group.

Since t-value is significant of both the levels i.e. 5% and 17 (0.05 and 0.01 level). Hence the directional hypotheses is depicted at 0.05 and 0.01 levels and we may say that (99 times out of 100) the gain is significant.

Thus we can say that “daily homework” is better than “cluster and two day alternate homework” for better achievement in Mathematics.

**Comparison between control and experimental group of post-test score with regard to knowledge based item :**

**Table No. 5**

Mean, S.D. and t-value of post-test achievement scores in math's of experimental group and control growth with respect to knowledge basis item

Group	M	N	SD	SE <sub>D</sub>	t-value	df
Experimental group	7.86	30	1.59	0.48	2.74*	58
Control group	6.53	30	2.12			

\* Significant at 0.05 and 0.01 level

The obtained t-value is greater than the table value 1.67 and 2.39 at 0.05 and 0.01 level and 0.01 level on one tailed test respectively. Which indicate that there is significant difference between the post-test scores of experimental and control group with regard to knowledge based item.

From the mean scores it can be concluded that achievement score of experimental group is better than the control group i.e daily homework enhanced the achievement of mathematics from the traditional methods with respect to knowledge based items.

**Comparison between control and experimental group of post-test score with regard to understanding based item:**

**Table No. 6**

Mean, S.D. and t-value of gain score of post-test of experimental group and control group with regard to understanding based item.

Group	M	N	SD	SE <sub>D</sub>	t-value	df
Experimental group	7.5	30		0.55	1.98*	58
Control group	6.4	30				

\* Significant at 0.05 and 0.01 level

The obtained t-value is greater than table values 1.69 at 0.05 level on one tailed test which indicate that there is significant difference between the post-test score of experimental and control group with respect to understanding based item

From the mean scores it can be concluded that achievement score of experimental group is better than the control group i.e. daily homework enhanced the achievement of mathematics than

the traditional methods, with respect to understanding based items.

**Table No. 7**

Mean, S.D. and t-value of gain score of post-test of experimental group and control group with respect to application based item.

Group	M	N	SD	SE <sub>D</sub>	t-value	df
Experimental group	2.43	30	2.20	0.33	0.05	58
Control group	2.26	30	1.25			

The obtained t-value is less than table values 1.67 at 0.05 level on one tailed test which indicate that there is significant difference between the post-test score of experimental group and control group with respect to application based on item.

#### Analysis of post-test score of boys and girl in experimental group

To study the effect of daily homework on mathematics achievement of experimental group with respect to boys and girls, means, S.D, and t-value were computed and are presented in the table No. 8

**Table No. 8**

Gender	M	N	SD	SE <sub>D</sub>	t-value	df
Girls	17.30	13	4.57	1.34	1.71	28
Boys	15	17	1.84			

The obtained t-value is less than the table value 2.05 at 0.05 level at two tailed test. Which indicate that there is no significant difference between boys and girls of post-test scores of experimental group.

Thus the null hypotheses is accepted of both the levels it means no any affect of "daily homework" on gender.

Hence we can say that with the help of "daily homework" boys and girls both can achievement. Same score in mathematics.

"Daily Homework" is beneficial for all students in mathematics.

#### Analysis of post-test score of boys and girl in experimental group with regard to knowledge based item.

**Table No.9**

Gender	M	N	SD	SE <sub>D</sub>	t-value	df
Girls	7.69	13	1.79	0.61	2.77*	28
Boys	8	17	1.45			

\* Significant at 0.05 and 0.01 level

The obtained t-value 2.79 is greater than the table values 2.05 and 2.76 at 0.05 and 0.01 level, on two tailed test respectively. Which means that there is significant difference between boys and girls with regard to knowledge based item.

From the mean score it can be conclude that boys is better than girls of experimental group with regard to knowledge based items.

#### Analysis of post-test score of boys and girl in experimental group with regard to understanding based item.

**Table No. 10**

Gender	M	N	SD	SE <sub>D</sub>	t-value	df
Girls	7.30	13	2.28	0.82	0.40	28
Boys	7.64	17	2.20			

The obtained t-value 0.04 is less than the table values 2.05 on two tailed test respectively. Which means that there is no significant difference between boys and girls with regard to knowledge based item.

Hence we can conclude that boys and girls are same with regard to understanding based items.

#### Analysis of post-test score of boys and girl in experimental group with regard to application based items.

**Table No. 11**

Gender	M	N	SD	SE <sub>D</sub>	t-value	df
Girls	2.30	13	1.60	1.00	0.21	28
Boys	2.52	17	1.17			

The obtained t-value 0.21 is less than the table values 2.05 on two tailed test respectively. Which means that there is no significant difference between boys and girls with regard to application based item.

Hence we can conclude that boys and girls are same with regard to application based items.

#### Interpretation of results :

One of the major objectives of the study was to see the effect of daily homework on achievement in mathematics. Accordingly hypotheses were formulated and verified employing "pre-test post test control group design" with randomized group and the results are interpreted below :

#### Treatment wise difference in mathematics achievement of students

The directional hypotheses  $H_1$  is stated as "There would be significant effect of daily homework on achievement in mathematics".

This states that

$$H_1 = M_c \neq M_e$$

Where  $M_c$  = Mean score of the experimental group

$M_e$  = Mean score of the control group

&  $H_1$  = Directional hypotheses

That 't' calculated under (Table 4) shows that the t-value is 2.69. As the calculated value is greater than the table value, the t-value is considered to be significant. Hence the directional hypothesis is accepted.

It means that the daily homework influence the achievement score in mathematics of the students i.e. mathematics achievement is also depend upon the strategies of giving homework. Examination of these two means indicated that, daily homework treatment was superior to traditional way of giving homework i.e. cluster and tow day alternate homework. Study conducted by Warna Mahlenbruck (1999), Parrish (1976), and Sharp (2001) support the finding of present study.

#### Gender wise difference in mathematics achievement

The null hypothesis  $H_0$  is stated as "There is no significant difference in achievement between boys and girls in mathematics with respect to daily homework".

This states that

$$H_0 = M_G = M_B$$

Where  $M_B$  = Mean score of boys

$M_G$  = Mean score of Girls

$H_0$  = Null hypotheses

That 't' calculated under (Table 8) shows that the t-value is 1.71 which is less than the table where 2.05 at 0.05 level which indicate that there is no significant difference between boys and girls. Thus the null hypotheses is accepted at both the level it means no any effect of "daily homework on gender".

But the 't' calculated under (Table 9) shows that the t-value is 2.77 is greater than the take values 2.05 that there is significant difference between boys and girls with regard to knowledge based item.

From the mean score it can be conclude that boys is better than girls with respect to knowledge based items.

Thus, we can say that boys achievement was high in mathematics by providing daily homework with respect to



knowledge based item only but equal with respect to understanding and application based items.

#### Major Finding

- (1) Daily homework has a significant effect on the achievement in mathematics cluster and two days alternate homework.
- (2) Daily homework enhance the achievement of mathematics with respect to knowledge based items.
- (3) Daily homework enhance the achievements of mathematics with respect to understanding based items.
- (4) There is no significant difference among the boys and girls in respect of achievement in mathematics and experimental group.
- (5) Daily homework enhance the achievement of boys in mathematics with respect to knowledge based items only.
- (6) Achievement of boys and girls are same in mathematics with respect to understanding and application based item.

From the above finding it is clear that there exists. Significantly differences between means of the achievement scores of experimental group students after providing treatment i.e. daily home work and mean of the achievement of scores of the control group after traditional method of providing homework. From the analysis and interpretation of the data it is found that the hypotheses are accepted. Lastly, it is conclude that daily homework has significantly positive effect on enhancing the content wise achievement and academic achievement of class XII students.

#### Educational Implication

The findings of the study are relevant toe educational fielding the following ways –

##### Student

Learning is not possible without enjoy with learning. Home work play a vital role in students learning process. Student should do the homework in joyfull way, and it will possible it student will do everyday precise amount of homework. It will increase achievement of students.

##### Teacher

It is undesirable feet that teacher performance is the most crucial infact in the field of education. Whatever policies are laid down, whatever changes are brought, in the ultimate always they have to be interpreted and implemented by the teachers. If the teachers are passive, all innovative efforts, new methods, systems etc. will be futile and meaningless.

For proper implementation of daily homework in the real classroom situations, teacher should prepare daily homework strategies in precise way and they should have daily and precise homework to student for their achievement in mathematics. It is therefore, the teacher should play the pivotal role in order make daily homework successful in classroom of India.

##### Parents

Very often it is seen that the majority of the parents force the child to more and more homework, thus killing their joyful learning i.e. if student will do more homework then they will have fear phobia regarding homework and their achievement will be effected. They should not force them to do more homework but they should only guide them for doing daily and precise amount of homework then children achievement will be positive. Thus it is the message of the proponents of daily homework to the parents that 'do not force the child to do more and more homework but help her/him to do daily and precise amount of homework to better achievement.

##### School Administration

School administration or management has a very crucial role in implementation any new methods or other strategies in

the field of teaching. Many enthusiastic teachers lose their inspiration and enthusiasm due to the neglecting attitude of the school management. Daily homework will being a drastic change in academic achievement of a school if the school management provides the daily homework strategies. The existing staff should be encouraged oriented to employ daily homework in the practical classroom situation.

#### Conclusion:

In daily homework student will be take less time in doing homework and their achievement will be high instead of doing cluster homework assigned on after two days. If teacher gives daily homework to a students then the said homework will be enjoyable experience and activities without much of mental burden on the students and their achievement will be high. Further homework enables the students to learn systematically emphasizing holistic development an individual and value oriented education.

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