

STUDY THE EFFECTIVENESS OF AUDIO VISUAL AIDS FOR IMPROVING THE PROBLEM SOLVING ABILITY OF GRADE IV STUDENTS IN MATHEMATICS

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Abstract

In the school curriculum mathematics is an important subject. It is generally seen that the students are either afraid of this subject as myth is spread that it is very difficult subject and students gets failed in the subject. Researcher is a mathematics teacher wants to improve students problem solving ability and thus this research had been conducted. This research focuses on the problem solving ability in Mathematics of fourth grade students .Researcher wants to study the effectiveness of the audio visual aids in problem solving ability .

Keywords: *Problem Solving Ability, Audio visual aids*



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Introduction

The main goal of mathematics education in schools is the mathematization of the child's thinking. There are many ways of thinking, and the kind of thinking one learns in mathematics is an ability to handle abstractions, and an approach to problem solving. The researcher noticed that students are confused while deciding on using the key mathematical operations required to solve the given word problem using an operation (Multiplication, Division or Addition/Subtraction). The students are able to solve the addition /subtraction and multiplication / division problem in numerical form.

Need of Research:

- 1) The researcher notice that students are not able to understand word problems which decreases their confidence in the word problem solving and help them to score better grades.
- 2) Students scores less in Maths
- 3) Students reasoning and logical thinking is lessened.

Importance of Research:

- i) The students will understand better and be able to decide the correct use of mathematical operations ie addition / subtraction and multiplication / divisions

for solving word problems in numerical form.

- ii) The teachers will get to know the best method to be used for teaching word problems in mathematics.
- iii) Training students to think logically and help students to prepare for various competitive exams.
- iv) The Audio Visual aid will definitely help the child to be focused and concentration on the topics will be increased.

CONCEPTUAL DEFINITION:

1) Effectiveness :

Effectiveness is the capability of producing a desired result or the ability to produce desired output when something is deemed effective, it means it has an intended or expected outcome or produce a deep, vivid impression.

Best JW and Khan (2012)

2) Audio Visual Aid :

Audio Visual aids is defined as training or education materials directed at both the senses of hearing and the sense of sight films, recording, photographsetc, used in the classroom instruction, library collections or the likes.

Best J W and Khan (2012)

3) Problem Solving:

It requires two distinct types of mental skill, analytical and creative. Analytical or logical thinking includes skills such as Ordering, Composing, Contrasting, evaluating and selecting. Creative thinking is a divergent process using the imagination to create a large range of ideas for solutions.

Best J Wand Khan (2012)

traditional lecture method. The research is related to study the results gained after teaching mathematical word problem with traditional lecture method and technology based i.e. use of Audio-visual Aids and find which method is more effective and helpful to students.

B] FUNCTIONAL DEFINITION:

- 1) Effectiveness The Effectiveness of Audio Visual aidson problem solving ability of students of grade IV.
- 2) Audio Visual aids : A Videoclip of word problem of Addition / Subtraction, Multiplication / Division is shown.
- 3) Problem Solving Ability of Grade IV students to solve word problem in

Mathematics.

Research Questions

1. Why the students of grade IV are facing problem insolving word problem?
2. Which teaching technique or methodology will behelpful to make the learners develop the problemsolving skill ?
3. How will be the students beneficial with this aid?
4. Will the teaching technique / methodology be Costeffective/time consuming ?

Objectives of Research:

- 1) To find out the solution for problem faced by grade IV students while solving the word problems.
- 2) To use the Audio Visual aids for solving the word problems.

Assumptions

1. Students face difficulties in solving word problems in Mathematics. (they are unable to use the mathematical operation such as Addition / Subtraction andMultiplication / Division)
2. The students are not able to decide and choose between the mathematical operations such as Addition Subtraction and Multiplication / Division.
3. Teachers restrict themselves to lecture methods.

Hypothesis

1. **Null hypothesis:** There is no significant effect of Audio Visual Aid on the problem solving ability of Grade IV students in Mathematics.
2. **Directive Hypothesis** : Use of Audio Visual aids enhances the problem solving skill of grade IV students in Mathematics.

Research Variable

- 1) **The independent variable:** Audio Visual aid showing word problem.
- 2) **The dependent variable:**Problem Solving skills of studentsof Grade IV in Mathematics.

Scope :

1. The present research is related to use of Audio Visual aids to improve problem solving ability.
2. The study is related to the students of Fravashi International Academy in

Nashik.

3. The students of grade IV is considered for the research.

Limitations

- 1) The research is limited to understanding the use of mathematical operation in word problems only.
- 2) Research is conducted for limited period of time i.e. academic session 2018-2019.
- 3) The question paper for pre- test and post- test are made researcher.
- 4) The research findings is applicable to the students of academic session 2018-2019 std. IV of sample division, from Fravashi International Academy.

Delimitation

- 1) The research work is conducted on students of C division.
- 2) The research work is limited to 30 students in each division C of Std. IV.

Research Methodology

Methodology is the systematic theoretical analysis of the methods applied to a field of the study or the theoretical analysis of the body of methods and principles associated with branch of knowledge. It typically encompasses concepts such as paradigm, theoretical model, phases and quantitative and qualitative techniques. For the present research Experimental method is used.

Research design: Single Group Design (Pre-Post test)

Population

All students of IV of Fravashi International Academy, Nashik constitutes the population of present research study.

Sampling method: For present research sampling was done by using non-probability sampling . Out of which Intentional sampling is used to collect the sample.

Sample :

Fravashi International Academy has given the permission. Researcher selected Grade IV C (30 students) of Fravashi International Academy, Nashik

Research Tool :

Self- prepared Questionnaire of 20 marks by a researcher. (Pre test-Post test)

Statistical Tool :For present research Mean, Median ,Standard Deviation and t –test is used.

Statistical Analysis of Data:

In present research, the mean of pretest (6.7) is smaller than mean of post test (15.83). The standard deviation of pretest (3.15) is greater than standard deviation of post-test (2.10). Therefore, we can interpret that null hypothesis is rejected and directive hypothesis is accepted.

Objective wise Conclusion

As the null hypothesis is rejected, concluding that the use of audio-visual aid is more effective than the traditional teaching method.

Objective 1

To find out the solution for problem faced by grade IV students while solving the word problems.

Conclusions based on Objective 1

- 1) Students do not understand the use of mathematical operations in word problems by traditional method.
- 2) Students do not show much interest in traditional type of teaching.
- 3) Students find traditional way of teaching quite boring.
- 4) Students find that teaching word problems with audio-visual aids is more interesting than traditional lecture method of teaching.
- 5) Audio visual aids helps in clearing the basic concepts and creates interest in subject.

Objective 2

To verify the effectiveness of audio-visual aids for solving word problems.

Conclusions based on Objective 2

Pre-test and post test data shows significant difference in mean is 9.13. The value of t test is 10.03, this value is greater than 't' at 0.05 and 0.01 significant levels. Therefore, the null hypothesis "There is no significant difference between the pre-test and post-test mean scores of Std. IV students in mathematics" is rejected and the directional hypothesis "There is a significant difference between the pre-test and post-test mean scores of Std. IV in mathematics of the single group" is accepted.

Thus it is concluded that use of Audio Visual Aid is effective for improving the problem solving ability of grade IV students in mathematics.

Main Conclusion

It is concluded that if the students are taught with Audio-visual aids then teaching word problems will be more effective and students will learn the word problems

Possible cognitive contribution

- 1) The use of audio-visual aid will be tested in the classroom. The way of teaching will help develop problem solving skill of the learner.
- 2) This research will give more preference to effective teaching and effective learning. As teacher is the architect of the students personality of students can be developed by teaching the concept by relating it to day to day examples. This research will therefore help the students to develop logical reasoning, then they will improve their day to day calculations in their lives.

The research will also help teachers. It will make their teaching effective. Teachers would teach more content in a very less time. Therefore they would be relaxed and stress free.

Out comings of Research

- 1) Using audio-visual aid in teaching mathematics increases the achievement of students.
- 2) Teaching done by using PPT's video clip is more effective.
- 3) Teaching done with the help of technology is more impressive and effective.
- 4) Students are introduced to latest technology.
- 5) Student's problem solving ability is enhanced.

Conclusion

In this research researcher finds that the problem solving ability in the students can be enhanced by using effective modes of teaching especially audio visual aids which make the student to visualize the problem properly and then find a solution. So teachers should represent the problems in front of the students by using audio visual aids. More content can be taught by teacher in stipulated time.

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