

CHAPTER-5

SUMMARY

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Summary

This chapter, which is the last chapter of the present investigation, reports a brief summary of the study. Need and significance of the study, statement of the problem, objectives of the study, hypotheses, assumptions, delimitations of the study, procedures for the execution of research, scheme of data analysis, findings and suggestions for further research have been outlined in this chapter

5.1 Introduction

Education is a process which begins at cradle and ends at the coffin. Education is very much necessary for the overall development of human beings. Education is needed to be innovative, capable of evolving adapting to the rapidly changing world and assimilating change.

Education is divided into various subjects on basis of objectives. Every subject has its own importance for the cognitive development of an individual. Similarly, mathematics has its own importance in every walk of life. Therefore, it is important to have a look on various aspects of mathematics:

5.2 Mathematics Education

Mathematics education is a dynamic discipline. It develops general ability for reasoning. Mathematization is the main goal of mathematics education.

Mathematics is the oldest subject with a history dating back to 4000 years and it is an exact science. Common man can sometimes get on very well without learning how to read and write, but he can never manage without learning how to count and calculate. Any person ignorant of Mathematics will be at the mercy of others and is likely to be easily cheated.

The knowledge of the fundamental processes of Mathematics and the skill to use them are the preliminary requirement of a human being. Elementary level Mathematics such as counting, addition, subtraction, multiplication, division, weighing, measuring, selling, buying etc. are simple and fundamental processes of Mathematics which have an immense practical value in life. Knowledge and understanding of elementary mathematics can be applied in an effective and systematic manner only when the teaching of Mathematics at elementary level helps the children to attain the competencies.

5.3 Need for Innovative Methods in Teaching Mathematics

The children of the elementary schools in India belong to different categories like rural, semi-urban and urban and from low, average and high income groups of families. Most of the children in village schools are first generation learners. Their levels of intelligence also differ.

Effective teaching of mathematics in Indian class- rooms will be made possible only with the effective method.

The Kothari Commission Report (1960) states that if science is poorly taught and badly learnt, it is little more than burdening the mind with dead information and it could degenerate even into new superstitions.

With the development of science and technology the subject mathematics becomes so vitally important for everyone in the technological age, that any advance in the techniques of teaching is to be welcomed.

As proposed by the National Policy on Education (1986), there is an urgent need to modify the curricula and methodologies of learning through appropriate research and development to incorporate elements of problem solving, activity and relevance.

For this study researcher has selected activity based teaching learning strategy for seeking effect in mathematics achievements of the students.

In the constructivist approach, the importance is given to activities, which will help the students to construct knowledge. The activity based strategies as opposed to the traditional strategies emphasis 'learning by doing'. The activity based strategy in Mathematics learning involves doing, reading, working, thinking, planning, co-operating and intelligently operating with the natural forces in the school and community. The use of activity methods give a broad scope to this natural curiosity and initiative in the child. They help the pupils to develop keenness of observation and thinking, cognitive activity and independence of mind.

5.4 Need of The Study

Mathematics is a discipline that is vital in everyone's life. Children must learn major mathematical concepts in school so that they will be able to use these skills later in life (Sarama and Clements, 2009).

The importance of mathematics for employment and day-to-day living in the modern world is increasing, people have difficulty with mathematics because of steady increases in the quantitative knowledge needed to function in many jobs today, including many blue collar jobs (Parsons, Bynner. 1997).

Children feel problems in understanding of mathematical concepts like multiplication, division, size and shape concepts when they taught in classroom in regular way. As discussed earlier, if they learn through activity method they learn in a better way without any pressure and it makes the children happy and gets them interested to learn. Activities assist children to develop early numeracy skills. Young children need to experience a lot of 'doing' and 'saying' before they are able to understand numbers.

Maths is closely related to our daily life as compare to other subjects. Central goal of maths education is to develop an ability to think and to reason. But students have a fear of maths, they feel maths as a boring subject mainly due to faulty pedagogies.

To overcome drawbacks of faulty pedagogies new approaches should be adopted for qualitative improvement in education system. Research on various approaches to learning has been conducted in the West but such experiments in India are very few.

In the view of advantages of some new approaches to learning, it is essential that new learning approaches should be investigated in India.

There are various methods of learning mathematics. Activity based teaching learning method is very rare in Indian schools. Activity based teaching learning strategy gives more experience as well as encourages students participation in classroom. . Activity based teaching learning strategies can play an important role in learning mathematics

As a researcher I want to find out :-

- i. Can Activity based teaching learning strategy make maths learning interesting and joyful?
- ii. Is it possible to present a lively and easy picture of maths with the help of activities?
- iii. Can Activity Based teaching learning strategies increases the achievement scores in mathematics?
- iv. Can Activity Based teaching learning strategies help to sustain interest in maths classroom?

5.5 Statement of The Problem :

“Effect of Activity Based Teaching Learning Strategies in Learning Mathematics: A Study”

5.6 Operational Definitions:

Effectiveness - Effectiveness in this study may be defined as resulting state or condition as a consequence of using activity based teaching learning strategy .

Traditional method - Methods and techniques of teaching as customarily used by regular teachers.

Mathematics achievement- Scores obtained by the students in maths test paper is taken as achievement of students The term is used more generally to describe performance in the maths subject .

Activity based teaching learning strategies- Activity method is a technique adopted by a teacher to emphasize his or her method of teaching through activity in which the students participate rigorously and bring about efficient learning experiences.

5.7 Objective

To study the effectiveness of activity based teaching learning strategies on achievements in mathematics of Class 7th students.

5.8 Hypothesis

There is no significant difference between achievement in mathematics taught by activity based teaching learning strategies and traditional teaching.

5.9 Delimitations

- The study is limited to topic of congruence only.
- Lesson plan will be developed in Hindi language only.
- School was selected from Bhopal city.
- The study is limited to only one school due to time constraint and lack of resources.
- The population is restricted to one class only.

5.10 Design for Present Study

The present study was quantitative in nature ,quasi- experimental design was used. Experimental design employed in the present study was **two group -post-test only design** with non-equivalent purposive sample.

5.11 Sample for The Study

The present study is an experimental study concerned with the role of activity based teaching strategies in enhancing the level of achievement in mathematics. Purposive sample technique is used for the present study. The researcher selected children of two sections belonging to the seventh standard of **SHASKIYA MADHYAMIK SHALA GARHI, RAISEN** as sample. It is a Hindi medium school. Since it was not possible to employ randomisation which would upset the class schedule that is why the class as a whole in its natural setting was considered for the study.

Section A and Section B were selected as control group and experimental group respectively. There were 30 students in the experimental group and 28 students in the control group. Both the groups were taught by the researcher only.

5.12 Variables

The present investigation is an attempt to determine the effectiveness of activity based teaching strategies in enhancing the level of achievement in Mathematics among children at the elementary level.

The variables involved are:

- a) **Independent variables:** The activity based teaching strategies and traditional method involved in the teaching of Mathematics were taken to be the independent variable in the present investigation.
- b) **Dependent variables:** The achievement scores of students, in solving problems in Mathematics were treated as the dependent variable in this study.

5.13 Tools

Through the review of related literature the investigator identified that the teaching strategies effectively change the pupils attitude towards Mathematics . So the investigator developed the achievement test to measure the achievement scores.

The following tools were used:

- a) Achievement test in Mathematics
- b) Lesson plans based on both the methods

All the two tools have validated by the Supervisor of the study.

5.14 Procedure for Data Collection

The present study was conducted in two stages:

The initial stage : The instructional material and the tools were prepared

The final stage: implementation on the group of 58 students of class 7th as mentioned under the heading sample was taken. For experimentation ,out of 58 students 30 were in the experimental group and the remaining 28 were in the control group.

After designing of groups, the first lesson was taught to the experimental group through the material developed on the lines of Activity based teaching method. Activities given in the classroom, individual and group activities were given. Teaching to the experimental group was simultaneously observed by the teacher in the classroom and recorded. Before teaching, the students of experimental group were told that teaching will be done by the new procedure that is activity based method.

On the other hand ,same lessons were taught to the control group through the traditional method on the same day in the next period.

After completing all the lessons of the unit, the post-test was administered on both the groups(experimental and control) immediately after 7 days of teaching. Scoring was done by the scoring key, which is provided in the appendix B.

5.15 Techniques Used for Data Analysis

In the present study, the relevant data obtained from the test scores from the post-test was analyzed using different statistical techniques.

Mean and standard deviation were calculated and 't' value is calculated to check the significant difference to compare them.

Analysis provides inferences involving determination of statistical significance of difference between groups with reference to selected variables. To compare the difference the between the means of the small samples 't'- test was used.

5.16 Findings

It is evident from the data analysis that activity based teaching learning strategies are better than traditional approach of teaching. It is more effective and the children enjoy by learning through this method.

5.17 Educational Implications of the Study

Activity based teaching learning strategies are based on research oriented constructivist learning theories and experimental activities. Activity based teaching learning strategies, while including students in activity at every phase, encourages students to constitute their own concepts.

It includes skill and activities that increase curiosity for research, satisfy students expectations and make the student focus on an active research for information and understanding. Students use their previous knowledge in discovering new concept for the concepts to gain a meaning.

In this study, Activity based teaching learning strategies has been found to facilitate achievement of the student towards the subject of study. This finding has an important implication for teaching mathematics. Mean for pupil taught through activity based teaching learning approach is significantly higher than those taught through traditional approach. Does this result of a study indicates that using this approach in the classroom the teachers can improve the students' achievement scores towards the subject taught.

Several other educational implications of this study given as follows:

5.17.1 For Students:

- The study gives importance to child centeredness where the children were given opportunities to explore and discover things on there. The study focuses on innovative and democratic classroom where the child is given freedom to discover, ask question. Researcher, during experimentation, observed that the child learns to construct his own knowledge through hand on experience.
- Activities provide experiences and so teaching by using this method by researcher has been found effective leading to the improvement in students' achievements. If the teachers are encouraged to use this approach, it enables the student to attend more than that of traditional method followed in school.
- Activity based teaching learning strategy help students to improve their concepts, to increase achievements, motivation in mathematics. During learning, to learn more effectively this approach play a very important role. The major cause of failure is loss of interest hence this is the approach by which a teacher can maintain and multiply interest in the mathematics. This approach can give very good results for elementary classes. Activity based teaching learning strategies help students to improve their self- concept, achievement and motivation in mathematics therefore in schools, mainly in elementary classes this approach can be integrated successfully so that achievement of the students can be increased.
- Normally most of the children feel mathematics learning a burden. Mathematics can be made simple if the mathematical concepts become available to the children in play form. This study attempted to present the concept of congruence through activity based teaching learning strategy. There is a substantial improvement in attainment levels in the mathematics classes and such activities may be prepared for other mathematical concepts also.

5.17.2 For Teachers

- In the present educational - institutions the teachers, to a large extent dominate in the teaching learning processes. Teachers are initiator of the teaching learning process, but today is major focus is on construction of knowledge by the child by his own. To facilitate thinking ability, teachers can realise this objective by employing constructivist model in their teaching.
- In the present study, Activity based teaching learning strategy is found to be significantly superior to the traditional method. This point out the need of training programs could be organised for pre-service and in-service teachers for understanding and implementation of activity based teaching learning strategies for constructive approach in classroom situation.

5.17.3 For Teacher educator

- In number of studies including the present one, this model is found to be effective for the teaching and learning so the teacher educator be equipped to translate this method in to practice by giving demonstration of the usability of activity based method to the student teachers. The instructional material available in the form of lesson plans developed in the present study can be used to give demonstration to student teachers.

In order to equip teacher to implement variety of activities, to introduce different mathematical concept, there is a need of development of comprehensive activity package. Activity based teaching learning help to increase learning.

- To identify such basic mathematical concepts where there are problems of assimilation, preparing of activities teacher training is required.
- To equip teachers in preparation and implementing the activity based teaching be included in pre- service teacher preparation programmes also pre- service teachers should be equipped with necessary skills and knowledge about preparation and organisation of activities in transacting mathematical curriculum at primary and upper primary stages.

5.17.4 For Curriculum designers:

- This method can be applied at several levels in the designing of curriculum material and instructional sequences.
- There is an assumption that the activity based teaching would take more time but the present study disproved this. The same unit was taught by both the methods i.e. activity based learning as well as traditional method. The unit completed at the same time. Activity based interventions can be made a part of regular curriculum.
- Textbooks are the major source of information for students as well as for the teachers so the mathematics textbooks at the elementary-stage need to be activity oriented with an inbuilt

scope for conducting activity wherever essential instructions be provided for the students in learning mathematical concepts through activity.

- Handbooks, resource materials and guidelines for the teachers are to be developed on activity based teaching to prepare teachers in helping elementary school students for comprehended mathematical concepts without any burden.

5.18 Suggestions for Further Studies:

Looking to the constraints under which the study was concluded the findings do not warrant any generalisation it is therefore felt that replication of this study on a large sample is requested to arrive at generalisation, however studies may be undertaken on the following:

- Activity based teaching Method may be used to teach something other than maths and its effectiveness can be studied.
- Similar study may also be conducted with the students of other classes.
- The sample for the present study was restricted to the urban population only. The experiment may be tried out with the rural population.
- Study can under taken to examine students' perception on the classroom based on activity based teaching learning method.
- Study can under taken to examine the role of teacher in activity based teaching method in the classroom.
- Similar study can under taken by taking more number of units in order to arrive at a border generalization.
- Study may also be undertaken to compare the effectiveness of the activity based teaching learning method between different schools for example private and government schools' children where the attitude of the children towards the learning is not favourable.
- Study can be undertaken to find out the effect of activity based teaching learning strategy on other psychological variables like anxiety, stress etc.
- Effectiveness of Activity Based teaching on achievement in other school subjects in different regions may also be studied.
- Study can be taken on relative effectiveness of Activity based teaching on achievement in different School subjects in different types of schools like CBSE schools, private sector schools, State government schools etc.

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