CHAPTER - VI
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SUMMARY, CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

INTRODUCTION:

According to Gage (1963), there is hardly any universally accepted and tested theory of teaching in existence. The researchers have probably believed that as there are several theories of learning, the teacher can always act upon these theories for teaching effectively in the classroom. In the words of Smith (1966), there is need for a separate theory of teaching with a view to maximizing learning on the part of learners. Though no generalized theories of teaching have so far been evolved, researches have developed various teaching models.

Model of teaching as defined by Joyce and Weil (1992) is “a plan or pattern that can be used to design face to face teaching in classroom or tutorial setting and to shape
instructional material including books, films, tapes and curricula”. Eggen (1979) defines models of teaching as perspective teaching strategies which are used to realize specific instructional goals. For instance, if instructional goal is to develop inquiry skill, the inquiry Training model should be used. Thus, in real sense increasing aptitude to learn is a fundamental purpose of these models. A model enables the teacher to enhance the ability of students to achieve various learning objectives and is not a substitute for learning skills.

During the last two decades lot of attention was paid to improve the process of teaching which resulted in the development of a number of models of teaching by various researchers like Brady (1985), Joyce and Weil (1992).

Mastery Learning was introduced into the professional literature in the late 1960’s (Bloom 1968). Mastery Learning is the set of old and new individualized instructional ideas and practices that consistently help most students to learn excellently, quickly and self confidently. These ideas and practices produce instruction that is systematic, provides help to students when and where they have learning difficulties, and provides sufficient time for students to achieve mastery (Bloom,
Mastery Learning approaches attempt to modify the instructional setting so that students possessing a variety of entering abilities, skills, knowledge, attitudes and values can succeed. Moreover, Mastery Learning approaches rely primarily on human being for their success rather than on machines and other technological devices.

Study of the trend reports and abstracts in Buch’s Fourth Survey of Research in Education (1991) reveals that models of teaching as an area of research is emerging in a significant manner. So the present study is an attempt in this direction.

REVIEW OF RESEARCH

A number of studies reported by Block (1974) and Bloom (1976) have brought out the effectiveness of mastery learning model at all levels of education and in such different subjects as arithmetic, Philosophy and physics.

Block (1971) noted that mastery learning significantly effects on students’ cognitive and effective development and rate of learning. Block and Burns (1976)
reviewing literature on mastery learning found that in 97 comparisons of average achievement scores, involving various types and number of students and various subject matter areas, mastery taught students scored higher than non-mastery taught students 89% of the time and significantly higher 61% of the time.

Yadav (1984) attempted to examine the effects of mastery learning strategy on students’ attitude towards mathematics and self-concept. It was found that there was significant improvement in the self concept of experimental group. Vaidya (1989) also obtained similar results in the subject of Hindi.

Anuforo (1987) investigated the effect of mastery learning technique on students’ achievement in the study of English language syntax and recommended the use of mastery learning technique as a better method of teaching English language syntax.

Sangwan (1992) in her study on VI class students revealed that at end of experimental treatment the group of pupils taught science through mastery learning strategy have significantly higher gain score on the criterion test in science than
the group of pupils taught through conventional method. Similarly, experimental group achieved significantly higher mean score on the test of self-concept than the group of pupils taught through conventional method. Again experimental group scored significantly lower on the test of adjustment than the group taught by conventional method and hence the adjustment level of experimental group was better and higher than the control group.

Mahajan (1996) conducted his research study with the objective to compare the mean achievement of the students taught through Computer Assisted Linear Programming (CALP) with the mean achievement of the students taught through traditional method. It was found that Computer Assisted Linear programming on geometry was effective in terms of achievement of students belonging to experimental group than that of control group at 0.05 level.

Bajpai (2000) in his study on 100 commerce students of Class XII of tribal district of Jhabha in Western Madhya Pradesh revealed that inductive programmed learning method is significantly better than lecture method.
STATEMENT OF THE PROBLEM

“Effect of Mastery Learning on Achievement in Environmental Science, Self Concept and Classroom Trust Behaviour of Class V Students”.

OBJECTIVES

Research study was conducted by keeping in mind the following objectives:

1. To develop and standardize Environmental Science Achievement Test.

2. To compare the mean achievement scores of two groups of students to be taught environmental science with mastery learning and conventional method, before and after the experimental treatment.

3. To compare the mean self-concept scores of two groups of students, to be taught environmental science with mastery learning and conventional method before and after the experimental treatment.
4. To compare the mean classroom trust behaviour scores of two groups of students to be taught environmental science with mastery learning model and conventional method before and after the experimental treatment.

HYPOTHESES

In order to attain the objectives of the study, following hypotheses have been formulated:

1. 
   a) At the end of experimental treatment, the group of students taught environmental science through mastery learning will score significantly higher on the criterion achievement test than the group students taught through conventional method.

   b) At the end of experimental treatment, the group of students taught environmental science through mastery learning will show a significantly higher mean gain score on the criterion achievement test than the group students taught through conventional method.
2.
   a) At the end of experimental treatment, the group of students taught environmental science through mastery learning will attain a significantly higher mean score on the self-concept questionnaire than the group of students taught through conventional method.

   b) At the end of experimental treatment, the group of students taught environmental science through mastery learning will attain a significantly higher mean score on the self-concept questionnaire than the group of students taught through conventional method.

3.
   a) At the end of experimental treatment, the group of students taught environmental science through mastery learning will attain a significantly higher mean score on the classroom trust behaviour scale than the group of students taught through conventional method.

   b) At the end of experimental treatment, the group of students taught environmental science through mastery learning will attain a significantly higher mean score on the classroom
trust behaviour scale than the group of students taught through conventional method.

METHODOLOGY

DESIGN

Pre-test, post-test control design was employed in this study. There were two groups of students – experimental group and control group. Experimental group was taught through mastery learning whereas control group was taught through conventional method. At the first stage of the design, there was pre-testing of students on intelligence, socio-economic status (to match the students of both the groups), achievement test, self-concept questionnaire and classroom trust behaviour scale. At the second stage experimental group was taught through mastery learning whereas control group was taught through conventional method (the same units) for 12 weeks. At the third stage of post testing again, two groups were tested on achievement test, self-concept and classroom trust behaviour scale. Lastly gains in scores were calculated for comparison purpose.
STATISTICAL TECHNIQUES USED

Data was analysed with the help of mean, SD and t-ratio techniques.

SAMPLE

The sample of the present study comprised of 117 students. Students of Class V studying in two sections of Marigold Public School, Noida (N=53) - one section formed the experimental group (N=27) whereas other section formed the control group (N=26). Similarly, (N=64) was the other school which was selected one section formed the experimental group (N=42) and the other control group (N=22) after matching them on intelligence and SES.

TOOLS USED

Following tools were used for conducting the present study:

1. Environmental Science Achievement Test (This was constructed and standardized by the investigator herself).
5. Socio-Economic Status Scale (urban) (Kohli, 1988).

DELIMITATION OF THE STUDY

1. In order to control effectively the variable of Instructional variation, the study is confined to two schools.
2. Out of fifteen units, fourteen units are selected from environmental science syllabus of Class V for the purpose of this study.
3. The subject of environmental science is chosen for the study due to its importance in everyday life of the students.

DEFINITION OF KEY TERMS

1. **Mastery Learning:**
   
   It is systematically planned programme of instruction adopted by teacher to raise the achievement of students to predetermine mastery level. It involves presentation (cues), feedback (mastery testing), correction (using alternative
instructional material and method) till practic achieve the desired mastery level.

2. **Conventional Method:**

   Here teacher is only activ gives lecture, home assignment and a periodically. He assigns marks to students and no value in terms of improving the quality of i

3. **Academic Achievement:**

   It is the level of learning area of subject in terms of knowledge, unders application, usually designated by test so assigned by the teacher or both (Good, 1973).

4. **Self-Concept:**

   Pupils’ self-concept perceptions, beliefs, attitude and feelings views as part of characteristics of himself perception of his health and physique, into academic status, behaviour temperamental health etc. (Good, 1973).
NEED AND IMPORTANCE OF THE STUDY

The subject of Environmental Science is one of the important subjects at the elementary stage of education as well as in the daily life of the child, and till now practically no research has been conducted where from we can improve the teaching of this subject.

Indiscipline problem in the class is due to faulty method of teaching. Chalk and talk are the monotonous lecture of the teachers which do not appeal to the senses of the children. That is why there is truancy, inattentive behaviour, class fights, abuses and damage to class and school property. Therefore, it becomes essential to investigate whether some other method of teaching e.g. mastery learning can be more effective as compared to conventional method so that students can be saved from frustration and anxiety.

From the Fourth Survey of Research in Education (1991), it is observed that the effect of certain methods/model of instruction in different subjects e.g. Mathematics, Physics etc. have been studied on a variety of
variables but there is no research in which the effect of mastery meaning on the environmental science has been explored.

Further the findings of this study will be very useful for the teachers, teacher educators, curriculum-makers, planners, students and above all for the society.

Hence, the effectiveness of mastery learning model on students’ achievement in environmental science, self-concept and classroom trust behaviour of the students call for an in-depth research.

CONCLUSIONS

Achievement in Environmental Science

Results show that there is significant difference in the academic achievement of students (in the subject of environmental science) taught by mastery learning strategy and conventional method of teaching as t-value is significant at 0.01 level of significance. From the mean values, it is revealed that mean achievement score of experimental group (which is taught by mastery learning strategy) is higher as compared to the mean achievement score of control group (which is taught by
conventional method). In other words mastery learning strategy which provides feedback to the students as well as remedial instruction is superior as compared to the classroom conventional method of teaching. Therefore, hypothesis 1 (a) that at the end of experimental treatment the group of students taught environmental science through mastery learning will score significantly higher on the criterion achievement test than the group of students taught through conventional method is retained in the present study.

Results also show that there is significant difference in the mean gain scores of experimental group and control group as t-ratio is found to be significant at 0.01 levels. From the mean gain scores, it is found that experimental group which is taught by mastery learning strategy scored higher as compared to the control group which is taught by conventional method. Thus mastery learning strategy is superior to conventional method in enhancing the academic achievement of students in the subject of environmental science. Therefore, hypothesis 1 (b) that at the end of experimental treatment, the group of students taught environmental science through mastery learning will show a significantly higher mean gain score on the
criterion achievement test than the group of students taught through conventional method is accepted here.

Self Concept

Results of the present study reveal that there is significant difference between the experimental and control group on the variable of self-concept as t-value is found to be significant at 0.01 level of significance. From their mean score it is found that students of experimental group scored more on self-concept questionnaire as compared to students of control group. In other words mastery learning has certainly raised the level of self concept of students as compared to conventional method. Thus hypothesis 2 (a) that at the end of experimental treatment, the group of students taught environmental science through mastery learning will attain significantly higher gain score on the self concept questionnaire than the group of students taught through conventional method is accepted in the present study.

Further results show that there is significant difference in the mean gain scores of experimental and control group on the variable of self-concept as t-ratio is found to be significant at 0.01 level of significance. Also from the mean gain score of self-concept it is revealed that experimental group which
is taught by mastery learning strategy scored much higher as compared to the control group which is taught by conventional method. These results clearly speak that mastery learning strategy is far better than conventional method of teaching in developing and enhancing the self-concept of students. Hence, hypothesis 2 (b) that at the end of experimental treatment the group of students taught environmental science through mastery learning will attain significantly higher mean gain score on the self-concept questionnaire than the group of students taught through conventional method is also accepted in the present study.

Classroom trust Behaviour

Results of present show that there is significant difference in the classroom thrust behaviour of students those who are taught by mastery learning strategy and those taught by conventional method of teaching as t-value is significant at 0.01 level. Further, from the mean value, it is found that students of experimental group are students of control group, meaning thereby that mastery learning strategy is supportive and favourable in enhancing the classroom trust behaviour of students. Hence, hypothesis 3 (a) that at the end of experimental treatment, the group of students taught environmental science through mastery learning will attain a significantly higher mean
score on the classroom thrust behaviour scale than the group of students taught through the conventional method is retained here.

From the results, it is also shown that there is significant difference in the mean gain classroom trust behaviour score of experimental group and control group due to significant t-value at 0.01 level. Also, from the mean scores, it is revealed that students of experimental group who are taught by mastery learning strategy scored higher mean gain score as compared to students of control group. In the light results, therefore, hypothesis 3 (b) that at the end of experimental treatment students taught through mastery learning will attain significantly higher mean gain score on the classroom trust behaviour scale than the group of students taught by conventional method is retained in the present investigation.
EDUCATIONAL IMPLICATIONS

The findings of the present experimental study have very wide educational implications for the education of children at the elementary level. These findings will help the teachers, administrators, parents, curriculum framers, policy makers and guidance workers to prepare themselves to meet the need of the children studying at elementary stage. Some of the important educational implications are given below:

1. The result of the present study indicate that almost all the students can be brought to mastery level in their achievement if they are helped appropriately as and when they need it. First major implication of this study is that instructional methods can and should be adopted by teachers to meet the needs of the students in order to achieve the goal of quality of education in terms of academic achievement of the children.

2. Study tells that formative evaluation which provides a system of feedback to the teacher and students with the help of which it is possible to correct errors at an early stage is integral to mastery learning strategy. Thus, teachers should be trained in the use of formative evaluation. In order to use...
this strategy, principles should provide appropriate freedom to the teachers in organizing their classes as per the requirement of this strategy.

3. Results of the present investigation reveals that mastery learning strategy has been shown to be effective; therefore, teachers should be trained to use mastery learning strategy in the teaching of different subjects in Indian conditions. For this purpose, theory and practice of mastery learning may be incorporated in the teacher education programme at B.Ed level.

4. Teachers should be motivated to use this strategy to improve the teaching learning conditions, and academic achievement of students, as mastery learning strategy does not involve extra expenditure and can be used by the innovative teachers by using the available material in accordance with the needs of the students and also it is very much suited to a country like ours where there are limited number of resources for the education of children.

5. The problem of drop outs which involves a huge lose of money and manpower can be tackled effectively if mastery
Learning strategy is adopted in Indian conditions since mastery learning strategy can improve the academic achievement of students as per the results of the present study.

6. As per the outcome of the present study, mastery learning strategy is very helpful in improving the self-concept of the students which can be transferred to other areas of individual’s life. Therefore, in order to provide to the society, the individuals with high and positive self-concept to enable them to contribute for the progress of society and nation at large, emphasis should be given to mastery learning strategies along with other teaching-learning methods, strategies and tactics.

7. Since mastery learning strategy is group-based, teacher-based instructional strategy, the role of the teacher cannot be underestimated if it is to be used effectively in actual classroom conditions. Therefore, in order to make it an integral part of the teaching methods widely used in our schools, it is necessary that it should also be incorporated in in-service training programmes for teachers teaching at the elementary level.
8. Major turn out of the present investigation is the superiority of mastery learning strategy over conventional method of teaching. But even after providing necessary training to teachers in the use of mastery learning strategy and allowing them some freedom in organizing their classes and resources, it is mere impracticable ideal to expect teachers to prepare and provide all the necessary material to the students. It is, therefore, necessary that curriculum developers should prepare packages of instructional material which may be used by teachers in their actual working conditions with minor adaptation, if necessary as per their requirements.

9. As a consequence of the present study, it is evident that children who learn through mastery learning strategy tend to show significantly higher improvement in affective domain than the children who learn through conventional method. In other words, mastery learning strategy is very much useful in enhancing the classroom trust behaviour of the children which can be transferred to other areas of children’s life. In this way this strategy can be beneficial and supportive for the achievement of goals, aims and objectives of education.
and in making our educational system an efficient agency of social transformation for the progress of society and nation.
SUGGESTIONS FOR FURTHER RESEARCH

The present study has been mode testing the effectiveness of mastery learning s achievement in environmental science, self-co classroom trust behaviour of students of the primary study, however, does not pretend to offer the final v effectiveness of mastery learning strategy. In order to the outcomes of the present endeavour, more research dimensions of mastery learning strategy is warrant to develop a body of vital knowledge of how to optimi: learning. For this researcher has given few suggestio potential researchers:

1. Instead of confining to an experimental treatme weeks only long term detailed longitudinal : follow students and teachers over a period of sev or years, particularly through continued app: mastery learning procedures are required in orci at still more reliable and precise results of this : to arrive at wide generalization about its outcome

2. Since mastery learning strategy involves a personal interaction between the teacher and t
also affects the attitude of the teacher and develops the habits of cooperation among students. Therefore, study of the various effects of mastery learning strategy on teachers’ role and on inter-personal relations of students can be explored which will definitely provide some new insight into the outcomes of mastery learning strategy and also will help in building the theoretical understanding in this area.

3. In mastery learning classes the student along learning units taught by the teacher also learns how to guide his own learning, therefore, research can be conducted to assess how to students develop their learning skills in mastery learning classes and how their learning skills thus developed influence their abilities to learn other subject in general.

4. In mastery learning some students learn faster than others. Therefore, a study into how time and learning tasks can be best managed to achieve the optimum results and how initial abilities of students to learn their effect their achievement can be explored.

5. Present study is conducted to find the effect of mastery learning on achievement in environmental science, further
research is needed to assess the effect of mastery learning in teaching other school subjects.

6. The present study has been conducted on V class students. Further research can be rewarding by exploring the effect of mastery learning on students of other grade and age levels.

7. Researcher has conducted her research on cognitive domain. But modern age is the age of industrialization. Therefore, it may be worthwhile to investigate the effects of mastery learning strategy on psycho-motor domain.

8. Instead of studying the effect of mastery learning strategy on achievement, self-concept and classroom trust behaviour of students, study may be conducted to find the effect of this strategy on other variables e.g. adjustment, creativity and problem solving ability.

9. So far no meta-analysis study has been conducted in India. Therefore, a meta-analysis of the studies related to mastery learning strategy can be taken up to arrive at precise conclusions about the effect of mastery learning strategy in Indian conditions.
10. In stated of conducting research on normal children, study may be conducted on different exceptional children, e.g. emotionally disturbed, truant, mentally retarded and physically handicapped children.