International Journal for Research Publication and Seminar
ISSN: 2278-6848 | Vol. 16 | Issue 1 | Jan-Mar 2025 | Peer Reviewed & Refereed

EFFECT OF BLOOM'S MASTERY LEARNING MODEL ON STUDENTS ACADEMIC ACHIEVEMENT AND ATTITUDE TOWARDS SOCIAL SCIENCE

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ABSTRACT

The present study was designed to study the effectiveness of Bloom's Mastery learning model on achievement in Social science with respect to attitude towards the subject. In order to analyze the data a 2x2 analysis of the variance was used. The study covered two variables: a) Instructional treatment b) Attitude towards the subject. A random sample consisting 100 students both boys and girls of 9th standard Social science students including 50 students from Government model senior secondary school, sector - 20, Chandigarh and 50 Students from Government high school, sector-20 - D Chandigarh. The 50 students of Government Model Senior Secondary School, Sector-20, and Chandigarh were taught through Bloom's plan of Mastery learning (Experimental group) and 50 students of Government High School were taught through conventional method (control group). These variables of the instructional treatment were studied at two levels: Mastery Learning Model of teaching and Conventional Model of teaching. The variable of attitude level was studied at two levels: high attitude scores and low attitude scores. The main dependent variables were the academic performance gain which was calculated as the difference in the post-test and pre- test scores for the subject. The present study shows that the Mastery Learning Model yield performance different to the traditional method. Performance through Mastery Learning Model does not vary with the different levels of attitude and there is no interaction effect between performances through different models of teaching and levels of attitude.

Key words: *Mastery learning, Academic achievement, Secondary school students, Attitude towards subject, Social science.*

Introduction

Teaching is an important part of the process of education. Teaching performs the special function by imparting knowledge develops, understanding and desired skills. Educators are interested in both the above senses as they would like to know what makes a process successful and when and how an outcome is achieved simultaneously. Models of teaching help teachers in adopting wide range of approaches for creating a proper interactive environment for learning. "A model of teaching is a plan or pattern that can be used to shape curriculum's (long term course of studies), to design instructional materials, and to guide instruction in the classroom and the other settings" (Joyce and Weil, 1985). Mastery learning is an instructional philosophy and an associated set of ideas about instruction. Mastery learning provides a compact and an interesting way of increasing the likelihood that more students will attain a satisfactory level of performance in school subjects (Carroll, 1963). Mastery learning is based on the belief that any teacher can virtually help all students to learn
excellently, quickly and self confidently (Anderson and Block, 1981).
The mastery learning model was introduced into the professional literature in the late 1960s (Bloom, 1968). Review of the related research literature show positive results of the Mastery learning in the case of student's achievement. Wentling (1973) compared mastery learning and non-mastery learning as to

how feedback relates to achievement. The findings show superior achievement for both immediate achievement and long-term retention in groups with partial feedback. Backler (1979) pointed out that mastery learning is usually associated with non-traditional instruction methods. Thompson (1980) supported the mastery learning strategy as a highly favorable Instructional component for enhancing student learning. Fuchs and Douglas (1986) assessed the effects on contrasting mastery learning on performance among high and low achieving students. Analysis of covariance on two achievement post tests indicated an interaction; use of the alternative producers resulted in better scores for low-but not high achieving pupils. Guskey and Gates (1986) conducted Meta –analysis which contained 27 studies addressing five areas: student achievement, student retention, time variables, student affect, and teacher variables. They found that achievement results were overwhelmingly positive, but varied greatly from study to study. Students retained what they had learned longer under mastery learning, both in short-term and long term studies. Kulik, Kulik and Bangert- Downs, (1990) conducted a meta-analyses involving 108 evaluations of Mastery Learning programmes found out that performance on examinations at the end of instruction showed positive effects on students achievement although these effects were higher on locally prepared examinations than on nationally standardized test. The data found that low aptitude students had greater gains than high aptitude students. Guskey and Bailey (2001) reported that the evidence is that mastery learning can be subverted in schools where students compete for grades, receive additional points for attendance or effort are regarded with high grades for initial learning, but not mastery, or receive partial credit for second or third opportunities. Mehar and Rana (2013) found effectiveness of mastery learning model more than the conventional method of teaching in the case of achievement in economics at secondary level.

Social Studies is one of the compulsory subjects taught at secondary level throughout the world.

The contemporary Social science curriculum has its roots in the progressive education movement of the early 20th century. Keeping in view the importance of Social studies teaching Secondary Education Commission (1952-53) stated that, Social studies should cover the ground traditionally associated with History, Geography, Civics, Economics, etc. In 1992, the National Council for the Social Studies (NCSS) stated that, Social studies is the integrated study of the social sciences and humanities to promote civic competence.

Achievement is the psychological necessity of man. Achievement is the pivot of the educational growth and development. It is most desirable and the main objective of any educational programme. Achievement means successful accomplishment or performance in particular subject area or courses, usually by reason of skills, hard work and interest, typically summarised in various types of grades, marks, scores and descriptive commentary. There are many factors including environmental and individual, which influence the achievement of an individual and have direct bearing on education.

An attitude is a hypothetical construct that represents an individual's degree of like or dislike for an item. Attitudes are generally positive or negative views of a person, place, thing, or event. Attitude is broad term covering almost all the important fields of human knowledge. It is especially prominent field of education. It is guiding force behind all human activities. Attitude is our perception of life.

Objectives of the study

1. To compare the performance of groups taught through Mastery Learning Model and conventional method of teaching.
2. To study the interaction effect between Model's approach and attitude level.
3. To study the relationship between Model's approach and attitude level.

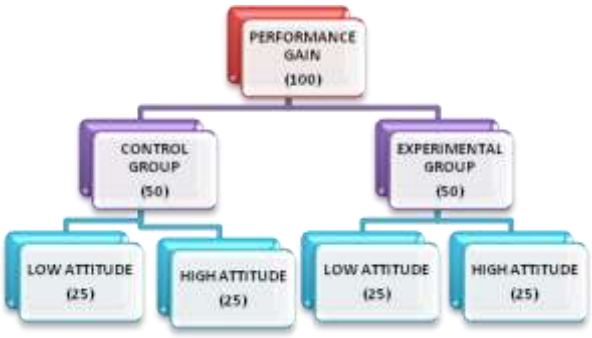
Hypotheses of the study

1. The Mastery Learning Model does not yield performance different to the conventional method.
2. Performance through Mastery Learning Model does not vary with the different levels of attitude.
3. There is no interaction effect between performances through different models of teaching and levels of attitude.

Design and tools of the study

The present study was designed to study the effectiveness of Bloom's Mastery learning model on achievement in Social science with respect to attitude towards the subject. In order to analyze the data a 2x2 analysis of the variance will be used. The study covered two variables: a) Instructional treatment b) Attitude towards the subject. A random sample consisting 100 students both boys and girls of 9th standard Social science students including 50 students from Government model senior secondary school, sector - 20, Chandigarh and 50 Students from Government high school, sector-20 - D Chandigarh. The 50 students of Government Model Senior Secondary School, Sector-20, and Chandigarh were taught through Bloom's plan of mastery learning (Experimental group) and 50 students of Government High School were taught through conventional method (control group). These variables of the instructional treatment were studied at two levels: Mastery Learning Model of teaching and Conventional Model of teaching. The variable of attitude level was studied at two levels: high attitude scores and low attitude scores. The main dependent variables were the academic performance gain which was calculated as the difference in the post-test and pre-test scores for the subject. The following tools were employed to collect the data: a) Five lessons on selected units according to Bloom's condition of mastery learning were developed and used. b) Attitude scale towards Social science was developed and used for measuring attitude of students towards the subject. c) Achievement measured from the criterion – reference test on segment of Social science.

Figure 1. Schematic layout 2x2 factorial design



Procedure of the study

For measuring the students' attitude towards Social science, the attitude test was administered on the whole sample to identify the attitude towards Social science. Pre-test was given to the students of both treatment and control group to measure the achievement of the students. Experimental group was taught through Mastery Learning Model and second group was taught through conventional method by the investigator. After the completion of the course, the post test was administered to the students of both the groups. For analyzing the collected data following statistical tools were employed: Descriptive statistical techniques such as mean, standard deviation, skewness etc will be used to determine the nature of distribution of the scores. Analysis of variance (2x2) was employed. The study was delimited on class IX students from Government Schools of Chandigarh only. The investigation of model teaching was conducted in the subject of Social science only.

Analysis and Interpretation

The results obtained from the two different groups (Mastery Learning Model and Conventional Method of Teaching) are presented along with the graphical representation. The means for different groups were calculated from the gain scores obtained through achievement test. The gain score was calculated by the difference in the pre test and post test scores.

Table 1. Mean gain scores, mean scores, median, standard deviation for Mastery Learning and Conventional method (Pre-test and post – test)

Variable	Mean			S.D		Median	
	Mean Gain	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Mastery Learning	25.72	17.48	43.2	6.35	4.71	18.0	43.0
Conventional Method	18.48	16.04	34.52	4.56	6.673	16.0	34.0

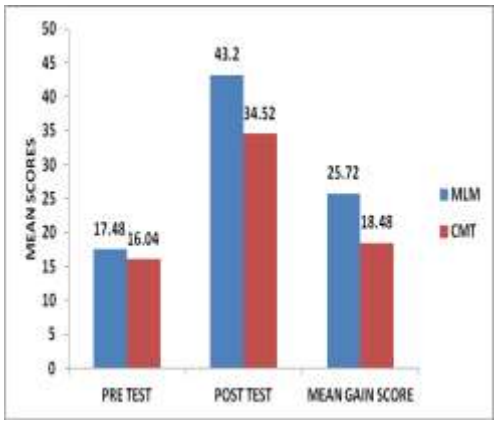


Figure 1. Mean scores for Conventional method of teaching and mastery learning model (Pre-teat, Post- test and gain scores)

Table 1 and figure 1 clearly indicates that the mean gain scores for the Mastery Learning Model is 25.72 which is higher than the mean gain score of students taught through conventional method which is 18.48 of teaching Social science to the IXth standard students.

Table 2. Comparison of mean scores for Pre-test, post-test and gain scores in High and low Attitude groups in Mastery learning and conventional method

Variable	Attitude	Mean		S.D	
		Pre-Test	Post-Test	Pre -Test	Post-Test
Mastery Learning	**Low**	15.44	42.8	5.21	4.62
	High	19.52	43.52	6.81	4.87
Conventional Method	**Low**	16.32	35.12	4.53	6.58
	High	15.76	33.92	4.66	6.84

Table 2. indicates that the mean score for pre-test in low attitude group in Mastery Learning Model is 15.44 and in post-test is 42.8 whereas in high attitude groups the mean score for pre-test is 19.52 and in post – test it is 43.52 and the mean score for pre-test in low attitude group in Conventional Method of teaching Social science is 16.32 and in post – test it is 35.12 whereas in high attitude groups the mean score for pre-test is 15.76 and in post test it is 33.92. Thus it indicates that in comparison to conventional method of teaching the Mastery Learning Model pre-test and post-test scores were observed higher. Same trend was noted in the case of high and low attitude groups in both. It indicates that the students having high attitude towards the subject (Social science) score higher in achievement test in comparison to low attitude groups.

Table 3. Comparison of Mean gain scores obtained in high and low attitude groups in Blooms Mastery learning and Conventional method

	Attitude	Mean	S.D	N

Mastery Learning method	Low	27.44	6.67	25
	High	24.00	7.85	25
	Total	25.72	7.41	50
Conventional method	Low	18.80	6.87	25
	High	18.16	6.78	25
	Total	18.48	6.76	50

Table 3 show comparison of High and Low attitude groups of Mastery learning Model and Conventional Method of teaching. Mean scores for low attitude group was recorded 27.44 and for high attitude group was recorded 24 for Mastery Learning Method and mean scores for low attitude group was recorded 18.8 and for high attitude group was 18.16 for conventional method of teaching. It indicates that the students with low attitude towards the subject of Social science scored better than the high attitude group in the case of Mastery learning Method. This shows that students with low attitude were benefited more from the use of Mastery Learning Teaching strategy, in comparison to the high attitude students. The F-ratio for the difference in Means of two teaching methods and their interaction has been presented in the table No 4 below:

Table 4. Analysis of variance for two teaching methods and Attitude

Source	Sum of squares	d.f	Mean Squares	F-Ratio
Treatment (A)	1310.440	1	1310.440	26.277**
Attitude (B)	104.040	1	104.040	2.086
Interaction (A x B)	49.000	1	49.000	.983
Error	4787.520	96	49.870	

** Significant at 0.01 level of confidence

Main effects

Treatment (A) : Mastery Learning Model

It may be observed from the table 4 that the F-ratio for difference in mean attainment scores of Mastery learning model and conventional teaching groups was 26.277 and found to be significant at the 0.01 level of confidence. The hypothesis H_1O "The mastery learning model does not yield performance different from the conventional method of teaching" was rejected. This means that there was a significant difference between the achievements of the two groups taught through Mastery Learning and Conventional Method of teaching which is not due to sampling error.

Attitude Groups (B)

It may be seen from the table 4 that the F-ratio for difference of means of the two groups on attitude level was 2.086 and not found to be significant at the 0.05 level of confidence. The results indicated that two attitude groups were not different in respect of achievement scores. Hence, hypothesis H_2O, "Performance through mastery learning model does not vary with different attitude level" may be accepted.

Interaction Effect (A x B)

It may be observed from the table 4 that the F- ratio for the interaction between instructional model and attitude groups was .983 and not found to be significant at the 0.05 level of confidence. It indicates that the two variables do not interact with each other. Thus, the hypothesis H_3O "There is no interaction effect between performances through different models of teaching and levels of attitude" stands accepted at this specified level. So, mastery learning model and conventional teaching yielded equal levels of achievement for high and low attitude group of the students.

Discussion

The present study revealed that the mastery learning model of teaching were found effective than the conventional method of teaching. The results were consistent with the findings of Yadav (1984)results of the study were in favor of Mastery Learning Strategy, Guskey and Gates (1986) students in Mastery Learning programmes at all levels showed increased gains in achievement over those in traditional programme, Sullivan (1987) test scores varied significantly according to instructional method used) , Salim (1988) significant achievement gains in chemistry, Kulik (1990) positive correlation in students attitudes towards instruction and content of mastery learning programs and Mehar and Rana (2012) also found significant achievement gains in the subject of Economics with respect to attitude towards economics. The results of the present study were also same as declared by the Toheed and Ali (2019) that the performance of the students experimental groups (Mastery learning) was better than those of the control groups (conventional method of teaching). It was concluded that MLM enhanced academic achievement of students. The above evidence suggests that the mastery learning model affects either equally or more effectively as compared to conventional model. It appears that the effectiveness of the mastery learning model varies with subjects.

Conclusions and suggestions

The present study shows following findings and conclusions;

1. The Mastery Learning Model yield performance different to the traditional method.
2. Performance through Mastery Learning Model does not vary with the different levels of attitude**.**
3. There is no interaction effect between performances through different models of teaching and levels of attitude.

However, the findings suggest that mastery learning model can prove to be a better strategy for Social science secondary school stage. On the basis of the study it is recommended that Mastery learning model should be used as an important method of teaching Social science and also other school subjects. One of the main challenges before the teachers and educators is of the low level of performance and overall achievement of the students in various school subjects. For dealing positively with this problem Mastery learning model can be used as a teaching method during regular and remedial teaching. Mastery learning model can also be helpful for the teachers for bringing a change in their teaching methodology and increasing teaching efficiency.

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