Review of Related Literature

The review of related literature involves locating, reading and evaluating reports of research as well as reports of casual observation and opinion that are related to the individual's planned research project. A review of related studies is crucial aspect in the planning of a new study. It helps to eliminate the duplication of what has been done and provides useful hypotheses and helpful suggestions for significant investigation. Although the research for related studies is time consuming, yet it proves to be a fruitful phase. It acts as a light house to discover what is already known, what are the pitfalls of the previous studies and also widens our outlook, knowledge, insight and experience with regard to the subject. It helps us to know what others have tried to find out, what methods of attack have been used successfully and what problems remain to be solved.

Many research studies concerning mastery learning and their effectiveness in relation to various variables have been conducted in the past. Some findings of the studies having relevance to the present study are given below:
Dequin, H.C.P. (1972) studied the effects and interactions of matching the cognitive style categories with the instructional modes of reading and listening on the basis of post test achievement scores, it was concluded that on the basis of instructions used in this study a valid and predictive diagnosis of cognitive style was not established.

Trivedi, I.U. (1980) studied the effectiveness of branching variety of programmed learning material as diagnostic and remedial tools and found that in the case of class VI, girls learnt better than boys through the use of programmed material, whereas in the case of class V and VII, there was no significant difference between the means scores of boys and girls learning through programmed material.

Clasen, D.R. (1982) concluded in his study that an attitude inventory towards earth science revealed significant sex differences with males having a more positive attitude than females toward the study of earth science.

Kaur, R. (1983) studied the performance of college students in the linear and mathetical styles of programming at information and skill levels of content. There was no difference between the linear and mathetical styles of programming in teaching information skill and information plus skill. And there were no
sex differences in pupils performance with regard to teaching of information skill and information plus skill content through the linear style of programming.

Chitkara, M. (1985) studied the effectiveness of different strategies of teaching on achievement in mathematics in relation to intelligence, sex and personality and found that the boys and girls of superior ability did not show any significant difference between their mean scores on achievement in mathematics. Likewise low ability boys and girls did equally well in mathematics at high school level. Further, she found that the girls of average ability scored significantly higher means than boys of average ability. It can be concluded that average ability girls are superior than average ability boys on achievement in mathematics.

Chaudhary, M. (1985) studied preparational and evaluation of programmed learning material in Geography for the secondary level. It was found (i) students gained significantly in the knowledge of the subject by reading the programme (ii) the programme was equally effective in producing learning among the rural and urban population. However, the girls gained slightly more than the boys on this programme.

Kagathala, A.B. (1986) studied the effectiveness of linear programmed material and branching programmed material in the subject of commerce standard XI in relation to certain variables and found the branching programmed learning material produced better results than the linear programmed learning material. The
male students did not differ significantly in achievement when they learnt through the two different programmes. The girls did not differ significantly in achievement when they learnt through the two different programmes.

Gulyani, R.C. (1989) studied the effectiveness of two strategies of instruction on achievement in relation to cognitive style, intelligence and sex. He reported that achievement of the students is affected significantly by their cognitive style.

Ram, Moti (1990) studied the development and validation of linear programme instruction for the students of B.Ed. class. He reported that there was no significant difference between the performance of male and female subjects as far as teaching both the groups through programmed learning is concerned.

Jyoti (1992) studied the effect of instructional design on academic achievement of secondary school students in relation to achievement motivation, self-concept, level of aspiration and found that the students with high self-concept achieved better than students with low self concept. Further, she found that there is no significant interaction between levels of instructional design employed and those of the self-concept.
2.2 REVIEW OF STUDIES ON MASTERY LEARNING

Attempts to compare conventional method of teaching with mastery learning strategies with a view to establishing relative effectiveness have been made by various researchers.

Nance, D.W. (1975) reported no significant differences in achievement in the mastery taught treatment section and traditionally taught control section for the first semester college calculus.

Rousos, T.G. (1979) indicated that students taught using the traditional lecture/discussion mode of instruction did as well as the students taught using mastery learning and a tutorial laboratory in achievement, success rate and attitude. The effect of mastery learning and a tutorial laboratory on achievement in and attitude towards algebra for college students at the community and Technical College of the University of Totedo is not positive.

West, J.A. (1979) justified that optimism for all six students enrolled in the course attained the mastery criterion for the formative unit test and the mastery criterion for the summative test. Moreover, the students in this mastery learning course performed significantly better on their summative test than a non-mastery group.
Thompson, C.J. H. (1980) supported the mastery learning strategy as a highly favorable instructional component for enhancing student learning.

The educational implications of the findings of this study indicate that a mastery learning strategy can provide the highly favorable instructional component needed to promote equality in educational outcomes and to encourage individuality in student learning.

El-far, I.A (1981) suggested that the diagnostic prescriptive mastery approaches, that were employed, were effective in terms of achievement growth and the achievement retention of the mathematics students enrolled in the first year algebra course at Tanta University in Egypt.

Kushner, W.S. (1981) reported that mastery learning in a high school biology laboratory appeared to be an alternative which was no better or worse than a more traditional approach.

Mclemore, W.S. (1981) concluded that among the subject of the study, mastery learning instructional methods resulted in significantly higher achievement than non-mastery instructional methods on a standardized test of vocabulary skills and on a criterion-referenced final test of vocabulary skills.
Smith, S.H. (1981) concluded that the mastery learning method clearly produces significantly higher gains in achievement than the student choice or traditional methods. There is no evidence that mastery learning makes a difference on long-term retention.

Brooks, E.T. (1982) reported that no significant differential achievement was found between mastery and non-mastery average or above average students. Above average mastery instructed subjects scored significantly higher than their non-mastery counterparts on an instrument measuring retention of low level process skills; but average did not show any significant differences in retention from average non-mastery subjects. Both average and above average mastery instructed subjects scored significantly higher than their non-mastery counterparts on an instrument measuring retention of higher level process skills. While mastery instruction may not be significantly better than non-mastery instruction in affecting achievement gains when equal amounts of time are spent in both modes of instruction, the mastery instruction strategy can sometimes produce a more permanent mastery of sequentially organized materials (higher process skills) than an equivalent time non-mastery instructional strategy.
Dobroski, B.J. (1982) studied about the feasibility of implementing mastery learning strategies in higher education music. It was found that mastery learning strategies have a positive effect on learning outcomes.

Hallada, M.E.C. (1982) found that mastery learning strategy was more effective for students who are low in cognitive level for chemistry and most students showed an overall high degree of course satisfaction.

Hooda, R.C. (1982) studied the effect of mastery learning strategy on student's achievement in mathematics. It was found that six months treatment of mastery learning strategy on a group of students produced significantly higher achievement score while the self concept and attitude towards mathematics remained unaffected.

Nicholson, E.K. (1982) studied the effectiveness of using Mastery learning approaches in comparison with conventional approaches with a base population of 33 disadvantaged rural secondary school students in learning cultural concepts while enrolled in three sections of 9th grade civics. The author also studied the relationship between the use of mastery learning approaches and its impact upon students whose learning was characterized as impulsive or reflective treatments using mastery learning approaches were contrasted with conventional instructional
approaches using a pre-post test comparison of the mean achievement gain scores. Positive gain scores occurred with both impulsive and reflective who received the mastery learning treatment with impulsive demonstrating the highest level of gain. The author believes that the mastery learning instructional approach is far superior to conventional instructional approaches in teaching cultural concepts to rural disadvantaged children.

Holden, N.C. (1983) indicated that on diagnostic tests of grammar skills and vocabulary knowledge, mastery taught students had significantly higher scores than non-mastery taught students regardless of the instructor and despite small sample sizes. Their attitudes towards grammar also improved significantly over the course of the semester and they feel positive toward learning French.

Reed, C.J. (1983) studied the effect of mastery learning strategy on cognitive achievement in a drafting course for high school students. This quasi-experimental study used a 'pre-test and post-test design' with experimental and control groups. The effects of the concominant variables on pre-test scores and post-test scores were analyzed by the use of a one-way analysis of variance. Furthermore, in this study it was found that only one variable; i.e., grade point average, accounted for a significant level of variances.
Srivastava, D.M. (1983) found that instruction in mathematical modeling resulted in an improvement in students' acquisition and retention of modeling skills. Further, instruction in mathematics modeling using a mastery learning strategy resulted in greater acquisition and retention of modeling skills than instruction in mathematical modeling using a non-mastery approach.

Kishore, L. (1984) has reported that retention of students taught physics using mastery learning strategy for senior secondary school students, was significantly higher as compared to the reference group, taught the same material through traditional method.

Quigley, M.B. (1984) reported that there is no significant difference in reading achievement for a group of students taught by the diagnostic/prescriptive approach and a group taught by the traditional method of reading instruction. I.Q. and initial reading comprehension and vocabulary levels were significantly in accounting for the variation in post-test scores.

Yadav, P.S. (1984) employed pre-test and post-test experimental design involving two groups of students to find the effect of mastery learning strategy on achievement of students in mathematics. The experimental group was taught by mastery learning strategy and the control group using the
conventional methods of teaching mathematics. The design neatly controls all the factors affecting the internal validity namely maturation, instrumentation, statistical regression and experimental mortality. The treatment was spread over twelve weeks. The sample was chosen from six high schools of Haryana consisting of the students of IX grades. The experimental group in different schools were taught by different teachers. The two comparison groups did not differ significantly in respect of intelligence, socio-economic status and previous knowledge in mathematics.

Blakemore, C.L. (1985) revealed the following major findings on the basis of statistical analysis (1) the achievement of the mastery group was significantly higher than the non-mastery group at the midtest. By the time of the post test however, the non-mastery group had improved to the point where both groups were statistically equal. It was evident that the conditions provided by the mastery learning model were effective for producing specific results quickly; (2) In particular, low aptitude students, females and especially the low aptitude females benefited from the condition provided by mastery learning methods.

Hefner, S.W. (1985) analyzed that (1) No significant differences in language arts achievement were found between the experimental and control groups on either the post-test or the retention test (2) On both the CTBS (Comprehensive Test of Basic Skills) and the CRT (Criterion Referenced
Test) post-test, statistically significant differences were found favoring the experimental group in the achievement of mathematics. While no statistically significant differences were found between the two groups on the CRT retention test, significant differences favoring the experimental group were found on the CTBS retention test in mathematics. (3) In the meta-analysis, no evidence was found to support the contention that the mastery learning/competency Based Education instructional approach was more effective than (or as effective as) the mastery learning instructional approach in facilitating the retention of achievement in language arts or mathematics.

Kishore, L. (1986) concluded that mastery learning strategy produces positive cognitive and affective changes among students. Thus, mastery learning strategy can work as a viable alternative to the lecture model of instruction.

Lovullo, C.T. (1986) conducted a study of the effectiveness of mastery learning/outcome based on strategies on the attitudes and achievements of sixth grade students. It was seen that the attitudes are not significantly enhanced as a result of differences in schooling (i.e. Mastery Vs Non-mastery). It was found that the mastery model is a viable curriculum planning model for improving achievement.
Patadia, H. J. (1987) Conducted a study of "A strategy for Mastery Learning in fifth grade Geometry". The strategy was initially tried out on 110 pupils of convent of Jesus and Mary school. The students were divided into two matched groups, viz, experimental and control group. The experimental group was taught through MLS and the control group through the lecture method. He reported that the achievement of the experimental group was found to be significantly higher than that of the control group.

Sullivan, V.W. (1987) conducted a comparison of students achievement using mastery and traditional teaching methods. It was found that the test scores varied significantly according to the instructional method used. After one semester mastery group students scored significantly higher in math than the traditional group on math application, but significantly lower on math computation, full year gain scores, however revealed that the original mastery math group achieved significantly higher gains than the traditional group in all areas.

Anderson, R.W. (1988) studied the effect of mastery learning on algebra achievement. The design of this study incorporated what proposed to be the 'best evidence' for mastery learning. The experimental groups were taught for eighteen weeks under mastery learning conditions. The
control groups received traditional instruction. During the final week of the experiment, all groups were given both a teacher-made test as well as a standardized, normative referenced test. Both of the experimental groups performed better on the teacher made algebra test than their control group counterparts. But no evidence was found to support the effectiveness of mastery learning on standardized tests.

Salim, M.I. (1988) studied the effects of mastery learning strategy on the chemistry achievement of secondary school students. The results of the study showed that the mastery learning students had significant achievement gains in chemistry across all achievement tests.

Sawhney (1993) studied the effectiveness of mastery learning strategy of teaching on acquisition and retention of Algebraic concepts in high school students in relation to ability level, cognitive style and class organization. She found in her study that mastery learning strategy was superior teaching strategy in teaching Algebraic concept to class IX students. Further she found that field dependent and field independent students did not differ significantly on the achievement of algebraic concepts.
Green, Ben A. Jr., (1969) studied "A self paced course in Freshman Physics". The aim of the strategy was to produce a "Personalized" course in which students could work independently of their classmates at times and places of their own choosing, yet interact face to face with student tutors to obtain help and to check on their learning progress. It was found that students enjoyed the course and performed as well on a final examination as students learning under the traditional lecture discussion demonstration approach.

Born and Herbert (1971) reported that 161 students enrolled in a beginning psychology course were taught using a variant of Keller's personalized procedure. Course material was divided into twelve units and complete mastery of the material in each unit was demonstrated by a short and a brief interview conducted by a more advanced students. After the completion of the course, student evaluation of various facets of the course was conducted. Of special interest was the finding that student test evaluators were rated as very favoural feature of the course. Thus investigator concluded that the instructional manpower pool could be extended through the careful use of peer - tutors.
Dasgupta, D. (1987) Conducted a study of teaching school economics by the personalized system of instruction and found that the mean achievement of pupils taught by the PSI approach was not better than that of pupils taught by the conventional method. As regards retention the PSI group scored significantly more than the conventional method group but there was no significant difference in attitude of both the groups.

2.4 REVIEW OF STUDIES OF BLOOM'S MLS

Collins, K.M. (1969) investigated the effectiveness of Bloom's mastery learning strategy for the teaching of freshman college mathematics. The research involved two modern algebra courses for liberal arts majors (n = 50 approximately) and two calculus courses for engineering and science majors (n = 40 approximately).

These courses were broken into smaller units, and students were assigned to learn the units under either mastery or non-mastery conditions. It was found that in the modern algebra classes, 75% of the mastery compared to only 30% of the non mastery students achieved the mastery criterion of an A or B grade. The calculus classes results were similar: 65% of the mastery compared to 40% of the non mastery students achieved the criterion. In both the modern algebra and the calculus courses, D and F grades were for all practical purposes eliminated for mastery students.
Kim, H., et al. (1969) studied the effectiveness of Bloom's strategies for mastery learning. The research sample consisted of 272 seventh graders. Half were assigned to the mastery learning (experimental) group, and half to the non-mastery learning (control) group. It was found that 74% of the experimental compared to only 40% of the control students attained the mastery criterion of at least 80% correct answers on the summative achievement test.

Duncan, D.D. (1976) reported that Bloom's mastery learning procedure significantly affected the achievement of students in a college course and produced favourable attitude towards the strategy and mathematics.

Dunkleberger (1979) studied the cognitive and effective consequences of internal and external achievement monitoring in mastery learning and has found that repeatable testing component of mastery learning failed to promote achievement or improve student attitude as theorized by Bloom.

Singh, O. (1983) concluded that Bloom's mastery learning strategy did not significantly affect the self concept of high school students after taking instruction in the subject of social studies.
Monger, C.T. (1989) studied the effects of a mastery learning instructional strategy based on Bloom's theory of mastery learning on student achievement. To identify differences in achievement a two group pre-test - post - test design for each of the three grade levels, two, five and seven was used. Pre-tests were used as a control variable for initial differences in achievement. Post-tests were used to examine mathematics achievement and related affect of learners.

There was no significant difference between the achievement and subject related effect for second and fifth grades when adjusting for prior achievement. There was significant difference between seventh grade students in mathematics concepts and total mathematics; specifically the seventh grade control group outperformed the experimental mathematics, disconfirming Bloom's theory in this case.

2.5 REVIEW OF STUDIES ON BLOOM'S AND KELLER'S MLS

Attempts to compare Bloom's MLS with Keller's MLS with a view to establishing relative effectiveness have been made by various researchers.

Swanson, D.H. (1976) investigated the influence of different remediation strategies on student retention of cognitive achievement. Three treatment groups were taken keller group, Bloom group and traditional group. It was found that achievement determined by gain-scores obtained
from administration of the chemistry achievement as pre-test and post test failed to produce a statistically significant difference between three groups.

Chand, R. (1984) studied the effect of personalized system of instruction and Bloom’s mastery learning strategy on the retention of high school students in a segment of science and found that PSI and Bloom’s mastery learning strategy have equal effects on immediate and delayed retention of the subject matter.

Sethi, S. (1985) has found that (1) the Keller and Bloom mastery learning strategy were equally effective in immediate test as well as delayed test in respect of the percentage of obtained scores. (2) The Keller and Bloom group did not differ in their mean performance at the two learning type (comprehension and skill) under investigation in immediate and delayed test. (3) the two strategies of mastery learning were not differentially affecting the performance for the two types of learning.

Guru, N. (1986) found that (a) Two methods of instructions (Bloom and Keller) were found equally effective. (b) The mastery learning strategies affected the achievement uniformly.
Koul, L. (1986) studied the effectiveness of mastery learning strategies on achievement motivation and test anxiety of socially disadvantaged group in Himachal Pradesh and found that the achievement motivation, (measured with TAT) of the science group imparted instruction through Keller’s PSI was found to be significantly higher than that of the group instruction through Bloom’s mastery learning strategy.

Bajaj, Rajneesh (1994) studied the effect of the mastery learning strategies (Bloom and Keller) on the teaching of Geometrical concepts for sixth grade students in relation to intelligence and found no significant differences between the Bloom’s and Keller’s strategy of mastery learning on learning.

In the light of above, there is an immediate and urgent need for a number of research studies which may provide some data on the comparison of different mastery learning strategies for teaching Economics. It is all the more desirable, since no such indepth study has been conducted and ones completed abroad are scantly and none has been done with the sex, cognitive style and self-concept.