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CHAPTER - II

REVIEW OF RELATED LITERATURE

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REVIEW OF RELATED LITERATURE.

2.1 Introduction

A chronological analysis of all the researches published in the field of learning would neither fall into the scope of this investigation nor relate with its purpose. However an attempt is made to review the related literature including some allied studies. This review has been made from researcher point of understanding the concept of learning strategies. The purpose of this chapter is to provide a brief and initial review and appraisal of the few related studies and to show how present study contributes more to the fund of knowledge in area under study.

2.2 Related Researches Conducted in Foreign countries.

Various researchers identified a number of learning strategies by creating new measuring tools and using new methods.

Kolb (1974) developed an "experiential learning model" based on his learning style inventory. In this model, he talks of a four-stage cycle composed of (1) Concrete experience (2) Observation and Reflection, (3) Formation of Abstract concepts and Generalisations and (4) Hypothesis to be tested by Active Experimentation, which may then lead to new concrete

experiences. Immediate, concrete experiences are the bases for observation and reflection. These observations are assimilated into theory from which new implications for actions are made. These implications serve as hypothesis or guides for creating new experiences. On the basis of the use of these four learning stages, four learning styles were identified, the Converger, the Diverger, the Assimilator and the Accommodator.

Schmeck R. and Ribich F. (1977) first developed the inventory for learning processes. It contained 62 items of questions grouped into four scales of learning.

Deep processing, the first scale, contained items that would assess the extent to which students could critically evaluate, conceptualize, organise and compare/contrast the given information. Deep processing according to Schmeck is a type of information process that deals with verbal classification and categorical comparison.

Elaborative processing on the other hand deals with the transfer of information into one's own terminology and applying the new information to their own lives. Elaborative processors use a lot of visual imagery to encode new ideas.

Fact Retention is a learning strategy that is used by persons who carefully stress details and specific pieces of

new information, are good at retaining names, dates, facts and numbers. It is suggested that persons who are good at Fact-Retention tend to classify information into narrower and more precise categories.

Methodological study is a learning process used by students who exemplify the best study methods, like regular work schedule, practice and drill exercises systematic work etc.

Biggs (1979) reported the development of an inventory called the study Processes Questionnaire. After the results of factor analyses, three factors were reported. These were known as "Utilizing, Internalizing and Achieving".

Weinstern C. E., et. al. (1982), developed learning and study strategies inventory in ten scales. The same inventory is used by the present researcher. The details of this inventory is given in the following chapter.

Contemporary research in the field of cognitive psychology, focuses more or less on the identification of strategies. These strategies are essential for various purposes. According to Tail and Bisanz (1982), these strategies may be useful in (1) discovering how complex cognitive task are performed (2) isolating strategies so that non-strategic aspects of information processing can be studied and (3) designing instructional procedures that optimize performance.

Belmont and Butterfield (1977) focus on the rehearsal strategy and identify three sets of strategies in inferential measurement, Direct measurement and corrective measurement. The inferential measurement approach provides an objective and unobtrusive means of strategy measurement. It may be one of the most effective way of tapping spontaneous strategic processes but due to its very unobtrusiveness, it is very difficult to put into practice. Direct measurement on the other hand is more accurate and is the best approach when the objective is to find specific components or contents of strategic activity. It fails when the study of spontaneous strategy in question. Correlative measurement is middle path, balancing both the extreme approaches of measurement. In this approach of measurement the investigator observes a close correlate of the strategy of interest.

Most investigations of studying strategies from the view point of problem-solving and reasoning began with Task Analysis or a procedure for defining or arriving at an initial description of the strategies underlying performance on a task. According to Resnick (1979) the type of task analysis varies in terms of the theoretical frame work of the investigator as well as the extent of the available research and theory. The outcome is always an explicit statement of cognitive processes that occur between the first presentation of the problem and its ensuing solution.

Another approach to identifying strategies, is the analysis of Response patterns. The basic frame work of this approach is to vary the structure of the task systematically along a set of dimensions. This creates a set of related problems. A hypothetical pattern of likely problems solving response is made for this set of problems. This pattern is then comparatively analyzed with the actual set of responses given by the respondent. This method has been used by researches like Siegler (1976) in the method of 'rule assessment'.

Learning strategies research has been focussed on several dimensions. Early research was mainly concerned with individual differences and learning. Researches by Cowell and Entwistle (1971) and Cropley and Field (1969) highlighted the importance of traditional factors like personality, attitudes, cognitive styles and ability measures. Tallmadge and Shearer (1969, 1971) began research into learning styles rather than personality or cognition. Their contention was that, personality or cognitive psychology constructs were not sufficient to explain the variance in academic performance. Their research aimed at understanding learning styles from a behavioural or processing orientation.

From the point view of Underwood (1978) two individuals are likely to behave differently in the same situation at different times. These variations may be due to changes in strategies. The process of learning itself may lead to a

change in strategy without the individual's conscious awareness of the changes. Thus awareness of alternative strategies is not a prerequisite to learning. The emphasis of this research however, is that learning strategies, though predisposing processes of learning, are versatile and the individual can assert control processes, on the selection of strategies. This view point is closer to researches conducted by Norman (1980) in which control processes play a very important role in information processing.

Purposeful learning has been studied by Paol (1976) where in one study, subjects were asked to understand rather than read the material. Students were then asked to analyse the principles of classification that they had used. Then they had to "teach back" the classification system after they had learnt it. Through several studies like this, Paol identified two different learning strategies. One is holist strategy and another one is 'serialist'. The individual who consistently uses the holist' strategy over a number of situations is showing comprehension learning. Too much rigid adherence to this strategy would lead to a pathology called globetrotting. Comprehension learners, take a global approach to the task, liberally using anecdotes, illustrations and analogies to arrive at an overall description. They look deeper into the issue than most other subjects would, and try to build a wholistic picture of the entire information thereby analysing the context of the present information. In

contrast with this, the other strategy of learning is 'serialist strategy' where the individual who uses it is an operational learner. The pathological symptom is improvidence, when this strategy is overused. Operation learners progress linearly from one topic to the next. They are concerned with routine details, operations and procedure and working step by step through all topics. Past believes - that a successful student is one who is versatile in using a higher order "Meta cognitive" strategy that is based on both holistic as well as serialistic strategies. This versatile learning style would optimize the level of understanding.

Marton F., Saljo R., (1976) studied qualitative differences in learning. Two groups of 20 freshmen undergraduates were asked to read 3 sections of a text book. After the first 2 sections the groups received different types of questions. One group received questions which demanded a thorough understanding of the meaning of passage. The other group was given detailed factual questions. After the final section of reading, a common set of question of both types was asked. Besides providing further evidence of qualitative differences in learning, the experiment showed that the subjects did adapt their ways of learning to their conception of what was required of them.

The same authors (1976) made an attempt to identify different levels of processing of information among groups of Swedish University students who were asked to read substan-

tial passages of prose. The subjects were asked questions about the meaning of passages to ascertain what they had learnt, what they had expected to learn and what had been their approach to learning. Martin and Saljo analyzed these interviews. It was found that in each study a number of categories (levels of outcome) containing basically different conceptions of the content of teaching task could be identified. Then correspondent differences in the level of processing are described in terms of whatever the learner is engaged in surface level or deep level processing.

Superior examination performance by deep-level processor was noted by Svensson (1977) who demonstrated, that students are most likely to use shallow-level processing when the contents of the information are not of their interests. Thus ambiguities in the contents of courses, or/and exam systems that reinforce memorising, might be responsible for shallow level processing strategies.

Entwistle (1979) began the Lancaster Inventory of ascertaining study methods. He isolated three major orientations by Students in a factor analytic study of 767 subjects. These orientations were labeled : Meaning, Reproducing and Achieving. According to Entwistle, each of these orientations involves a source of motivation that determines the study method adopted. The student who is motivated to use the meaning approach can use either Marton's deep level approach

or Paol's holist strategy. The achieving motive leads the student to use any strategy that earns higher marks or ranks or grades.

Schemech and Ribich (1978) found that individual differences are significantly related with learning styles. Deep processors were critical thinkers, curious, had independent as well as conforming related behaviour and were negatively related to anxiety. Thus a deep processor would normally be a calm and critical thinker who could achieve success in an academic field either by following instructions or by performing independently. Methodical study was preferred by persons who showed low critical ability and high achievement motivation. But this achievement motivation was of the conforming rather than independent variety. Fact Retaining student followed instructions and remained bound by the syllabus. Elaborative processors were able to elaborate and personalize information.

According to Baron J. (1978), intelligence is the ability to acquire knowledge and to use it in unforeseen situations as well as predictable ones. He speaks of strategies for three major reasons. Primarily that they are modifiable by educational manipulation. Secondly, that strategies seem to be an observable measure of intelligence. Thirdly, individual capacities influence this strategic manifestation of intelligence. By this he means that differences in intelligence are reflected in differences in strengths of underlying

strategies.

Schmech R., Grove E. (1979), studied the degree of relationship between academic achievement as assessed by college Grade Point Average (GPA) and information processing habits relevant to learning as assessed by the scale of the inventory of learning process (ILP) for 790 undergraduates. The ILP scales of Synthesis - Analysis, Fact Retention and Elaborative Processing were significantly related to GPA and scores on the American college Testing (ACT) program Assessment. Thus the successful students seem to process information in depth and encode it elaboratively. While simultaneously retaining the details of the original information. Unexpectedly the study methods scale demonstrated a small but significant negative relationship with ACT scores. Analysis suggested that the effect that Fact Retention and Elaborative Processing have on GPA are mainly direct, while the effect of Synthesis Analysis is mostly interpreted by ACT.

Schmech R. (1979), studied the relationships between measures of learning style and memory. Three instruments - Inventory of learning process, Study behaviour questionnaire and learning style inventory were administered to 106 undergraduates. Performance measures on the word list and prose learning tasks, were also obtained using both immediate and delay retention tests. Correlational analysis of the pairs of learning style instruments indicated that there was a small

to moderate amount of overlapped variance. Inspection of the variates revealed that what overlap existed was generally due to a common factor related to the "depth of processing" conception of memory. The inventory of learning processes and the learning style inventory each obtained one significant correlation with the set of process retention measures findings have implications for the validity and equivalency of available self-report instruments assessing learning style, the role of the learning task in studying individual differences in learning and memory processes and the assessment of "depth processing" at the level of individual differences.

Schmeck R. (1980), studied the relationship between measures of learning style and reading comprehension. He examined the discriminant validity of the inventory of learning process by determining the relationship between the scale scores and the vocabulary comprehension and reading rate score of the Nelson - Denny Reading test. Subjects were 162 University students in a reading the study methods course. As expected the synthesis - Analysis scale of the inventory was significantly correlated with vocabulary and comprehension and was not related to reading rate.

At the University of Texas at Austin Weinstein C.E. (1982), has developed an undergraduate learning to learn course as a part of cognitive learning strategies project. He

used LASSI which was developed by him, a standardised measure of reading comprehension, a measure of self-concept and supplementary measures examining various aspect of cognition, anxiety and motivation.

The information obtained from these instruments individual interviews and group discussions were used in designing curriculum upon finishing the course the students would be able to (i) increase the knowledge and understanding of learning and study strategies and methods, (ii) increase their ability to use effective strategies and methods, (iii) monitor and modify their use of strategies and methods, (iv) reduce stress and negative affect often associated with academic task, and (v) accept more responsibility for their learning. A course content focussed on the strategies and skills. A variety of Instruction method was used. The purpose was to help the students to form a more systematic approach to studying and learning rather than just providing a bag of tricks. The LASSI was administered to 30 students twice, that is in the beginning and at the end of the course. The LASSI had made a significant impact on quality of the information we can give to students as part of the advising process.

Schmeck R. (1983), demonstrated the value of taking student learning style into consideration when designing and revising a course. Fifty-eight college students were administered the inventory of learning processes, which has four

style demonstrations : (1) Deep Processing (2) Elaborative Processing (3) Fact Retention and (4) Methodical study. Casual path analysis revealed relationship between certain evaluation components, (tests papers, computer programming tasks) and certain learning styles. It is concluded that if an evaluation component is included to encourage a particular style, instructor should use a learning style measure to determine whether the component is accomplishing its purpose.

Miller C. and Others (1986) studied the effects of learning styles and strategies on academic success. They correlated the Grade point Averages (GPA) of 109 undergraduates with learning style as measured by an inventory of learning processes for deep processing, elaborate processing, fact retention and methodical study. Subject with high GPA scored significantly higher on a deep processing subscale than did subjects with average or low GPA. Together with American College Testing Scores, the Deep processing subscale best discriminated between higher and low-to-average achievers. It is argued that the more highly structured organization and elaboration of information associated with Deep processing is the most effective learning style for obtaining high GPS.

The same authors (1986), also examined the differences in learning processes and academic achievement. They studied the differences between high and low academic achievers and deep and shallow processors on learning strategies and aca-

ademic achievement for 158 undergraduates. Significant differences between high and low academic achievers appeared on Deep Processing and Fact Retention Scales ; and differences between Deep and Shallow Processors were noted on Elaborative Process, Fact Retention, Methodical study scale and GPA. It is suggested that students should be offered strategy - training program.

Meltzer, Lynn J. and Others (1989), examined the relationships among problem-solving strategies, learning processes and education out comes over 2 years in 342 normal achievers and 284 students with learning difficulties. All subjects were aged 9 - 14 years. Subjects were required to identify and explain the strategies, they had used to solve specific items and tasks. A significantly higher incidence of problem-solving weakness existed in learning subjects, with similar group differences across ages.

McKnight, Gary L. (1990), carried out a study on 'The learning and study strategies of college freshmen' by using learning and study strategies inventory (LASSI) developed by Clair E. Weinstein et al ; The objectives of the study were to describe learning and study strategies of freshmen college students and to determine relationship between these strategies and selected characteristics of the college freshmen. Results indicates that there were significant differences between composite mean scores of the LASSI scales for sub-

jects classified under gender. Also, significant relationships were found between the LASSI scale scores and the selected academic variables.

The review of the related literature made here, shows that in foreign countries attempts have been made to construct the tools for measuring learning strategies and learning process. Attempts have also been made to conduct researches on learning strategies on some dimensions. In most of the studies researchers have selected undergraduate students for their studies. Majority of the studies were correlational. An attempt was made to study the relationship of learning styles with memory, reading comprehension and achievement in academic subjects. An attempt was also made to study the relationship between academic achievement and information processing. Learning process was correlated with academic achievement and problem solving strategies. In one study learning and study strategies inventory was used to study the change in the strategies of students as a result of training program of learning strategies. The same scale was used in one of the studies to study the relationship with gender and academic variables.

2.3 Related Researches conducted in India.

An examination of research studies documented in Research Survey reports suggest some trends of research in the area of learning. The major areas covered in these researches are language learning, reasoning, problem-solving, understanding, culture and language, verbal and motor learning as related to knowledge of results, concept learning personality factors associated with learning, cognitive processes and learning, cognitive learning and logical thinking. The trend of research focused had apparently been on language learning and concept acquisition, experiments studies on learning and general studies.

Learning researches have been disappointing in terms of number during post 1980 period but has been increasing classroom relevance. Pandian (1983), demonstrated the relationship among learner characteristics cognitive style, learning style and preference to learning strategy using adequate sample tests and analysis techniques.

This shows that hardly any research in India has been undertaken in the area of learning strategies. But as study habits related to learning strategies, an attempt is made here to review the researches undertaken in India on study habits and some other studies.

Jamuar P.P. (1961), constructed a study habit inventory and attempted to find out some psychological factors underlying the study habits of college students. He found out that (a) study habits are positively related to academic achievement but are not dependent on scholastic aptitude (b) They are related to general personality adjustment and also to home, health, social and emotional adjustment (c) Study habits have a positive relationship with family background factors like position in family, father's occupation, hobbies, future occupation and vocational plans of the students.

Palsane M.N. (1963), also contributed to the development of a study habit inventory and made efforts to find out good and economic study-habits. The inventory was prepared after studying the factors contributing to effective learning and performance at the examination. The inventory highlights the area of budgeting time, physical conditions for study, motivation in learning, skill in learning and memory, reading skills and ways of taking examination. He selected preparatory, first year, final year, post graduate and high school students for the purpose of the study. Analysis revealed significant difference in the study habits of the students who pass with first, second third divisions.

Using the study habit inventory developed by Palsane, Shejwal R.R. (1980), made an attempt to identify good and poor study habits in relation to sex. It was found out that (i) boys had better study habits than girls. (ii) Girls

lacked the habits of preparing topic in advance (ii) Learning and memory skills were absent among 60 percent of students (iv) The students had problems in planning their time for study, developing good reading habits and taking examinations.

Nirmal Banta (1979), conducted a comparative study of study habits of high school students to find out (i) the relationship between study habits and scholastic achievement (ii) the contribution of various measure of study habits to success in scholastic achievement in different school subjects (iii) the variation in study habit with age, sex and urban rural area and finally (iv) to examine the study habits in relation to the level of parental education, parental occupation and family income. 2966 students of Arts, Science and Commerce class were randomly selected from urban and rural schools. The data were analyzed by employing product moment co-efficient of correlation and critical ratio. The main findings were (i) Study habits had positive but low relationship with the scholastic performance of students (ii) Science students scored higher on study habits test- amount of time for study, assignment habit, methods of study, methods of answering examination papers than Arts students (iii) Arts students score significantly higher on study habits tests -attitude towards study and concentration (iv) Girls scored higher on study habits inventory than boys (v) Children of service class fathers had more effective study habits but children of service class mothers had low level of study habits, the children whose mothers were housewives had more

effective study habits (vi) the family income was positively correlated with the study habits scores (vii) the level of parental education favoured the study habits scores.

Panda N. (1985), studied the effects of cognitive style and adjunct questions, on learning from connected discourse, using a repeated measure factorial design. Learning outcome were studied using analysis of variance and tests for specific effects. The results, based on a series of studies, revealed that field-independent students learnt and retained prose significantly more than field-dependent students. Students who read the text with adjunct questions learnt faster and retained longer than those who use the traditional reading style, without any interspersed question. Post-adjunct questions produced better learning and retention scores than pre-adjunct questions, in prose learning specific adjunct post questions produced significantly better learning and retention than general adjunct post questions.

Sharma P. (1986), made a survey of study habits and academic underachievement of secondary school students. She found that underachievers generally showed poor study habits, poor spellings, recreational problems, poor achievement motivation, economic problems and lack of home adjustments.

Dixit S. (1988), identified information acquisition strategies used by the students and correlated them with

demographic variables such as age,sex,types of family,family income, father's education,mother's education number of siblings, and birth order and performance variables like intelligence, language tests,Science subjects tests and tests of mathematics to know whether independent variables could predict any change in the dependent variables of acquisition strategies. As a result of this study (1) eleven major strategies were identified . They were deep processing,elaborative processing,fact retention, Information dependent, success dependent, knowledge of results, methodical study etc., (2) Success dependent strategy had positive relationship and prediction oriented strategy had a negative relationship with intelligence (3) Deep processing strategy had a positive relationship while elaborative processing strategy had negative relationship with marks in the tests of mathematics (4) No sex difference was found in any of the information acquisition strategies (5) The information acquisition strategies seemed to be dependent upon the types of family (6) Father's educational level had an impact on the use of Deep processing,Elaborative processing and precision oriented strategy (7) The selection of information acquisition strategies did not seem to depend on either the number of siblings nor the birth order of the respondent.

Thus as far as researcher could collect information, learning strategies or cognitive strategies have not been promptly focussed on Indian researches. Beside this even in

the existing western Literature on learning strategies researches have been conducted from different perspectives each having its own contribution to the general body of knowledge about learning processes. Similarly various demographic and performance dimensions have been considered as related to learning, both in India and abroad (Western countries) but there does not seem to be much research concerning the specific relationship between these variables and learning strategies.

Hence the primary aim of the present research is to study the factors affecting learning strategies with the variables such as sex, types of school, levels of academic achievement, students' learning orientation, and some demographic variables like mother's education, father's education etc.