CHAPTER III

REVIEW OF RELATED LITERATURE

- Different Strategies of CAM.
- Comparison of CAM with Other Models.
- Factors Affecting Concept Learning.
- Academically Disadvantaged Children:
  - Concept and characteristics.
  - Educational Programmes.
CHAPTER III

REVIEW OF RELATED LITERATURE

Anyone embarking on a programme of research must have a thorough knowledge of what has already been done on the topic in question. In formulating the problem that has been located and in arriving at the assumptions and hypotheses, the researcher should have reflected on the findings of similar, if not, related studies. According to Cooper (1989) the review of related literature may simply compare findings of research on similar topics, or they may assess the theoretical contributions of comparable articles.

The investigator collected as many literatures as possible. They are related to different aspects of the problem under investigation. The literature collected has been categorised under the following heads.

3.1. Comparison of Different Strategies of Concept Attainment Model
3.2. Comparison of Concept Attainment Model with Other Models and Traditional Method.
3.3. Factors Affecting Concept Learning.
3.4. Concept Learning and Types of Examples Used.
3.5. Academically Disadvantaged Children: Concept and characteristics.
3.6. Educational Programmes and Achievement of Academically Disadvantaged Children
3.1 Comparison of Different Strategies of Concept Attainment Model.


Mainly the strategies of concept attainment can be categorised into three types viz. selection- oriented, reception- oriented and unorganised material model. Another type of division is induction type and deduction type concept attainment.

Prabhu (1991) modified the concept attainment model and studied the effectiveness of modified concept attainment model (MCAM), the reception-oriented model (RCAM), and the selection-oriented model (SCAM) comparing with the traditional method of teaching on attainment of concepts in Geometry. The results showed that all the three variations on concept attainment model were more effective than the traditional method in teaching concepts in Geometry. Also, the modified model (MCAM) was significantly more effective than RCAM and SCAM.

Gough (1991) found that concept attainment model of instruction is one of the most effective methods to develop students' higher order thinking skills.
D'lima and Suvarna (1990) compared the effectiveness of the reception oriented concept attainment model and selection oriented concept attainment model in teaching mathematics. The study revealed that reception oriented model is more effective than and selection oriented concept attainment model in teaching mathematics.

According to Louvet (1988) the strategies of concept attainment model- the reception, selection, and unorganised materials- are effective for second language instruction.

Gangrade (1986) found that students taught through induction type concept attainment model could list higher attributes as compared to those who were taught through deduction type concept attainment model.

Oeballos (1986) found that for the age group of fourth grades, inductive and deductive approaches are equally effective in promoting concept attainment and in fostering the metacognitive strategies that are crucial to higher order thinking.

Joyce and Weil (1985) established that inductive process of concept formation and attainment increase students' retention of information by enabling them to develop mental structures which allow them to 'hold' the information better than structures which are provided for them. In addition, the inductive approach to
concept attainment can help students in developing observational and analytical abilities.

Roskopt (1985) made a study on strategies for concept attainment in mathematics. He found that human beings tend to deal with classes of things instead of individuals in order to make sense out of the environment. By forming such classes cognitive strain is reduced as well as the burden of memory.

Kumara (1985) studied the effectiveness of reception concept attainment model in terms of pupil achievement. The study concluded that the group taught using reception concept attainment model gained significantly higher than those taught using conventional method of teaching.

Pani (1985) compared that concept attainment scores of two groups taught through selection and reception strategies of concept attainment model. He found that the reception strategy and selection strategy were equally effective in terms of attainment of science concept.

Sohnic (1985) compared the reception and selection oriented models of concept attainment on 12 + students of different levels of intelligence with respect to concepts in mathematics. The study concluded that selection oriented model was more effective than the other, irrespective of the level of intelligence.
Tanner (1980) studied concept learning in an introductory zoology course by presentation of definition, examples and non-examples or salient attributes. The results suggested that presentation of definition, example and non-example did not have any impact on concept learning. But it was rendered significant when definitions of concept was put on the black board.

Carol, Tennyson & Rothen (1980) investigated the effectiveness of two instructional designs that relate to the learning of co-ordinate concepts. The first design consisted of simultaneous presentation of co-ordinate concepts and other consists of collective presentation of co-ordinate concepts. The results showed that students who were received concepts simultaneously performed significantly better than those received concepts collectively.

Contessa (1980) investigated the interactive effect of cognitive style in acquisition of mathematical concepts by using the following strategies. (i) Inductive strategy in which positive and negative examples on concepts which were labelled were provided without explanation. (ii) Deductive strategy, in which defined concepts were given with positive and negative examples with explanation. (iii) Cued inductive strategies in which positive and negative examples with verbal emphasis and direct attention towards relevant attributes of concepts were presented. The findings suggested that level of general mental ability rather than
cognitive style is account for most of the variance. All the strategies were equally effective and none of the strategies were superior to one another.

Prapvade (1980) studied the acquisition of mathematical concepts by using prototype and skill development instructional presentation forms of two types. First form consisted of a list of critical attributes and the best examples. Second form consisted of two types namely (a) expository/enquiry form and (b) inquisitory form only. The results suggested that concept learning was more facilitated by presentation of best examples than by presentation of a list of critical attributes.

Singleton (1977) examined the production of informationally redundant choices in a "selection" concept attainment model in relation to age and intelligence. Results suggested that subjects scoring below 20th percentile on intelligence were found to make significantly greater proposition of such choices of discontinuity in the decrease in the redundancy with increasing age.

Peters (1973) compared Frayer model of concept attainment with textbook approach in attaining concepts. He found that there was a significant difference between good and poor readers who utilised the Frayer model than those utilised the textbook approach.

Shanon (1971) found that in forming conjunctive concepts students were consistent in maintaining a definite strategy. A majority of students who were
adopted scanning strategy were more successful in concept learning. Students with mixed strategies attained no success.

Chlebeck & Dominowski (1970) found that subjects who were shown only negative instances were having systematically lower solution compared to those who were shown only positive instances. The difference was diminished with practice for the first group.

Langhlin (1969) conducted experimental study on selection versus reception concept attainment strategies. The findings showed that more difficult concepts are learned easily with reception strategy and less difficult concepts are learned easily with selection strategy.

3.2 Comparison of Concept Attainment Model with Other Models and Traditional Method.

Studies were conducted by comparing the effectiveness of concept attainment model with other models of teaching as well as traditional method. Most of the studies have revealed that concept attainment model is very effective in teaching concepts as well as developing other variable like self concept, reasoning ability, cognitive ability, etc.

Krishnakumari (2002) conducted a comparative study on the effectiveness of concept attainment model (CAM) and inquiry-training model (ITM) with traditional
method(TM). She concluded that CAM and ITM were equally effective and they are more effective than TM.

Lekha (2000) studied the effect of concept attainment model (CAM) on achievement in mathematics at secondary level. The study revealed that CAM is more effective than TM in learning concepts in mathematics at secondary level.

Regi (1999) compared the effectiveness of concept attainment model (CAM) and advance organiser model (AOM) with traditional method(TM) in teaching of population education at secondary level. She concluded that CAM and AOM are equally effective and they are more effective than TM in the teaching of population education.

Prabhakaran and Rao (19923) studied the effectiveness of concept attainment model(CAM) in teaching mathematics at secondary level. The study revealed that CAM is more effective than TM in teaching concepts in mathematics at secondary level.

Remadevi (1998) studied the application of information processing models. The study concluded that concept attainment model is more effective than traditional method in teaching chemistry at the higher secondary level.

Jayakumari (1997) studied the effect of concept attainment model on achievement in physics of secondary school students. The results indicated that
concept attainment model is more effective than traditional method in teaching physics.

Nelson & Pan (1997) investigated pre-service elementary teachers' responses to concept attainment task using videodisc pictures and line drawings. Findings indicate that students using videodisc pictures used inferences to construct patterns while students using line drawings significantly made more observations and developed fewer ideas to make viable patterns.

Vaidya (1997) studied the effect of mastery learning and concept attainment model on achievement in Hindi, self-concept and attitude towards Hindi of upper primary school children. The findings of the study revealed that mastery learning model is more effective than concept attainment model in enhancing achievement as well as self-concept. Also mastery learning strategy was found more beneficial to the pupils in changing their attitude favourably towards Hindi.

Shylasree (1996) found that concept attainment model was very effective than traditional method in teaching biology to secondary school students.

Ayishabi (1996) made an experimental study to compare the effect of concept attainment model (CAM) and traditional method (TM) in teaching ten selected topics in zoology at +2 level. The findings showed that there was no
significant difference in attainment of concepts in the selected topics between experimental and control groups.

Jang (1995) examined the effects of concept development models in "concept formation" about electric circuits of non-physics college students. For concept development, the guided inquiry activities, concept attainment model, which integrates laboratory experiments and exercises, were used. The results showed that concept attainment model is very effective in constructing such concepts.

Pritchard (1994) has the view that the concept attainment model helps students to develop skills for inductive and deductive thinking while learning subject matters in any field in a constructive and meaningful way. Also the model offers the teachers a method for teaching thinking across the curriculum using the subject matter of discipline they teach.

Anuradha and Anand (1993) studied the impact of concept attainment model (CAM) on mental ability and general ability of social science students. The study showed that general and mental ability of students taught through CAM was significantly higher than those taught through traditional method.

Joseph (1990) compared the effectiveness of concept attainment model (CAM), advance organiser model (AOM) and traditional method (TM) in teaching
physics to 8th standard students. It was found that CAM was most effective in teaching concepts. Also CAM and ACM are more effective in teaching physics than the (TM).

Bhaveja (1989) found that concept attainment model is more effective than traditional method in learning and retention of biology concepts.

Zacharia (1989) made an attempt to find out the effectiveness of concept attainment model in teaching Economics to standard VIII students. She found that concept attainment model was more effective than traditional method in teaching Economics.

Chaudhari (1988) assessed the effectiveness of concept attainment model with mastery learning model on the basis of achievement scores in Hindi grammar of grade VI learners. Mastery learning model was found superior to concept attainment model and traditional method.

Gangrade (1987) compared the effectiveness of a combination of concept attainment model (CAM) and lecture method, with traditional method of teaching science to class VII and VIII students. The results revealed that combination of CAM and lecture method was significantly superior to traditional method in teaching physics to class VII and VIII students.
Sushma and Singh (1987) made a study to compare the effectiveness of concept attainment model (CAM), Biological Science inquiry model and traditional method in teaching Biological Science. The results showed that CAM was more effective than other two with regard to student’s achievement in Biological Science.

Srivastha (1987) compared the effectiveness of concept attainment model and inquiry training model for teaching Biological Science to class VIII students. The results showed that CAM was more effective than Biological Science inquiry model and conventional teaching. Also CAM changed the attitude of students more favourably than the other two towards Biological Science.

Bihari (1986) conducted a study to find out the effectiveness of concept attainment model (CAM) in terms of understanding the model and the student teachers’ reaction towards the model. The study found that CAM was effective in producing teaching competencies. The student teachers should favourable attitude towards the model.

Chaudhary and Katre (1986) studied the effectiveness of concept attainment model (CAM) with variable in demonstration in terms of specific teaching competencies of pre-service teacher trainees. The study concluded that CAM was effective and student teachers reacted favourably towards implementation of CAM.
Das (1986) studied the effectiveness of concept attainment model (CAM) in developing teaching competencies of student teachers and their attitude towards it. The study concluded that CAM was effective in developing teaching competencies. Student teachers reacted positively towards CAM.

Chaudhari and Vaidya (1986) studied the effectiveness of CAM, TM and mastery learning model in teaching Hindi. They found that CAM and TM are equally effective for teaching Hindi grammar concepts while CAM and TM found inferior to mastery learning model.

Jaimini (1986) conducted a study on effectiveness of concept attainment model- Reception (CAM) in developing certain concepts in Chemistry at senior secondary level. The study revealed that CAM and traditional method resulted in significant gain scores. But the mean loss in gain scores after a gap of one month was significantly higher for those who taught using traditional method.

Mehra (1986) conducted a study titled "Effectiveness of Concept Attainment Model- Reception Strategy (CAM) of teaching in developing some concepts of English Grammar at the middle school level". It was found that the pupils taught through CAM gained significantly more than those taught through traditional method.
Passi, Singh and Sansanwal (1986) formed a training strategy for training teacher educators in models of teaching mainly, concept attainment model (CAM) and inquiry training model (ITM). The results showed that all students learned theoretical content of CAM and ITM equally well.

Sharma (1986) studied the effectiveness of concept attainment model (CAM) in teaching concepts in Chemistry by comparing it with traditional method (TM). The findings showed that there was no significant difference between CAM and TM in terms of student achievement.

Hanclosky (1985) made a comparison of task analysis, advance organiser and concept elaboration method in teaching concepts and principles. The study concluded that task analysis group performed significantly higher than advance organiser and concept elaboration groups in both concept learning and principle learning.

Klausmeier (1980) studied the cognitive style of concept identification and found that individuals identified as highly analytic, solved the concept identification problem with greater ease than those who are low analytic subjects.
3.3 Factors Affecting Concept Learning.

Studies support that reasoning ability, intelligence, locus of control, teaching strategies, cognitive styles etc. are some of the important factors that are affecting the learning of concepts.

Tredgill (1977), Pandey (1993) were of the opinion that cognitive style has an effect on the attainment of concepts. On the other hand Ettiyab (1981) was of the opinion that cognitive style has no effect on concept learning.

Joyce and Calhoun (1996) were of the opinion that teaching models are designed to accomplish specific objectives, such as teaching students to form and attain concepts.

Prophet and Dow (1994) studied the impact of mother tongue and concept development in science. Analysis of the data revealed that language of instruction significantly affects concept attainment of Form I students but not for Form III students.

Pandey (1993) studied whether Piagetian reasoning, general intelligence and achievement motivation of different mental structures and the relative importance of these measures for concept attainment in Physics. Results indicated that proportional- reasoning, combinational- reasoning and general intelligence are very important for predicting the attainment of Physics concepts.
Hawk (1986) conducted a study to determine the effectiveness of graphic organisers in aiding concept learning among 6th and 7th grade students in life science. The findings in the study supported the effectiveness of graphic organisers in enhancing concept learning.

Mc Donald (1986) investigated the relationship between locus of control and concept attainment strategies. The study concluded that there were significant differences between locus of control, strategy utilisation and number of trials to solution.

According to Gagne (1985) concept learning is putting things into a class and then being able to recognise members of that class.

Hull and Fedje (1985) found that observation, questions, puzzling situation, and use of examples / non-examples are some of the activities that help mentally retarded adults to strengthen their thinking processes. They stressed the use of simple concepts and concrete objects to strengthen their intellectual skills.

Achamma (1984) studied the pre-requisites for learning certain concepts in Physics of standard IX in the high schools of Kerala. The study revealed that concept formation in Physics is dependent on pupils’ pre-requisite knowledge in the respective concept.
Crisman (1984) compared oral and written techniques of concept instruction. He found that there was no significant difference in concept attainment when the oral and written modes were compared.

Vermettee (1984) established an effective concept exemplar variable called exemplar intensity, a characteristic that would challenge the notion of equivalence by its impact on cognitive gains. Exemplar intensity was developed on the basis of difficulty of concepts. Results suggested that exemplar intensity did not affect the learning of concepts.

Anderson and Smith (1983) studied the understanding of science concepts of students. They found that only 20% of students could understand the concepts from reading a text given and 78% of students understand the concepts when they used visual aids also to learn the concepts.

Ettiayab (1981) studied the effects of pictorial representation on concept attainment. The study concluded that abstract pictures had significant effect on concept attainment while realistic pictures did not have any effect. Also, cognitive style did not produce any significant effect on concept attainment.

Musa (1981) conducted a study to find out the effect of pictorial representation on concept attainment, the effect of cognitive style on concept learning, and to test the effect of abstract pictures and realistic pictures on concept
attainment. The findings showed that abstract pictures had significant effect on concept attainment than realistic pictures and cognitive style did not produce any effect on concept attainment. Interaction of cognitive style with abstract picture was significant and with realistic pictures it was not significant.

Pandey (1981) studied the relationship between teaching style and concept attainment in science. He found that teaching styles had varying effect on concept attainment. Also students' participation was increased by giving background information.

According to Klausmeier (1980), to attain the higher levels of concept learning, the learner should be able to define the concept, list the critical attributes, recognise examples and evaluate the examples and non-examples in terms of their critical attributes.

Bordelon (1978) in his study assessed the relationship among concept attainment, reading comprehension, and listening comprehension. The findings showed that there were no significant relationships between comprehension and concept attainment. The lack of relationship might be due to the different types of intellectual operations.

Thredgill (1977) studied the relationship of analytic and global cognitive style and methods of instruction in mathematics concept attainment. The study revealed
that on mathematical concept attainment tasks analytic students performed significantly better than global students.

Grabber (1974) made an investigation to compare the effectiveness of deductive expository and inductive discovery teaching strategies in the acquisition and retention of science concepts. The study revealed that there was no significant difference between those two strategies.

Gordan (1972) made a study to identify the strategies used in concept attainment. The study revealed that more information was extracted by multiple hypothesis testing.

3.4 Concept Learning and Types of Examples Used.

Concept is better learned through the use of examples. Positive and negative examples can serve the purpose.

Bruner (1977) was of the opinion that positive examples can be better used for learning a concept. Gibson (1986), Stout (1983), Chlebek and Dominowski (1970), and Charles (1978) revealed that negative instances are better add to learning concept. But Weiss and Hovland (1953), Swanson (1974), and Cook (1981) concluded that positive and negative examples should be given in a mixed form for the better attainment of concepts. Lee (1983) and Swanson (1974) were of
the opinion that a concept is best learned when positive and negative examples were given with a definition of the concept.

Gibson (1986) found out the effect of position of counter examples on the learning of algebraic and geometric conjunctive concepts. He concluded that the use of counter examples facilitated the learning of more difficult mathematical concepts.

Lee (1983) studied the interactive effects of personal traits of conceptual development and the different presentation forms of concept attainment. The results showed that there was significant difference between instruction based on the definition and examples, and based on the examples only form.

Cook (1981) studied the effect of negative and positive instances in teaching mathematics concepts and found that students receiving positive and negative instances treatment did significantly better than those receiving only instances. In both the cases the attitude towards mathematics was improved.

Simon (1981) conducted a study on the effect of different kinds of negative instances on identification of familiar concepts. The result indicated that in concept identification negative instances were more difficult to use than the positive instances.
Charles (1978) found that the use of the non-examples might facilitate the acquisition of certain mathematical concepts.

Bruner et al. (1977) were of the opinion that positive instances provide efficient strategy to identify relevant attributes of the concept.

Marine (1977) found no significant difference in the concept identification scores attributes to the example only, between example and non-example treatments for learning concepts in Geometry.

Swanson (1974) investigated the effects of a number of positive and negative instances, concept definition and emphasis of redundant attributes, on the attainment of three environmental concepts by 6th grade children. The results showed that the students performed better when examples and non-examples were given with a definition.

Chlebek and Dominowski (1970) compared the effect of using negative instances only and positive instances only in teaching of disjunctive concepts. They concluded that the use of only negative instances remitted in better performances.

Weiss and Hovland (1953) established learning situations in which the concepts could be learned from a mixed series of both positive and negative instances. It was concluded that a concept is attained correctly by a higher
percentage of subjects, when transmitted by all positive instances rather than negative instances.

3.5 Academically Disadvantaged Children: Concept and Characteristics.

We all have had unfavorable experience which we would say 'put us at a disadvantage', in some way, perhaps socially or intellectually. However disadvantage usually means a relatively enduring condition that results in lower academic achievement at school and reduced opportunities in the wider society. Passow (1970) defined the disadvantaged child as one who 'because of social or cultural characteristics, comes into the school system with knowledge, skills and attitudes which impede learning. This section of students has been labelled variously as 'poor', 'culturally deprived', 'culturally disadvantaged', 'socially disadvantaged', 'under educated', 'educationally disadvantaged', or 'academically disadvantaged'. Now numerous educators are of the view that some students are ill prepared to succeed in school because their culture places them at an educational disadvantage.

According to the researchers, educational disadvantaged and advantaged students differ in terms of their cognitive skills, linguistic ability, self-concepts, levels of educational aspirations, locus of control, and social behaviour. Academically/educationally disadvantaged is one who is not succeeding or is under achieving in school due to limited proficiency in language, standardised test scores
at their school are markedly below the other institutions in the area, financially poor, parents in the household are not high school graduates or have limited language proficiency, or students' performance on standardised tests is below national norms. Academically disadvantaged may also include non-traditional students who may be older or former dropouts.

Culturally deprived students have experience at homes which do not transmit the cultural patterns necessary for the type of learning characteristic of the schools and the larger society. The term used to label culturally deprived students has undergone a number of changes since the 1960s. First it was changed from culturally deprived to culturally disadvantaged to signify that these students were not cultureless, but brought up in a culture that placed them at a disadvantage. Then culturally disadvantaged was replaced by academically/educationally disadvantaged to indicate that the whole of students' culture was not being indicated, but merely the way they prepared students to function in school.

Disadvantage means a relatively enduring condition that results in lower academic attainment at school and reduced opportunities in wider societies; this tends to refer to social or cultural characteristics, for example, being a member of an ethnic minority group, living in an inner city area or having low income.

Passow (1970) defined disadvantaged child as one who because of social or cultural characteristics, for example, social class, race, poverty, ethnic group, sex,
geographical location etc, comes to school system with knowledge, skills and attitudes which impede learning. Educationally disadvantaged students are ill prepared to succeed in school because their culture places them at an educational disadvantage.

According to Khaparde (1995) the following educationally disadvantaged population groups can be identified in India. (1) Girls/woman (2) scheduled castes (3) scheduled tribes (4) nomadic tribes (5) working children (6) physically challenged (7) population in remote or isolated area (8) urban slum groups (9) refugees (10) linguistic and religious minorities (11) rural population (12) low income groups.

3.5.1. Characteristics of Academically Disadvantaged Children.

According to the theory of cultural deprivation, academically disadvantaged and advantaged students differ in terms of their cognitive skills, linguistic ability, self-concepts, and levels of educational aspiration, locus of control and social behaviour. Academically disadvantaged students are not having positive attitude about school, improved achievement, high self-esteem and aspirations and other characteristics of successful children.

According to Panda (1997) they have lack of proficiency in higher forms of cognitive learning and transfer, poor self-concept, low achievement aspiration, and low need achievement. Pamela (1990) is of the view that educationally
disadvantaged children are having low career aspirations, low levels of motivation, and poor self-esteem. Educationally/academically disadvantaged children are having poor home environments low career aspiration, poor self esteem, and also they lack motivation and academic know-how.

Simpson, R. L. (1962) found that high school students, regardless of their social class, were likely to seek higher education and higher-level careers if their parents urged them to, but they were unlikely to do if their parents were neutral or negative about preparation for a career. Lower-class parents, who had dropped out of school and were later unable to find satisfying job or any job at all, are less likely to urge their children to go to college than are middle-class parents who have discovered first hand the employment value of a college degree.

3.5.2. Factors Specific to Educationally / Academically Disadvantaged Students.

Some of the important factors specific to educationally / academically disadvantaged students sorted out from different studies and literature are as follows.

- They have low educational aspiration and achievement.
- They are from lower social class groups and ethnic minorities.
- The abilities of them were unrealised because of their inadequate powers of speech.
- They have inadequate intellectual skills and poor language skills to cope at school.
They are not getting required intellectual stimulation from their parents.

Their homes are failing to give an adequate socialisation experience for the children.

Their homes are without books, newspapers, radio or television. In other words they have poor home learning environment.

They have low level of achievement motivation.

They have no interest in studies.

Most of them have low general self-concept

They do not follow effective study methods i.e., they are not having proper study habits.

Most of them have no positive attitude towards schooling.

These pupils are short in factors encouraging study at home, such as elders who clear doubts, helpful books, time for study, quiet atmosphere etc.

They are having poor cognitive (intellectual) abilities.

They have poor auditory discrimination skills.

Academically disadvantaged students' poor self-concepts interfere with their achievement in school.

Educationally disadvantaged students' especially males, do not aspire to do well in school because their parents do not have high aspirations for them, do not expect them to do well, do not provide them with acceptable male role models.

They have an external locus of control that has a negative effect on their academic achievement.

Many of educational and behavioural problems of these students are caused at least in part by absence of father in the family.

Lack of awareness and sensitivity to anticipate the social and economic advantages occurring from participation is another reason for the educational disadvantages of pupils.
Lack of curriculum relevance, including the uninspiring teaching-learning processes, is often the reason that adversely affects the holding powers of the school, particularly for children from the groups which are educationally/academically disadvantaged there by perpetuating the cycle of educational disadvantage.

Virginia State Board of Education in 1993 made an effort to establish criteria for the identification of educationally at-risk students. The usual criteria included standardised test scores, overall poor academic performance, poor performance on ability or readiness test. Other criteria used are frequent absence, behaviour problems, and a history of delinquency. Dropout status, health criteria, poverty status and other factors are also considered.

Studies supporting the above are listed below.

Daniels (1992) conducted a study to investigate the stories of students who did not complete their college education with their classmates in Society of Unlimited Learning (SOUL). A new instructional programme was launched for them. Findings suggest that these new programmes contributed to self-confidence, oral expression skills and love of learning of the students at risk.

Padilla (1992) in his study identified the current range of instructional practices and their potential applications to disadvantaged learners. These alternative instructional models focus on the knowledge, skills and abilities that all
students posses. The study revealed that alternative instructional approaches identified were not primarily linked to higher achieving student populations. Also teacher support is necessary when adopting alternative instructional practices.

Fatmi (1986) conducted a study on achievement related motivations among tribal and non-tribal high school students. The conclusion was that racial background, sex and, religious background influenced achievement-related motivations. Non tribal girls, Hindu forward caste groups were superior in achievement related motivation.

Good, Grouws and Ebmeier (1983) did a series of experiments in teaching of fourth grade mathematics with relatively low-SES students. The treatment practices involve daily review, development of new content, seatwork, homework etc. The study concluded that the students performed better on mathematics computation but there was no change in the performance of problem solving.

Jalajakumari (1983) conducted a study on education related problems of scheduled caste pupils of secondary schools. The study revealed that lack of instructional materials, physical facilities, co-curricular facilities, adequate transport facilities were some of the problems faced by scheduled caste students.
Sutradhar (1982) in his study compared the socially advantaged and disadvantaged children and their relative academic achievements. He arrived at the following findings.

1. The advantaged and disadvantaged children differed in terms of their personality characteristics, biographic and environmental factors.

2. The advantaged children were always superior to the disadvantaged children in respect of academic achievement and they did not differ in respect of intelligence.

Singh (1981) from his study arrived at a conclusion that the majority of scheduled caste students suffered from anxiety, uncertainty about future, unpleasant dreams, and inferiority. The study suggested that special scholarships be given on merit-cum-economic basis.

Rani (1980) identified the following non-cognitive factors affecting academic achievement of scheduled caste students in higher technical institutions: a low concept of academic performance, a high reflected social self-concept and academic performance of teachers.

Anderson, Everston and Brophy (1979) identified teacher practices are associated with the achievement in reading and mathematics of low SES students.
They concluded that practices most likely to be implemented were those that specifically describe the skills, focused on behaviour that are familiar to the teachers and had a rationale based on other classroom process.

Katz (1969) stated that in crowded lower class homes where mothers often are away at working during the day and both parents lack intellectual sophistication, the child's early efforts at verbal and cognitive mastery are less likely to be favourably reinforced than in middle class homes, resulting in lower expectations of reward for intellectual effort.

McCloskey (1967) was of the opinion that educationally disadvantaged children had not developed sufficient cognitive and reasoning skills essential for typical rates and dimensions of school progress. Their communication capabilities are elementary.

Lulla. et al. (1966) investigated the academic causes of backwardness in social studies and arrived at the following findings.

1. The academic causes of backwardness in social studies pertained to defects in curriculum, teaching materials, teachers and teaching methods.

2. Many of the teachers are wholly dependent on textbooks only in their teaching.
According to Bloom et al. (1965) educationally disadvantaged students are assumed to have special difficulty in developing concepts of an abstract nature.

Hunt (1964) was of the opinion that educationally disadvantaged students were considered to be deficient in the semi autonomous essential processes demanded for adequate skill in the use of linguistic and mathematical symbols and for the analysis of casual relationship.

### 3.6 Educational Programmes and Achievement of Academically Disadvantaged Children

In 1960s and 1970s most of the educators who subscribe the theory of educational disadvantage were pessimistic about the possibilities that school can overcome its presumed effects. Educators who do not believe that the effects of cultural disadvantage can be reversed and tend to favour lowering expectations for educationally disadvantaged students, modifying their curriculum, using alternative instructional strategies that involve concrete teaching techniques and segregating them from main streams by placing them in separate track.

Adler and Sever (1994) explored the aims and strategies of Educational Fostering Movement. Educational Fostering aimed at students who are marginalised contextually or personally. The analysis leads to the conclusion that educational disadvantage is a reversible condition and Educational Fostering Movement is one of the means of contributing the reversibility.
Mielke and Flores (1994) were of the opinion that educational technology is a significant resource for meaningful instruction for limited English proficient students particularly educationally disadvantaged in elementary grades.

Clark (1993) studied the effects of feedback through computer assisted instructions on the problem solving ability of academically disadvantaged students. Two feedback methods were presented to the learner, one is knowledge of correct response given by a 'right' or 'no' and the other is more information or rules which leads to the correct answer. Findings indicated that no performance advantage between the two feedback methods.

Daughtry (1993) reported the effectiveness of a tutorial centre combining academic advising tutoring and non-academic counselling to improve educationally disadvantaged students. The study revealed that the students who visited the centre made improvements in remedial writing and mathematics.

Silver and Lane (1993) reported the experience of QUASAR (Quantitative Understanding: Amplifying Student Achievement and Reasoning) Project. The project is an educational reform project aimed at fostering mathematics instruction for students in middle schools from disadvantaged groups. The report said that poor mathematical achievement is not the result of lack of ability, but rather of educational practices that have blocked students from meaningful experiences.
According to Irvine (1991), the litany of past and present innovation, strategies and acronyms in endless. Parent child centres, Upward Bound, Chapter I, Head start, Job Crops, Follow Through, Home start. Those programmes are the compensatory efforts based on beliefs and assumptions that, the educationally disadvantaged children, because of cultural, biological, environmental and social difference, lack the adaptations and knowledge necessary for school achievement.

According to Passow (1990), the Chapter I services, one of the programmes for educationally disadvantaged children, comprise curricula stressing basic skills in reading and mathematics, vocational rather than academic programmes and a slower instructional pace. This hampers the ability of low achieving students to develop thinking skills, lowers their learning expectations and stigmatises them as inferior.

Sharan and Shachar (1983) from their study arrived at a conclusion that when socially disadvantaged students taught with group investigation model, a complex form of cooperative learning, gained more than socially advantaged students in the control group taught by most common method in Israeli schools. The advantaged students in the experimental group gained twice that of their counterparts in the control group.
Outcome of the Review.

The findings of the studies referred to above are representative of the multitudes of similar studies conducted in most of the countries on the effectiveness of concept attainment model as an instructional strategy, but among the limited number of studies on the effectiveness of this model on the achievement of academically disadvantaged children, the findings by Sharan and Shachar (1988), (quoted above) was the major inspiration to the investigator.
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Related Literature


