CHAPTER – III
REVIEW OF RELATED LITERATURE

3.1 Introduction

The review of related literature is an essential part of any investigation. It will help in making foundation provides the investigator with the means of getting to the frontier in his/her particular field of knowledge. For any worthwhile study in any field of knowledge the research worker needs an adequate familiarity with the work which has already been done in the area of his/her choice.

The literature in any field forms the foundation upon which all future work must be built. Failure to build this foundation of knowledge by the review of related literature will result in a work which will be shallow and will often duplicate the work that has already been done better by someone else. According to Mouley (1964) the review of related literature promotes a greater understanding of the problems and its crucial aspects and ensures the avoidance of unnecessary duplication.

According to Stevens (1993) the four main functions of review of literature are

1. To give reasons why the topic is of sufficient importance for it to be researched.
2. To provide the reader with a brief up-to-date account and discussion of literature on the issue relevant to the topic.
3. To provide a conceptual and theoretical context in which the topic for research can be suited.
4. To discuss relevant research carried out on the same topic or similar topics.

3.2 Importance of Reviews of Related Literature

Another important purpose of reviewing the literature is to discover research strategies and specific data collection approaches that have or have not been productive in investigation of topics similar to yours. According to Best and Kahn (1989) “the review of related literature is a valuable guide to define a problem, recognizing its significance, suggesting, promising data, gathering devices, appropriate study design and sources of data”. According to Gay (1990) the review tells the researcher what has been done and what needs to be done. The major purpose of reviewing the literature is to determine what has already been done that relates to your topic; this knowledge not only prevents you from unintentionally duplicating another person’s research. It also gives you the understanding and insight you need to place your topic within a logical frame.

The studies available in this area are summarized under the following heads:

3.3 Studies Related to Discovery Learning Model

Jose (1980) studied the comparative effectiveness of Concept Attainment Model (CAM) and Advance Organizer Model (AOM). The
level of understanding of CAM and AOM did not influence teacher educators. Teacher educators were willing to implement models of teaching in the teacher education program if support systems are available.

Andrews (1984) constructed models for comparing the effects for Expository Learning and Discovery Learning which is applicable to a wide range of environmental problems. The findings showed that the experimental group discussed low transportation and population issues to a significantly greater extent than the control group.

Sharma (1986) studied the effectiveness of Concept Attainment Model in terms of achievement of studies in chemistry. The study revealed that, there is no significant difference between Concept Attainment Model group and Traditional Method group with regard to achievement.

Gangrade (1987) compared the achievement in science of class VII and VIII students taught through the combination of Concept Attainment Model (CAM) and Lecture Method (LM) with Traditional Method (TM). The investigator found that the combination of CAM and LM is significantly superior to TM in teaching chemistry to class VII students in teaching physics to class VIII students when the groups were matched in respect of intelligence attitude towards Science and pretest achievement in science.

Grewal and Palkaur (1987) studied the comparative effectiveness of Bruner’s Model, Ausubel’s Model and Traditional Method in terms of
achievement. The study indicated that, Bruner’s Model is more effective than Ausubel’s Model and traditional methods of teaching.

Sushma (1987) studied the relative effectiveness of Concept Attainment Model (CAM) and Biological Science Inquiry Model (BSIM) for teaching Biological Sciences to class VIII students. The study reveals that CAM is more effective than BSIM in terms of achievement and developing positive attitude towards Biological Sciences.

Choudhari (1988) compared the relative effectiveness of Concept Attainment Model (CAM), Mastery Learning Model, and Traditional Method. Mastery Learning Model has been found superior to Concept Attainment Model and Traditional Method of instruction in the learning of Hindi Grammar.

Chitriv (1988) studied the comparative effectiveness of Ausubel’s Strategy, Bruner’s Strategy and Traditional Strategy in the acquisition of mathematical concepts. The study revealed that

1) Ausbel’s Strategy and Bruner’s Strategy are superior to Traditional Strategy for teaching mathematical concepts to eleventh grade students with regard to knowledge and heuristic transfer is concerned.

2) Bruner’s Strategy is superior to Ausbel’s Strategy with regard to student’s abilities to discover new relationships and to retain knowledge of the concepts learnt for short as well as long period of time are concerned.
Raghavendra (1988) studied the relative effectiveness of *Guided Discovery and Expository Approaches* of teaching mathematics and found that there is no significant difference between *Guided Discovery* and *Expository Approaches* of teaching mathematics with regard to achievement.

Baveja (1989) conducted a study on *Information Processing Models of Teaching in Indian Classrooms*. The study revealed that the students who received instruction through *Concept Attainment Model* and *Inquiry Training Model* achieved significantly higher on concept attainment compared to the students who received instruction through the *Traditional Method* of teaching.

Chaudhury (1989) conducted a study on teaching of *Concept Attainment Model* and facts through *Traditional Teaching*. The study revealed that, the teaching skills and competence developed among students through the use of *Concept Attainment Model* are easily transferable in other teaching situations.

Lekha (1989) conducted a study on the topic *Effect of Guided Inquiry Approach on Students’ Performance in 7th Standard Science*”. The main findings of the study were:

1) Inquiry approach is more effective than the text book approach in teaching Physics and

2) Inquiry approach is more effective than the text book approach in teaching Physics under the objectives, inquiry skills, knowledge, understanding and application
Bagely (1990) studied the comparative effectiveness of \textit{Structured Instructional Format} and \textit{Discovery Instructional Formats} in improving concept acquisition in adult learners. The study revealed that the \textit{Structured Instructional Format} is superior to the \textit{Discovery Instructional Format} in facilitating concept acquisition.

D’ Lima and Suvarna (1990) conducted a comparative study of the effectiveness of \textit{Reception Oriented Concept Attainment Model} and \textit{Selection Oriented Concept Attainment Model} in teaching concepts in mathematics. The study revealed that, \textit{Reception Oriented Model} is more effective than \textit{Selection Oriented Model} in learning concepts in mathematics.

Gurumurthy (1990) compared the effectiveness of \textit{Guided Discovery Learning Approach} over \textit{Instructed Performance Approach} in doing physics experiments and found that the \textit{Guided Discovery Approach} is superior to the \textit{Instructed Performance Approach} in developing cognitive abilities and practical skills.

Joseph (1990) studied the effectiveness of \textit{Concept Attainment Model (CAM)} and \textit{Advance Organizer Model (AOM)} over \textit{Traditional Method (TM)} of teaching physics in class VIII. The study revealed that both the models, \textit{CAM} and \textit{AOM} are more effective than \textit{TM} in teaching physics.

Kumari (1990) studied the feasibility of the \textit{Concept Attainment Model (CAM)} in teaching of geography to blind and normal students in
the upper primary classes and found that CAM is more effective than the Traditional Approach of teaching concepts in geography.

Narayanan (1990) conducted a study on achievement in mathematics under Guided Discovery Learning and Reception Learning Conditions. The investigator found that Discovery Learning is better than learning under Reception Learning Conditions.

Shishta (1990) investigated the relative effectiveness of Guided Discovery Learning and Conventional Approach in the learning of scientific concepts in life science and found that Guided Discovery Learning is more effective than the Conventional Approach in the teaching of scientific concepts.

Singh (1990) tested the effectiveness of Inquiry Training Model (ITM) and Concept Attainment Model (CAM) over Traditional Method and found that ITM and CAM are equally effective in the teaching of physical science to class IX pupils.

A study conducted by Sood (1990) on the comparative effectiveness of Advance Organizer Model and Concept Attainment Model for the acquisition of language concepts revealed that Concept Attainment Model is more effective than Advance Organizer Model in teaching concepts in Hindi. Intelligence, creativity and cognitive style were redundant factors so far in the learning of concepts were concerned.

Vaidya (1990) investigated the relative effectiveness of Mastery Learning Strategy, Concept Attainment Model and Traditional Method.
The study revealed that, *Mastery Learning Strategy* is more effective than *Concept Attainment Model* and *Traditional Method* in

1) Facilitating learning and enhancing the achievement level.
2) Improving self concept and attitudes towards Hindi.

Carole (1990) investigated whether a structured or *Discovery Instructional Format* will better facilitate the acquisition of concrete concepts for learners with and without prior knowledge of the domain’s abstract concepts.

Jamini (1991) studied the effectiveness of *Advance Organizer Model (AOM)* and *Concept Attainment Model (CAM)* on conceptual learning efficiency and retention of chemistry concepts in relation to divergent thinking. The study revealed that:

1) Although both *AOM* and *CAM* are equally effective in fostering concept learning the *AOM* is comparatively more beneficial in concept learning to pupils with high divergent thinking.

2) *AOM* is more effective than *CAM* in the retention of concepts irrespective of the level of divergent thinking of the pupils.

R. Russell Wilke and William J. Straits (2001) studied the effects of *Discovery Learning* in Lower–Division Biology Course. Results indicated that students had greater achievement on content learned through *Discovery Method* than *Lecture Based Instruction*. Instruction was both lecture based and discovery learning activities.

### 3.4 Synthesis of Review of Related Literature

The reviews of various research studies spell out and caution that mathematics is considered to be a tough subject for the students and teachers for learning and teaching. The situation depicted by available studies confirms the comparative effectiveness of *Concept Attainment Model* and *Advance Organizer Model*, *Concept Attainment Model* and *Traditional Method*, *Concept Attainment Model* and *Lecture Method*, *Ausubel’s Model* and *Traditional Method*, *Concept Attainment Model* and *Biological Science Inquiry Model* etc.

Geometry is an essential part in the study of mathematics at any level demands scientific and experimental treatment. There is a research gap found by the researcher to review the above mentioned [R. Russell Wilke and William J. Straits (2001), Carole (1990), Jamini (1991)] related literature that there is a need of developing a model related to geometry. It was inferred from the review of literature that only a few researches (Indian and Western) has done a relationship with DLM and achievement. To fill this gap the researcher selected *Bruner’s Discovery Learning Model* for the enhancement of achievement in geometry.
3.5 Conclusion

In this chapter, related research studies are reviewed as extensively as possible. From the studies, it was understood that recent research on students’ academic performance stressed the need for effective learning. Until recently, there has been little empirical evidence regarding how students become masters of their own learning. Thus in the present study, an attempt has been made to examine the effectiveness of DLM at secondary level.

In the next chapter, the researcher will present the methodology followed which includes introduction, assumptions, operational definition, hypothesis, method/procedure adopted, sampling design etc.