CHAPTER - Review of Related Research

- Studies related to Models of Teaching in general
- Studies related to Training Strategy for using Model of Teaching
- Studies on Advance Organizer Model
- Conclusion
REVIEW OF RELATED RESEARCH

The review of related studies is an essential aspect of any investigation. The review guides the research to the frontier of knowledge. The researcher requires an adequate familiarity with the work undertaken in the area. According to Turny and Robb (1971) identification of problem, development of research design and determination of the scope of the problem, all depend to a great extent, the care and intensity with which a researcher has examined the literature related to the intended research.

An attempt has been made to review the related studies to know the trend of research in the area of models of teaching in general and Advance Organizer Model in particular. The review has been classified as under

- Studies related to *models of teaching in general*
- Studies related to *training strategy for using models of teaching*
- Studies related to *Advance Organizer model of teaching*

**Studies Related to Models of Teaching in General**

The first study in India was conducted on Advance organizer Model by Buddisagar in 1979. In the studies conducted so far various models have been used to train students, teachers and teacher educators. The researcher has mostly adopted the Bruce Joyce and Marsha Weil (1980) paradigm of models of teaching.

Battacharya, Gopal Chandra (1985) compared the effectiveness of teaching geography through Concept Attainment
Model (CAM) and Inductive Thinking Model in relation to institutional resources. The sample consisted of 324 students of class VIII from 30 secondary schools selected by quota sampling technique. The tools used were Test of General Mental Ability by Joshi and Pandey, Education Institution Resource States Index (EIRS) SES Index, and achievement test by the researcher. The findings of the study indicated that Inductive Thinking Model emerged as the best suitable model for all types of institutions. High EIRS institution groups showed better achievement irrespective of the models and concepts types than the low EIRS ones. There was no observable combined interaction, effect between EIRS, models of teaching, types of concept taught and achievement.

Sharma (1986) studied the effectiveness of Concept Attainment Model (CAM) in terms of achievement of students in chemistry. The study revealed that there is no significant difference between concept attainment model group and traditional method group with regard to achievement.

Sushma (1987) investigated the effect of Concept Attainment Model and Biological Science Inquiry Model (BSIM) for teaching Biological Sciences on achievement and attitude to science and also compared their effectiveness. 78 Eighth standard girl students were selected using purposive sampling technique. One experimental group was taught by Concept Attainment Model (CAM) and the other experimental group by BSIM. The control group was taught by traditional approach. The CAM was found to be more effective when
compared with BSIM and BSIM found to be more effective than conventional teaching with reference to changing the attitude favourably and improving their achievement level.

Martis A. and Dhima C.G (1987) conducted an experimental study to find the effect of Synectics Model on pupil’s creative thinking and academic achievement in science. The sample consisted of class IX students selected randomly from two sections of an English medium school. Twin group pre-test post-test design was adopted for the experiment. Torrance tests of creative thinking and achievement test developed by the investigator were the tools used. It was found that verbal and figurai creativity and academic achievement of experiment group had been significantly increased after the treatment. The differences between pre-test and post-test mean scores were significant at 0.01 levels for the experimental group. The difference between pre-test and post-test mean scores of control group was also found to be significant.

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 & 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 pre-test achievement in science.
Agarwal, R and Mishra, K.S (1988) analysed the effectiveness of the reception strategy of CAM in enhancing the attainment of science concepts and found it to be effective.

Sau, T (1988) conducted a critical review of some researches on information processing model of teaching. The findings of the study indicated that most of the studies were one-dimensional, although the concept was multi-dimensional.

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

Baveja, B (1989), undertook two comparative studies to investigate the effectiveness of CAM with Taba’s Inductive Thinking Model with regard to concept learning in biology and also analysed the thinking strategies used by the learners. The two studies had different sample population and elaboration. The findings of both the studies support the role of inductive thinking processes in the process of conceptualisation and generalisation.

Chaudhury, K (1989) observed that the teaching skills and competencies developed among student teachers through the use of concept attainment model are easily transferable in other teaching situations, besides the teaching of concepts. This study also recommended the use of CAM technique to develop the teaching skills.
Krishna Murthy, B (1983) examined the effectiveness of the first strategy (making familiar strange) of Synetics Model through teaching of physics in developing creative thinking ability. 40 students of a section of VIII grade of a school formed the sample pre-test, post-test experimental design was followed. It was found that there was a significant increase in fluency, flexibility and originality components of creativity. It was equally effective for both boys and girls.

Singh, D.K (1990) investigated the effect of Inquiry Training Model (ITM) and Concept Attainment Model (CAM) over traditional method for teaching physical sciences. The study observed that both the models were equally effective in teaching of physical science to class IX pupils.

Malhotra S.P (1990) investigated the effect of Synetics Model of teaching on development of language creativity in Hindi. The students after being taught through synectic model showed more improvement on the factors of fluency, flexibility, originality and elaboration in the various areas of language skills. The improvement had a high positive correlation with the intelligence level of the students.

In yet another study Martis, A (1990) attempted to find out the effectiveness of the Synetics Model in developing ‘making strange familiar’ (MSF) competencies and also its effectiveness in developing scientific and general creativity of graduate student teachers. It was found that the training in MSF comprising theory, discussion,
demonstration and practice, developed the desired competencies and generated favourable reactions in pupil teachers as well as the high school students towards the model. The training in MSF significantly improved verbal, non-verbal and scientific flexibility and originality of trainees. These achievements of the training in MSF in turn led to the development of general and scientific creativity of school students. The findings of the study also suggested that MSF needed to be slightly modified in the light of classroom situations.

Kumari (1990) studied the feasibility of the Concept Attainment Model (CAM) in teaching of geography in the upper primary classes and observed that the CAM is more effective than the traditional approach of teaching concepts in geography.

The relative effectiveness of Mastery Learning Strategy (MLS), Concept Attainment Model (CAM) and Traditional Method (TM) was examined by Vaidy (1990). The study revealed that, MLS is more effective than CAM and TM in facilitating learning and enhancing the achievement level and improving self concept and attitude towards Hindi.

Monocha, ¥ (1991) analyzed reception and selection strategy in comparison to the conventional method of teaching of concepts in Biology. The findings indicated that there is no significant difference between reception and selection strategies with respect to achievement scores.
Pal and Mishra (1991) investigated the effect of Jurisprudential strategy of teaching on development of social consciousness and ability to solve value conflicts among pupils of class IX. It was found that the individual Jurisprudential Inquiry approach was less effective than the group approach.

Pandey, S.P (1991) studied the instructional and nurturant effects of Jurisprudential Inquiry model and found that intelligence and the social economic status of pupils interacted with the development of certain values such as equality, tolerance and justice.

Prabhu (1991) studied the comparative effectiveness of Modified Concept Attainment Model (MCAM), Reception Oriented CAM, and Selection Oriented CAM and Traditional method (TM) of teaching on the attainment of concepts in geometry. MCAM, RCAM and SCAM are significantly superior to the TM of teaching concepts in geometry as per the finding of the study.

Khan and Siddiqui (1992) reviewed the studies on effectiveness of Concept Attainment strategies and recorded that CAM (strategies) were more effective over the traditional approach and attainment of disjunctive concepts is more difficult than the attainment of conjunctive concepts.

Mohanty (1992) compared Jurisprudential Inquiry Model (JIM) with concept attainment model (CAM) in development of moral concepts and judgement and personal values. The findings of the study indicated JIM was more effective for developing the moral
judgement and personal values of students whereas CAM was effective in developing moral concepts.

Jayasree (1992) compared the effectiveness of Concept Attainment Model (CAM) and the Traditional Method (TM) in the teaching of concepts in mathematics. The study revealed that CAM is superior to the Traditional Method (TM) in the teaching of concepts in mathematics.

Joshi, eial (1993) in an experimental study to find the impact of Concept Attainment Model (CAM) on general mental ability of social science students found that mean general mental ability scores of students taught through CAM was significantly higher than those taught through traditional method.

Das (1993) examined the effectiveness of Concept Attainment Model (CAM) in terms of competency of pre-service student teacher. The sample consisted of 16 student teachers studying for B.Ed. The study revealed that, CAM is effective in developing the teaching competencies of pre-service student teachers with regard to understanding and training. There is no significant relationship between previous academic achievement of student teachers and their performance on CAM at theory and coaching stages.

Singh, S.N (1994) investigated the effectiveness of Inductive Thinking Model in comparison to Traditional method of teaching economics to Class XI and found that Inductive Thinking Model was more effective compared to traditional method in terms of achievement.
in economics and reaction of male and female students towards inductive thinking model. Intelligence significantly influenced the dependent variables. Interaction between treatment and sex influenced the achievement. Inductive thinking model was suitable for both in teaching economics in comparison to traditional method.

**Ajatha Swamy** (1995) compared the effectiveness of Inquiry Training Model (ITM) and Conventional Method (CM) of teaching science in terms of (i) developing science process skills (ii) fostering fluency, flexibility and originality components of creativity (iii) boosting curiosity and to investigate the interaction between treatment and levels with reference to the dependent variables. The sample consisted of 36 matched pairs of students with one as the control group and the other the experimental group. The tool used for collecting data were verbal test of creative thinking of Baqer Mehdi, science process skills test and curiosity test by the investigator. The data collected were analysed by two-way ANOVA, Seheffe's test and t-test. It was found that ITM was more effective than CM in developing science process skills for above average and below average groups. ITM was more effective than CM in fostering fluency and originality components of creativity. ITM was more effective than CM in boosting curiosity. It was also found that the students sustained the skills developed, curiosity boosted and creativity fostered through ITM of teaching science.
Gupta S. (1995) investigated the relative effectiveness of some Information Processing Models of teaching i.e. CAM, Inductive Thinking Model and Inquiry Training Model on mental processes and attitude towards science. Scientific creativity whereas it could not foster inquisitiveness, persistency of problem awareness among the students. Inductive thinking model promoted reasoning ability, scientific creativity, and problem awareness ability but could not bring significant enhancement in inquisitiveness. ITM was effective in developing reasoning ability, scientific creativity, problem awareness ability, however it could not bring significant gain in inquisitiveness and persistency. CAM, ITM and Inductive Thinking Model did not differ in effectiveness in terms of enhancing reasoning ability or scientific creativity. ITM and Inductive thinking model rated better than CAM in fostering problem awareness ability. However, inductive thinking model and ITM does not differ in the problem solving ability.

Anandi and Irene (1996)- in a study prepared instructional materials based on Synetics Model of teaching for developing creativity. The instructional materials developed were found to be effective in increasing fluency and flexibility scores of verbal creative thinking but was not effective in increasing originality scores. The worksheets of pupils were very useful for systematic presentation of matter. Besides they could be evaluated. It was found that stretching exercises are a must for synetics approach.
Sucheta, K (1996) studied instructional and nurturant effects of Synetics Model of teaching on creative ability in Hindi and English languages. The sample comprised of 250 students in VII, VIII and IX grades. It was found that synetics model of teaching had its effect on improvement in all four factors of language creativity, i.e. fluency, flexibility, originality and elaboration. The model of teaching was effective in improving general creative capacity of the students. There was significant increase in group cohesiveness. The results were similar in all three grades.

Bijumole (1997) prepared instructional materials based on Concept Attainment Model (CAM) for teaching biology concepts in standard 8th and tested its effectiveness over Traditional Method of teaching. Pre-test, post-test experimental group design was used for study. The data were collected from a sample of 8th standard students (N=100). The study revealed that CAM is significantly superior to traditional method for attaining instructional goals.

Chandra, et.al (1998) in an experimental study examined the effect of three treatments, Synetics Model (SM), Gaming Strategy (GM) and Traditional Method (TM) of teaching towards creativity and their interaction with sex. The sample comprised of 162 learners of VI grade divided into two the experimental and control group. The experiment was carried for four months. Intelligence and age of learners were controlled. It was found that the overall creative scores
of the learners taught through SM, GM and TM have differential effect upon creativity of male and female students.

Anandi Martis (1999) conducted an action research to find the effect of Desensitization Model of teaching on fears of adolescent boys of a local school. It aimed at preparing lessons for sessions on desensitization model of teaching and to find the effect of it on the scores of fears measured by fear survey scale with a single group pre-test post test research design on a sample of 300 adolescents. The study revealed that the model of teaching helped in reducing fear.

Sheela G. (1999) assessed the effectiveness of Synectics Model on creativity and problem solving ability of secondary school students. It was found that Synectics model of teaching is more effective than the conventional method of teaching in developing fluency, flexibility and originality components to creativity and composite creativity as a whole and developing problem solving ability among the students.

Studies Related to Training Strategy for using Model of Teaching

Passi, Singh and Sansanwal (1985) developed a training strategy for Models of Teaching. The objectives of the study were to study the effectiveness of Concept Attainment Model (CAM) and Inquiry Training Model (ITM) in terms of (a) understanding of the model (b) reaction towards the model (c) to study the resultant willingness to teacher educators to implement the models in teacher education programme (d) to develop a strategy of training in models of
teaching. The sample consisted of 45 teacher educators representing 25 institutions from nine states and five union territories were selected by purposive sampling. The teacher educators were invited to attend an 8 day workshop on Models of Teaching held at Devi Ahilya Viswavidyalaya, Indore in April 1985. Single group pre-test post-test design was employed. The treatment comprised of orientation in the theory of model, a lesson plan guide and a teacher analysis guide, through lecture and discussion. This was followed by demonstration lessons and practice. The tools used were, theory check-up for CAM and ITM by Joyce and Weil at Indore and reaction scale for CAM and ITM and willingness scale for implementation of models developed for the study. Training in CAM and ITM comprising lecture demonstration, discussion, peer practice and feedback enhanced the theoretical understanding of teacher educators of CAM and ITM. It was found effective in developing understanding, favourable reaction and willingness to implement models of teaching in a teacher education programme.

Das, B.C (1993) studied the effectiveness of Concept Attainment Model in terms of (i) teaching competencies of pre-service student teachers (ii) understanding the model (iii) training the model (iv) coaching the model and (v) reaction towards the model at various stages of training. This sample comprised of 16 B.Ed, students of Department of Education of Devi Ahilya Viswavidyalaya, Indore. The modified theory check-up test (Sansanwal), reaction scale (B.K.Passi
and Sansanwal) and teaching analysis guide (Bruce Joyce) were the tools. CAM was effective in developing teaching competencies of pre-service student-teacher. The training given to student-teacher increased understanding about theoretical aspects of CAM. The training affected the teaching behaviour of student teachers at coaching stage. CAM was effective in terms of training. The training process from theory to practice has brought significant changes in student-teacher's reaction towards CAM.

Studies on Advance Organizer Model of Teaching

Jose (1980) in a comparative analysis ascertained the effectiveness of Concept Attainment Model (CAM), Advance Organizer Model (AOM) and Problem Solving Model (PSM). The results revealed that CAM is effective in developing proper mathematical concepts.

Grewal and Palkaur (1987) tested the comparative effectiveness of Bruner’s models, Ausubel Model (AOM) and traditional method in terms of achievement and found that, Bruner’s model is more effective than Ausubel’s model and traditional method of teaching.

Chitriv (1983) while comparing the Concept Attainment Model and Advance Organizer Model with Traditional Methods in terms of performance on the concept knowledge test found that the AOM as well as the CAM were significantly superior to the traditional method, whereas the AOM was superior to the CAM for teaching mathematical concepts to XI grade students.
Ghosh (1986) observed that prose-passage type and pictorial type advance organizer facilitated the retention of life science subject matter even after an interval of four weeks. He also observed that instructional strategy with a pictorial type of advance organizer was found to be better than the prose passage type of advance organizers.

Pandey .S „N (1986) studied the effectiveness of AOM - Advance Organizer Model and Inquiry Training Models (ITM) for teaching social studies to class VIII students. Two experimental groups formed AOM group and ITM group consisting of 29 and 28 students respectively and two control group consisted of 29 students in the age group of 13-14 years. The results endorsed that ITM and AOM were more effective than conventional teaching in terms of improving student’s achievement and that pupils reacted favourably towards ITM and AOM.

Buddhisagar (1987) developed instructional material by using Advance Organizer Model (AOM) and Operant Conditioning Model (OCM) for teaching educational psychology. This was administered on 248 students studying in the University Department of Education of Devi Ahilya Vishwavidyalaya Indore who were selected and randomly assigned to three groups. The findings of the study indicated that instructional materials PLM and AOM were found to be effective in terms of achievement of students and reaction of students. PLM and AOM were found superior to the traditional method and equally effective with respect to intelligence, creativity, extraversion, introversion dimensions of personality and attitude towards teaching profession.
Kaushik, N.K (1988) examined the long term effect of Advance Organizers on achievement in biology, in relation to reading achievement in biology in relation to reading ability, intelligence and scientific attitude of the learners. The study revealed that the general introduction proceeding learning material, is less effective when compared to advance organizers.

Sood.K (1990) made a comparative study on effectiveness of Advance Organizer Model (AOM) and Concept Attainment Model (CAM) for acquisition of language concepts in relation to cognitive style, intelligence and creativity. It was found that CAM was more effective than AOM in teaching of concepts in Hindi. Intelligence, creative levels and cognitive style were redundant factors so far as the learning of concepts were concerned.

Joseph (1990) examined the effectiveness of Concept Attainment Model (CAM) and Advance Organizer Model (AOM) over Traditional Method (TM) of teaching physics in Std VIII and observed both the models CAM and AOM are more effective than TM in teaching physics.

Gupta. S (1991) conducted an experimental study on the effectiveness of Advance Organizer Model (AOM) in developing teaching competence of student teachers and their attitude towards teaching. It was found that AOM was effective in developing teaching competence among student teachers under simulated as well as classroom conditions.
Jamini (1391) investigated the relative effect 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 findings indicated that although both AOM and CAM were equally effective in fostering concept learning, the AOM was comparatively more beneficial to pupils with high divergent thinking while CAM with low divergent thinking pupils. AOM was found to be more effective than CAM in the relation of concepts irrespective of the level of divergent thinking.

Kaur, R.P, (1991) examined the effectiveness of Bruner's Concept Attainment Model (CAM) and Ausubel's Advance Organizer Model (AOM) for teaching of economics to high and low achieving students across creativity levels. It was found that for teaching of economics both the models are effective and that AOM is more effective than CAM. The interaction between teaching strategies, intelligence and creativity were not found to be significant.

Mahajan (1992) compared the effectiveness of Bruner's Concept Attainment Model (CAM) and Ausubel's Advance Organizer Model (AOM) on teaching abilities of student teacher. The study revealed that, CAM is superior to AOM as far as the teaching abilities of the student teachers and concerned.

Panda, B.B (1994) attempted to ascertain the effectiveness of Advance Organizer Model (AOM) and Set Induction Model (SIM) in enhancing learning retention and transfer the study intended to find
the effect of AOM and SIM on learning of class IX students, to compare the effectiveness of AOM and Traditional Method (TM) and SIM and TM, AOM and SIM on achievement and to determine the influence of interaction between methods of instruction, sex and criterion test. The data were collected using general mental ability test of Jalota and criterion test on a sample of 69 class IX study. It was found that students studying through AOM and SIM scored higher than TM. There was no interaction between methods of instruction, sex and immediate and delayed test, and there was no significant difference between achievement of boys and girls.

Mathew (1998) analysed the comparative effectiveness of Advance Organizer Model (AOM) and Concept Attainment Model (CAM) in the teaching of population education at the secondary level and found that the model CAM and AOM are more effective than the traditional method of teaching population education at the secondary level.

Research on Advance Organizers

The earliest studies of Advance Organizers were carried out in sixties by Ausubel, 1960; Ausubel and Fitzgerald, 1961 and Ausubel and Youssef, 1963. The university undergraduates were the subjects and they were carefully selected on the basis of lack of prior knowledge of the learning task. Post and retention tests favoured the A.O group on each occasion. The AOs which were approximately 500 words written passages were first administered for several days prior to the treatment. A second brief exposure to the organizer was made just prior to the learning passage.
Kuhn and Novak (1970) using experimental approach with college biology found a significant facilitative effect for written AO’s (Advance organizers) Kuhn and Novok have called the classic Ausubelian approach, presumably allows time for the concepts in the AO to be subsumed into student’s cognitive structures.

Weisberg (1970) employed different types of AOs in teaching earth science concepts to eighth grade children. For these subjects the facilitative effect was significant when a visual organizer was used, but not when a written organizer was used. However, it is not clear whether the actual nature of the written organizer was an important factor with these children. If the different types of AO were equivalent apart from format them. These results suggest that some characteristic of the students have been overlooked,

Barron (1971) and Sowder, Musser, Flora and Bright (1973) however, reported no improvement in learning for students adjusted with AOs. Two types of organizers were used in Barron’s study which included students from grades 6 through 12. However, only 5 minutes were allowed for study of the AO and 30 minute prose learning task followed. Inspection of the criterion test used leads this writer to suggest that for much material was attempted in this time.

The AOs in the study reported by Sowder et.al (1973) were really overviews and were very short. Effect of student’s prior knowledge in mathematics was ignored and the criterion tests were only 5 or 10 multiple choice items embedded in a larger test. Under
these circumstances, failure to find any effect of the AOs is not surprising.

Barnes and Clawson (1975) reviewed 32 studies, and concluded that the efficiency of AOs has not been established. Their review tends to neglect details of individual studies and concentrate on global findings. Nevertheless, it is clear that too many reports fail to give details of the AOs used and in particular how they relate to the students prior cognitive structures, the structure of the learning task, and learning characteristics of the students. AOs also are frequently inappropriate in length for the task described, and almost always the criterion test inappropriate for detecting changes in cognitive structures.

Research studies on Graphic Advance Organizers

Jones (1977) designed difficult organizers for different ability levels of students subsequently taught the same material. In each case the AO was associated with superior learning.

Many studies have been conducted to find out the effectiveness of Graphic Organizers for improving comprehension. Out of the empirical studies, 9 reported that Graphic Organizer used elevated comprehension. These studies included a variety of comprehension measures like Stanford Diagnostic Reading test (Boyle & Weishaar, 1997) comprehension questions (Boyle & Weishaar, 1997), Darcheial, 1988); Gardill & Jitendra, 1999, Idol & Croll, 1987, Sinatra et.aS, 1984) concept acquisition test (Bulgren et.ai. 1988) Teacher-

Although 3 studies reported no effect of Graphic Organizer use on comprehension, these findings appear to be attributable to deficiencies in experimental design. This same factor may account for the lack of effect in the Clements Davis & Ley (1991) study, where high school students received no instruction on how to use the thematic pre-organizers that they were given to assist story reading.

Alvermann and Boothby (1986) also failed to demonstrate an improvement in comprehension. In this case, the lack of improvement is quite likely due to a ceiling effect as comprehension scores were quite high even-before the intervention. Thus, weighing the collective evidence there still appears to be strong support for the ability of graphic organizers to improve reading comprehension.

A fair number of studies have included students with disabilities in their investigations of Graphic Organizers. Successful learning outcomes have been demonstrated for both students with and without learning disabilities.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Students</th>
<th>Intervention</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boyle &amp; Weishaar (1997)</td>
<td>Students with learning disabilities</td>
<td>Students taught to generate cognitive organizers for use during reading and students who were taught to use expert generated cognitive organizers during reading scored significantly higher than untaught peers on a comprehension test of literal and inferential comprehension.</td>
<td></td>
</tr>
<tr>
<td>Bulgren et. al (1988)</td>
<td>Students with learning disabilities and students without learning disabilities</td>
<td>When teachers used a concept teaching routine to present concept diagrams to students, students with and without learning disabilities significantly improved performance on tests of concept acquisition and improved their note taking.</td>
<td></td>
</tr>
<tr>
<td>Gatlego et.al (1989)</td>
<td>Students with learning disabilities</td>
<td>Learning and rehearsing a semantic mapping procedure was associated with a significant increase in quantity and quality of in class verbal contributions and a significant increase in the quality of their written summaries.</td>
<td></td>
</tr>
<tr>
<td>Garditt &amp; Jitendra (1999)</td>
<td>Students with learning disabilities, one student with neurological impairments, all experiencing difficulty with reading comprehension</td>
<td>Direct instruction with an advanced story map procedure led to an improvement in student’s basal comprehension scores and story grammar comprehension.</td>
<td></td>
</tr>
<tr>
<td>Idol &amp; Croll (1987)</td>
<td>Special education students with reading comprehension problems</td>
<td>Training to use story-mapping procedures led to an improvement most student’s ability to answer comprehension questions.</td>
<td></td>
</tr>
<tr>
<td>Sinatra et.al. (1984)</td>
<td>Students referred to a reading clinic</td>
<td>Students who took part in instruction with a story mapping procedure answered significantly more comprehension questions correctly on average than students who took part in a directed reading approach.</td>
<td></td>
</tr>
</tbody>
</table>
Research studies on Computerised Advance Organiser's

Carnes et al. (1987) constructed Computerized Advanced Organizers to help introduce high school physics students to microcomputer physics tutorials but were unable to establish a significant improvement in learning rate, retention, or performance on a teacher-made achievement test. However, the lack of effect is likely attributable to the absence of teacher introduction or training with the organizers.

Anderson - Inman et al. (1996) found substantial variability in the adoption of Computer-based Graphic Organizer study strategies. Some students became quite skilled and independent with these strategies, while others developed only basic skills and remained reluctant in their use. Their findings that differences in adoption level were correlated with reading test and intelligence scores suggested that it may be possible to predict levels of user proficiency.

Triezenberg, Henry, J (1999) investigated the use of an Advance Organizer in teaching selected concepts of ecological systems. The design included a pre test, the teaching of nine lessons, and a post test at the cognitive levels of (i) knowledge (ii) comprehension and (iii) application. The post test was given twice-first, to determine Concept Attainment immediately following instruction and second, to determine Concept Retention six weeks later. As per the findings, (i) the comprehension level the use of mechanical models as the reference to the organizer was significantly superior to verbal reference or the use of sketches (ii) significantly higher mean test scores were earned in grade 9 than in grade 7 and (iii) a significant decrease in mean scores earned by pupils in grade 9 occurred at the knowledge level between the time of the first post-test and the second (Retention) post-test - A small but still significant decrease occurred in both grades at the comprehension level and no significant decrease occurred at the application level.
Tseng .C.H (2004) evaluated the multimedia advance organizers to promote pupil’s learning retention in Taiwan. The computerized organizers were used as a cognitive tool for linking up the prior conceptions of mathematics. The system was also used to further advance the efficiency in computer as a mind tool. Taking equivalence-fraction and probability computerized organizer materials in a exploratory study, the objective was to evaluate the influences of students retention by using computerized advance organizers. In the experiment involving more than 100 pupils, it was founded that the learning retention of the students who used two type computerized advance organizers were better than those of students who used more.

Janice Langan et.al (2006) analysed the effects of Advance Organizers, Mental Models and abilities on task and recall performance using a mobile phone network. The current research investigated the usability of services provided by a mobile phone network, specifically whether two different forms (text, graphic) of an Advance Organizer (AO) assisted novice users in applying information supplied in a manual. It was hypothesized that a graphic AO would facilitate the development of coherent mental models of the network to enhance task performance and the lower ability groups in particular would benefit from AOs. Contrary to prediction, the text AO group out performed both the graphic AO and control groups. Lower ability groups also benefited more from a text AO than a graphic AO.

Conclusion

Research in the field of models of teaching is of recent origin and is receiving due importance. The studies in this area have mainly been focused on the Information Processing Models. One of the most experimented upon was the Concept Attainment Model either as a single model or in comparison with other models. There were very few studies conducted on Advance Organizer Model of teaching in India but quite a number of studies have been conducted outside India. This
model has been used in the teaching of languages, behavioural science, mathematics and social studies but its value in teaching of science is paramount. Further this model has been found suitable for subjects like computer application. Studies are yet been undertaken in Indian settings to examine the feasibility of this model in classroom teaching especially in science subjects.

As such, the present investigator attempted to develop a learning package based on Advance Organizer Model for teaching Biology at the Secondary level of education. The methodology followed in designing the model and testing its effectiveness has been discussed in the next chapter.