CHAPTER-II

REVIEW OF RELATED LITERATURE

The Review was organised according to the areas of Classroom Questioning Behaviour Training and its effectiveness as this is directly related to the present research. Classroom Questioning refers to the incidence of questions, structuring of the question, levels of questions, question delivery and distribution and management of pupil responses. Teaching competence, self-concept and teaching attitude also formed an area of review of the related literature.

2.1 STUDIES RELATED TO QUESTIONING BEHAVIOUR

Rokeach (1960) and Gough (1951) with the help of the Dogmatism Scale and Rigidity Scale respectively classified teachers as Dogmatic-Rigid and Non-dogmatic Non rigid on the basis of combined score. The teaching behaviour identified as affecting students' questioning behaviour are (1) direct behaviours of asking for questions; (2) indirect behaviours of probing for elaboration, of redirecting questions to others, and of rebounding back to a student; (3) "Anti-question eliciting" behaviours of repeating students' questions and responses, answering one's own question, and saying "I don't know" or "The article doesn't say"; (4) frequency of teachers' questions; and (5) frequency of questions asked on new topics in order to initiate discussion. This study provides insight for educational leaders in charge of staff development. The data highlight the complexity of the change process and urge a more individualized approach to staff development.
Dorothy Haupt, Wayne State University (1966) while studying the relationships between child initiated questions and nursery school teacher behaviours reported that teacher child interaction sequences initiated by questions posed by four year old children in three selected areas of program in the nursery school. Six questions are raised in order to determine the relation between the act of instigation, the act of teaching, and the subsequent child behaviour. The purpose is to discover whether the teaching learning process created by the conditions mentioned are related to: (1) the sex of the questioner; (2) the area of the program in which the question is posed; (3) the form of question and responses; (4) the content of the question and responses; (5) the function of the question and responses; (6) the combined form content function dimensions of any state of the child teacher child unit of interaction.

The major findings were (1) Support is found for previous investigations establishing boys' interest in phenomena of the physical world; girls' pre-occupation with issues of the social world is challenged. (2) Differences emerge between the Teacher Structured Period and both the Child Structured Period and the Lunch Period with respect to form, content, and function of questions, acts of teaching, and subsequent responses. (3) The verbal explicit form dominates the communication between child and teacher; there is a marked decrease in extending or reciprocal questioning from the initial question to the subsequent response. (4) Children's questions involving cognitive content are less likely to elicit a 'no responses' from the teacher than questions based on affective content. Boys more often elicit leading questions about the social world while girls are likely to be offered assistance with this content. (5) The boys' persistence in pursuing their interest in the physical world is stronger than the girls' interest in following their
initial questions about the social world. This finding is considered
important in light of the teachers' tendency to shift content related
to the physical world to content related to the social world.

Matthews, C.A. (1977) studied the effect of two
different reading comprehension questioning programs upon the
reading comprehension achievement of students at a fourth grade
reading level. The researcher investigated the effects of varying
levels of oral cognitive questions on the reading comprehension of
selected subjects, reading at the fourth grade level. Specifically the
experimenter compared the treatment effects of higher level and
knowledge level questions on the reading comprehension of the
subjects.

Sixty six children, reading at a fourth grade level, from
two different elementary schools, were randomly assigned to two
experimental and one control group: those involved with high order
questioning procedures, those involved with how order questioning
procedures and those in a control situation (questioning procedures
form a basal text). The use of high order questioning patterns did
not show a significant difference between the control of low order
questioning groups. However, high order questioning groups
showed highest achievement scores for all groups and both schools.

Nicholson, Janice I. (1977) conducted an analysis of the
levels of comprehension required by questions in teachers' manuals
of selected basic reading textbooks. Four basic reading texts were
chosen for study. Ninety questions from each text were randomly
selected and classified according to the categories includes in the
Barrett Taxonomy of Cognitive and Affective Dimensions of
Reading Comprehension. Questions chosen for classification were
rated independently by three raters. All three raters had training in classifying questions according to the Barrett Taxonomy.

Jones, Helen (1977) studied the classification of classroom questions: three descriptive systems. This work discusses classroom questions in the following terms. First, it provides an extensive review and discussion of the existing literature on questions. Second, a proposal is presented for three separate but complementary classification systems for describing teacher and student questions. And third, the results of tests of these category systems with 870 questions recorded in fifth and sixth grade elementary classrooms are reported and analyzed for their usefulness to educators and researchers.

Results of the trial of these category systems with recorded classroom questions put intra-judge reliabilities for four key coding are as at 88% (System I), 90% (System II), 92% (preceding context), and 94% (responses). System I results reveal ways teachers and students differ in their use of the nine category spectrum for question defined answering options (for example, one low option form, the verbatim repeat question, was asked about equally often by most teachers, but was asked commonly only by students in certain classrooms). By combining the percentages of certain System I categories, an index of teacher emphasis on recent recall "memory" questions was obtained, an area which is frequently discussed but not always in empirically useful terms. Results for System II showed that the four general verification areas, ranked in order of decreasing frequency of use, were (1) empirical questions, (2) questions verifiable by reference to standards subscribed to by recognized groups of people (aesthetic, moral, arbitrary, etc.), (3) questions verifiable only by reference to individual standards, and (4) objective, but empirically un-testable,
questions. In addition, the percentages of two System II showed that the four general verification by reference to individual standards, (4) objective, but empirically un-testable, questions. In addition, the percentages of two System II categories were combined as an estimate of teacher appeals to authority in classroom questions. System III results demonstrate, in part, that while teachers are much more likely than students to give replies which differ in verification type from the questions asked of them, this relationship is not obligatory in all classrooms, being dramatically reversed in some cases. Comparisons between systems suggest that relationships exist between specific option, verification, and topic shift factors, and that in more than one instance these may be linked to the frequency of student questioning.

Pagliaro, Marie Menna (1978) studied the effect of cooperating teacher questioning behaviours on facilitating the questioning behaviours of student teachers. The purpose of this study was to determine whether questioning behaviours acquired by student teachers prior to student teaching would be used more frequently by the end of this experience if they were placed with cooperating teachers who demonstrated high or low levels of the same questioning behaviours. The study also sought to determine whether the questioning behaviours of cooperating teachers had any effect on the questioning behaviours of student teachers who had acquired these behaviours to a higher or lower degree.

The following null hypotheses were tested: 1. There was no significant difference at the end of student teaching between the Minicourse One Evaluation Form final scores of student teachers whose original questioning level was high scoring or low scoring. 2. There was no significant difference at the end of student teaching between the Mini-course One Evaluation Form final scores
of student teachers who were placed with cooperating teachers whose questioning level was high scoring or low scoring. 3. There was no significant difference at the end of student teaching between the Mini-course One Evaluation Form final scores of student teachers as a function of the interaction between their original questioning score level and their cooperating teachers' questioning score level.

A two way classification analysis of variance was performed with the data obtained from the last set of tapes to test the hypotheses under investigation. No significant difference was found at the .05 level between the questioning behaviour scores of student teachers as a function of their original score levels. Null hypothesis 1 was accepted. No significant difference was found at the .05 level between the questioning behaviour scores of student teachers as a function of their placement with high scoring or low scoring cooperating teachers. Null hypothesis 2 was accepted. There was a significant interaction at the .05 level between the questioning behaviour scores of student teachers. Null hypothesis 3 was rejected.

Cell mean comparisons using the Duncan Multiple Range Test determined the sources of the interaction. Student teachers who were originally low scoring scored significantly higher when placed with high scoring cooperating teachers than when placed with low scoring cooperating teachers. Student teachers who were originally high scoring or low scoring maintained significantly this difference when placed with low scoring cooperating teachers.

Moskal, Krystyna E. (1978) studied the effects of interventions and personality on elementary school teachers' question eliciting behaviour. The first objective of this study was to
examine the relative effects of four interventions commonly used in staff development on changing teacher's question eliciting behaviours. The second objective was to investigate the effect of the teachers' subsequent behaviour on students' questioning behaviour.

The four types of interventions are (1) the distribution of an article on the effects of questioning on student achievement with no identifiable author (No Source of influence intervention), (2) the same article with a group of experts identified as its author (Expert intervention), (3) the same article with an attached memo from the principal (Principal intervention), and (4) the same article with a conditional offer of a material reward if a target number of student questions is reached (Reward intervention).

Kernwein, David Allen (1979) studied the effects of simulations on the development of questioning behaviour of students.

It was the purpose of this study to determine the effects of simulations on student questioning behaviour. In order to determine these effects answers were sought to the following questions: (1) Do simulations produce an increased percentage of higher level questions asked by students? (2) Do simulations produce an increase in the total number of questions asked by students? A total of 1,731 student questions were recorded during the course of the study. These questions were placed in random sequence and distributed to a committee of three social studies educators to classify as to the taxonomical level of each question. The levels were based on the levels of question as defined by Norris M. Sanders in Classroom Questions What Kinds?
The following were the conclusions of the study:

(1) From levels four through seven (application, analysis, synthesis, and evaluation) expository instruction produced an increased percentage only at the application level. On the average, 4.2 percent of all questions asked during expository sessions were at the application level with less than 1 percent occurring during simulations. The analysis level indicated a 7 percent increase during simulation activities while the synthesis level indicated a 1.2 percent increase. At the evaluation level simulations also showed a slight increase of 0.1 percent. (2) The data also indicated that more total questions were asked during simulation activities. During weeks five and seven, 258 and 361 total questions were asked, respectively. These numbers represented an increase of eighty two more questions asked during week five and 185 during week seven compared to the highest number asked during any expository week. (3) The data also indicated that during simulations there was a sharp decline in the number of classroom procedural questions. The difference was an average of 16 percent more procedural questions asked during expository classes. As a result of this decline in procedural questions, 16 percent more questions were asked which focused on course content and geographical data during simulations. (4) During simulation activities (weeks) students asked a much higher percentage of analysis questions when compared to expository weeks. The total of analysis questions more than doubled when compared to the highest number of analysis questions asked during any expository week. This indicated a relationship of some type may exist between simulation activities and analysis level questions.
Tjart, Emerson Sheldon (1979) carried out a staff development project to improve teacher questioning. The effectiveness of a staff development project which aimed to improve teachers' question asking skills was assessed in a field study. The subjects consisted of three elementary student teachers and twelve experienced secondary teachers.

The ten week study was designed so that the participating teachers made a fifteen minute pre-treatment audiotape of a lesson segment they considered representative of their question asking behaviour before they received the Questioning Skill Self Appraisal Manual or knew the specific questioning skills that were the focus of the study. The investigator analyzed each pre treatment tape by tallying each instance of the nine questioning skills identified in the Manual.

In addition to teacher's use of the Questioning Skill Self Appraisal Manual, the treatment included an individual supervisory conference in which the investigator shared the objective feedback from the tape analysis and encouraged the teachers to discuss concerns about questioning and to use the feedback data to make questioning improvement objectives. The teachers determined which questioning skills they wanted to improve during the staff development project.

After using the Manual not less than one month, nor more than two, the teachers made a fifteen minute post treatment audiotape of a lesson segment with the same class used for the pre treatment tape and completed an evaluation questionnaire. Following the same procedure used to analyze the pre treatment tapes, the investigator tallied the instances of the nine questioning
skills on the post treatment tapes and shared the data with each teacher in a post treatment conference.

Given the trichotomizing of questioning skill 9 to measure the frequency, respectively, of memory recall (9m-r), analysis (9a), and synthesis (9s) questions, eleven null hypotheses were tested for statistical significance with the sign test. Seven of the null hypotheses were rejected at the .05 level of confidence (questioning skills 1, 2, 4, 6, 8, 9mr, and 9s). The treatment obtained a <.06 level of confidence with respect to questioning skill 5, an instance of border line significance.

The treatment design, a combination of teacher use of the Questioning Skill Self Appraisal Manual and clinical supervision, was shown to be effective as a staff development model. Because only two of the fifteen participating teachers were motivated to analyze their tapes by doing their own frequency counts, a data gathering process that is integral to the self appraisal model advocated in the Manual, it must be concluded that the usefulness of a self appraisal model was not addressed. What was shown was that a staff development effort which focuses on instructional needs that are perceived as such by the teachers themselves, can change teachers' instructional behaviour in a direction shown by the research literature to be positive in terms of its effect on student achievement.

Galloway, Elizabeth Anne (1979) conducted a study on a descriptive comparison of teacher questions.

The gestalt of a classroom environment includes such varied components as the hardware, software, students, teachers, aides, methods employed and the interactions of the components on each other. Language is incorporated in all of the components
directly (affecting the component) of indirectly (effected by language). Therefore, the language utilized within a given classroom provides a thread through which other components may be described. In this regard the discourse of the teachers, as the coordinator of the classroom environment, is a natural focus of study and description of the classroom language environment.

The purpose of this study is to describe the use of one aspect of the classroom language environment, specifically the questioning behaviour of the classroom teachers in regular and special education primary grade classrooms. This study describes that portion of the teacher talk embodied in the teacher's questions. Nine primary grade level (kindergarten, first grade, and second grade) classrooms were studied. Each grade level was represented by classrooms for the regular student, the aurally impaired student, and the visually impaired student. The descriptions of the questioning behaviour of these nine teachers were based on the system developed by Douglas Barnes, whose focus was the questioning behaviour of teachers in the secondary classrooms. The system categorizes teacher questions as: (1) factual questions (naming, information), (2) reasoning questions (closed recalled, closed not recalled, open, and observation), (3) open questions, and (4) social questions (control, appeal and other). To provide additional clarify to Barnes' system, categorical and sub categorical definitions and descriptions provided by Barnes have been expanded. The system was further supplemented with the mean length of the teacher questions. Each of the nine classrooms were audio taped during the first class session of the day. The tapes were then transcribed for coding and analysis. Descriptions of the teacher questioning behaviour were made for each classroom, for each classification of classroom, and for each grade level of classroom.
Results obtained suggested that the overall pattern of teacher questioning established by Barnes in the normal secondary classrooms was generally paralleled in both the normal and the special education primary grade classrooms. These paralleled findings suggest a single, basic pattern of teacher questioning behaviour regardless of the student population or the grade level of the classroom. Comparisons by category and by grade level indicate that a shorter sentence length was utilized by the special education teachers, and except for the open type questions the aurally impaired classroom teachers presented the shortest sentence length. The specific percentage usage of categories of questions varied to some extent by grade level and by classroom classification.

Allen, John Phillip (1979) carried out a study to compare the conceptual systems and questioning behaviour of pre-service teachers in social studies methods courses. A major skill for effective inquiry oriented instruction in the social studies is skill in questioning. This skill requires teachers with the ability to phrase and sequence questions in patterns that stimulate students to reach the higher cognitive levels required for effective inquiry instruction. The most important kind of question for this kind of instruction is the probing question. However, available evidence indicates that few social studies teachers ask questions above a convergent level, and few probing questions. This study was designed to explore the possibility of a relationship between certain characteristics of teachers thought necessary for effective inquiry, and the levels and types of questions asked following a provocative slide tape presentation.

A sample of forty nine pre-service teachers from elementary and secondary social studies methods classes participated. Based on results obtained from scores on the Harvey
Conceptual Systems Test, twenty one were classified as System one or two (concrete in cognitive processes) and twenty eight were classified as System three or four (more abstract in cognitive processes). All had training in questioning skills. The pre-service teachers and three elementary students were given the slide tape presentation on ecology. Following this, each group of four made an audiotape of their reaction to the presentation. Questions asked by the pre-service teachers were coded by level and type of probe. Each lesson was given an overall rating based on the criteria of an inquiry model. Total tape time for each pre-service teacher was recorded.

It was concluded that the use of a preponderance of high level questions was not, for this sample, associated with effective inquiry oriented instruction. There does seem to be a relationship between the pre-service teacher's conceptual system (for this sample) and the ability to meet criteria considered necessary for inquiry oriented social studies instruction. The lack of differences in the numbers of probing questions asked by both groups and the significantly higher rating on the lesson achieved by pre-service teachers with abstract conceptual systems is puzzling. Implications for teacher training were advanced.

Blaha, Barbara Agnes (1979) studied the effects of answering self generated questions on reading. The purpose of this study was to determine if teaching college freshmen to generate and answer questions while reading would improve their reading comprehension, their rate of reading, and their organizational skills in reading. An investigation was also made to determine if such reading instruction would improve the students' organizational skills in writing.
The following conclusions were drawn: (1) The program teaching students to generate and answer questions while reading was effective in the improvement of reading comprehension. The gain in reading comprehension for the experimental group was statistically significant at the .01 level over the control group. The most significant gain occurred with the experimental subjects whose initial reading scores comprised the lower twenty fifth percentile. (2) Teaching college students to generate and answer questions while reading was also effective in improving their rate of reading. While there was a statistically significant difference at the .01 level of the experimental group over the control group, the better readers - those in the upper fiftieth percentile - demonstrated the greatest gain in rate of reading. (3) This method of reading was also effective in improving the students' organizational skills in reading. There was a statistically significant difference at the .01 level in favour of the experimental group over the control group. Here again the tendency was for the poorer readers to show the most improvement. (4) The study also established that reading instruction is an apparently effective device to improve writing ability. The effectiveness of organisational skills in writing for the experimental group showed a significant difference at the .001 level over that of the control group. However, among the less able writers and readers a significant difference did not exist.

Thus, generating and answering questions that unlock the simple structure of the thought and detail of expository material while reading appears to be an effective device for both reading and writing improvement. In particular, it facilitates comprehension, increases rate of reading, and improves organizational skills in both reading and writing.
Zand, Frances Lee Block (1980) studied the influence of question format on children’s recall of hierarchically structured stores.

The investigator observed the effects of question type and format on response times and accuracy scores obtained from children at the second grade level, as they respond the questions about narrative stories. The specific relationships studied is the difference in response times for literal vs. inferential types of probe questions asked may or may not duplicate the order of events in relation to the story.

It was found that mixing the order of literal questions asked followed the logical order of the story, while in the other half the question order was unrelated to story order. It was found that mixing the order of literal questions relative to the story orders, as represented by the structure diagrams, had the effect of increasing the average response times and decreasing the accuracy. In addition, the results showed that inferential questions produced greater response times than did literal questions. The general finding was that question order and question type influence the way in which a young reader processes story information during subsequent recall.

Goldberg, Ellen S. (1980) studied the effects of three question properties on prose, memory and forward text processing to explore how adjunct questions function to modify reading outcomes, and to interpret question effects in the context of concentration and processing models of reading behaviour. The study examined effects of three question properties: (1) Specificity multiple specific pre-questions asked for verbatim recall of text facts; (2) organizing property concept organizer pre-questions
provided super-ordinate topic information (concepts) and asked for related subordinate content (facts); (3) Constructive property Concept Construction pre-questions asked for derivation of super-ordinate concepts implicit but not stated in text. Questions were inserted before related paragraphs in the first half of the text sequence to measure the effects of each question property on immediate and delayed learning of text. The second half of the text sequence was presented without questions to examine the forward influence of each property on retention and processing of unquestioned text. It was hypothesized that all pre-question would facilitate learning relative to a reading only control. Hypotheses were confirmed for multiple Specific questions, but higher level question did not significantly affect the level of text learning. Multiple Specific questions resulted in greater immediate learning than that produced by higher level questions. Delayed learning showed no significant differences among question groups. Forward effects were examined by measuring immediate and delayed recall of facts from unquestioned paragraphs. Comparisons with a control failed to demonstrate positive transfer for any pre-question. The finding that all pre-questions resulted in less factual recall than a control on immediate transfer resembles the depression of incidental learning reported frequently in the literature. The unanticipated outcome that all subjects recalled more facts from unquestioned paragraphs was clarified by results of analyses of recall from each paragraph. These analyses confirmed that fresh and content specific delayed data demonstrated that only Concept Organizer questions promoted representation of conceptual control on a delayed completion test which measured availability of concepts implicit in text. Subjects given. Concept Organizer questions were more likely to recall conceptual content than factual content from questioned paragraphs, they freely recalled more
concepts than any other group, and they outperformed a control in total recall from questioned paragraphs. A concentration model of question effects accounts fully for observed effects of specificity on factual text learning and for observed effects of higher level questions. Concept Organizer questions influenced encoding strategies and subsequent recall strategies, but Concept Construction questions were not efficient in clarifying reading objectives so that they failed to promote use of question relevant strategy for encoding text content. Questions in this study did not demonstrate effects of organizational variables, and inconsistencies in question level research do not warrant simplifiable conclusions about the effect of questioning on level of text processing.

Jones, Newton Alan (1980) studied the effect of type and complexity of teacher questions on student response wait time. This study was to determine the nature of the differences in the amount of wait time students in the eighth grade took to respond to questions differing in type and complexity. Four questions were designed which focused on the "Projection of Shadows Activity" from the work of Jean Piaget. The questions were simultaneously classified as convergent or divergent (type) and concrete or formal (complexity). A working model of a shadow making apparatus was constructed for demonstration and questioning. A lecture demonstration was presented to a group of randomly selected eighth grade students. Subsequent to the large group lecture demonstration, each student was individually interviewed and asked four questions. The students were permitted to take as much time as they needed before answering the questions.

The interviews were tape recorded and transcribed into print. Two raters independently timed the period of silence (accurate to a tenth of a second) from the end of each question to the...
beginning of the response. This period was termed "student response wait time." An inter-rater reliability coefficient was obtained for each of the four conditions (questions) designed (.89, .99, .84 and .98 respectively). The average of the student response wait times recorded by the raters was used in the analysis to test three hypotheses.

It was assumed that the amount of time which lapsed once a question was asked to the time an answer began depended in part on the time a student needed to consider and answer before verbally responding. The quantity of time children took to answer questions was presumed contingent on two variables which were thought to interact with one another. The two variables were the type and the complexity of questions.

The results indicate a significant variation in student response wait time. This difference in magnitude was observed to be a function of the type but not the complexity of the question. The average or mean student response wait times for convergent questions and divergent questions (type) were 2.84 and 6.86 seconds, respectively. The average student response wait times for concrete and formal questions (complexity) were 4.38 and 4.86 seconds, respectively. The overall wait time (collapsed across all conditions) was 4.62 seconds.

It was anticipated initially that there would have been a significant difference in the mean student response wait times for questions classified as to complexity. The expectation was that formal responses would take more time to formulate than concrete responses. The data did not support this hypothesis, however. Evidence of formal operational thought was not consistently demonstrated in the protocols. Given the caution of classifying
thought as being either concrete or formal, the evidence suggests that there were no significant differences between the student response wait times after concrete and formal questions because the students were not consistently answering formally. None of the students mentioned that light rays had to have been diverging in straight lines from the centre of the light to create the "coning" effect responsible for disc placement which affected shadow size. In addition, inter-propositional logic, proportional thinking, reciprocal transformations occurred sporadically throughout the interviews.

The recommendations from this investigation are not meant to imply that an absolute quantity of time is requisite for all questions at all times for all people. Rather, students being questioned would be better served if the individual asking the question would, within reason, wait for the respondent to contemplate the question and answer.

Malvern, Kathryn T., (1980) studied the effect of higher cognitive questioning techniques on student achievement after teacher retraining in questioning strategies.

The objectives of this study were (1) whether retrained teachers would change their questioning procedures; and (2) whether the students of those retrained teachers would show an increase in particular types of cognitive skills as a result of a teacher training instrument, a Minicourse on "Higher Cognitive Questioning."

Student subjects used in the investigation consisted of a treatment group, composed a random sampling of forty middle school seventh graders and a control group, composed of a random sampling of forty middle school seventh graders. The student population was drawn from an affluent school district. According to
standardized reading scores, all subjects read above grade level. The four teacher subjects participating in the study were volunteers who were experienced seventh grade Science and Social Studies educators. The Experimental teachers (one taught Science, the other taught Social Studies) were trained to practice questioning strategies, (for a five week period, three days per week for one hour and fifteen minutes) in a skill oriented course that permitted immediate feedback and opportunities to evaluate the performance. This course, "Mini course 9 - Higher Cognitive Questioning," was developed by the East West Laboratory for Educational Research and Development and primary designed for grades 4-9. Its purpose was to increase teacher effectiveness in the task of structuring higher level questions that require students to engage in complex thinking. Control group teachers consisted of two seventh grade teachers who taught Science and Social Studies utilizing conventional methods of asking and eliciting questions. They received no training. Based on observations and test question samples, the treatment was successful in developing teacher skills in the asking of higher level questions, whereas the control group teachers continued to ask recall questions, thereby eliciting recall responses.

In conclusion, presented research data reveals that the Minicourse on "Higher Cognitive Questioning" was an effective teacher-training instrument, and as a result, students' comprehension skills improved. Recommendations for further research based on this study were: (1) Conduct the study with student teachers as trainees; (2) Conduct the study in an urban setting; (3) Conduct a similar but required training session rather than voluntary; (4) Use audio instrument rather than Video tape recorder.
Ligon, Mary Jean Faris (1980) conducted a study of the questioning behaviour of classroom teachers during reading instruction to good and poor readers.

Teacher questioning may be the most crucial factor underlying the comprehension process and the development of effective readers. Teachers must plan, use, and evaluate questioning behaviour if schools are to fulfil their goal of developing high level cognitive functioning of students.

The purpose of this study was to investigate the questioning behaviour of classroom teachers during reading instruction to determine if the questioning differs in relation to the children's reading ability. The investigation focused on the following research questions. (1) Is there a significant difference between the three levels of questions asked primary readers as compared to intermediate readers? (2) Is there a significant difference between the three levels of questions asked good primary readers as compared to poor primary readers? (3) Is there a significant difference between the three levels of questions asked good intermediate readers as compared to poor intermediate readers? (4) Is there a significant difference between the three levels of questions asked in the pre reading situation for good primary readers as compared to poor primary reader? (5) Is there a significant difference between the three levels of questions asked in the post reading situation for good primary readers as compared to poor primary readers? (6) Is there a significant difference between the three levels of questions asked in the pre reading situation for good intermediate readers as compared to poor intermediate readers? (7) Is there a significant difference between the three levels of questions asked in the post reading situation for good intermediate readers as compared to poor intermediate readers? (8)
Is there a significant difference between the three levels of question asked in the pre reading situation for good primary readers as compared to good intermediate readers? (9) Is there a significant difference between the three levels of questions asked in the post reading situation for good primary readers as compared to good intermediate readers? (10) Is there a significant difference between the three levels of questions asked in the pre reading situation for poor primary readers as compared to poor intermediate readers? (11) Is there a significant difference between the three levels of questions asked in the post reading situation for poor primary readers as compared to poor intermediate readers?

Results showed that the questioning behaviour teachers use with good and poor readers differ in many instances. With one exception, the significant analyses were in favour of the good readers. Questions 1, 2, and 3 did not contain the three way interaction necessary for further statistical analysis. Questions 4 and 10 revealed no significant differences at the three levels of questioning. Question 8 was significant at all levels of questioning. Question 11 was significant at the textually explicit level. Questions 5, 6, 7 and 9 were significant at two of the three levels of questioning: textually explicit, textually implicit, and scripturally implicit.

Conclusions drawn were: Significant differences were found in 50% of the situations where good readers were compared to poor readers. Significant differences were found in 50% of the situations where primary and intermediate readers were compared. A marked difference was noted in the number of questions asked in the pre reading situation (14.5%) and the post reading situation (85.5%). There were significant differences in the levels of questions asked good and poor readers in various situations. Six of the eight
textually explicit situations were significant, two of the eight textually implicit and four of the eight scripturally implicit situations were significant.

Bozsik, Beverly Elaine (1981) carried out a study of teacher questioning and student response interaction during pre story and post story portions of reading comprehension lessons to determine the types of solicitation patterns exhibited by pre service and in-service teachers as determined by the Question Response Interaction (QRI) instrument. The QRI was designed as an observational instrument to note the solicitor the type of solicitation, the antecedent relationship between question and response, the questioning strategy, the categories, the types of questions, the types of responses, and the level of support of the responses. The study also determined the wait time for responses and the lengths of pre and post story portions for high and low readings groups.

The results of the data indicated that a high percentage of textually explicit questions were asked of the low groups by the in-service teachers. Most of these questions occurred during two and four block interactions. The high group was asked more textually implicit questions and the responses to these questions were supported. The low group responded with unsupported purpose or unsupported verification responses.

The wait time for the low group was less than the time given to the high group. More time for discussion was noted for the high group post story than the low group post story.

The results of the Questionnaire on Reading Lesson showed that in-service and pre-service teachers engaged in
comprehension assessment more often than in comprehension instruction.

The conclusion drawn from this study suggested that the types of teacher questions were dependent upon the length of the interaction block and reading group type. As the length of the interaction block increased, the questions for the high group became less textually explicit and more textually implicit whereas for the increased length of the interaction block for the low group, the questions remained textually explicit. The types of responses changed as the interaction block increased. For the high group more of responses were supported but for the low group most of the responses remained unsupported.

Evenson, Louise Lommen (1981) studied the effects of high level questions on social studies achievement in cooperative and competitive instructional environments to examine the differentiated effects of high level questions on fifth and sixth grade students' achievement in cooperative and competitive instructional environments. Furthermore, this study compared students who had participated in prior training design to develop cooperative group skills with students who had no prior training.

The study employed the post test only control group design. The subjects were randomly assigned to one of three experimental groups and a control group after having been stratified by sex and grade level. The treatments in this study consisted of (1) a cooperative environment in which subjects received prior training in cooperative group skills subsequent to the initiation of the instructional unit (CoPT); (2) a cooperative environment in which subjects received no prior training (Co); and (3) a competitive environment in which subjects were instructed in
the same concepts as the cooperative groups (Cm). A control group (C) worked on individualized writing skills during the experimental instruction. The four regularly assigned classroom teachers implemented the instruction and were rotated through the groups on a daily basis to control for teacher effect. Each lesson was observed by paid observers who recorded how accurately the lessons were followed and wrote narratives describing groups and individuals in the instructional environments.

The following conclusions were drawn: (1) The use of high cognitive level questions was effective in fostering recall of content, however, it was not effective in moving students to higher level understandings. (2) Being assigned to a cooperative instructional environment did not foster significantly superior results in achievement compared to the achievement in the competitive environment. (3) Prior training in cooperative group skills did not enhance the ability of students to achieve at a higher level than students who did not participate in prior training.

Salenger, Hyman Kenneth (1981) investigated the relationship between the quality and quantity of teachers' verbal questions and student achievement. Twenty teachers in nine high schools in New York State agreed to participate in the study. Each teacher recorded three typical class lessons with American History (11th grade) Regents Level classes.

Each question was classified according to Bloom's Taxonomy categories of knowledge, comprehension, application, analysis, synthesis, or evaluation. Questions in the knowledge category were identified as lower cognitive questions. All other categories were identified as higher cognitive questions.
The question categories of all three lessons were combined to establish a mean frequency for each category, i.e., lower cognitive questions, all higher cognitive questions, and overall questions. Teachers were then identified as high, middle, or low based upon the mean frequency in each of three categories.

The student achievement scores in American History were obtained for the classes of the participating teachers from New York State Comprehensive Regents Examination in Social Studies. Questions on the examination were classified as lower cognitive or higher cognitive by independent judges. In all, 1160 student scores were recorded for both types of questions as well as a student's overall score.

The conclusions drawn were: (1) In this study teachers' use of questions, either higher or lower cognitive, had no effect on student scores on the Regents Examination in Social Studies. (2) The frequency of questions in the classroom could be considered a forecast of either a lecture or discussion lesson. That is, a high frequency of questions especially higher cognitive questions, by the teacher generated greater discussion, while a low frequency tended to lead to more teacher talk. (3) The data in this study indicated that teachers who used lower cognitive questions more frequently, did so on a more consistent basis for all three lessons. The comparison of means and clustering about the mean indicated that the frequency of questions asked in the knowledge category placed 70 percent of teachers within one standard deviation of the mean. (4) The results of this study lead to the conclusion that a scripted design would have been better in attempting to establish a relationship between teacher questioning style and student achievement. (5) In this study were the Regents Examination used as a standardized test, it was concluded that the examination was
not the right instrument to determine student ability to deal with higher order cognitive questioning.

Meinbach, Anita Joyce Meyer (1982), University of Miami, studied the impact of higher order questioning based on commercial T.V. shows upon the critical thinking skills of fifth grade elementary school children to explore: (1) the effect of higher order questions based on commercial television programs upon the critical thinking skills of fifth graders. (2) whether the effect produced from a treatment of six questions was different from that produced from twelve questions. (3) whether the effect of questions based on drama programs was different from that based upon comedy programs.

The results drawn were: (1) A positive relationship exists between treatments and scores on the Ross Test when treatment groups were combined for analysis (2) No difference exists between the performances of the groups based on the number of questions asked -12 questions versus six questions. (3) No difference exists between the performances of the groups based on the type of programs upon which questions were based. Thus, the use of higher order questions, based on commercial television programs, has a positive effect upon the critical thinking skills of those tested. Parents and educators can use the motivating nature of television to help stimulate the cognitive skills of children through questioning.

Downing, Jan Ellen (1993) carried out an investigation of pre-service teachers' science process skills and attitude to the use of questioning strategies in a demonstration science discovery lesson.
The population of the study consisted of 89 elementary education majors enrolled in the class EDE 3133 Science for Children at Mississippi State University during the Fall 1991, Spring 1992, and Summer 1992 semesters. All enrolled pre-service teachers were administered the Test of Integrated Process Skills II (TIPS II) and the Science Attitude Scales (SAS). For each test, only those pre-service teachers who scored in the top third and bottom third of all scores obtained were used for this study. The purpose of this procedure was to ensure a wide margin between the comparative groups. Each subject was video-taped demonstrating a science discovery lesson to peers and was evaluated by the investigator. Pearson product moment correlations, which ranged from .965 to 1.000, were established for the reliability of the investigator’s data results measuring convergent/divergent and low level/ high level question types. Validity was measured with 95% agreement between the investigator and a professional in the area of questioning strategies when both independently assessed 30 questions for convergent/divergent and low level / high level question types.

On the basis of analysis, the following findings were reported:

In the first analysis, the High TIPS II group asked significantly more questions during the science lesson than did the Low TIPS II group. In the second analysis, a significant difference in the use of divergent, high-level, and divergent/high-level questions was determined. The High TIPS II group asked significantly more divergent, high level, and divergent/high level questions than did the Low TIPS II group. The third analysis determined no significant difference between attitude and the total number of questions.
asked between the High and Low SAS groups. Analysis four
determined no significant difference between attitude and the
types of questions asked during the practice teaching
performance of the High and Low SAS groups.

Kaushal (2001) studied the Effects of Classroom
Questioning Behaviour Training (CQBT) on Teaching Competence
of Student Teachers and Pupil Achievement.

Pre-test post-test group design has been employed and
the classroom behaviour and teaching competence of the student
teachers were observed employing the classroom questioning
behaviour observation system (CQBOS) and teaching competence
scale(Jangira, Passi and Lalita). There were 40 Social Science
student teachers studying in MLRS College of Education, Charkhi-
Dadri and K.M. College of Education Bhiwani. The main
conclusions drawn by the researcher with regard to effectiveness of
classroom questioning behaviour training (CQBT) were:

1. The Classroom Questioning Behaviour Training helps
   in increasing the incidence of classroom questions as is
   clear from the significant difference at 0.01 level of
   significance in the control and the experimental
groups.

2. The classroom Questioning Behaviour Training helps
   to improve the structural characteristics e.g. relevance,
   precision, grammatical correctness and clarity, of
   questions used by the student teachers in the
   classroom.

3. There is no effect of CQBT on the incidence of
   classroom questions at memory level, because there
was found no significant difference between the scores of the control and the experimental groups.

4. CQBT was found effective in increasing the incidence of questions at levels higher than cognitive memory level i.e. at convergent, divergent and evaluation levels. Thus, CQBT has been found as an effective teaching model.

5. The study has revealed that CQBT improves the delivery behaviour of student teachers pertaining to classroom questions. Significant effect was found on speed, voice and pause of student teachers who underwent training in classroom questioning behaviour as compared to those who did not undergo such training.

6. The CQBT helps in improving the question distribution behaviour of student teachers with regard to space, volunteers and non-volunteers.

7. The CQBT improves the pupil response patterns in the experimental groups as compared to the control group.

8. The pupil response management behaviour viz. acceptance, rejection, prompting and seeking further information etc., of student teacher was found as improved through CQBT. Adequate and appropriate management of pupils’ response helps in enhancing the percentage of correct responses in the classroom.
9. CQBT helps in enhancing the teaching competence of student teachers as compared with the control group of student teachers.

Sushila (2001) studied the Effect of Classroom Questioning Behaviour Training Using games on Teaching Competence and Pupils’ Achievement. The main objectives of the study were to study the classroom questioning behaviour of student teachers in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours of student-teachers before and after the training in classroom questioning behaviour with and without gaming. The investigator also compared the teaching competence of student teachers with and without training for classroom questioning behaviour. She also compared the teaching competence of student teachers trained with and trained without gaming.

The study was conducted on a sample of 60 student teachers in the subject of teaching of Hindi selected randomly from C.R. College of Education, Rohtak, Vaish College of Education, Rohtak and G.B. College of Education, Rohtak. These 60 student teachers were divided into three groups Control Group (C1) Experimental Groups (E1 & E2) of student teachers each 20 in numbers. 20 student-teachers of one college were randomly assigned to control group (c) and 20 of other two were assigned to experimental groups E1 and E2.

The study involves three treatments. Treatment T1 refers to conventional programme of student teaching Treatment T2 refers to classroom questioning behaviour training using systematic
feed back. Treatment T3 refers to CQBT using gaming. Pretest post test control group design was employed in two phases.

On the basis of the findings of the following conclusions were drawn. Firstly, it is possible to modify classroom questioning behaviour of student-teachers along with desired lines with training for classroom questioning behaviours with and without gaming used in the present study. Secondly, the teaching competence of student-teachers can be improved with the training for classroom questioning behaviour with and without gaming. Thirdly, improved classroom questioning behaviour and consequents improved teaching competence influences pupil achievement in Hindi. This provides validation of the training with and without gaming and this particular components of teaching training.

2.1.1 INCIDENCE OF CLASSROOM QUESTIONS

The incidence of classroom questions refers to their occurrence per teaching unit or per unit time. In India, Buch and Santhaman (1970), Buch and Quraishi (1970), Buch (1975), Verma & Ansari (1975) and Mehta (1976) observed the classroom interaction patterns in classroom using FIACS and found TQR and percentage of tallies in category 4 (ask question) of the FIACS.

Buch and Santhanan (1970) reported 1251 tallies in category '4' ask questions (FIACS) out of the total tallies of 14786 in different categories, which is about 8.46 percent of the total tallies. The study is based on the observation of teaching following FIACS. Buch and Quraishi (1970) studied the influence pattern of male social studies teachers as determined by FIACS. It reported 1580
tallies in category `4' ask question (FIACS) out of the total tallies of 19135. This was about 8.25 percent of the total tallies. Pareek and Rao (1970) reported 1441 tallies in Category `4' (ask question - FIACS) which is 8.84 percent of the total verbal talk in the classroom and 16.16 percent of the total teacher talk. Santhanam and Quraishi (1970) studied the patterns of influence of social studies male and female teachers. They reported 2400 tallies for category `4' (ask questions - FIACS) out of a total of 22173 tallies in the case of female teachers and 1580 tallies for category 4 (ask question - FIACS) out of a total of 19133 tallies in the case of male teachers, which comes to 10.82 percent and 8.25 percent respectively.

Buch (1975) conducted a study under the co operative project on Production Teaching (COPPT). The sample consisted of 50 classroom in nine states and union territories of India. The TQR was found to be 16.32 which is lower than that of an American Teacher (26.00). Verma and Ansari (1975) reported 8.81 percent of total tallies in category `4' (ask questions) in FIACS. The TQR was 22.75. Mehta (1976) observed 114 history teachers teaching in grades 8th, 9th and 10th through FIACS. The study found a significant relationship between qualification of teachers and TQR. Further, male and female teachers did not differ significantly regarding TQR.

Admas (1964, 1975) indicated that memory questions are unduly emphasised by teachers in the classroom. A significant finding was that the high school teachers tend to ask more memory questions than did junior high school teachers. In another study, Adam (1975) found a significant relationship between the cognitive level of teachers' questions and students responses. This relation was found to be stronger in those classes and where teachers used
higher cognitive level questions than in classes where lower questions were used. Tafa and others (1964) also found significant correlation between the level of teachers questions and the level of pupils responses.

Torrance (1965) found that high creativity teachers differ significantly with regard to the mean frequency of factual and divergent questions from low creativity teachers. The low creativity teachers asked comparatively more factual questions and less divergent questions in the classroom. Schreiber (1967) studied the questions asking behaviour of teachers in detail. One of the findings of the study was that about 40 percent of teacher's questions belong to recall category. Gusrak (1967, 1968) revealed that 42 percent of teacher questions are of the recall type. He found that recall questions were asked more than half of the time (57 percent) by primary level teachers.

Davis and Tinsley (1967) observed 44 secondary student teachers. 32 of these teachers taught senior high schools and remaining 12 teachers taught in junior high schools. A teacher pupil question inventory developed by the authors was used for this purpose. The results indicate that most of the teacher and pupil questions asked in the classroom belong to the memory category. Higher categories are less frequent in the classroom. The study also found that junior high school student teachers asked more questions than did senior high school teachers in the translation, evaluation and procedure. Farley and Clegg (1969) laments the dominance of recall questions in social studies teaching.

Bartolome (1969) observed questioning behaviour of the teachers of primary reading classes and found that recall questions were more utilized in usual classrooms. He further
suggested that better teacher training techniques should be induced to improve the questioning behaviour of teachers.

Huenecks (1970) attempted to explore the difference between curriculum guide users and non-users in relation to their classroom teaching behaviour. The observation tool was based on Bloom's taxonomy of educational objectives. Non-significant difference between the frequency of questions asked at different levels by users and non-users was found. Johns (1970) found that a high percentage (54 percent) of teachers questions are memory questions and higher levels beyond interpretation are mostly neglected.

Berggey (1972) conducted a study on 108 students by preparing specially a 8-lesson unit which was taught to the students in consecutive three weeks intervals. The lesson plans defined two questioning treatments, 70 percent of higher cognitive and 30 percent of knowledge questions Vs. 30 percent of higher cognitive and 70 percent knowledge questions. Group of students were exchanged after the teaching of the first unit so as to be taught by different teachers. At the end of the study marginally statistically significant difference by location, and sex by location interactions (p>.10) were noted.

Branner (1974) observed classroom questioning behaviour of secondary school social study teachers and revealed that approximately 90 percent of the total teacher questions were at recall level requiring statement of already learned information. A high use of leading question was also observed. The common findings of these studies in India as well as in abroad is that a large portion of teacher's questions fall in the memory level category.
These studies also indicate that the incidence of divergent and evaluation level questions are negligibly small.

Kaushal (2001) while studying in incidence of classroom question before and after the classroom questioning behaviour training reported that:

1. There is no effect of CQBT on the incidence of classroom questions at memory level, because there was found no significant difference between the scores of the control and the experimental groups.

2. CQBT was found effective in increasing the incidence of questions at levels higher them cognitive memory level i.e. at convergent, divergent and evaluation levels. Thus, CQBT has been found as an effective teaching model.

2.1.2 LEVEL OF CLASS ROOM QUESTIONS

In India few studies are available relating questions levels with pupil achievement. The only study located was Kesri (1974). In an experiment he found that narrow questions helped to achieve significantly higher on knowledge test and broad questions significantly improved achievement on comprehension and application tests.

Several studies conducted abroad were, however located. Kleinman (1964) studied classroom questioning behaviour of 7th and 8th grade science teachers and found that among high ability pupils, the higher order questions produces a significant difference in achievement in comparison to low order questions. Perkins (1965) studied 5th grade teachers (N=27) and found
significant relationship between content orientedness and thought-stimulating questions and student gain. Hunkins (1968) employed two groups one of which was treated with knowledge questions (a), and the other with analysis and evaluation questions (b). The post treatment test measured the pupil's achievement in six areas of Bloom's Taxonomy. The group (a) scored significantly higher on subject for application and evaluation. In rest of the four areas no significant difference was found between the two groups.

Ryan (1974) found that among 5th and 6th graders the level of questions asked in classroom affect their achievement in geography. The high question treatment group outperformed the low question treatment and nonquestion treatment groups on posttest measurements. The nonquestion treatment group achievement had least mean scores among the three groups. Baden (1974) revealed that high use of probing questions stimulates critical thinking in third graders. Baden randomly assigned 1233 students into two groups, one of which was treated with a value conflict content and the other with standard social studies material. The treatment lasted for two weeks after which a posttest was administered.

Bedwell (1974) in his experiment applied all the six levels of Bloom's Taxonomy. The two groups of students were taken for this experiment. The first group of students received 400 of application analysis, synthesis and evaluation questions, and the second group received knowledge and comprehension level questions. Results of the study were significant at (P>.10) for all three achievement tests.

In Ghee (1975) students of two high school social problems classes were taught by the same teacher in the similar
way but not equivalent for six weeks. In one of the classes the teacher used predominantly higher cognitive questions than in the other class. Student achievement was judged by their responses to one question at each of the six levels of Bloom Taxonomy. The responses were noted for over all cognitive level. The Cornell Critical Thinking Test (Ennis Millman, 1971) was also administered before and after the unit. The study shows that higher cognitive questions tended to receive activities which stressed higher cognitive processes.

Markle (1975) divided 99 students of elementary science methods randomly into nine treatment groups. The activity centred module was identical for all the groups except for location and cognitive levels of instructional questions encountered during the lesson. Significant differences were indicated between groups receiving instructional questions and non instructional questions with regard to immediate and delayed posttests. However, differences were not found to be significant between immediate and delayed postest scores of various groups.

Turner and Durrett (1975) conducted an experimental study by a single trained teacher in a summer workshop over 14 nursery students, using Shaftal Photo problems Test (Shattel & Shaftal, 1967) and a similarities Test (Smothergill, Olson and Moore, 1971). Three treatments were applied. First treatment condition was of stressing fact questions, second higher cognitive questions, and thirdly having fact questions. Result showed that there were no differences between the pretest and postest following the first fact question treatment, but there were significantly higher scores for measures obtained after the higher level questions treatment relative to the first and the third fact questions treatment.
Marlino (1976) revealed that a significant gain in the development of student's understanding of key biological concepts depends on the level of questioning used in the classroom.

These studies concluded that the use of higher level questions by the teacher improve the achievement of pupil under him. Whereas some studies found non significant relationship between the level of questions asked and pupil achievement. Harris and Serwer (1966) revealed non significant difference between pupil achievement in relation to the frequency of high and low order questioning in Ist grade reading classes. Hasais, Monison, Serwer and Gold (1968) found that the levels of teachers questions do not affect pupil achievement in reading of second grade pupils. Winne (1979) reviewed 18 studies and found that teacher questioning behaviour has no effect on pupil achievement. Meta analysis of research on classroom questioning and pupils achieved comprising 20 studies including 18 studies reviewed by Winnes (1979), Redfield and Roussean (1981) indicated positive overall effect (7292) for predominant use of higher cognitive questions in the classroom. Friedman (1977) used modified version of Bloom's Taxonomy and an objective test to measure pupil achievement in geometry in his experimental study. Two classroom situations for each teacher were observed. The study revealed significantly difference between teacher emphasis of the memory and application levels and pupil achievement at these levels.

Kaushal (2001) while studying the level of classroom question before and after the classroom questioning behaviour training reported that:

1. There is no effect of CQBT on the incidence of classroom questions at memory level, because there
was no significant difference between the scores of the control and the experimental groups.

2. CQBT was found effective in increasing the incidence of questions at levels higher than cognitive memory level i.e. at convergent, divergent and evaluation levels. Thus, CQBT has been found as an effective teaching model at different levels.

2.1.3 TRAINING IN CLASSROOM QUESTIONING BEHAVIOUR

Hussten (1938) developed an inservice programme to improve the classroom questioning behaviours of teachers. Different techniques adopted refer to group conferences, stenographic records, self-analysis and supervisory evaluation. A pretest-postest analysis indicated significant gain.

Smith (1964, 1975) indicated that memory questions are unduly emphasized by teachers in the classroom. A significant finding was that the high school teachers tend to ask more memory questions than did junior high school teachers. In another study, Adam (1975) found a significant relationship between the cognitive level of teachers' questions and students responses. This relation was found to be stronger in those classes where teachers used higher cognitive level questions than in classes where lower questions were used. Tafa and others (1964) also found significant correlation between the level of teachers' questions and the level of pupils' responses.

Torrance (1965) found that high creativity teachers differ significantly with regard to the mean frequency of factual and divergent questions from low creativity teachers.
The low creativity teachers asked comparatively more factual questions and less divergent questions in the classroom. Schreiber (1967) studied the questions asking behaviour of teachers in detail. One of the findings of the study was that about 40 percent of the teacher's questions belong to recall category. Guszek (1967, 1968) revealed that 42 percent of teacher questions are of the recall type. He found that recall questions were asked more than half of the time (57 percent) by primary level teachers.

Taba (1966) and her co-workers developed a system of teacher training based on questioning skill. They emphasized that classroom questioning could be used to develop students ability in forming concepts, explaining cause and effect relationships and explaining implications, Rogers and Davis (1970) found that the trained teachers asked significantly higher proportion of translation and interpretation questions than untrained teachers.

Davis and Tinsley (1967) observed 44 secondary student teachers. 32 of these teachers taught senior high schools and remaining 12 teachers taught in junior high schools. A teacher-pupil question inventory developed by the authors was used for this purpose. The results indicate that most of the teachers and pupils questions asked in the classroom belong to the memory category. Higher ability categories are less frequent in the classroom. The study also found that junior high school student teachers asked more questions than did senior high school teachers in the translation, evaluation and procedure. Parlay and Clegg (1969) laments the dominance of recall questions in social studies teaching.

Bartolome (1969) observed questioning behaviour of the teachers of primary reading classes and found that recall questions were more utilised in usual classrooms. He further
suggested that better teacher training techniques should be inducted to improve the questioning behaviour of teachers.

Huenecks (1970) attempted to explore the difference between curriculum guide users and non-users in relation to their classroom teaching behaviour. The observation tool was based on Bloom's taxonomy of educational objectives. Non-significant difference between the frequency of questions asked at different levels by users and non-users was found. Johns (1970) found that a high percentage (54 percent) of teachers questions are memory questions and higher levels beyond interpretation are mostly neglected.

Berggey (1972) conducted a study on 108 students by preparing specially a 8-lesson unit which was taught to the students in consecutive three weeks intervals. The lesson plans defined two questioning treatments, 70 percent of higher cognitive and 30 percent of knowledge questions Vs 30 percent of higher cognitive and 70 percent knowledge questions. Group of students were exchanged after the teaching of the first unit so as to be taught by different teachers. At the end of the study marginally statistically significant difference by location, and sex by location interactions were noted.

Pangotra (1972) using a pretest-postest experimental design, found that the experimental group asked more questions while guiding the content oriented part of the class discussion. Jangira (1974), 1979, 1980) found a significant difference between TQR means of control and experimental groups immediately after the classroom behaviour training. The significant difference in TQR was present even after two weeks and seventeen weeks of the training. Jangira also emphasized the trainability and
transferability of the teaching behaviours. Vasishtha (1976) observed 120 student teachers studying in Secondary teacher education institutions who have offered science and mathematics as their teaching subjects. It was found that training in interaction analysis produces a significant gain in teacher question ratio. A number of studies have shown the effectiveness of microteaching approach in modifying teacher behaviour including questioning skills (Rassi and Shah, 1974, Das, 1976, 1978, 1982).

Besides (1973) divided sixteen teachers into two groups. One group was the treatment group which received feedback from their supervisors and the second group being the control group not receiving any feedback, their performance being recorded by the supervisors. For conducting the study the author gathered observational data on the use of teachers questions while teaching. Significant relationship was found between the training condition and the use of more divergent questions relating to convergent questions over the eight week period (>10).

Galloway and Mikelson (1973) experimentally proved that high percentage of memory level questions can be decreased through training student teachers in various questioning processes particularly in accordance with the taxonomy of educational objectives. It was found that student teachers used a high percentage of higher cognitive questions involving cognitive functions.

Bramner (1974) observed classroom questioning behaviour of secondary school social study teachers and revealed that approximately 90 percent of the total teacher questions were at recall level requiring statement of already learnt information. A high use of leading question was also observed. The common
findings of these studies in India as well as in abroad is that a large portion of teacher's questions fall in the memory level category. These studies also indicate that the incidence of divergent and evaluation level questions are negligibly small.

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obtained after the higher level questions treatment relative to the first and the third fact questions treatment.

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These studies concluded that the use of higher level questions by the teacher improve the achievement of pupil under him. Whereas some studies found non-significant relationship between the level of questions asked and pupil achievement. Barris and Serwer (1966) revealed non-significant difference between pupil achievement in relation to the frequency of high and low order questioning in Ist grade reading classes. Hassis, Monison, Serwer and Gold (1968) found that the levels of teachers' questions do not affect pupil achievement in reading of second grade pupils. Winne (1979) reviewed 18 studies and found that teacher questioning behaviour has no effect on pupil achievement. Meta analysis of research on classroom questioning and pupils achieved comprising 20 studies including 18 studies reviewed by Winnes (1979), Redfield and Roussean (1981) indicated positive overall effect (No. of Questions 7292) for predominant use of higher cognitive questions in the classroom.

Friedman (1977) used modified version of Bloom's Taxonomy and an objective test to measure pupil achievement in geometry in his experimental study. Two classroom situations for each teacher were observed. The study revealed significant difference between teacher emphasis of the memory and application levels and pupil achievement at these levels. Boller (1973) randomly selected 8 third and 8 fourth grade students and assigned them to the control and experimental groups. The
experimental group participated in activity sessions of half four for six days. These sessions involved pupils in problem solving and asking questions for searching the solution. The posttest examined the questioning strategies of both 3rd and 4th graders. It was found that experimental group and control group differ significantly on the posttest criterion measures. Martikean (1974) reported non-significant difference in performance on criterion tests above knowledge level between groups of students treated with different levels of questions.

Sushila(2001) conducted the Study, "Effect of Classroom Questioning Behaviour Training Using Games on Teaching Competence and Pupils' Achievement". The objectives of the study were; (i) To study the initial classroom questioning behaviour of student-teachers in respect of the incidence of questions, structural characteristics of questions, question distribution behaviours, and pupil response management behaviours of student-teachers. (ii) To study at the end of training the classroom questioning behaviour of student-teachers in respect of the incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours of student-teachers. (iii) To study at the end of training by using games of the classroom questioning behaviour of student-teachers in respect of the incidence of questions, structural characteristics of questions, question delivery behaviour, question distribution behaviours and pupil response management behaviours of student-teachers. (iv) To study the change in classroom questioning behaviour of student-teachers after classroom questioning behaviour training in respect of incidence of questions, structural characteristics of questions, question delivery
behaviours, question distribution behaviours and pupil response management behaviours of student-teachers. (v) To study the change in classroom questioning behaviour of student-teachers after classroom questioning behaviour training by using games in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours of student-teachers. (vi) To compare the classroom questioning behaviours of student-teachers before and after the classroom questioning behaviour training in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours, question distribution behaviours, question distribution behaviours and pupil response management behaviours of student-teachers with and without training. (vii) To compare the classroom questioning behaviours of student-teachers after the classroom questioning behaviour training by using games in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, questions distribution behaviours and pupil response management behaviours of student-teachers trained with and without gaming. (viii) To compare pupil achievement in Hindi grammar in the groups of student-teachers with and without classroom questioning behaviour training. (ix) To compare pupil achievement in Hindi grammar in groups of student-teachers with classroom questioning behaviour training by using games and training without gaming. (x) To compare the teaching competence of student-teachers with and without training for classroom questioning behaviour. (xi) To compare the teaching competence of student-teachers trained with and trained without gaming. She conducted the study on a sample of 60 student teachers selected from three Colleges of Education at Rohtak. The study
involves three treatments. Treatment T1 refers to the conventional programme of student teaching. Treatment T2 refers to the Classroom Questioning Behaviour Training using systematic feedback. Treatment T3 refers to the CQBT using gaming. Pretest-posttest control group design was employed in the study in two phases. The design envisages three groups of student-teachers two serving as the experimental groups i.e. E1 and E2 one 'C' as control group. All the groups were to start with usual student teaching programme i.e. treatment T1. After the stabilization of their teaching behaviours over a period of two weeks of student teaching, their classroom behaviour and teaching competence were to be observed using the Classroom Questioning Behaviour Observation System (CQBOS) and Teaching Assessment Battery (TAB) respectively. After pre-training measurements, the experimental Group E1 was to receive treatment T2 and Experimental Group E2 was to receive treatment T3 for 21 days. Immediately after treatment T2 and T3 both the groups of student-teachers were to continue with their student teaching programme for four weeks. On the very first day of their teaching practice, the student-teachers and the investigator were to administer the intelligence test and achievement test to the pupils under the charge of student-teachers in the control and experimental groups. Post-training observation for assessing classroom questioning behaviour and teaching competence of student-teachers were to be taken. Simultaneously, the design envisaged administration of achievement test to the pupils as a posttest measure under the charge of three groups of student-teachers.

The main conclusions of the study were; it is possible to modify classroom questioning behaviour of student-teachers
along with desired lines with training for classroom questioning behaviours with and without gaming. The teaching competence of student-teachers can be improved with the training for classroom questioning behaviour with and without gaming. Improved classroom questioning behaviours and consequents improved teaching competence influences pupil achievement in Hindi. This provides validation of the training with and without gaming and this particular components of teacher training.

Kaushal (2001) while studying the effectiveness of classroom questioning behaviour training on a sample of 40 student teachers which as measured in terms of change in the classroom questioning behaviour of student teachers and enhancement in teaching competence reported:

1. The Classroom Questioning Behaviour Training helps in increasing the incidence of classroom questions as is clear from the significant difference at 0.01 level of significance in the control and the experimental groups. The classroom Questioning Behaviour Training helps to improve the structural characteristics e.g. relevance, precision, grammatical correctness and clarity, of questions used by the student teachers in the classroom.

2. There is no effect of CQBT on the incidence of classroom questions at memory level, because there was found no significant difference between the scores of the control and the experimental groups. CQBT was found effective in increasing the incidence of questions at levels higher than cognitive memory level i.e. at
convergent, divergent and evaluation levels. Thus, CQBT has been found as an effective teaching model.

3. The study has revealed that CQBT improves the delivery behaviour of student teachers pertaining to classroom questions. Significant effect was found on speed, voice and pause of student teachers who underwent training in classroom questioning behaviour as compared to those who did not undergo such training.

4. The CQBT helps in improving the question distribution behaviour of student teachers with regard to space, volunteers and non-volunteers. The CQBT also improves the pupil response patterns in the experimental groups as compared to the control group.

5. The pupil response management behaviour viz. acceptance, rejection, prompting and seeking further information etc., of student teacher was found as improved through CQBT. Adequate and appropriate management of pupils’ response helps in enhancing the percentage of correct responses in the classroom.

6. CQBT helps in enhancing the teaching competence of student teachers as compared with the control group of student teachers.
2.2 STUDIES RELATED TO TEACHING COMPETENCE, SELF–CONCEPT AND TEACHING ATTITUDE

A. TEACHING COMPETENCE

Gage's (1968) observed that teaching skills are specific instructional techniques and procedures that a teacher may use in the classroom. They represent an analysis of the teaching process into relatively discrete components that can be used in different combination in the continuous flow of the teachers’ performance. It is not essential that a popular teacher among his or her students is also a good or competent teacher, but a competent teacher is one whose students have better knowledge about the subject matter.

Aggarwal (1969) conducted a study on measurement of competence of teachers of Primary schools of M.P. The major objectives of the study were (i) to develop and validate a tool to measure the competence of teachers on process criteria and measure their teaching competence, (ii) to assess the classroom teaching competence of teachers with reference to product criteria, (iii) to measure intelligence, teaching abilities and subject knowledge of teachers as presage criteria. The study revealed (i) more than 53% of the teachers were not intelligent enough to be teachers and intelligence was significantly and positively related to subject knowledge (r = 0.42) (ii) of the primary teachers 52.6% did not like teaching profession and their attitude was significantly related to competencies of classroom teaching and (iii) 70% of the teachers passed in their third division and about 50% teachers did not possess adequate knowledge of subject to be able to teach competently.
An extensive study conducted by Ryan (1969) was concerned with the identification of characteristics of teachers in general and able teachers in particular. Observations were made in classroom, responses to personality inventories were recorded, interviews were conducted and life history information was gathered. Emphasis was placed upon both the intellectual and personality assessment of the teachers. Detailed assessment of superior teachers indicated that they seemed to be exceptional with regard to intellectual ability, personality adjustment and social interest and effectiveness. They have a strong liking for children and a personal admiration for such human characteristics as friendliness, permissiveness and fairness. The study of teachers attitude (Arora, 1976 and Goyal, 1980) rated low in effectiveness, suggested that they possessed a critical attitude towards others less interest in social relationship and less favourable attitude towards pupils.

From the results, it is evident that effective teachers have some distinguishing characteristics, though there is no unanimity about them.

Koul (1972) conducted a factorial study of certain personality variables of popular teachers in secondary schools. He found that the popular teachers had a favourable attitude towards teaching in schools and so they may be expected to maintain a state of harmonious relationship with their pupils characterised by mutual affection and sympathetic understanding. He also found that popular teachers were effective in their work as teaching.

Verma and Ansari, (1975) conducted study on How did the teacher’s competence affect their everyday teaching in the classroom and the educational outcomes were a significant issue.
The effective and ineffective classroom behaviour of teacher had differential influence on student behaviour and reported that the effective teachers had more indirect influence, student initiation, teacher response ratio; and pupil study state ratio whereas ineffective teachers had more direct teacher talk, silence or confusion and non-stimulating situation in classroom. In the effective teachers’ teaching, student response and initiation were followed by teacher’s praise and accepting feelings, whereas in ineffective teachers teaching, student response and initiation were followed by direction and authority. The effective teachers used more creative teaching methods.

Commonwealth Report (1974) also states that to be a competent teacher, “the teacher must have knowledge of child development, of the material to be taught and suitable methods of teaching it, of the culture of his pupils (which may not be his own and of some interest of his own), his skills must enable him to teach, advice and guide his pupils, community and culture with which he is involved, his attitudes should be positive without being aggressive so that his example is likely to be followed as he transmits explicitly and implicitly the national aims and ideals and moral and social values”.

The effective teaching of the teacher plays an important role in making him or her a competent teacher. The schools having good and effective teachers can succeed in reshaping the country. Good teachers are responsible for increasing the quality of the nation’s citizens because the quality of a nation is judged by the quality of its citizens. The latter is mostly determined by the educational system in the nation, which in turn is decided by what type of teacher it has.
Lakshmi (1977) studied the effect of achievement motivation on self-perception on a sample of fifty student teachers out of which twenty five forms the experimental group and twenty five the control group. These groups were matched on intelligence scores. It was reported that there is significant improvement in self-concept and perception of self was marked by the implementation of the input self. Self-concept was meaningfully related to n-achievement student teachers with high and low self-concept revealed significant gains in n-achievement.

Singh (1978) studied creativity in school teachers as measured by Mehdi’s tests of creativity in relation to their self-concept, attitude towards teaching and classroom verbal interaction. The objectives related to self-concept were: (i) to find out the relationship between creativity in teachers and their self-concept and (ii) to study the relationship between teacher’s classroom verbal interaction and their self concept. It was reported that: (i) there was a positive and significant relationship between verbal creativity in teachers and their self-concept, (ii) There was no significant relationship between indirect/direct (I/D) teaching behaviour of teachers and their self-concept. (iii) There was a positive and significant relationship between teacher’s self-concept and encouragement of student talk by them and (iv) there was a positive concept and their divergent questions, using student ideas and silence on account of student’s thinking.

George and Anand (1980) studied the effect of microteaching on teaching self-concept and teaching competence of student teachers. The main objectives were: (i) to study the effect of micro-teaching on teaching self-concept of student teachers in the control group and experimental group separately and (ii) to study
the effect of micro-teaching as well as integration of skills on teaching competence of student teachers. Micro-teaching was treated as independent variable, and teaching self-concept and teaching competence of student teachers were treated as dependent variables.

The sample consisted of twenty student teachers, selected from a group of sixty willing student teachers from a training college in Shillong. They were divided into two groups of ten each as control and experimental groups. The matching was done based on intelligence, sex, age, qualification and teaching experience. For equating them on intelligence, the culture fare intelligence test (Scale 3) was used. Indore Teaching Competence Scale (ITCS was used for finding out the teaching competence of student teachers in terms of integration of teaching skills. Observation schedules and rating scales relating to the five basic skills—skills of probing questions stimulus variation, reinforcement, explaining, and illustrating with examples, were utilized for giving feedback during microteaching treatment. A self-rating Teaching Self-Concept Scale (TSCS) was used for measuring teaching self-concept of student teachers. The TSCS was constructed especially for use in the present study. Means and standard deviations were computed for the pretest, posttest and gain scores on TSCS and IYCS for control group and experimental group. Significance of the difference between means were tested using t-test for correlated data.

Major findings of the study were: (i) There was significant difference between the pretest and the posttest mean teaching self-concept scores of the control group of student teachers.
(ii) There was significant difference between the pretest and the posttest means teaching self-concept scores of the experimental group of student teachers. (iii) There was significant difference between the mean gain scores in teaching competence of the control group and the experimental group of student teachers. (iv) Micro-teaching facilitated enhancement of the teaching self-concept of student teachers. (v) Micro-teaching proved effective in improving the teaching competence of student teachers. (iv) Micro-teaching treatment followed by summated strategy of integration of teaching skills was found superior to micro-teaching treatment based on independent teaching skills in improving the teaching competence of student teachers.

Mathew R. (1980) attempted to identify desirable teaching competencies of a physics teacher in context of presage, process and product variables. The study adopted two approaches, the different presage, process and Product variables of teaching were measured and factor-analysed to arrive at the sets of desirable teaching competency. Secondly views of the students of physics teachers were content analysed and a profile of competent physics teacher was developed. Different variables included in the study were four presage variables, 86 teacher classroom behaviours under process variable one product variable. Four presage variables studied were intelligence, teacher’s attitude towards teaching, teacher’s self-perception of classroom behaviour. The product variable was student liking of their teacher. Major findings of the study were: firstly, fourteen factors were identified and interpreted as general teaching competencies which were: competency of teachers concern for students, competency of using audio-visual aids, competency, of professional perception, competency of illustrating with examples, pacing while introducing, logical
exposition, classroom management, use of questions, initiating pupil participation, use of blackboard, recognition of attending behaviour, achieving closure, giving assignments. Secondly, opinions expressed by students gave nineteen teaching behaviours liked by students such as interest, curiosity, difficult questions, clear explanation, keeping students attentive, pace of teaching, experiments, interesting examples etc. Thirdly, the competencies identified through factor analysis rated closely with those expected of teachers by students.

Rama (1980) identified teaching competencies among secondary schools teachers addressing the questions of desirable competencies required of a physics teacher of Standard IXth and also specific teacher behaviour describing each of these competencies. In order to answer these questions the study adopted two approaches. First, the different presage, process and product variables were factor analysed to arrive at a set of desirable teaching competencies and second the views expressed by the students of the physics teachers were content analysed and a profile of competent physics teacher was developed in order to validate the findings of the first method. The results showed that 14 factors accounted for 68.30% of total variance. The varimax rotated factors were (i) general teaching competency (ii) competency of teachers' concern for students (iii) competency of using audio-visual aids (iv) competency of professional perception (v) competency of giving assignments (vi) competency of illustrating with examples (vii) competency of logical exposition (viii) competency of classroom management (ix) use of questions (x) competency of use of questions (xi) competency of use of blackboard (xii) competency of initiating pupil participation (xiii) competency of recognizing attending behaviour (xiv) competency of achieving closure.
Competent teachers planned lessons in ways that helped students in relating new information to existing knowledge and integrated the instructions across content areas. They also planned curricular materials in a way that engaged students’ interests and were appropriate for students’ abilities and needs (Osborn, Jones and Stein, 1985; Taylor and Valentine, 1985; Porter and Brophy, 1988). Mandeville and Liu (1997) tested over 9,000 seventh grade students from 33 matched pairs of schools whose mathematics teachers differed on level of preparation. The students under high preparation and planning teachers outperformed those under low preparation teachers on the higher-level tasks. In a study of 135 male teachers and 2839 students of class IX in Udaipur. Singh (1981) observed that a successful teacher was able to induce learning, develop interests and foster desirable attitudes in his students, both by his teaching in the classroom and by his exemplary conduct in different social situations. An unsuccessful teacher, on the other hand, produced little subject learning, developed aversion to the subject, created misunderstandings and fostered undesirable attitudes.

Little research existed on how effective teachers responded to student misconduct. In general, competent teachers dealt effectively with discipline problems ignoring minor distractions and instances of inattention, movement through the classroom or comments to the disruptive student (Taylor and Valentine, 1985). They talked to misbehaving students in private and tried to get the student to accept responsibility for the behaviour and to make a commitment to change (Brophy, 1987). As a last resort only competent teachers invoked punishments (Bidefeldt, 1988).
Passi and Sharma (1982) studied teaching competency of secondary school teachers in Indore. The objectives of the investigation were (i) to study the relationship between teachers demographic variables, sex and age at secondary level (ii) to study relationship between other presage variables such as teachers attitude towards teaching, interest in teaching, self-perception with teaching behaviour and intelligence and teaching competency (iii) to study the relationship between teaching competency of secondary school teachers in terms of academic achievement and pupil liking of the teacher behaviour of their teachers (iv) to develop instructional material for one of the identified teaching competency. The findings of the study were as follows:-

(i) The competencies identified were: Giving assignments, loud reading, clarification, secondary loud reading, using blackboard, using reinforcement, pacing, avoiding repetition, consolidating the lesson, dealing with pupil responses, improving pupils' behaviour, audibility, using secondary reinforcements, recognizing pupils' attending behaviour, presenting verbal mode and shifting sensory channel. (ii) Male and female teachers did not differ in competency. There was a significant negative correlation between the self-perception of language teachers and teaching competency. (iii) There was a significant positive relationship between teachers teaching competency and liking of their pupils of their teaching behaviour.

Interactions with colleagues could improve teaching competency. Patel, (1984) involved eight science teachers in the study spanning over a period of six months and noted that the discussions and guidance from colleagues resulted in 11% increase in the capacity for presentation and capacity for class-control. A
15% increase was noted in capacity for co-ordination of different teaching skills, in ability and habit of using audiovisual aids for effective teaching and increase in interest in practical and written work of the pupil, and a 10% increase in knowledge of content.

Choudhary (1990) investigated the relationship of the teaching competencies of 178 secondary school teachers with the pupil achievement. The six teaching competencies of structuring questions, reacting to extend pupil though, clarity in explanation, intensive reading, sustaining pupil attention and giving assignments were positively associated with pupil achievement in English. Teachers’ way of structuring questions was important in influencing pupil’s liking for the teacher.

Kumar S. (1991) studied teacher effectiveness among different group of teachers in relation with personality traits. The objectives of the study were to determine teacher effectiveness among different groups-of teachers - Arts, Commerce and Science correlate it with personality traits. The results of the study show that no relationship exists between teacher effectiveness and personality traits.

Thiagarajan et al (1995) studied the relationship between teacher competency as perceived by students and achievement in Economics as a function of sex. Findings revealed a significant correlation between teaching competency and achievement. The magnitude of correlation was different in boys and girls.

Arora, G. L., Singh, A. (2000) while assessing the primary teachers training needs revealed that teachers turned out by teacher training institutes are by and large ill-prepared for tasks
they are required to perform in schools. Studies revealed that they get reality shocks when they assume positions in schools after completing initial teacher training (Muller - Fohrbrodt et al, 1978). This is perhaps due to the fact that their training was far removed from the real work place situation of teachers. The professional training need emanates from the gap between the actual performance and the desired level of performance. Need is a discrepancy between what is and what ought to be.

Kaushal (2001) while studying the effectiveness of classroom questioning behaviour training on a sample of 40 student teachers which as measured in terms of change in the classroom questioning behaviour of student teachers and enhancement in teaching competence reported that CQBT helps in enhancing the teaching competence of student teachers of experimental group as compared with the control group of student teachers.

Sushila (2001) studied the Effect of Classroom Questioning Behaviour Training Using Games on Teaching Competence and Pupils’ Achievement. The main objectives of the study were as under:

1. To study the initial classroom questioning behaviour of student- teachers in respect of the incidence of questions, structural characteristics of questions, question distribution behaviours, and pupil response management behaviours of student- teachers.

2. To study at the end of training the classroom questioning behaviour of student- teachers in respect of the incidence of questions, structural characteristics of questions, question delivery
behaviours, question distribution behaviours and pupil response management behaviours of student-teachers.

3. To study at the end of training by using games of the classroom questioning behaviour of student-teachers in respect of the incidence of questions, structural characteristics of questions, question delivery behaviour, question distribution behaviours and pupil response management behaviours of student-teachers.

4. To study the change in classroom questioning behaviour of student-teachers after classroom questioning behaviour training in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours of student-teachers.

5. To study the change in classroom questioning behaviour of student-teachers after classroom questioning behaviour training by using games in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours of student-teachers.

6. To compare the classroom questioning behaviours of student-teachers before and after the classroom questioning behaviour training in respect of
incidence of questions, structural characteristics of questions, question delivery behaviours, question distribution behaviours and pupil response management behaviours, question distribution behaviours and pupil response management behaviours of student-teachers with and without training.

7. To compare the classroom questioning behaviours of student-teachers after the classroom questioning behaviour training by using games in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, questions distribution behaviours and pupil response management behaviours of student-teachers trained with and without gaming.

8. To compare pupil achievement in Hindi grammar in the groups of student-teachers with and without classroom questioning behaviour training.

9. To compare pupil achievement in Hindi grammar in groups of student-teachers with classroom questioning behaviour training by using games and training without gaming.

10. To compare the teaching competence of student-teachers with and without training for classroom questioning behaviour.

11. To compare the teaching competence of student-teachers trained with and trained without gaming.
The Student-teachers were taken from C.R. College of Education, Rohtak, Vaish College of Education, Rohtak and G.B. College of Education, Rohtak. There were 70 Hindi student-teachers in the colleges during the session. Out of these 70 Hindi student-teachers, the investigator selected randomly 60 student-teachers for the study.

These 60 selected student-teachers were divided into three groups each consisted of 20 student-teachers. These groups were further divided into the Control Group (C) and experimental Groups E1 and E2 of student-teachers each 20 in numbers. 20 student-teachers of one college were randomly assigned to control group (c) and 20 of other two were assigned to experimental groups E1 and E2 each.

The sample of pupils was incidental in the sense that pupils in the classes under the charge of student-teachers in the experimental and control groups were taken as the sample. The pupils in these classes ranged between 12-15 years. 900 pupils took intelligence as well as achievement test.

The study involves three treatments. Treatment T1 refers to the conventional programme of student teaching. Treatment T2 refers to the Classroom Questioning Behaviour Training using systematic feedback. Treatment T3 refers to the CQBT using gaming. Pretest-postest control group design was employed in the study in two phases. The design envisages three groups of student-teachers two serving as the experimental groups i.e. E1 and E2 one 'C' as control group. All the groups were to start with usual student teaching programme i.e. treatment T1.
After the stabilization of their teaching behaviours over a period of two weeks of student teaching, their classroom behaviour and teaching competence were to be observed using the Classroom Questioning Behaviour Observation System (CQBOS) and Teaching Assessment Battery (TAB) respectively. After pre-training measurements, the experimental Group E1 was to receive treatment T2 and Experimental Group E2 was to receive treatment T3 for 21 days. Immediately after treatment T2 and T3 both the groups of student-teachers were to continue with their student teaching programme for four weeks. On the very first day of their teaching practice, the student-teachers and the investigator were to administer the intelligence test and achievement test to the pupils under the charge of student-teachers in the control and experimental groups. Post-training observation for assessing class-room questioning behaviour and teaching competence of student-teachers were to be taken. Simultaneously, the design envisaged administration of achievement test to the pupils as a postest measure under the charge of three groups of student-teachers.

To test the significance of difference between classroom questioning behaviour and teaching competence scores of the control group and experimental groups E1 and E2 of the student-teachers ‘t’-test was employed. ‘t’-test was also employed for testing the significance difference between the achievement of control group and experimental groups E1 and E2 before and after the experiment.
Main Findings:

The findings of the study were grouped into two categories. The first category enlists findings relating to training effectiveness which was again measured in terms of change in the classroom questioning behaviour of student-teachers and increments in general teaching competence. The second set of findings are related to pupil achievement in Hindi under the charge of the experimental groups (E1 and E2) and control group of student-teachers. The two sets of findings have been summarised in this Section.

Training Effectiveness: The main findings of the study regarding training effectiveness are summarised below:

1. The classroom Questioning Behaviour Training does not help in increasing the incidence of classroom questions, as is evident from the significance difference at .01 level in the experimental groups (E1 and E2) and control group.

2. The Classroom Questioning Behaviour Training does not help in increasing the incidence of classroom questions at memory level. The non-significant difference between the scores of the experimental groups (E1 and E2) and the control group of student-teachers provides testimony to this fact.

3. The student-teachers with Classroom Questioning Behaviour Training with and without gaming has the potentiality to increase the incidence of questions at level higher than cognitive memory level. The incidence of
classroom questions at cognitive memory level, convergent application level, divergent application level and evaluation level provide the evidence.

4. The Classroom Questioning Behaviour Training with and without gaming help in improving the structural characteristics, namely, relevance, precision, grammatical correctness and clarity of questions used by the student-teachers in the classroom.

5. It has been found that the experimental groups (E1 and E2) of student-teachers have shown significant improvement in their process behaviours relating to delivery of classroom questions namely, speed, voice and pause after CQBT with and without gaming than their counterparts in the control group of student-teachers. So CQBT with and without gaming is effective in this respect as well.

6. Classroom Questioning Behaviour Training with and without gaming does change the question distribution behaviours, namely, space, volunteers and non-volunteers of student-teachers.

8. Classroom Questioning Behaviour Training with and without gaming improves the pupil response management behaviours, namely, acceptance, rejection, prompting and seeking further information, etc. of student-teachers. Proper management of pupil's responses help in increasing the percentage of correct responses in the classroom.
9. The student-teachers with Classroom Questioning Behaviour Training with and without gaming has the potentiality to score significantly higher on teaching competence variables than their counterparts with conventional programme of student teaching.

Pupil Achievement: The main finding of the study regarding pupil achievement in Hindi are summarised below:

1. The pupils under the student-teachers with Classroom Questioning Behaviour Training with and without gaming Scored significantly higher on their achievement in Hindi than the pupils under the student-teachers without CQBT.

2. The pupils under the control and experimental groups (E1 and E2) of student-teachers do not differ significantly on their achievement in Hindi at the cognitive memory level. It implies that the achievement level remains same irrespective of student-teachers exposure of CQBT with and without gaming.

3. The pupils under the control and experimental groups (E1 and E2) of student-teachers differ significantly on their achievement in Hindi at convergent application level.

4. The pupils under the experimental groups (E1 and E2) of student-teachers improve significantly higher on their achievement in Hindi at divergent level than the pupils under the control group of student-teachers following conventional programme of student teaching.
5. The pupils under the experimental group of student-teachers with training for classroom questioning behaviour with and without gaming score significantly higher on achievement in Hindi at evaluation level than the pupils under the control group of student-teachers without such training.

These studies reveal that teacher questioning behaviour can be modified. The component behaviours of classroom questioning behaviour can be developed in the teachers. The studies revealed in this Chapter have provided useful material for defining the problems, designing, treatments, and interpreting findings of the present study.

Shokeen (2006) studied the effect of classroom questioning behaviour training on teaching competence of student-teachers and their self-concept. A sample of 40 Social Science student teachers studying in T.R. College of Education, Sonipat and Hindu College of Education, Sonipat was taken. These student teachers constituted the Sample of the Study. 20 Student teachers of T.R. College of Education, Sonipat were allotted to the Experimental group and 20 student teachers of Hindu college of Education, Sonipat were allotted to the Control group. He used these: (i) Teaching Competence Scale (Jangira, Passi & Lalita), (ii) Classroom Questioning Behaviour Observation System (Jangira), (iii) Self Concept Test (R.K.Saraswat) as tools of research for data collection.

A close analysis of the results indicates that the experimental group student teachers asked more questions in their classroom as compared to the control group. It is also shown by
these tables that the level of questions asked by the experimental group was higher as compared to the level of questions asked by the control group. The Control group asked more questions at cognitive memory level whereas the experimental group asked more questions at convergent, divergent and evaluation levels, which generate more thinking. The experimental group improved the structural qualities of their questions after CQBT more significantly than the control group. The CQBT was also found helpful in sharpening the delivery of classroom questions as also in improving the question distribution behaviour of student teachers. CQBT equally helped to improve pupil response management behaviour of student teachers. The CQBT was found to be a better strategy, than the conventional programme, of student teaching as teaching competence of student teachers was enhanced after CQBT. It was also found that CQBT was not only effective in improving the classroom questioning behaviour of student teachers, but it also helps in improving their self-concept. The overall assessment points towards the ultimate effectiveness of CQBT and it provides a model for validation of teacher.

The above studies have helped the investigator to arrive at the theoretical paradigm for the present investigation. The teaching competency of the teachers trained through the formal system and those through the distance education system have been spelled out in terms of presage, process and product variables. An important gap in previous researches was that of ignoring knowledge as an important presage variable, which has been taken up in the present investigation.
B. SELF CONCEPT

Khatary (1973) developed a Self-concept inventory in Hindi to measure the self-concept of primary, secondary and college teachers. Relationship between self-concept and adjustment of the three categories of teachers were studied and compared.

George (1976) investigated classroom behaviour of teachers and its relationship with their creativity and self-concept. Some of the objectives of the study were: (i) to find out the nature and extent of relationship, if any, between self-concept of teacher and teacher behaviour, (ii) to factor analyse the test-space due to the variables relating to creativity, self-concept and teacher behaviour of the total samples, and (iii) to suggest measure for incorporating the application of findings of study in Indian educational system.

This presage-process investigation was a descriptive correlational study. The presage variable includes creative teacher personality, creative teaching process and self-concept. The findings reveal that (i) there was no relationship between self-concept of teachers and their indirect/direct behaviour; (ii) there was negative relationship between self-concept of teachers and pupil initiation ratio, and self-concept of teachers and ‘vicious circle’ and (iii) the results of factor analysis revealed eleven factors out of which four factors were as: (i) Positive Self-concept, (ii) Negative Self-Concept, (iii) Positive Aesthetic Self-concept and (iv) Positive Intelligence Self-concept.

Lakshmi (1977) studied the effect of achievement motivation on self-perception on a sample of fifty student teachers out of which twenty five forms the experimental group and twenty
five the control group. These groups were matched on intelligence scores. It was reported that there is significant improvement in self-concept and perception of self was marked by the implementation of the input self. Self-concept was meaningfully related to n-achievement student teachers with high and low self-concept revealed significant gains in n-achievement.

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teaching competence of student teachers were treated as dependent variables. The sample consisted of twenty student teachers, selected from a group of sixty willing student teachers from a training college in Shillong. They were divided into two groups of ten each as control and experimental groups. The matching was done based on intelligence, sex, age, qualification and teaching experience. For equating them on intelligence, the culture fare intelligence test (Scale 3) was used. Indore Teaching Competence Scale (ITCS was used for finding out the teaching competence of student teachers in terms of integration of teaching skills. Observation schedules and rating scales relating to the five basic skills—skills of probing questions stimulus variation, reinforcement, explaining, and illustrating with examples, were utilized for giving feedback during microteaching treatment. A self-rating Teaching Self-Concept Scale (TSCS) was used for measuring teaching self-concept of student teachers. The TSCS was constructed especially for use in the present study. Means and standard deviations were computed for the pre-test, post-test and gain scores on TSCS and IYCS for control group and experimental group. Significance of the difference between means was tested using t-test for correlated data.

Major findings of the study were: (i) there was significant difference between the pre-test and the post-test mean teaching self-concept scores of the control group of student teachers. (ii) There was significant difference between the pre-test and the post-test means teaching self-concept scores of the experimental group of student teachers. (iii) There was significant difference between the mean gain scores in teaching competence of the control group and the experimental group of student teachers. (iv) Microteaching facilitated enhancement of the teaching self-concept of student teachers. (v) Micro-teaching proved effective in improving
of teaching competence of student teachers. (iv) Microteaching treatment followed by summated strategy of integration of teaching skills was found superior to microteaching treatment based on independent teaching skills in improving the teaching competence of student teachers.

Noid (1979) purported to explore relationships among Maslow’s need hierarchy, educational attitudes and self-concepts of Elementary student teachers. The sample consisted of 128 Elementary student teachers in their undergraduate professional teacher preparation programme at the university of Houston.

Three date-gathering instruments used in this study were: (a) the work Motivation inventory to measure the student teacher’s motivations, (b) the Minnesota Teacher Attitude inventory to measure educational attitudes and (c) a the adjective self-description instrument to measure self-concepts. The data were analysed by multiple regression techniques. Results of the study were that educational attitudes and self-concept, operating jointly, significantly contributed to the variance in Maslow’s needs hierarchy scales of basic, safety and self-actualisation needs.

Shokeen (2004) studied the effect of classroom questioning behaviour training on teaching competence of student-teachers and their self-concept. A sample of 40 Social Science student teachers studying in T.R. College of Education, Sonipat and Hindu College of Education, Sonipat was taken. These student teachers constituted the Sample of the Study. 20 Student teachers of T.R. College of Education, Sonipat were allotted to the Experimental group and 20 student teachers of Hindu college of Education, Sonipat were allotted to the Control group. He used these: (i) Teaching Competence Scale (Jangira, Passi & Lalita), (ii)
Classroom Questioning Behaviour Observation System (Jangira), (iii) Self Concept Test (R.K.Saraswat) as tools of research for data collection.

A close analysis of the results indicates that the experimental group student teachers asked more questions in their classroom as compared to the control group. It is also shown by these tables that the level of questions asked by the experimental group was higher as compared to the level of questions asked by the control group. The Control group asked more questions at cognitive memory level whereas the experimental group asked more questions at convergent, divergent and evaluation levels, which generate more thinking. The experimental group improved the structural qualities of their questions after CQBT more significantly than the control group. The CQBT was also found helpful in sharpening the delivery of classroom questions as also in improving the question distribution behaviour of student teachers. CQBT equally helped to improve pupil response management behaviour of student teachers. The CQBT was found to be a better strategy, than the conventional programme, of student teaching as teaching competence of student teachers was enhanced after CQBT. It was also found that CQBT was not only effective in improving the classroom questioning behaviour of student teachers, but it also helps in improving their self-concept. The overall assessment points towards the ultimate effectiveness of CQBT and it provides a model for validation of teacher.

Chahar (2005) conducted a study of teaching competency of student teachers in relation to certain non-cognitive variables. The sample for the present study comprised of two hundred B. Ed. student teachers studying in Colleges of Education
in Rohtak City. Random sampling technique was used to select the sample. Thus, the 200 B. Ed. student teachers studying in the Colleges of Education located in Rohtak city were included in the study. He found that (i) There is significant relationship between General Teaching Competency and Self Concept, General Teaching competency and Attitude towards Teaching and General Teaching Competency and Socio-Economic-Status of male, female and total Student teachers (ii) The mean General Teaching Competency scores of female student teachers is significantly higher than that of the male student teachers in Science, Arts and combined groups, and (iii) There is no significant difference in the Self Concept of male and female student teachers in Science, Arts and combined groups.

C. TEACHING ATTITUDE

Parashar (1963) in a study of teacher attitude towards teaching found that age and teaching experience had no effect on attitude of teachers towards their profession. A study has been conducted by Samantroy (1970) on teacher attitude and its relationship with adjustment and efficiency of teachers. He found that a large majority of teachers (78%) have a favourable attitude towards teaching, no significant difference was found between the attitude of men and women teachers, and the teacher attitude is related with adjustment efficiency to some degree.

Ganjoo (1966) reported that the teacher attitude towards teaching was related to teaching efficiency; Rodrigyes (1967), Nair (1967), Sreenivasan (1967) and Chacko (1967) found that the correlation coefficient between classroom behaviour of teacher and their attitude decreased as the grade for which the teacher taught increased. The sample of their studies consisted of
the teachers of standard four, six, eight and nine, respectively. Classroom observations of these teachers were supplemented by an attitude inventory modelled after Minnesota Teacher Attitude Inventory (MTAI). They got positive correlation between classroom behaviour scores of teachers and attitude inventory for primary classes. But at high school level there was very low correlation between classroom behaviour of teachers and their attitude. Gupta (1970) found a positive correlation between teachers’ sympathetic attitude and teaching efficiency.

Aggarwal (1966) conducted a study of the teacher educator’s attitude towards their profession and found that they had a favourable attitude towards the profession and that the factors like age, sex and experience did not influence their attitudes.

Aaron (1969) however, found that there was significant correlation between the attitude and achievement motives of teachers and pupils. Naidu (1975) in a study based on a sample of 360 teachers from Andhra Pradesh found that all teachers had favourable attitudes towards teaching, but the females had more favourable attitude. Bhogle (1970) conducted a study on psychological and organisational correlates of acceptance of innovations by secondary schools. She found that head teachers with favourable attitude towards teaching and older in age were more ready to adopt innovations.

A study was conducted by the NCERT (1969-70). The major hypothesis for this study was whether attitudes of teachers towards the profession are affected by the management of the school, location of the school, tenure of services, sex, marital status, age, experience, academic and professional qualifications. The
findings include that sex; age and experience do not affect significantly the attitude of teachers.

Samantroy (1971) studied teacher attitude and its relationship with teaching efficiency. The results showed that the teachers with favourable attitude had superior efficiency. The study also showed that there was a positive relationship between teacher adjustment and teaching efficiency. Debnath (1971) undertook a research study with a view of finding out the determinants of teaching efficiency. It was found that knowledge of the subject matter, academic qualifications, sympathetic attitude towards students mastery of the method of teaching, sincerity if teaching, proper use of aids and appliances in teaching and the art of questioning were the important correlates of teaching efficiency.

Loree (1971) has done a review of research on attitude under four areas. These include the attitude measurement and attitudes related to teacher effectiveness. He has classified the tools for assessing teacher’s attitude into four categories and has described the tools available in each category. Use of these tools by various researchers has also been discussed. Among, self—reporting inventories the Minnesota Teacher Attitude Inventory (MTAI) by Cook, Leeds and Callis (1951) has been reported as the most widely used tool for measuring attitudes. Loree has also reported studies on relationship of teacher attitudes with effectiveness. He reports that Sprinthall, Whiteley and Mosher (1966) found a relationship between the cognitive flexibility (an attitude) and effective teaching. Rosenshine (1969) found in a review of research that teacher’s enthusiastic and animated behaviours and pupil achievement are related.
Khan and Weiss (1973) have reported, “The actual availability and documentation of psychometrically sound attitude scales is however, far from satisfactory”. They have listed the available instruments to measure attitude of teachers and students towards education, school, teacher, teaching and school courses and have classified them according to their categories like Thurston, Likert etc.

Khan and Weiss (1973) have observed that, “it would appear that the relationship between teacher’s and student’s attitudes has been regarded as axiomatic with no need for empirical research. It is likely that this premise has served as basis for the large number of studies conducted on students perceptions of teachers attitude, teacher’s value and beliefs, and the effects of demographic characteristics and teacher education on teachers attitudes”. Brown (1975) has remarked about the association between teacher and student attitude and achievement, it is evident that teachers have an important influence on students attitudes”. Ryan’s (1960) concluded that increase in age and experience of teachers influences the teacher characteristics in the negative direction.

Mehrotra (1973) studied the effect of teacher education programmes on the attitude of teachers towards the teaching profession. He found that:

1. attitude of those who completed the course was more favourable than that of those who did not.

2. attitude of women students was more favourable than that of men.
3. the attitude of some age groups towards the profession at the end of the course was less than at the beginning.

4. the attitude was more favourable with higher age group and it increased as the age increased except a decrease in between the age group 32-36 years and

5. the attitude became more positive with more teaching experience except for the group with 13-17 years of experience.

Singh (1974) conducted a study to find out the relationship of teacher values with teacher attitude and job satisfaction. The sample consisted of 521 teachers from Higher Secondary Schools and University of Delhi. She found no difference. In attitude due to age, education and training of teachers, but reports that female teachers expressed a more favourable attitude towards teaching as a profession a more than the male teachers. Similarly Quraishi (1973) found that the attitude of teachers towards teaching profession as independent variable did not show any significant result in predicating dependent variables.

Several tools have been constructed in India to measure the attitude of teachers and students; Pareek and Rao (1974) have published a handbook of instruments, which lists 124 instruments to measure attitudes towards various objects. Most to them are Likert type scales; only two of them are inventories. The objects have been like the teaching, teaching profession, school and other educational processes. Wherever reliability coefficients are reported they are of a very high order indicating a general pattern of high reliability estimates of instruments on educational attitudes. A few other instruments developed in India are by Ahluwalia
Bhogle, Katti and Bannur, Deo, Mohan, Ponnambalam and Visvesaran (Pareek and Rao, 1974). Although all these scales are called as attitude scale to measure attitudes towards teaching the content and orientations differ from scale to scale.

The Teacher Attitude Inventory by Ahluwalia (1974) was developed by taking up a research project financed by the National Council of Education Research and Training (NCERT). It is meant to measure student-teachers attitude towards teaching professional, pupils, classroom teaching, teachers, educational process and child-centred practices. Another purpose of the project was to study the professional attitudes change among student teachers after their training was over. The inventory contains 90 statements, 15 in each of the six areas. The inventory was standardised on a group of 2169 student teachers, about 5% of the total population of B. Ed. Student – teachers in the Hindi speaking states. It is Likert type 5-point scale. It was tried out on 1402 student – teachers sample from 15 colleges. Its split-half reliability is 0.88, test-retest (9 months) reliability is 0.78 and rational equivalence reliability is 0.70. The validity coefficient on MTAI is reported to be +0.23 only.

The attitude scale by Katti and Bannur (1974) to measure attitude of secondary school teachers towards the teaching profession consists of 40 statements. It is a 5-point scale with likert type summated ratings. Its split half reliability coefficient is 0.76, and self-correlation of the scale in full length was found to be +0.96. No attitude test has been constructed at Ph. D. level during 1972-78, according to the second survey of Research in Education (Buch, 1979). However, some tests were constructed for M. Ed. Studies but these are not standardized.
Nevertheless, attitude is considered an important factor in teaching learning process. The teacher attitude is linked with student attitude which, in turn, is associated with his achievement, Khan and Weiss (1973) have reported that several studies have been conducted at the high school level which used scores on the survey of study Habits and Attitudes as predictors of academic performance. The studies by Holtzman and Brown (1968), Khan and Khan (1969, 1970) and Roberts (1969) found significant correlation between scores on attitudes and standardized achievement scores on some subjects (Travers, 1973). Similarly, there are studies, which indicate relationship between teachers and students attitude. For instance, Silberman (1969) obtained a significant relationship between student’s predictions about teacher’s attitude towards them and actual classroom behaviour of teachers. Reed (1953) obtained a significant relationship between teacher’s effectiveness as perceived by students in the classroom and teacher’s level of self-acceptance.

Attitudes towards teaching in relation to variables of personality, intelligence, adjustment, creativity and values (Kala, S. 1989), and impact of elementary teacher education programme on attitudinal change of elementary teacher trainees of Orissa (Sinha, 1991) followed the design of presage studies. The impact study here was directed to finding out attitudinal changes, which acts, in fact, as an input variable.

The report of the Beginning Teacher Evaluation Study (Fisher et al., 1978), which is the culmination of a multi-year research programme on teaching effectiveness, answered the question whether teaching processes, academic learning time and student achievement are related to student attitudes. The authors
have reported that, “the general association of achievement and attitude appeared to be basically orthogonal. Some factors contribute to increased achievement, other factors promote more positive attitudes”.

Singh, A. (1981) carried out a study to determine the relationship between teachers' attitude towards teaching and their classroom behaviour. It was hypothesised that there is a significant positive relationship between teacher's attitude towards teaching and their indirect/direct behaviour (I/D and i/d). The Minnesota Teacher Attitude Inventory (MTAI) developed by Cook, Heeds and Callis was used to measure teacher attitude towards teaching. Investigator adopted the Flander Interaction Analysis category system. The Product moment method was used for determining the coefficients of correlation between attitude towards teaching scores and scores of selected dimensions of classroom interaction. The results showed that the correlation coefficient between the two variables is not significant. This shows that teachers' attitude towards teaching and their teaching behaviour are not related.

Ghosh, S. (1982) conducted a study to identify if any relationship exists between the scores to Teacher Attitude Inventory (TAI) and trainees’ performance in their practical teaching and theory examination. The hypothesis was set up in null form that there would be no correlative high Score on Teacher Attitude Inventory (TAI). These hypotheses were tested by chi-square and could not be rejected. The pupils with high attitude do not get high Score in practice teaching. The relationship between attitude score and achievement in theoretical subject was also found to be significant.
Khatoon, T. (1988) empirically tested the relationship between teacher classroom behaviour, attitudes, work values and pupil control ideology. The null hypotheses that there exists no correlation between teachers attitude towards teaching and any other aspect of their classroom behaviour was tested among other hypotheses. The study revealed that there exists no correlation between teacher classroom behaviour and attitude towards teaching. Attitude is not related to teachers' verbal behaviour in class.

Chaudhary, S. (1989) carried out a study (i) to assess the attitudes of teacher-trainees towards teaching profession and its allied aspects' at the beginning of training programme, (ii) to assess the change in attitude, if any, of teacher trainees towards the teaching profession as a result of teacher training programme. It was hypothesized that the posttest attitude score of teacher trainees would not differ significantly from pre-test attitude score. The teacher Attitude Inventory by Ahluwalia was used and the six aspects dealt within the inventory were attitudes towards (i) teaching profession, (ii) classroom teaching, (iii) child centred practices, (iv) educational process, (v) pupils, (vi) teachers. The results showed that the overall attitude score of student teachers are within moderate range and not very highly favourable. The highest mean score is on factor (iv) and lowest on (i). In terms of overall change in attitude, post-test scores show negligible change when compared with pre-test scores, i.e. no change in attitude. Thus, null hypotheses of no difference between pre-test and post-test was accepted.

A modified version of Merchant and Bower's (1990) Teaching Behaviours Questionnaire measured attitudes towards
general pedagogical principals. Their teaching was observed on at least four separate occasions during three months of teaching in schools. No significant positive relationship was found between the positive attitudes towards general pedagogical principals and any of the teaching competence. A week negative relationship was obtained between teacher's attitudes and relationship with children. It was suggested that the fostering of positive attitudes in preservice education student teachers towards general pedagogical principles, on the basis of practices aimed at enhancing pupils academic achievements might result in lower quality teaching because of its adverse effect on pupil-teachers relationship.

Ray S. (1990) studied the attitude of teachers towards pupils and their job satisfaction. Major findings of the study were that the mental health of the teachers bore significant and positive correlation with their job satisfaction and their attitude towards children.

Shah Beena (1991) studied certain determinants that make teachers effective. The objective of the study was to predict effect of aptitude, intelligence, value, self-concept attitude, etc. on teaching effectiveness. The findings revealed that the teaching effectiveness was significantly affected by teaching aptitude, job satisfaction and attitudes.

Ray S. (1992) did a comparative study of teachers' attitude towards pupils and their job satisfaction. The findings of the study were that mental health of teachers bore a significant and positive correlation with their job satisfaction and attitude towards pupils. Teachers teaching experience, mental health, job satisfaction and their attitude towards pupils were positively correlated with their age, professionally satisfied teachers had a
favourable attitude towards pupils, women teachers on an average cherished a favourable attitude towards pupils, had better mental health and were satisfied in their profession as compared to men.

Das S. (1992) studied the effectiveness of the present curriculum of the one-year junior basic programme for the teachers of primary schools of Assam in developing proper attitude towards teaching profession. The findings of the study show that the training programme is effective in developing proper attitude. It was effective for both the rural and urban contexts.

Preece (1994) was however, of the view that acquiring general pedagogical knowledge might not translate into effective behaviour in classroom, as shown by 135 pre-service education students attitudes towards general pedagogical principles and the quality of their classroom teaching in a secondary school set-up.

More, R. T. (1998) examined the relationship between teaching effectiveness, teaching aptitude and personality traits. On the basis of research findings it was revealed that only 6 factors out of 16 factors of personality (R. B. Cattell) were found to be positively correlated with teaching effectiveness, of which intelligence was the most important. Teaching effectiveness and teaching ability have positive correlation and the total personality of the teacher is found to be influencing effective teaching and ineffective teaching. The study attempted to bring an improvement in the criteria for admission to the teacher preparation programme (B. Ed. Training for secondary teachers).

Chahar (2005) conducted a study of teaching competency of student teachers in relation to certain non-cognitive variables. The sample for the present study comprised of two
hundred B. Ed. student teachers studying in Colleges of Education in Rohtak City. Random sampling technique was used to select the sample. Thus, the 200 B. Ed. student teachers studying in the Colleges of Education located in Rohtak city were included in the study. He found that (i) There is significant relationship between General Teaching Competency and Self Concept, General Teaching competency and Attitude towards Teaching and General Teaching Competency and Socio-Economic-Status of male, female and total Student teachers (ii) The mean General Teaching Competency scores of female student teachers is significantly higher than that of the male student teachers in Science, Arts and combined groups, and (iii) The mean Attitude towards Teaching scores of female student teachers is significantly higher than that of the male student teachers in Science, Arts and combined groups,

The above studies have helped the investigator to arrive at the theoretical paradigm for the present research. The teaching competency of the teachers trained through the formal system and those through the distance education system have been spelled out in terms of presage, process and product variables. An important gap in previous researches was that of ignoring knowledge as an important presage variable, which has been taken up in the present research.