Social scientists agree that the social and economic growth is a direct sequel to the growth in the field of education. The unbounded scientific progress made in the field of education has paved the way for the present heights of development of several nations in the world. It has also become evident from the growing trends that countries like India can become able to combat the social, ethnic, religious and caste problems only through the service rendered by educational philosophers. For the last two decades, especially, Jangira and others have conducted revolutionary experiments in “Instruction” so that future citizens could be adequately shaped in the primary classrooms. Classroom Questioning Behaviour Training has overwhelmingly attracted the attention of educationists and social thinkers. The CQBT has revolutionized the classroom leading to a hopeful future in the field of education.

3.1. Emergence of the Problem:
In the light of the findings of various studies reviewed in the preceding chapter, and to reverify the research outcomes, the statement of the problem has been formulated as under:

EFFECTS OF CLASSROOM QUESTIONING BEHAVIOUR TRAINING (CQBT) ON TEACHING COMPETENCE OF STUDENT TEACHERS AND PUPILS ACHIEVEMENT

3.2. Rationale of the Study:
The review of related literature done by the investigator, as recorded in the preceding chapter, reveals that the basic theme which undergirds so much of contemporary educational thought is ‘how can we make classrooms places in which true and meaningful learning on the part of all students is the norm?’ It is an undeniable fact that Education is replete with ‘theory’ that seems to have no application to the classroom and ‘practical’ manuals that have no clear starting point in a vision of what the classroom might be. Teaching through questions self-consciously brings these too often disparate strands of thinking together in what might be thought of as a new kind of model for courses in teacher education - rich in ‘theory’ but at the same time firmly practical in their concerns. We are in a period in which teacher education is experiencing renewed interest throughout the world, more especially in our country; new models for teacher education are being proposed and new structures are being put in place to support the education of teachers. The new model based on classroom teaching through questions serves as a basis for a new kind of course in teacher education that has the promise of both developing teacher skills and understandings and improving practice in fundamental ways.

3.3. Operational Definitions of Terms Used:
Definitions of terms used in the Classroom Questioning Behaviour Training alongwith respective symbols are given hereunder:-

Teacher Behaviour/Activity (TO):
It pertains to student teachers activity other than Questioning, for example, writing on black-board, reading from the book etc. which would be recorded under this category.
**Pupil Behaviour/Activity (PO) :-**

It covers the pupil activity other than response to student-teacher questions like reading from the book, pupil questions etc. which would be recorded under this category.

**Question Function :-**

Functions of the questions asked in the classroom have been divided into two categories namely Management and Substantive business. Management function of Questions refers to the preparation and management of learning environment in the classroom. Attention of the pupils can be ensured through classroom questions.

Substantive business function of the classroom questions implies communication of content. This function can be analysed into the simple units like (i) Creating a learning set. The Questions for this purpose attempt to link the pupil’s past experience with the new learning task. (ii) Advancing the learning task - this function may occur at any stage of the lesson. (iii) Planned drill and practice which includes the Questions requiring quick and repeated response. (iv) Reviewing the Progress of learning which refers to the stage in the lesson, where at the end of the unit of the learning task, the progress of the pupils is reviewed. The review questions hold, in recapitulating, the learning tasks well as they point to some of the difficulties faced by the pupils. (v) Evaluating the learning task - the evaluation function of the Question corresponds to the final stage of the lesson. This may include some of the questions from development, review and diagnostic stages, but it goes beyond too in the sense that the total teaching-learning strategy is also evaluated in relation to the actual learning outcomes in terms of pupil achievement. Thus, the functions of the classroom questions have been analysed on the basis of the categories discussed above and coded in their respective columns in the observation sheet.

**Questioning Structuring :**

This category covers relevance, precision, grammatical correctness, and clarity of Questions with the following scope and jurisdiction:-

(i) **Relevance (R +, -)**: It means the suitability of the Questions to the specific instructional objectives of the lesson and the content being covered. The plus and minus signs indicate the relevant and non-relevant nature of the question respectively.

(ii) **Precision (P +, -)**: Precision in the context of classroom question refers to the length of the question. The length of questions should be appropriate to the purpose and level of the questions. A precise question should not contain even a single word more than what is essential. The plus and minus signs respectively indicate the precision and lack of precision.

(iii) **Grammatical correctness (Gr +, -)**: The minds of the pupils can be baffled and confused by grammatically incorrect questions because such questions fail to communicate their intent and also reduce the fluency of Questioning. Therefore, the Questions put to the pupils should be grammatically correct. The plus sign indicates grammatical correctness of a Question and the minus sign indicates the grammatically incorrectness of a Question.

(iv) **Clarity (C +, -)**: Clarity refers to the easy comprehension and understanding of the Questions. An effective Question should not contain terms which are beyond the understanding and comprehension of the pupils. Proper
format and the use of familiar vocabulary give clarity to the questions. Plus sign indicates the clarity and the minus sign indicates the lack of clarity.

**Question Level:**

The level of questions is determined by the level of thinking generated by the Question in the pupils. In this category, the different levels of questions according to the thought process generated by them are identified and recorded. The four levels of classroom questions used in the present study have been identified as given below:

(i) **Cognitive-Memory Questions (Cm):**

Cognitive-memory questions are limited to the lowest level of thinking. Such questions require the pupils to recall a fact, define a term, identify something he observes or give an answer he has learnt by rote memory. The symbol Cm has been taken for recording this level of question.

(ii) **Convergent Application Questions (Cv):**

Putting up of facts together and constructing of answer is exclusive requirement from pupils answering the questions. Convergent questions involve the person in the overt expression of an expected behaviour and occur in highly structured context in which the parameters governing the response are restricted by the situations. It can be evaluated as correct or incorrect by definition, custom or empirical verification. Consequently, as a correct response to a convergent question, a pupil may be expected to perform the operations of explaining, stating relationships, associating and relating or comparing and contrasting. The observer, after analysing it, has to write (Cv) in the observation sheet. Thus, a response to a convergent question causes all the facts of it to come towards each other and tend to meet at a point to exhibit association or comparison or contrast.

(iii) **Divergent Application Questions (Dv):**

Divergent application questions are thought provoking. But the answers to these questions are not necessarily predictable. A pupil responding to a divergent question is led to organise elements into new patterns that were not clearly recognised beforehand. The pupil, while responding to a divergent question, is required to perform the operations of predicating, hypothesizing or inferring. Reasonableness and unreasonableness or appropriateness and inappropriateness are the yardsticks for evaluating the divergent questions. The response is recorded by writing Dv only.

(iv) **Evaluation Questions (E):**

This is a kind of superb level question. These questions require the pupil to organise his knowledge, formulate an opinion, and take a self-selected position. In order to take a judgement, the pupil must use evidence. He makes a judgement of good or bad, right or wrong, according to standards he sets or someone else sets for him. Laconically, evaluating questions require the pupil to judge, value, justify a choice or depended on a position.

**Question Delivery:**

The effectiveness of student teacher’s questioning utterly depends on the delivery process. Question delivery process includes three components viz. speed, voice, pause which are analysed on the basis of following criterion:
(i) Speed (S +, -) : It is the time taken in speaking out a question to the pupils in accordance with the function and level of thinking required to answer it. The plus sign indicates appropriateness of the speed and minus sign indicates the lack of it.

(ii) Voice (V +, -) : Voice refers to two dimensions viz. audibility of question to all pupils in the classroom and intonation according to the emphasis to be laid on specific points in the question. The plus and minus signs indicate appropriateness of voice or lack of it respectively.

(iii) Pause (Ps +, -) : This is an interval between delivery of the question and the student-teacher's calling upon a pupil to answer it. The length of the pause corresponds to the level of question. The plus and minus signs indicate appropriateness or otherwise of the Pause.

**Question Distribution :**

The distribution of classroom questions can be considered on three lines viz. distribution in terms of classroom space, distribution among volunteers and non-volunteers and re-directing the same question to other pupils for increasing and encouraging pupil participation:

(i) Space : The first dimension of question distribution is space coverage. Dividing the classroom into four parts would give four quadrants, specified as under:-

(a) Left Front (L) : This quadrant comprises the front rows on the left of the student-teacher.

(b) Right Front (R) : This quadrant comprises the front on the right of the student-teacher.

(c) Left Back (Lb) : It comprises the back rows on the left of the student teacher.

(d) Right Back (rb) : It comprises of the back rows on the right of the student teacher.

(ii) Volunteer (V +) : Volunteer is the pupil who offers for responding to the question voluntarily by raising of hand.

(iii) Non-volunteer (V -) : Non-volunteer is the pupil who does not come forward to respond to the question voluntarily and is called by the student teacher to respond.

(iv) Re-direction (Rd) : It is a device applied to ensure encouragement of pupils and to provide opportunity for their active participation in the teaching-learning process.

**Pupil Response :**

A number of possible response situations arise at the time when a question is posed in the classroom, namely,

(i) No-Response Situation (N) : It denotes the failure on the part of the pupils to frame and express verbally a response to the question that they are required to answer. The pupils maintain silence so far as response is concerned.

(ii) Wrong Response Situation (W) : The response contradictory to criterion response is termed as wrong response.

(iii) Incomplete Response (I) : Response is given by the pupil but the same is not complete, when judged on the criteria response.

(iv) Partially Correct Response (Pr) : The response in which a part only is correct, and the rest may incorrect, is termed as partially correct response.
Response Management:

Response management consists of acceptance, rejection, promoting, further information and response structuring. Acceptance is denoted through words like right, correct, yes and even praise words like good, go-on etc. Acceptance is also denoted non-verbally through ‘Nod’, smile etc. Rejection is denoted by ‘No’ or ‘through shaking of head. Promoting refers to providing hints to the pupil to structure his incomplete or partially correct response. It is also used to guide pupils’ thinking to lead to criterion response. Further information provides an opportunity to a pupil to improve upon his earlier response. Response structuring refers to the restatement of pupil’s correct response in such a manner that it becomes laconic.

3.4. Objectives of the Study:

The study envisages the following specific objectives:

1. To study the initial Classroom Questioning Behaviour of student-teachers in respect of the incidence of questions, structural characteristics of questions, question delivery 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 behaviour, question distribution behaviours and pupil response management behaviours of student teachers.
3. 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.
4. To compare the classroom questioning behaviours of student teachers before and after the classroom questioning behaviours training in respect of incidence of questions, structural characteristics of questions, question delivery behaviours, questions distribution behaviours and pupil response management behaviours of student teachers with student teachers without such training.
5. To compare the teaching competence of student teachers with and without classroom questioning behaviour training.
6. To compare the achievement of pupils in Social Science in the groups of student teachers with and without classroom questioning behaviour training.
7. To compare pupil achievement in Social Science at cognitive memory, convergent application, divergent application and evaluation level in the groups of student teachers with and without classroom questioning behaviour training (CQBT).

3.5. Hypotheses:

With a view to achieve the objectives of the study, the following hypotheses have been formulated for testing:
H1 At the end of the experiment the group of student teachers with classroom questioning behaviour training tend to have higher level of incidence of classroom questions than those without such training.

H2 The student teachers undergoing training in classroom questioning behaviour tend to ask more relevant, precise, grammatically correct and clear questions after the training than their counterparts who do not receive such training.

H3 At the end of the training, the student teachers in the experimental group tend to ask less number of questions at memory level and more questions at convergent application, divergent application and evaluation levels than their counterparts who do not receive such training.

H4 The student teachers undergoing training in classroom questioning behaviour exhibit more appropriate question delivery behaviours (speed, voice and pause) after training than the student teachers who do not receive such training.

H5 The student teachers undergoing training in classroom questioning behaviour tend to exhibit more appropriate classroom questioning distribution behaviours (spacing volunteers and non-volunteers) after training than the student teachers who do not receive such training.

H6 At the end of the training in classroom questioning behaviour there is significant difference between pupil response types (no response, wrong response, incomplete response, partially correct response, correct response and chorus response) under the two groups of student teachers with and without such training.

H7 The student teachers undergoing training in classroom questioning behaviour exhibit more appropriate pupil response management behaviours (acceptance, rejection, prompting, seeking further information and pupil's response structuring) after the training than the student teachers who do not receive such training.

H8 The teaching competence of the two groups of student teachers with and without training in classroom questioning behaviour does not differ significantly at the end of the experiment.

H9 The achievement in Social Science of the pupil under the groups of student teachers with and without training in classroom questioning behaviour does not differ significantly after training.

H10 The pupils under the charge of student teachers undergoing training in classroom questioning behaviour do not differ significantly in their achievement in social science at cognitive memory level after training from that of the pupil under the student teachers without such training.

H11 At the end of training, the pupils under the two groups of student teachers with and without training in classroom questioning behaviour do not differ significantly in achievement in social science at convergent application level.

H12 At the end of the training in classroom questioning behaviour, the achievement in Social Science of pupils under the group of student teachers with such training does not differ significantly at divergent application and evaluation level from that of the pupils under the charge of the group of student teachers without such training.

H13 At the end of the training in classroom questioning behaviour, the achievement in Social Science of pupils under the group of student teachers with training does not differ significantly at evaluation level from that of the pupil under the group of student teachers without training.
3.6. Delimitation of the Study:
Keeping in view the time and resources available with the researcher, the study has been delimited as under:-

1. The study could be conducted on any secondary class but it has been delimited to the IX class only.
2. Although there are various teaching strategies, yet the study has been confined to the Classroom Questioning Behaviour Training.
3. Teaching-Learning can take place both inside and outside the classroom. But, the present study confines itself to the classroom teaching-learning.
4. The study could be conducted on a variety of educational outcomes, but it has been conducted on two aspects viz. (i) teaching competence of student teachers and (ii) Pupil achievement.
5. Although the study could be simultaneously conducted on student teachers of various colleges of Education, yet the M.L.R.S. College of Education, Charkhi Dadri and KM College of Education, Bhiwani had been selected for the study.
6. The study was conducted on 40 student teachers of the two colleges of Education. The 20 student teachers of KM college of Education, Bhiwani were allotted to the control group and 20 student teachers of MLRS college of Education, Charkhi-Dadri were allotted to the Experimental Group.
7. The study was conducted on 1000 pupils of IX class of Charkhi Dadri and Bhiwani.
8. The effect of Classroom Questioning Behaviour Technique could be studied throughout the academic session. But, the present study has observed the effect for two months only.
9. The effect of Classroom Questioning Behaviour Training and Conventional Training has been studied in the case of Social Science only.
10. Although the entire syllabus of Social Science could be taught, yet only five units of the same have been taught.