CHAPTER - 6

SUMMARY AND CONCLUSIONS

6.1 INTRODUCTION

At the beginning of the twenty first century and the third millennium the social scenario throughout the world presents a grim picture of tensions and lurking dangers of social upheavals. While on one hand, groups of nations and international organizations continue to profess their intention and resolve to bring about a better global economic and social order, each day one comes across, a variety of problems, created by man in recent times. Unless tackled urgently, these problems are bound to result in social disorder of alarming magnitude. These problems have to be debated and their solutions found. "Spirit of inquiry, creativity, entrepreneurial and moral leadership are the capabilities central to nation building in a democracy. Educators should develop in our children these capacities and make them autonomous learners who are self directed and self controlled."

(A.P.J. Abdul Kalam 2004)

The need of proper teacher education is now universally recognised and strongly emphasised all over the world. Globally, there is overwhelming concern regarding the quality and relevance of education. Undoubtedly, the quality of school education is the direct consequence and outcome of the quality of teachers and the teacher education system. In this context, the importance of the quality of teachers in improving the quality of education is far beyond question. Therefore, quality improvement of our teacher education programme is one of the indispensable aspects of educational reforms.
The Kothari Commission (1964-66) pointed out "The essence of a programme of teacher education is" quality" and in its absence, teacher education becomes not only a financial waste but a source of over all deterioration in educational standards." Quality is elusive to define; it has been described as a degree of excellence and superiority in kind.

A programme of highest importance therefore is to improve the quality of teacher education, which among other things can be done through contents of courses by making the curriculum integrative of (a) Competencies needed in the teaching-learning activity, such as, Content competency, Competency related to other educational activities and Management competency etc.; and (b) The Commitments essential of a teaching profession viz-a-viz Commitment to learner, Commitment to profession, Commitment to society, Commitment to achieve excellence and Commitment to basic human values. The quality concern also is related with the transaction of such curriculum with active partnership of teachers and learners, wherein learners have greater scope for self study and discussion, incorporating continuous and comprehensive assessment of practical and sessional work as well as practice teaching. Hence, it is rightly said and believed that the quality of teachers determines the quality of education, which in turn transforms the society and its future too, because pupils of today are the future leaders and guardians of the society and humanity.

Depending upon the viewpoint of the stakeholders in education, quality is viewed in terms of highest standards, consistency, fitness for purpose and value of money (Green and Harvey 1993) as a dynamic continuous process towards achievement of a mission that is growth of the State holds to be proceeded through measurable objectives or outputs (Mukhopadhyay 2001)

Ideally, an investment in teacher quality starts at the preparatory and earliest stages of a teacher's career and it has to be continuous throughout a professional lifetime. The time has come for break-set by coming together
to build a comprehensive model of teacher development that begins in pre-service and continues throughout a teacher's entire career by establishing system-wide norms and practices of professionalism, career-long learning, and inquiry into the practice of teaching (Ellen Moir & Janet Gless 2001).

At the international level, the UNESCO document "Learning: The Treasure Within" (1996) has taken a critical look at the total educational scenario of the worlds and made long range and meaningful suggestions. Teacher education under this dynamic, multi-cultural and universal background has to be revamped and reconstructed to meet the new challenges of the twenty first century and to play its role more effectively.

The latest report of the UNESCO entitled "Learning: Treasure Within" seems to have been based on an Indian dictum "Know Thyself" or know yourself (Atmanobiddhi). There is treasure capability in everybody, which needs to be explored and unfolded. The Chairman of the International Commission, which developed this document, is Jacques Delors and the entire report offers Learning to Know, Learning to Do, Learning to Live Together and Learning to Be. In the Indian context, it reminds of the Janayoga, Karmayoga and underlies the principles and perception that one should know oneself, get noble thoughts from all sources (Ano-bhadra Kratu biswatah) as well as do one's duty with commitment. The UNESCO Report reinforces the concept of self-knowing, self-learning, self-doing and learning to live together the elements ingrained in the Indian ethos. The report states (P. 194) “to strive for excellence in education means to strive for richer curriculum, based on verifying talents and needs of the students, the realisation of each student potential and nurturing of outstanding talent. It is also most important to ensure that teachers receive better training for transacting such a high level curricula.”

The curriculum framework given by NCTE (document 98/36) is rooted in Indian reality and culture and promotes mutually supported system of teaching education. Its objectives are context based, its transactional strategies are stage specific, it introduces the concept of pedagogical
analysis in a focused perspective. It has been developed on the foundations of trust, autonomy, flexibility and accountability, highlights the need for value inculcation. Its objective is to generate fresh thinking and action, and it aims at preparing competent, committed and willing to perform teachers with scientific temper who are able to sustain spirit of inquiry, and excellence in all spheres of life. States the curriculum framework:

“Teacher education can no longer remain conventional and static but should transfer itself to a progressive, dynamic and responsive system.”

The basic concerns of the framework include gradual change from convention to integrated courses, stage specific theoretical and practical components, transactional strategies and evaluation, and being flexible and pragmatic.

The framework visualises a transformation of (a) traditional tenants of head, heart and hand into information highways web site and internet, and (b) teachers profile that includes Competency, Commitment and Ethics; and proficiency of restructuring knowledge, organising learning experiences, transacting curriculum, using appropriate technology conducting research, counselling for personality development, inculcating sense of value judgments, and responsiveness to changes.

If commitments to a field of professional work are lacking or are out of tune with the competencies required in that area, the use of the competencies is bound to remain half hearted and unsatisfying in terms of actual results. Whatever the area of work, competencies tend to wilt in terms of their functional shine or operational potency in the absence of required commitments. Obviously prudence and wisdom lie in avoiding in emergence of such situations. The desired results in a field of work of a professional nature such as preparation of prospective teachers can be achieved only if the needed commitments are developed along with the relevant competencies.
When commitments of teachers are genuinely strong, they find themselves over motivated to use their competencies and psychological assets effectively. Commitments are the movers of competencies in every area of work – professional or non-professional. The impulse for putting competencies in concentrated action comes from the strength of commitments. Using a phrase from Bergson's writings (1859-1941) one can say that commitments play the role of ELAN VITAL for competency.

It also needs to be stated that the significance of the bearing of the competencies over commitments can never be overlooked. Commitments are verily meaningful if these go along with essential competencies for performance in any area of work. In the absence of competencies for executing specialised work, commitments would mean absolutely nothing.

Preparation of prospective teachers through a curriculum which integrates into it the needed competencies and commitments and is transacted by self learning approach such as modular curriculum approach involves dividing the educational process into basic units in order to create more flexible structures and to put an end to the traditional division of educational content in schools. This approach increases the flexibility of educational system (UNESCO, 1989), has been introduced with great success into industrial training courses and has begun to find its way into schools, because of its advantages basically in three closely related areas - pupil motivation, course design and curriculum development (Warwick, 1987). It has been found effective by a number of researchers at school level as well as at college level (Anderson 1975; Amien 1979; Pankiewiez 1984; Dhamija 1985; Quackenbush 1986; Shukla 1990; Mishra 1995; Kumar 1997; Khujuria 1999 and Kholi 1999). This approach is also very useful in teacher education programmes because self-teaching modules can be prepared for those subject areas / topics which are not easily programmable (Mavi 1988). According to Goldschmid (1972), it allows students to advance at their own pace and leaves them free, first to choose themselves the learning mode that suits them best, next, to identify their strengths and weaknesses, and lastly, to retain themselves by using
remedial modules, repeating those they have already used or changing to other way of learning.

It is generally admitted that the attitude of teachers towards their own domain of work is largely the product of their own direct experiences. However, the role of indirect experiences in the formation of any attitude cannot be over – looked. Thus people develop positive or negative attitude towards teaching profession even without having become teachers. In view of this reality, young people who seek admission to colleges of education cannot be presumed to be completely blank or a white sheet of paper in terms of any sort of attitude towards the teaching profession. They do develop and do actually have some thoughts, some feelings and some beliefs about the role of teachers in human life and about the nature of teaching itself, as they have already spent some years in schools, colleges, universities or in other types of educational institutions. It is thus reasonable and logical to presume that if they have chosen to enter the teacher education programmes they have formed, howsoever restricted, some positive attitude towards the teaching profession. It is unthinkable that any young man or woman would seek admission to a college of education or think or dream of becoming a teacher who has already become ill disposed or ill oriented towards the teaching profession. But, it is equally logical to reason that the teacher education programmes have to fully shape and chisel the attitudes of the trainees (that is prospective teachers) towards their profession, so that in due course of time these attitudes formulate into internalised values.

It was also with the perception of the NCTE's publication of the document 98/36, a development with regard to the urgency of competency based and commitment oriented programmes of education that prompted this investigator to take up the present problem – with the strong fear of potential difficulties in mind, notwithstanding. The curriculum of the subject of School Organisation was taken to make it competency based and commitment oriented. The tremendous scope for the use of the
modular approach in connection with the curriculum of the subject was a more potent and exciting reason for the choice.

It can be asserted that the process for Competency Based and Commitment Oriented (CBCO) teacher education will be effective only through multipronged teaching strategies. Therefore, to attain knowledge, understanding and skills about competencies and commitments, 'Integration through subject approach,' rather than a micro approach of teaching the competencies and commitments as separate contents or subject matter, can be used. In 'Integration through subject approach' the teacher educator has to put a little more thought in teaching subjects and analyse the components wherein there is a scope of integrating competencies and commitments.

Keeping in view this approach that competencies and the commitments can be integrated with the subjects to be taught, the researcher has made an attempt in the present study to integrate competencies and commitments with School Organisation curriculum for B.Ed. class (CBCO curriculum) teach it in the actual classroom situations and further examine its effectiveness by way of its comparison with the traditional approach of curriculum i.e., involving both content and methodology.

6.2 STATEMENT OF THE PROBLEM

EFFECTIVENESS OF COMPETENCY BASED AND COMMITMENT ORIENTED CURRICULUM FOR QUALITY TEACHER EDUCATION AT SECONDARY LEVEL

6.3 OBJECTIVES OF THE STUDY

The present study has been directed to the following objectives
1. To develop a competency based and commitment oriented (CBCO) curriculum through appropriate teaching modules incorporating the teaching competencies as basis and commitments as orientation in the contents of curriculum that is syllabus prescribed for the subject of School Organisation, in B.Ed. pre-service programme by Guru Nanak Dev University for the Academic Session 2000-01.

2. To study the effectiveness of Competency Based and Commitment Oriented (CBCO) Curriculum in respect of differences in the academic achievements of teacher trainees taught by Competency Based and Commitment Oriented Curriculum from those taught by traditional curriculum in the subject of School Organisation.

3. To study the effectiveness of Competency Based and Commitment Oriented (CBCO) Curriculum in the paper of School Organisation in respect of inculcation of teacher competencies and commitments as reflected in students' achievement in Skill-in-teaching examination.

4. To study the effectiveness of Competency Based and Commitment Oriented (CBCO) Curriculum among teacher trainees as reflected in their achievement in the field of Community Work.

5. To study the effectiveness of Competency Based and Commitment Oriented (CBCO) Curriculum by comparing it with that of the traditional curriculum in the development of favourable attitude towards the teaching profession among pre-service B.Ed trainees.

6. To suggest competencies and commitment areas that can successfully be implemented in the B.Ed syllabus at the planning, designing and implementation stage of the curriculum.

6.4 DELIMITATION

The study is delimited in respect of following
On account of the constraints imposed by the experimental design employed in the present study, its sample was limited to one college of education where the investigator herself being a Lecturer, could obtain the cooperation for conduct of study over a full academic session.

The development of competency based and commitment oriented curriculum and its implementation was limited to only one subject of study i.e., school organisation, taught as a compulsory paper at the B.Ed. level.

While all areas of commitments were included in the study, the selection of competencies incorporated in the curriculum was limited to only five competencies out of NCTE's list of ten teaching competencies.

6.5 HYPOTHESES

Keeping in view the objectives of the study, following hypotheses were formulated. Objective I of the study was to be realised through development of the curriculum, hence no hypotheses has been formulated for the first objective of the present study. Likewise objective 6 was realised through submitting the suggestions with regard to the areas of competencies and commitments which can be successfully incorporated in designing and implementing the pre-service teacher education curriculum. For the remaining objectives, following hypothesis were formulated on the basis of trend of results emanating from the review of related studies:

1. The academic achievement of teacher trainees taught through Competency Based and Commitment Oriented Curriculum of school organisation is significantly greater than the achievement of their counterparts taught through traditional curriculum.

245
2. The competency based and commitment-oriented curriculum is more effective than the traditional curricular approach of teaching as reflected in prospective teachers' achievement in skill-in-teaching examination.

3. Competency Based and Commitment Oriented Curriculum approach as compared to the traditional approach is significantly more effective in transacting the knowledge and skills in working with the community as reflected in the achievement of prospective teachers in the field of Community Work.

4. As compared to Traditional curriculum, the Competency Based and Commitment Oriented Curriculum is significantly more effective in the development of favourable attitude towards teaching profession.

6.6 OPERATIONAL DEFINATIONS

Competency – competency in the present study has been defined within the framework of NCTE that is being competent in the process of teaching and learning. Accordingly five types of competencies namely, content competencies, competencies related to other educational activities, management competencies, competencies related to working with the community and other agencies and competencies related to working with parents have been integrated in the CBCO curriculum of school organisation (NCTE...document 98/36).

Commitment – commitment has also been defined within the framework of NCTE as doing one's duties with devotion and a sense of responsibility, it is a pledge, promise, a word to the learner which leads to the total development of the child. Five commitment areas namely, commitment to the learner, commitment to the society, commitment to the profession, commitment to achieve excellence and commitment to basic human values (NCTE document 98/36) have been integrated in the CBCO curriculum of school organisation.
Competency based and commitment oriented curriculum

In the present study competency based and commitment oriented (CBCO) refers to the integration and transaction of five competencies, namely, content competencies, competencies related to other educational activities, management competencies, competencies related to working with the community and other agencies and competencies related to working with parents and five commitments namely, commitment to the learner, commitment to the society, commitment to the profession, commitment to achieve excellence and commitment to basic human values, in the syllabus of school organisation in the modular form. Pre-service teacher education is a process of transformation of lay persons into competent and committed professional educators. The activities such as classroom teaching through self-instructional modules (SIM), group-discussions, dramatisation, seminar presentations, field trips, conduct of morning assemblies formed a part of the CBCO Curriculum.

Attitude towards teaching

Attitude towards teaching in the present study refers to intensely relevant experiences (as defined in the manual), a frame of mind, opinion and a point of view and its measure relates to scores obtained by student teachers on 'Teaching Attitude Inventory (1978) by Ahluwalia'.

Effectiveness

In the present study the effectiveness of the CBCO curriculum refers to its facilitation in the regular formal systematic development of the learner in comparison to traditional syllabus taken in respect of teacher trainees' (a) academic achievement in the theory examination of school organisation, (b) their scores on skill-in-teaching examination, (c) community work and (d) attitude towards teaching.
6.7 DESIGN OF THE STUDY

The study was carried out in two phases. In the first phase a Competency Based and Commitment Oriented (CBCO) Curriculum was developed through preparation of self-learning twelve modules incorporating the entire syllabus of School Organisation by integrating competencies and commitments in the content areas. This was done after a thorough analysis of the content of the syllabus of School Organisation prescribed for B.Ed. by Guru Nanak Dev University, Amritsar, and identifying the areas where five types of competencies namely content competency, competency in other educational activities, management competency, competency related to working with community and other agencies and competency related to parental contact and co-operation and five types of commitments namely commitment to the learner, commitment to the society, commitment to the profession, commitment to achieve excellence and commitment to basic human values could be effectively incorporated within the self-instructional material.

The second phase of the study was carried out with the help of post-test experimental - control group design (static). Two curricular approaches of teaching namely the CBCO approach incorporating competencies and commitments and the traditional approach were taken. The first approach that is the CBCO Curriculum was used as treatment to the experimental group of pre-service teacher trainees whereas the control group was taught through the traditional approach (both content and method) as is in practice in the colleges of education. Thus the effectiveness of CBCO Curriculum (independent treatment variable) was studied by its comparison with the traditional approach on the four criterion variables, namely teacher trainees’ (1) academic achievement in the subject of School Organisation (theory), (2) achievement in Skill-in-teaching, (3) marks in Community work and (4) attitude scores on attitude towards teaching (TAI 1978). For this purpose both the groups were taught the entire syllabus of five units in the subject of School Organisation for the whole academic session by the researcher herself. While the experimental
group was taught through self-learning CBCO Curriculum approach prepared after integration of competencies and commitments with content that is syllabus, the control group was taught by traditional method both these groups were post-tested after the completion of the whole syllabus on above stated criterion variables while the TAI was administered immediately after the completion of the treatment period. The annual examination (of which the marks were taken) started with a gap of ten days preparatory period and continued over a span of fifteen days.

6.8 SAMPLE

The sample for the study was limited to only one college of education (Guru Nanak College of Education for Women, Kapurthala) affiliated to the Guru Nanak Dev University, Amritsar. This college was established in the year 1966 and can be easily taken as representative of colleges of education affiliated with the same university. The study was based on all the three sections of B.Ed. class in order to conduct the experiment without disturbing the college schedule of sections and timetable, out of the three sections two sections were randomly drawn and designated as the experimental group and the third section was taken as the control group. Thus in the final sample "N" number of teacher trainees in the experimental and control group had to be kept different. The total sample contained 109 B.Ed. students, that is 73 in the experimental groups (two sub-groups) and 36 in the control group.

6.9 TOOLS USED

The following tools were employed for the collection of data

1. CBCO Curriculum integrating competencies and commitments in self instructional modular form (Developed by researcher herself).
2. Attitude towards teaching (By Ahluwalia Teacher Attitude Inventory 1978).
3. (a) Achievement in School Organisation that is examination marks of teacher trainees in the annual theory paper of School Organisation conducted by Guru Nanak Dev University, Amritsar.
(b) Achievement (total marks in annual examination) in Skill-in-teaching in both the teaching papers.
(c) Marks in community work evaluated internally.

6.10 CONDUCT OF THE STUDY

In accordance with the design, study was advanced in two phases. In the first phase, the entire syllabus of School Organisation prescribed by the Guru Nanak Dev University, Amritsar for B.Ed. class (academic session 2000 to 2001) was analysed to identify the content areas wherein selected competencies (five in number) and commitments (five in all) could be integrated. After having identified these content areas (vide table 4.1 to 4.12 in Chapter 4) competencies / sub-competencies, commitments / sub-commitments were integrated into it in the modular form. Thus, twelve modules integrating the competencies and commitments with content/syllabus consisting of five units) of the School Organisation paper of B.Ed. were prepared.

The second phase consisted of administration of treatment and post testing the subjects on criterion variables. The experimental group was taught the syllabus of School Organisation with the help of CBCO Curriculum in their respective sections (two) and the section of students designated as control group was taught the syllabus of the same paper through Traditional method. The teaching of both the groups continued for the whole academic session of 2000-2001. The researcher herself being a lecturer in this college of education, taught both the groups. Towards the end of the treatment i.e., academic session, post-test on attitude towards teaching was administered, as it was the end of the academic session, with a gap of ten days preparatory leave the teacher trainees then appeared in their final exams in the theory papers followed by Skill-in-teaching examination. Community work was evaluated internally at the end of
treatment (this paper is only internally evaluated). Thus the marks on three criterion variables i.e., achievement in the theory paper of School Organisation, Skill-in-teaching examination, and Community work were taken from the result cards and scores on attitude towards teaching i.e., the fourth criterion variable were calculated from the Teacher Attitude Inventory. These were then tabulated for the purpose of analyses.

6.11 STATISTICAL TECHNIQUES USED

Keeping in view, the objectives, design and nature of data, following simple statistical techniques were employed. (1) Measures of central tendency and variability i.e., the mean and S.D on each of the four criterion variables i.e., achievement in the theory paper of School Organisation, Skill-in-teaching examination, Community work and attitude towards teaching both for the experimental and control group. (2) the t-ratios were worked out for examining the significance of difference between means of experimental and control groups on each of the four criterion variables.

6.12 RESULTS AND CONCLUSION

Thus the study leads to conclude that

1. Competencies namely content competencies, competencies related to other educational activities, management competencies, competencies related to working with community and other agencies and competencies related to parental contact and co-operation can be successfully and effectively integrated into the School Organisation’s content of the curriculum through self-instructional materials.

2. On all the three out of the four criterion variables, i.e., academic achievement, community work and skill-in-teaching, the group taught by the CBCO Curriculum consistently significantly out performed the control group, which was taught by the traditional method.
3. The CBCO Curriculum approach of teaching learning is thus more favourable and significantly more effective than the traditional approach in respect of the mean achievement on the three of the four criterion variables, namely, academic achievement, community work and skill-in-teaching.

4. The syllabus of the School Organisation for B.Ed. class can be made more effective by including the inputs of commitments namely, commitment to the learner, commitment to the society, commitment to the profession, commitment to achieve excellence, and commitment to basic human values.

5. In respect of attitude towards teacher, although the result trend of mean scores shows that the experimental group taught by the CBCO Curriculum developed more positive attitude as compared to the control group of teacher trainees, these results suggest that CBCO Curriculum approach presents more beneficial results among pre-service teachers. Although CBCO Curriculum is more favourable than the traditional method in developing positive attitude towards teaching, the differences are not significant. In other words developing or bringing about the attitudinal changes is a slow and enduring process which should be continued beyond the boundaries of pre-service training through the in-service training programmes.

6. Facilitating positive attitude towards teaching needs more intensive and extensive treatment of integrating various competencies and commitments in the curriculum of the B.Ed. particularly when prospective teachers are admitted on the basis of entrance test containing their achievement in teaching potential.

7. Competencies and commitment areas which can be successfully implemented in the B.Ed. syllabus at the planning, designing and implementation stage of curriculum should formulate an integrated part
of the whole spectrum of curriculum that is objectives, content, method and evaluation. Giles’ four components contained in the curriculum design as noted by Hilda Taba (1962) are noted below

![Diagram showing the four components of curriculum design: Objectives, Subject Matter, Method and Organization, Evaluation.]

**Figure 6.12.1**

Competencies which can be successfully integrated into these areas related to organisation of content are content competency, competency related with other educational activities, management competencies, competencies working with the community and competencies related to parental contact and cooperation that is objectives must highlight competencies and commitments. For achieving these objectives subject matter that is content is to be integrated with various types of competencies and commitments. For achieving better results the methods and their organisation should be based on self-learning modular teaching and finally evaluation should be both formative and summative.

Thus it can be stated that if a curriculum is designed adequately, it defines for the curriculum decision maker the nature and scope of the components in the curriculum that are to receive particular attention. (George A. Beauchamp 1983) at the stage of curriculum construction and curriculum implementation. Therefore if the competencies and commitments are to be inculcated among teachers, prospective teachers, these should become a part and parcel of the process of curriculum designing and be taken up till the evaluation stage.
6.13 EDUCATIONAL IMPLICATIONS

1. The findings of the study have primarily implications for curriculum development in improving the quality of teacher education at secondary stage. These provide enough evidence that competencies and commitments can be effectively inculcated through their integration into the curriculum for teacher trainees in the pre-service teacher education programme at secondary level. Such a programme can be taken up even within the constraints of the time-table of prospective growth. This will lead to the professional enrichment of prospective teachers thereby improving the quality of the secondary education teacher training programme.

2. The results of the study also have implication for the learning materials. The reorganisation of the content of syllabi of different subjects inclusive of competencies and commitments in the modular form will enrich the quality of the learning at secondary teachers education programme. In fact by providing some amount of flexibility in the timetable, it can also improve the teaching learning process. The CBCO Curriculum emerged as more effective teaching learning strategy as compared to the traditional approach as far as the inculcation of competencies and commitments’ orientation among the respective teachers is concerned. This approach which incorporates individualised self-initiated, self-motivated and self-directed efforts can be a continuous process on the part of every practicing teacher to carry out on one's own professional teaching responsibilities.

3. Skill-in-teaching is a necessary and important feature of quality teacher education. The CBCO Curriculum showed not only excellent results in theory but also in skills. Competencies and commitments if integrated in the teaching subjects by the teacher educators can bring more beneficial results.
4. Along with the benefits of CBCO Curriculum in the cognitive and conative domains of teacher education programme, the result of the present study can be utilised in bringing about positive attitudinal changes among prospective teachers / inservice teachers. Competencies alone cannot achieve excellence in teaching learning process. Commitments should also be kept in mind while planning, implementing and evaluating the process of education at various levels of teaching profession.

6.14 SUGGESTIONS FOR FURTHER RESEARCH

Following suggestions are made for further research in this area

- A similar study may be designed to evaluate the effectiveness of competency based and commitment oriented curriculum for other compulsory subjects at the B.Ed level.
- A study may be designed for quality teacher education at pre-primary and primary level.
- A follow up study may be conducted to investigate whether the strategy is useful in retaining the acquisition of competencies and commitments after an appropriate interval of time.
- Similar type of studies may be designed and taken up for in-service teachers at different levels.