REVIEW OF RESEARCHES AND PROGRAMMES ON
TEACHER EDUCATION

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PART II : REVIEW OF PROGRAMMES

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PROGRAMMES FOR THE PRESENT STUDY

This chapter deals with the review of related studies, especially the studies on teacher education programmes concerning higher secondary teachers. The chapter has been divided into three parts for the convenience of presentation. Part I deals with the review of researches related to the present study, Part II deals with the study of programmes of teacher education at higher secondary level and Part III provides an overview.

PART   I   :   REVIEW OF RELATED PREVIOUS RESEARCHES

2.1   Review of related researches abroad

To understand and study any teacher training programme, it is very essential to provide some conceptualization in terms of the philosophy of teacher training and in terms of the nature of training programmes themselves.

The philosophy of teacher training can be understood by studying the views about the nature of training activities. The 'model approach' takes a position that training requires a thorough restructuring of the trainee's conception of teaching on the basis of epistemological, psychological, and sociological considerations. Such a restructuring would result after exposure to what could be conceptualized as a teaching 'model'. A teaching model may rely on learning theories, such as skinnerian behaviourism or on structural cognitive approaches inspired by piagetian or Brunerian psychology. It might derive from 'humanistic' theories rooted in phenomenology and existentialism, such as that propounded by Paulo Freire or Carl Rogers or it might be linked to sociological approaches, concerned with communication strategies and discourse analysis, that borrow from symbolic interactionism or linguistic structuralism or it might be related to curriculum theory, such as that

contained in the Mastery Learning approach. To a certain extent models may be pragmatically drawn from empirical research, such as that related to the direct instruction (for example, Flanders' studies) and style approaches.

In contrast to the model approach, the 'skill' development schemes concentrate on changes affecting one or two major types of teaching behaviours through their component skills. Much of the literature of experimental research on training deals with different forms of skill development: questioning strategies, lesson pacing, cue providing, feedback and praise, the use of time and so on. (e.g., Clark, Gage, Marx, Peterson, Stayrook and Winne, 1979; Bettencourt, Gall and Hull 1980; Mackey 1979; Anderson, Evertson and Brophy 1979).

Research on training is generally related to one of the model or skill approaches. But, to assess this research it is also necessary to see how it addresses itself to issues related to the structure, or the organization, of training activities. External structure refers to the organisation of the provisions for pre and inservice training, and internal structure refers to the process of training. The external structure provides the framework for the training programme and it includes (i) researches concerning pre service and inservice needs and functions of teachers, (ii) researches concerning inservice training and, (iii) researches concerning development of programmes and evaluation of training programmes. The internal structure refers to the process of training. This includes (i) researches concerning foundation courses, (ii) researches concerning approaches, (iii) the practice teaching and (iv) inservice programmes.

In this review of researches the emphasis has been laid on discerning the trend and focussing studies which directly relate to the present study and help in evolving the programme. Adequate restrain has been shown in considering the researches from abroad, for the context in which these studies have originated, is different from the context in which the present study has to be perceived. However, it may be observed that researches concerning the internal structure has been extensively reviewed.

2.1.1 On the External Structure of Training Programmes

Training schemes may be quantitatively evaluated in terms of the numbers of teachers trained or up-graded and of the cost of implementing the programme. But they also may be assessed by looking at changes in the behaviour of the actors involved— changes that can be traced back to the structure of the scheme. The investigator's concern is with this second approach.

2.1.1.1 Researches concerning preservice and inservice needs and functions of teachers.

There are only ten studies reported on this aspect.

Hosseiny, H. (1985) found that majority of the respondents rated the competencies in the area of language teaching (e.g., designing a lesson plan, adapting materials, use of media, use of teaching techniques, etc.) higher in need for and more useful than those competencies in the areas of language learning and linguistics. The tests and testing were perceived to be the most needed area for inservice training.

Zukowski (1979) found that the instructors were in general agreement regarding the relative importance of actual teaching competencies which they perform when compared according to the age, sex, academic instructional area and number of years of teaching experience.

Burgess (1979) has found that the administrators and
teachers viewed their roles in inservice development and
implementation to be the traditional roles - administrators
organize and direct, and the teachers are participants.
Further, the teacher center was overwhelmingly preferred by
teacher and administrators as the most effective means of
meeting their needs, while the floating faculty was, in their
opinion, the least effective.

Al-Gramdi (1982) found that, in general the Saudi
teachers, administrators and supervisors in the Jeddah city
school district indicated that theachers need inservice
training in virtually all teaching skills and competencies
specified in the study. All respondents identified compete-
ncies related to pupil self-concepts as the greatest priority
of needs, and they perceived the least need in skills associated
with individualized instruction.

Alsahlani (1983) found that the teachers, supervisors and
principals of Iraq felt that the teacher education programme
did not pay enough attention to the parent-colleague-administrator
relationship and discipline was alsc found to be the most
important factor in the classroom.

Davis (1984) found that principals and teachers have
differing perceptions about teacher's inservice needs. The
longer the respondents had been employed, the higher they rated
the need for inservice.

Wanida (1985) found that there is some statistically
significant difference between the responses of practising
teachers and college instructors in Thailand concerning the
content, organization, and format of presentation in inservice
programmes.

Azmi (1986) found that the majority of the teachers
in West Sumatra province perceived their inservice needs in
the area of subject matter, managing group discussions,
preparing lesson plans, motivating students, the use of
lecturing methods, teaching students of different abilities,
designing classroom activities, classroom management, evaluating
students' progress, analysis of their own teaching and teaching
of others.

Evans and Tribble (1986) found that preservice teacher
problem rankings do not coincide nearly with those reported by
beginning teachers. No sex differences were disclosed for
commitment to teaching.

Asean Development Education Project (ADEP) made a survey
of perceptions of the teacher-in-practice and the 'Ideal'
teacher in the Philippines. It was found that the Philippine
view of an ideal teacher is first and foremost a person who is
thoroughly humane and compassionate, i.e., approachable and
concerned for the learner's welfare. Knowledge generation and
application through research are functions viewed to be
indispensable on the part of college/university teachers.
Scholarship and professionalism appear to be among the distin-
guishing marks of an 'ideal' college or university teacher.
The fluency or proficiency in the language of instruction, skills
in using appropriate teaching methods, and mastery of the subject
or discipline a teacher teaches are found to be indispensable
skills for teachers. The study generated an image of the 'ideal'
teacher as one who possesses these attributes: approachable,
intelligent, open-minded, understanding, being a model of good
behaviour, having concern for the learner and who can communicate
fluently and proficiently in the language of instruction,
maintain order and discipline in class, use appropriate teaching
methods; and evaluate pupil learning.

It could be observed that all the studies reported have been surveys and majority of them have used questionnaire and interview as the tools for the study. It seems there is a general consensus regarding the competencies and functions of teachers at different levels. However, it may be noted that there is a great need for a deeper analyses of the competencies and functions at different levels.

2.1.1.2 Researches concerning inservice training

Hall and Myers (1974) found that the Taba training experience produced changes in teacher classroom methods and in teacher perceptions of their performances. Weimer (1982) examined the need for process descriptions of inservice teacher education by describing the content, process, and products of field based individualized social emotional education curriculum development inservice during the final six months of a two year Teacher Corps Project (1977). The study revealed that social emotional education as an area of curriculum development is unique. Reyna (1982) developed an inservice model to provide classroom teachers with training which could be applied to their teaching techniques and thus relate their instructional programme to the diagnosed needs of the student. Inservice activities were developed to reinforce the designated areas of concern listed below: to plan instruction around needed student competencies, to prepare appropriate tests and evaluations to measure student teaching, to interpret one's own tests and evaluations accurately. Bolak (1983) exposed teachers to three distinct inservice training models: the individualized inservice training model, the team consultant inservice training model and the required inservice training model. Teachers perceived the team consultant inservice training model to be the most effective method of inservice training.

Huppert (1984) prepared a modular course in microbiology for biology teachers of Kibbutzim high schools in Israel. For developing the modules the following criteria were used:

i) the subject matter should be interesting and relevant to the students' environment;

ii) the organization of the learning material should be as flexible as possible;

iii) the learning and teaching strategies should be a synthesis of several modes of learning and teaching and include group activities;

iv) the learning material should be effective in classes of mixed ability. It was found that modules prepared were effective.

O'Neill (1986) determined the factors which are perceived to be essential to the development and maintenance of comprehensive, districtwise inservice education programmes. The factors which are essential for development and maintenance of inservice programmes were found to be needs, leadership, resources, processes and context and/or climate.

Six studies have been reported concerning inservice training. The inservice education is a vital component of teacher education. The inservice training has been found to have a favourable effect on the teaching methods of teachers (Hall and Myers 1974). The needs, content, process and products of the inservice training programme form the crucial factors which contribute to the effectiveness of inservice training programmes (Weimer 1982; O'Neill 1986). Three studies have tried to study the models of inservice training programmes (Reyna 1982; Bolak 1983 and Huppert 1984). It may be noted that inservice training programme has been considered as a very important aspect of teacher education by all the studies.

However, it can be seen that only a few studies have been reported describing the content, process of inservice teacher training. There is an urgent need to explore the effectiveness of different forms of inservice training at different levels.

2.1.1.3 Researches concerning development of programmes and evaluation of training programmes

Holmes (1975) examined the inter relationships between student teachers verbal interaction in competency based teacher education programmes (CBTE) and traditional teacher education programmes based upon Flanders' Interaction Analysis Categories (FIAC). It was found that student teachers trained through CBTE use more indirect interaction.

Peterson (1975) tried to provide a conceptual definition of Performance-Based Teacher-Education (PBTE). The conceptual framework was expressed as a series of possible programme characteristics grouped into four categories: (i) Essential elements, those characteristics or definitional components seen as necessary to the concept; (ii) prevalent characteristics, non-essential characteristics which are widely accepted as desirable programme components; (iii. Adjunet characteristics, non-essential programme characteristics mentioned less frequently in the literature; and (iv) Additional characteristics, programme components not stressed in the literature but which may be seen as providing for a more complete conceptual analysis. The study found that a PBTE programme was organized around eight essential characteristics: (i) a focus on performance, (ii) a general systems approach, including systematically increasing role integration and synergetic organization (iii) specificity of objectives, including use of precisely stated objectives/competencies derived from explicit concepts

of teacher roles and made public in advance; (iv) specificity
of evaluation, including use of evaluation/assessment
criteria which are explicit, make clear the requirements to
be met, and are made public in advance; (v) Accountability,
(vi) Emphasis on exit; (vii) a field orientation and (viii)
Individualization/personalization.

Terapigittra (1976) analysed the programme for preparing
science teachers at Sri Nakharinwirot University at prasaranmitr,
Bangkok, Thailand. The study focused on three sub programmes:
general education, academic major/minor or specialised
education or professional education. It was found that most
of the student and graduate respondents felt that general
science courses should be offered in two tracks - one for
science major/minor students and one for non-science students.
The following experiences were listed as offering the most
value of science teachers: Science lesson plans, demonstration
and experiments.

Carney (1977) tried to study the relevance of the Anisa
model on learning for the preparation of teachers. The study
has identified a number of problems that hamper the effectiveness
of teacher preparation programmes. First, the trainers of
prospective teachers are confused about the purpose of education,
the nature of teaching and learning, and the relationship
between the two. Second, the absence of an explicit comprehensive
theoretical foundation, which characterizes most teacher training
programmes, virtually guarantees that very little use of the
extensive literature on human growth and development will be
made by teachers.

Dubois (1977) designed and conducted a study to develop
a model set of cognitive-behavioural objectives for field-based
curricula for pre- and inservice education programmes for
secondary school earth science teachers. It was found that

secondary school earth science teachers considered 67 of
the 97 behavioural objectives of the questionnaire as behavioural
objectives of primary importance.

Evans (1979) developed alternative models of continuing
education related to teaching.Conceptual models were formulated
inductively by examining descriptions of programmes reported in
educational journals. This examination yielded five models
(i) behavioural model-with an emphasis on specific teacher
skills, (ii) Knowledge transmission model which aims at
informing teachers about current educational methods and
topics of interest, (iii) developmental model, which emphasizes
self-defined goals and inquiry into classroom concerns,
(iv) human relations model which aims at increasing self
awareness and interpersonal communications and, (v) organizational
process model in which the teacher participates in curricular
and organizational decision making.

Zeitone (1979) designed a preservice programme in
biology for secondary school teachers in Jordan with a major
emphasis on the selection and design of biological science
curricula. The general format of the proposed biology
programme was organized at three levels: 1. Introductory
biology courses: consisting of the principles of biology I
and II; 2. Organismic biology courses: Consisting of the
biology of plants, principles of zoology, and fundamentals of a
microbiology; 3. Advanced biology courses: consisting of
general ecology, genetics, adaptation and evolution, biological
laboratory techniques, field biology, biology seminars,
and a research project. Biological topics were suggested for each
course to serve as a guide in organizing the content of these
courses. Methods courses in biology were suggested for the
completion of the programme as a part of the professional
education segment of the biology programme. One common and
unifying theme in the biology programme was the emphasis on the
scientific inquiry and laboratory activities.

Sithipong (1979) developed a staff development model
based on perceptual psychology for teacher education in
Thailand. The model had two dimensions: conceptual model,
an organized idea that serves as a basic concept of performance
for staff development, covers three major areas: (i) the
concepts and purposes of staff development programmes,
(ii) principles of staff development programmes; and
(iii) procedures for generating a staff development programme.
An operational model is the step wherein philosophy, ideas,
principles, plans and design are put into action.

Koop (1980) developed an alternative theory for teacher
education. The theory, heuristic in nature, rests on person-
oriented educational foundations drawn from three sources:
(1)   humanistic psychology and phenomenological theory,
(2)   studies which focus on the nature of teaching; and
(3)   an emerging body of curriculum theory. In the proposed
curriculum design, four elements are identified and explicated:
the person, the learner, the communicator, and the teacher
relationships among these elements are delineated in the
interpretation of the design. Principles are formulated to
guide the translation of the alternative design into curricular
innovations in instructional settings. Yinger (1980)
developed and empirically validated an enquiry approach to
staff development for teachers based on two complementary
principles. C.G. Jung's view of man as holistic and individuating
and M. Knowle's andragogical theory for the creation of
adult learning environments. The study reveals that it is
possible to facilitate the development of wholeness, energy
and individuation within an educational context when the proper
conditions are present. The study validated andragogical
principles of adult learning: Adults have the need and capacity
to be self-directing; to apply full reservoirs of experience;
background and cognitive styles; to assess their own readiness
to learn; and to have a problem-centred orientation to learning.

Rogowski (1981) assessed the effectiveness of a competency based teacher education programme. It was found that over 90 per cent of the population considered the 37 competencies as important - all competencies but one were important and were being used. Elisberg (1981) studied the implementation of selected Master of Arts in Teaching (M.A.T) programmes in the United States. It was found that the MAT administrators interviewed agreed on three points: (1) the generally high quality of MAT students, (2) the significant number of educational leaders who entered the profession as MATs, and (3) the positive effect that the awarding of major grants had on the proliferation of M.A.T. programmes.

De Trujillo (1981) developed a preservice teacher training model for problem solving. This model integrates written, audio-visual and simulation delivery systems for the purpose of teaching problem solving skills that will have a high degree of transfer. The study found significant differences between (a) the composite teacher training model and written instruction on rules, (b) the model and audio-visual instruction on rules, and (c) the model and written instruction on rules with audio-visual presentation, i.e., the composite teacher training model seemed to be more effective in training for problem solving than the other strategies. It also found a high degree of transfer of problem solving skill from the simulated classroom to real classroom problem solving performance.

Guthrie (1983) made an evaluation of secondary teacher training in Papua New Guinea. It was found that no significant differences were there between their professional acceptability, despite different programme designs, lengths and costs. Inspectors' informal professional opinion, however, generally held that differences between graduate's subject knowledge, teaching skills and professional attitudes existed.

Mc Mohan (1984) developed a preservice and inservice education-Humanistic model for Austin Peay State University. This model was developed on a conceptual framework of humanistic educational theory, perceptual psychology and existential educational thought. The model involved three role groups; the inservice teacher, the preservice teacher and the elementary student.

Youngblood (1987) studied the staff development for middle level educators in the state of Washington. The study found that middle level educators working in Washington perceive that they were prepared to work at this level. However, some respondents indicated that their preparation came through work experiences than through college preparation programmes.

In this area (i.e. development of programmes and evaluation of programmes) 16 studies have been reported. It may be observed that some of the studies have tried to develop model based on some theories. A few evaluation studies are also seen. The models generated have a root in the culture of the country of its origin and designed to meet specific needs. However, some of the models could be utilized for teacher training across the countries. It may be noted that there is a paucity of studies where functional aspect of teacher education has been emphasised.

2.1.2 On the internal structure of teacher education.

The internal structure refers to the process of training. This includes researches concerning foundation courses, researches concerning approaches, practice teaching and inservice programmes.

2.1.2.1 Study concerning foundations of education

A single study has been reported in this area i.e., Kapaale (1981) studied the foundation courses in Zambia and recommended

the reexamination of the present content of one course because
it does not reflect the Zambian Culture; the splitting up of
the other two courses into three new ones which will be less
broad and organizing these courses in an interdisciplinary
manner. This reflects that there is need to conduct more
studies to examine the foundation courses in the context of
the culture of the particular country.

2.1.2.2 Studies concerning approaches

This area has been extensively researched and a wide
variety of tested approaches, methods, skills of teaching are
available for the teacher to practice. Some of the approaches
of training which have found wide acceptance and demonstrated
their effectiveness are interaction analysis, microteaching,
simulation, etc.

The interaction analysis has been found to be effective
in training teachers (Johnston 1976; Willett 1976; Karani 1979).

Several simulated programmes have been developed (for
example Cruickshank 1967; Kersh 1963; Cruickshank 1969;
Twelker 1968; Merriman 1972). One of the major conclusions
reached by Beck and Tucker (1973), as a result of their review
of research on teacher education was that

'Direct involvement in the role to be learned or such
close approximations as sensitivity training laboratories
or classroom simulation laboratories, produce the desired
teaching behaviour more effectively than remote or
abstract experiences such as lectures on instructional
theory'.

A review of researches specifically undertaken on the
advantages and disadvantages of simulation as an aspect of
teacher education programmes has been made by Cruickshank and
Broadbent (1970). The main conclusions inform that at this

stage, very limited data exist to determine just how useful
simulated laboratory experiences are for student teachers.
In fact, one must agree with the statement made by Taylor and
Walford (1974) when they claim:

'Present information concerning the learning impact of
simulation is fragmented and based more on hunch and
general impression, than on systematic validated research
study. This is partly due to the comparative novelty of
the technique and to the fact that authors of evaluation
studies are often the originators of the simulation or
game under review'.

However, under these circumstances, simulation could be accepted
as an effective method of teacher training for it has produced
consistently better results on the field (Dieterle 1985).

Microteaching : In the early 1960s some educator researchers
at Stanford University recognized the significance of newly
developed videotape technology for providing teacher trainees
with immediate 'Knowledge of results' about their teaching
performance. Coupling this capability with an emphasis on
mastery of tightly defined teaching skills and with learning
experiences based on exemplary models of teacher behaviour, the
standford group developed the concept of microteaching (Allen
and Fortune 1967). In the following years other researchers and
teacher educators attempted to look more closely at microteaching
and the possibilities it offers for improving teacher education.
It was being used in one form or the other, in 176 programmes
for educating secondary school teachers in the United States
(Ward 1970). It is being used in several other countries,
including Australia, Canada, England, West Germany, Israel,
Nigeria, and Sweden (Gage 1977). The microteaching was taken
apart and its components examined and weighed. Its principles
have been adapted to inservice as well as preservice programmes.
Finally, its effects on teaching performance have been assessed.

Most teacher educators include microteaching in their programmes for the purpose of offering training in the technical skills of teaching. Such inclusion is based on two assumptions: the first that skill training via microteaching will cause trainees initially to acquire the targeted technical skill rapidly and with a high degree of efficiency, and the second that microteaching will ensure that the targeted skills thus acquired will be used in the classroom subsequent to training. A large number of studies have consistently shown that microteaching training increases initial acquisition of target skills (for example, Van Mondfrans and Smith 1970; Kissock 1971; Borg 1972; Shea 1974; Saunders et al. 1975; Franklin 1981; Howdyshell 1986; Soobiah 1981).

The weight of evidence supporting the second assumption - that microteaching increases the range of technical skills actually employed by the trainee in the classroom subsequent to training - is, however, much less substantial. While Borg et al (1969) and Raymond (1973) reported that microteaching trainees demonstrated a significant increase in the use of target skills, other investigators have not succeeded in obtaining similar results (Kissock 1971; Peterson 1973; Copeland and Doyle 1973; Copeland 1975; Karty 1976).

Though the results at first seem disappointing further examination of these reports reveals an interesting tendency. Other researchers have performed similar studies using as subjects experienced teachers who are enrolled in inservice training. These studies with inservice subjects report that microteaching has considerable effect on classroom performance (Borg et al 1969; Borg 1972; Hofmeister 1974; Perrott et al., 1975; Trinchero 1975). Interestingly, in the 1969 study, which yielded positive results for microteaching with preservice subjects, Borg and his colleagues used the same materials (the

Far West Laboratory's mini course programme)that had produced
good results with inservice teachers. In this study, while
Borg and his colleagues noted significant results with the
preservice subjects, they also noted that the gains for their
experimental group were not so great as were gains exhibited
by inservice teachers who had taken the same programme.

Mc Intyre (1977) showed that microteaching could be
regarded as primarily a way of influencing cognitive structures
that are important in teaching, such structures, should give
teachers conceptually simple guidelines by which to govern
their behaviour in the hundreds of interpersonal interactions
occuring in a day's classroom work.

A careful examination of the research reveals that there
appears to be a considerable research base supporting the
inclusion of microteaching as a pre-student teaching laboratory
experience in teacher education. Participation in microteaching
appears to assure initial-acquisition of selected technical
skills of teaching and to be associated with shifts in partici-
pant's attitudes. Further, skills acquired by doing microteaching
may be used in microteaching classrooms subsequent to training
if the nature of those classrooms supports such use.

2.1.2.3   Researches concerning practice teaching

Practice teaching is considered as one of the most
important component of teacher education. But, in many teacher
education programmes the practice element in teaching is short
and unrelated to the theoretical studies of disciplines.
(other than education) that comprise much of the curriculum of
student teachers. For example, in some parts of the United
Kingdom the Dip.H.E./B.Ed. route for teacher training advocated
in the James report and implemented in the reorganised teacher

training institutions from the mid 1970s, some times under-plays the importance of teaching practice.

In this review an attempt has been made to examine aspects of the teaching practice experience. In particular, the nature of the teaching practice, the quality of supervision and the role of the teacher in whose class the student is placed (supervisor or the co-operating teacher) are presented.

In North America in general and in Canada in particular, one of the major innovations in teacher education during the 1970s was the introduction of the extended practicum. The term 'practicum' refers to that period of time student teachers spend in the classroom observing and practising teaching. The use of the qualifier 'extended' is indicative of an innovation that occurred when the traditional time allocation for practice teaching was extended from some 30 days to 13 weeks. This increase of the time allowed for practice teaching was intended to provide the prospective teacher with greater classroom experience and skills prior to entering the teaching profession. In the professional development programme at Simon Fraser University, for example, one third of the year is devoted to classroom observation and seminars on curriculum and teaching skills, another third is devoted entirely to classroom practice (the extended practicum) and the final third given over to academic course work. This is not unlike the balance of many existing postgraduate certificate of education (PGCE) courses in the United Kingdom. This innovation occurred in many North American Universities during the 1970s.

Clifton and Covert (1977) evaluated the effects of an experimental programme (i.e. extended practicum) on the motivation and self concept of a group of student teachers. They concluded that: 'the amount of productive time a student teacher spends in school and the integration between what is observed and practised

there and what is taught in educational institutions has a
significant effect upon the development of his motivation to
become a teacher and his self-concept as a teacher. In
another study Kaufman and Shapson (1977) also identified an
overall tendency for students to either maintain or improve
their scores on self concept and attitude measures. The
inference that can be drawn from the equivocal nature of the
research is that although the extended practicum can provide
positive effect, simply lengthening the practice teaching
experience is of itself not a sufficient condition. As Wideen
and Holborn (1983) put it:

> 'It appears that while length cf practicum may be
> important, a longer practicum alone is insufficient to
> produce higher levels of motivaticn and self concept or
> lower levels of anxiety among student teachers.... the
> combination of specific programme characteristics with
> a larger practicum experience may be necessary for
> significant change to occur'.

Allen (1976) suggests that the practicum could be improved more by
effective use of differentiated staffing, supervision techniques,
teacher self-evaluations, and sequencing of programme components.

Joyce's work on training provides a clue to the design of
programmes that are effective in enabling teachers to develop
and enrich their teaching skills. After reviewing about 200
papers on training, Joyce and Showers (1980), conclude that:

> 'Whether we teach ourselves or whether we learn from
> a training agent, the outcomes of training can be
> classified into several levels of impact viz., awareness,
> concepts and organised knowledge, principles and skills,
> application and problem solving'.

In a later paper, Joyce and Showers (1984) explore the
concept of Peer Coaching as a cost-effective means of developing
teaching competence. The message from this body of work is

Clear: if new teaching behaviours, skills and competencies are to be passed on effectively to teachers, then it would appear that 'on-the-job' coaching and support can help students who are experimenting with different teaching approaches to adapt and widen their repertoire of teaching skills.

The supervision for developing teaching competence needs to be systematic, reciprocal and school based. The concept of clinical supervision was developed in   Harvard in the early 1960s and is most closely associated with Cogan (1973) and Goldhammer et al (1980). Later Sullivan (1980), Grimmett (1981) and Sergiovanni (1982), Acheson and Gall (1980), Rudduck and Sigsworth (1983) have developed materials, books thus promoting the clinical supervision in training.

The role of co-operating teacher in the practice teaching programme is crucial for the professional development. Seperson and Joyce (1981), in addition to their own empirical research, report on a number of studies that confirm a relationship between the teaching styles of student teachers and those of their co-operating teachers.

The change in the training programme must affect both the systems and at personal level. Unfortunately, it is often assumed that it is necessary for systematic change to occur first in order to lay the ground for personal change. This often means that change occurs slowly. Irrespective of the system characteristics within which one works, the individuals involved can significantly affect the quality and form of these relationships. Many of the changes considered can be tried out. Changes in form occur as a result of individuals, however, hesitantly, trying out new ideas in a systematic, intelligent and self conscious way. Through adopting more

systematic modes of supervision, and by involving the
co-operating teacher specifically in the process, there is
more scope for improving the practice teaching.

2.2   Review of researches on teacher education in India

The Education Commission (1964-66) recommended 10+2+3
pattern of education. This pattern of education has been
implemented in almost all the states. The National Policy
on Education (1986) has also recommended this pattern of
education. However, it may be observed that there has not
been adequate attention given to the preparation of teachers
at different levels. There has been a quantitative expansion
of teacher education institutions in these four decades to
train teachers for primary and secondary stages. There are
no institutions to train teachers for higher secondary level
(except Regional Colleges of education offering Courses for
higher secondary level teachers) Although the higher secondary
stage (+2 stage) has emerged as a distinct stage, the
corresponding structural change was not made in the teacher
education courses. Realising this vital need the present
investigation was made. It is in this back drop that the
review of related researches has to be seen.

The present review of Indian studies purports to
discern trends, identify gaps, and visualize the dimensions
relevant for designing of teacher education programme for
higher secondary teachers. Considering the fact that a large
number of studies in different aspects of teacher education
has been carried out in foreign countries, the framework for
the review of researches in teacher education in India is
similar to that of the review of foreign studies.

There are several ways to review the related research studies. For instance, Das and Jangira (1986) have reported ways of reviewing researches as follows:

It can be reviewed around the substantive content areas of teacher education like Pedagogical theory, student teaching, and so on. The levels at which teacher education is organized provide and another frame of reference. The studies can also be clustered into methodological types - descriptive, developmental, experimental, and the like. Each of those alternatives, as a basis of the conceptual frame has its strengths and limitations'.

It can be observed here that researches concerning higher secondary level teacher education are very less in number. However, the researches which have a bearing on the higher secondary level or teacher education at this level have been included in this review and the various aspects of the studies are presented in detail, highlighting their relationship with the present study.

The studies concerning the primary education and teacher education at this level are not covered in this review for the reason that by reviewing studies only at secondary and higher secondary level more focus could be given to the problem under study. Furthermore, primary education is rather remotely related to the higher secondary level, although it serves as a foundation for all other levels of education. As the higher secondary teacher education is sandwitched between secondary and university level of teacher education, the studies concerning secondary as well as university level teacher education have been included in this review.

The researches have been reviewed under the following basic areas:

Area I   :   Training needs and functions of teachers

Area II   :   Foundation courses

Area III   :   Methods and Approaches

Area IV   :   Practice teaching

Area V   :   Inservice programmes

Area VI   :   Programme evaluation studies, Development of
               programmes, Alternative models.

This dimensionalisation has been done for the convenience
of the presentation of the review of researches. The areas
classified are not exclusive by nature, but some overlapping
may be seen. Perhaps, in this sort of exercise some overlapping
of studies is inevitable. Another significant point to be noted
is that the individual studies in the area of teacher education
are not built around a conceptual theme (except researches
concerning microteaching and interaction analysis). However,
effort has been made to present the researches in such a way
that a sharp focus is made on the trend of researches and point
out the gaps in them.

2.2.1 Training needs and functions of teachers

There are twelve studies reported in this area. Most of
the studies are state level surveys and conducted at the doctoral
level. The tools used by most of the studies were questionnaire
and interview schedule. The sample forms the teachers, student-
teachers and teacher educators in the teacher training colleges.
Only two studies concern with the teacher education in the
context of 10+2 pattern (Goyal and Chopra 1979; Murthy 1983).
All the other studies are on teacher education at secondary
level. Although more numbers of surveys are required of
different regions, more intensive case studies of specific
region are also needed. Most of the findings of all the studies
in this area are similar. Although the studies were conducted

in different states, the similarity of the findings show that
the problems of teacher education are deep rooted and there is
need to reorganize the teacher education programmes at different
levels. A single study has been reported at the national level
(Sharma 1982). This study also has arrived at the similar
findings. This points out at the need for more numbers of
studies at national level.

Some of the salient findings of these studies were:

i) Majority of the student teachers and teacher educators
think that content courses should be included in the
curriculum of the training colleges (Joseph, 1967;
Shukla, 1976; Sharma, 1982);

ii) The students regarded group discussions, conferences,
and supervised study as very effective teaching methods
in addition to the lecture method (Joseph, 1967; Marr,
Singh, Arora and Gupta, 1969; Ehardwraj, 1974; Sharma,
1982).

iii) Teacher educators and student teachers think that B.Ed.
syllabus was highly theoretical and more emphasis should
be placed on practical work (Joseph, 1967; Marr, Singh,
Arora and Gupta 1969; Saikia 1971; Ganju 1973; Saraf
1975; Shukla, 1976; Sharma, 1982; Mathur 1987).

iv) The B.Ed. syllabus was not relevant to the actual needs
of teachers (Saikia, 1971; Ganju, 1973; and Sharma, 1982).

v) The duration of the B.Ed. course has to be increased
(Sulthana, 1976; Ganju, 1973).

vi) Evaluation of the student teaching is far from satisfactory
(Marr, Singh, Arora, and Gupta 1969, and Shukla 1976).

vii) There is an urgent need for inservice training of existing
teachers working in the schools under the new pattern
(Goyal and Chopra, 1979).

These findings clearly indicate that there is an urgent
need to reorganize the B.Ed. programme in order to fulfil the
needs of secondary and higher secondary teachers. Although
twenty two years have passed after the Education Commission
(1964-66), only a single study (Goyal and Chopra 1979) is
reported concerning the teacher education for new pattern of
education. This shows that teacher educators have not given
much importance to the change in the pattern of education and
the consequent changes needed in the teacher education. The
National Policy on Education (1986) has also recommended 10+2+3
pattern of education. In this context, there is a need to
examine the needs of higher secondary teachers.

A single study has been reported on functions of teachers.
Department of post-graduate studies in education studied the
role expectations of teachers under training in the city of
Bangalore (1974). Female Pupil teachers were found to be more
favourably disposed towards teaching than male pupil teachers,
though both the groups expressed high degree of favourable
attitude: Female pupil teachers were more favourable towards
the academic aspect of teaching than male pupil teachers.

This clearly shows that there is need to conduct more
studies on functions of teachers at different levels.

2.2.2   Foundation courses (Pedagogical theory)

Three doctoral studies have been reported in this area
(Patel 1971; Sharma 1973; Sharma 1982). Patel (1971) has found
that curriculum for audio-visual education was inadequate and
the topics taught in the audio-visual education programme are
elementary in nature. The other two studies directly concern
the foundation courses. Sharma (1973) has found out that out
of thirty universities, twentyseven had not explicitly stated
the aims of compulsory papers and the remaining three had
vaguely stated the aims. It was also found that there was no

uniform policy regarding combinations of theory courses;
generally, they had lumped arbitrarily any two courses as
sections of a single paper. Sharma (1982) has also found
that although diversity is seen in the foundation courses,
the diversity has not emerged from well defined principles
and was entirely arbitrary. These two studies (Sharma 1973
and Sharma 1982) have clearly brought out the inadequacies
of the foundation courses. The foundation course has to be
reorganised in accordance with the needs of secondary and
higher secondary teachers. Further, there is need to examine
the foundation course for the relevance of the course structure,
the depth of content etc, through intensive case studies.

2.2.3   Methods and Approaches

This is a very broad area and it has been extensively
researched. Therefore, for the sake of convenience of presen-
tation the studies in this area are further classified into
three groups viz.,

A.   Researches concerning methods, approaches, techniques,
       strategies, etc.
B.   Researches concerning Microteaching.
C.   Research studies concerning interaction analysis.

2.2.311 Researches concerning methods, approaches, techniques, strategies, etc,

This sub area has been further classified into two groups
of studies viz.,

a.   Studies concerning strategies of teaching, and
b.   Studies concerning methods of teaching.

2.2.3.1.1 Studies concerning strategies of teaching/
styles of teaching.

All the studies reported in this area are done at the
doctoral level and they are experimental studies. All the
studies have taken achievement as the criterion for testing
the efficacy of the strategy/style (Sundaralakshmi 1981
includes pupil growth and climate), it may be noted that the
results of these studies are not conclusive (Shaida 1976;
Roy 1977, Chakraborthy 1978; Sundaralakshmi 1981 and Yadav
1983). For generalisation more studies of this kind may have
to be undertaken to arrive at some conclusive results.
Teaching strategies for developing higher abilities such as
analysis, synthesis and evaluation have to be developed.
Yadav (1983) reports that classroom questioning behaviour
tends to increase the incidence of questions at higher levels.
However, more validation studies have to be conducted to arrive
at the generally accepted strategies of teaching. Further,
it may be observed that these strategies have been developed
and tested on secondary school pupils. There are no studies
showing some strategy to be effective at higher secondary
level. There is an urgent need to develop teaching strategies
for higher secondary level teaching.

2.2.3.1.2 Studies concerning methods of teaching

There are only three doctoral studies reported in this
sub area. Sharma (1971) and Tulka, Kulshreshtha and Bindawat
(1974) have studied the relative effectiveness of methods of
teaching educational psychology whereas Masih (1976), has
studied the methods of teaching biology. A careful analysis of
the results indicate that a particular method of teaching cannot
be said to be superior to another method and therefore, there
is need to combine various methods of teaching in an appropriate

sequence to teach a particular subject and study its relation
to the success of pupils' learning.

2.2.3.2 Researches concerning microteaching

There are relatively more numbers of studies in this
sub area. Many aspects of microteaching have been studied in
detail. The research studies in this sub area have been
presented under the following sub heads for the convenience
of presentation:

i) Studies concerning the identification of teaching
     skills,

ii) Studies concerning the effect of microteaching on
     pupils achievement,

iii) Studies concerning the integration of teaching skills

iv) Studies concerning comparison of microteaching with
     other techniques of teacher training.

2.2.3.2.1 Studies concerning the identification of
            teaching skills.

There are only three studies, at the doctoral level,
reported concerning the identification of teaching skills
(Lalitha, 1977; Shukla, 1981; Rao 1985). This clearly
indicates that not much attention has been given to the
identification of skills. The specific skills in each discipline
have to be identified. Lalithamma (1977) identified three
major categories of skills. They were: (A) Skills of
planning such as, skill of identifying learners entry behaviour,
skill of writing instructional objectives, etc. (B) Skills of
instruction viz. questioning skills, skills related to pupil
understanding, skills related to pupil evaluation, skills
related to pupil participation, skills related to pupil
attention, and skills related to classroom management,

(C) Skills of testing such as, skill of writing a variety
of test items, skill of making plausible interpretations
about the performance of pupils on the test etc. Shukla
(1981) found that there were atleast six distinct and specific
mathematics teaching skills namely, skill of developing a
concept, skill of developing a principle, skill of applying
inductive approach, skill of applying deductive approach,
skill of figure-drawing and skill of applying problem solving
approach. Rao (1985) studied the classroom teaching of
effective science teachers and identified the content processing
behaviours, interactive behaviours and component teaching skill
behaviours.

All these studies are done at the secondary level.
Although these skills, behaviours can be utilized effectively
at higher secondary teaching, skills such as content processing
behaviours have to be studied at the higher secondary level in
a distinctive manner for at the +2 stage the foundation for
the specialised disciplines are laid. Therefore, there is a
great need to identify the subject specific skills.

2.2.3.2.2 Studies concerning the effect of microteaching
on pupils achievement.

The first level of studies in this connection are
addressed to explore the usability of microteaching technique.
(Passi and Shah 1973; Bhattacharya 1975; Das, Passi and Singh
1976; Joshi 1977). It was found that the microteaching
technique is an effective form of teacher training.

A few studies tried to assess the effectiveness of the
varied forms of microteaching such as standard microteaching
technique, the modified microteaching technique in comparison
to the traditional technique of microteaching. It was found
that the student teachers trained through the standard micro-
teaching or modified microteaching technique acquired higher
general teaching competence as compared to the student

teachers trained under the traditional teacher training
procedure or the usual practice teaching programme. (Das,
Passi and Singh 1976; Das, Passi, Jangira and Singh, 1980).

Vaze (1976) found that microteaching was appropriate
treatment for acquiring the skill in asking probing questions.
The symbolic modelling treatment did not differ significantly
from audio modelling treatment. The symbolic modelling appeared
to be the best treatment for acquiring the skill in asking
probing questions followed by audio modelling, and microteaching
comming out to be the least treatment when tried with predomi-
nantly language oriented group. However, Patel (1978) found
that the microteaching treatment with perceptual modelling and
that with symbolic modelling were nct different in developing
general teaching competence. Das, Passi, Jangira and Singh
(1980) found that there were no conclusive results with
regard to the comparative effectiveness of perceptual and
symbolic modelling in developing general competence in the
secondary student-teachers. They also found that microteaching
under simulated conditions and under real classroom conditions
was equally effective in developing general teaching competence
in the secondary student teachers.

Jangira, Mattoo and Singh (1980) studied the effectiveness
of microteaching techniques in the improvement of the competence
to use the skills of probing, reinforcement, stimulus variation,
illustrating with examples, and increasing pupils' participation
after their training using microteaching. The teachers showed
significant gain in the main scores on the general teaching
competence after training in teaching skills using microteaching.
The teachers had retained the gains on skill as well as on
teaching competence eight weeks after the training. The same
investigators in an another study in 1981 with Science teachers
arrived at the same results.

George and Anand (1980) found that microteaching
facilitated enhancement of the self concept of student
teachers. They found that microteaching proved effective
in improving the teaching competence of student-teachers.

George and Joseph (1978) found that intensive training
and persistent practice in the five instructional skills
influenced in varying degrees the sensitivity cf the B.Ed.
trainees to assimilate partly other related pre-instructional,
instructional and post-instructional skills and to integrate
them in their repettoire of teaching behaviour in the teaching
situation.

It can be observed that the various forms of micro-
teaching could be organized and various forms cf models have
been tried out and found effective in training teachers.
(Das, Passi and Singh 1976; Vaze 1976; Patel 1978; Das, Passi,
Jangira and Singh 1980). Most of these studies have concentrated
on secondary teacher training and the student teachers have
formed the sample for the study. Only two studies have
inservice teachers as the sample (Jangira, Mattoo and Singh
1980; Jangira, Singh and Mattoo 1981). It has also been found
that microteaching facilitates enhancing the self concept
(George and Anand 1980).

Considering the versatility of the microteaching
technique, it could be usefully employed in the training of
higher secondary teachers.

Three studies have been reported in developing instruc-
tional materials for the skills identified. Passi (1977)
examined the nature of feedback provided to the student teachers
in the prevailing student teaching programme and studied the
effectiveness of instructional materials in developing
corresponding teaching skills and the general teaching competence

among student teachers. The teaching skills selected for the experiment were: skill of introducing a lesson, skill of probing questioning, skill of fluency in questioning, skill of reinforcement and skill of achieving closure: Joshi (1977) also studied the effectiveness of instructional materials synchronised with microteaching approach in the acquisition of four teaching skills, viz., stimulus variation, illustrating with examples, silence and non verbal cues and recognising attending behaviour and the general teaching competence among the student teachers.

Both the studies have found that (i) student teachers exposed to the treatment of skill based instructional materials have scored higher in the acquisition of the respective skill than the student teachers exposed to the traditional teaching programme. (ii) The experimental groups scored higher in the acquisition of the general teaching competence than the student teachers exposed to the traditional teaching programme. Passi (1977) has also found that the comments of supervisors clustered around a few aspects of teaching like questioning, explaining etc. Aspects like content selection, remedial measures, etc. were ignored.

Jangira and Dhoundiyal (1981) developed Classroom Behaviour Training and it consisted of seven units of instructional material. The Classroom Questioning Behaviour Observation Schedule consisted of six dimensions, viz., question function, structural characteristics, delivery, distribution, pupil's responses and management of pupil's responses. The CBT helped in reducing the use of lower order questions and increasing the use of middle and higher order questions in the experimental group.

2.2.3.2.3 Studies concerning feedback

Roy (1978) found that the inservice school teachers in
the microteaching groups for the acquisition of teaching
skills, exhibited significantly higher gain scores of general
competence than that of the filler group under integrated
skill-based traditional practice teaching at the post test/
retention test over pretest. The performance of the teachers
trained through microteaching for skill acquisition either
under supervisory feedback or supervisory-cum-audiotape feed-
back was significantly higher on the gain scores of general
competence than that of the filler group. The performance of
the teachers trained through microteaching for skill acquisi-
tion under self-analysis through audiotapes was as effective
as that of the teachers in the filler group. But, Paikaray
(1981) has found that the feedback by both peers and audiotape
was much more effective than the feedback by peer or audiotape
only. Pangotra (1972) studied the effects of feedback from
different sources on the classroom behaviour of student teachers
using the technique of interaction analysis. Sharma (1977)
found that discussion was the most effective technique of
providing feedback by the peer supervisors for the attainment
of the skill of body movement. Similarly, written feedback
was effective in the case of the skill of shifting sensory
channels. However, Sharma and Passi (1976) have found that
peer feedback, oral discussion and written comments produced
no differential effect on the teaching skill of gestures. They
have also found that there was practice effect upon the
attainment of the skill of gesture.

A single study is reported i.e., Roy (1970) which has
tried to identify some ideal classroom behaviours of teachers
for using them as feedback strategies. Dholakia (1980) has
studied the observers' comments and feedback on the performance

of pupil teachers.

Most of the studies have tried to study the effect of feedback on teaching competence and attitude towards teaching. (Roy 1978; Sharma 1977; Pangotra 1972; Sharma and Passi 1976; GCPI 1979 and Paikaray 1981). Further, majority of the studies have found that feedback has produced favourable attitude towards teaching in student teachers.

These studies have emphasised the secondary level teaching. Although, the results of these studies are relevant for higher secondary teaching, there is need to include higher secondary level in the sample to visualize the different feedback systems for higher secondary teacher training programme.

2.2.3.2.4 Studies concerning the integration of teaching skills.

Research studies on the integration of teaching skills have shown that the performance of student teachers improve, and develop teaching competence (Visvesvaran and Rao, 1979; Das, Passi, Jangira and Singh 1982; Joshi and Kumar 1983; Singh 1982; Ekbote, 1985).

The researches on the integration of skills are limited in number as compared to the studies taken in microteaching programme. A few studies conducted reveal that the planned integration contributes to integrate the skills compared to that of spontaneous integration (Lalitha, 1980; Mukhopadhaya et al., 1982; Ekbote, 1985).

2.2.3.2.5 Studies concerning comparison of microteaching
with other techniques of teacher training.

A few studies have been reported comparing microteaching
with other techniques. Singh (1974) found that the student
teachers trained through microteaching significantly changed
their verbal teaching behaviour in the classroom compared to
the student teachers trained in traditional way only. Student
teachers trained in FIACS changed their verbal teaching
behaviour in the classroom significantly compared to the
student teachers trained in traditional way only. Mukhopadhyay
(1981) studied the development of selected teaching competencies
through microteaching and modular approaches and compared the
effectiveness of microteaching and modular approaches in
developing selected teaching competencies. Both the treatments
were found to be equally effective.

2.2.3.3 Studies concerning interaction analysis

A significant number of research studies have used inter-
action analysis system to study the classroom behaviour, to
provide feedback to teachers and to study the teacher effective-
ness. It has also been used to modify the teacher behaviour.
Sharma (1979) found that teachers talk was six times more
than student's talk. Very little time was spent on praising
and developing student's ideas. The nature of influence patterns
of teachers was very much direct. Tareen (1980) found that orien-
tation and feedback had a highly significant effect not only on
the pattern of cognitive interactions in instruction but also on
the over all teaching competence. Tareen (1980) and
Raghavakumari (1978) have used Nayar's System for analysing
instruction and it has been observed that it is an effective
system of observation for studying classroom behaviour.

These studies have shown that the interaction analysis
system can also be used as an effective technique in the teacher
training programmes at different levels.

2.2.4.1 Practice teaching

A few studies have been reported in this area. Most of the studies are evaluation studies.

Mani and Gonsalves (1977) found that teachers with more teaching experience had better self-concept than teachers with less teaching experience. Teachers with better self-concept scored more on practice teaching than teachers with poor self-concept. Srivastava (1970) revealed that practice teaching formed an essential and compulsory item in all teacher preparation programmes. Place of practice teaching was determined either by relative weightage in terms of examination marks allotted for practice teaching in the total programme or the amount of time or hours of work a student had to put in to complete the requirements of practice teaching in relation to the time used for completing all the requirements of the programme. Damodar (1977) found that practice in lesson planning, preparation of aids, school visits were found common in all the colleges in Andhra Pradesh. Sharma (1973) found that observation of lessons of school teachers before practice teaching was generally not in practice. Demonstration lessons were given in all the teacher training institutes, but in some it was only on paper and not in practice. Number of these lessons was grossly inadequate.

2.2.4.2 Studies on Supervision

Prakash and Mehrotra (1974) found that the cassette recording provided an accurate record of the verbal interactions in the lesson. Pande (1980) found that some of the teacher-educators did not have adequate knowledge of the subject matter in which the trainees delivered their lessons.

Three studies have been reported, which tried to under-
stand the practice teaching (Mani and Gonsalves 1977;
Srivastava 1970 and Damodar 1977). All the studies have been
undertaken at the secondary level. Mani and Gonsalves (1977)
have found that there is a positive relationship between the
self concept and performance in practice teaching. It may be
observed that no study has been done at the higher secondary
level.

Prakash and Mehrotra (1974) have studied the feasibility
of using cassette recorder in supervision. Pande (1980) has
studied the supervisory practices and listed some problems
associated with supervisory practice.

The number of studies in this area are very less. This
clearly shows that more studies have to be done to understand
the important component of teacher training viz., the practice
teaching programme.

2.2.5   Inservice Programmes

There are only five studies reported in this area.
Srivastava (1966) found that there is a significant improvement
in attitudes with increasing number of activities attended.
The factors contributing to strengthen the inservice programme
were found to be the standing of the college, quality of the
extension staff, practical utility of the programmes and
co-operation of the state departments of education and the
inspectorate staff. Vedanayagam (1966) analysed the inservice
programmes of secondary teachers. Sharma (1982) studied the
growth and development of inservice education for secondary
school teachers in the state of Bihar. Sachdev (1971) studied
the impact of summer institutes for higher secondary mathematics
teachers of Delhi on the school mathematics curriculum of Delhi.
Mama (1980) found that the colleges of education conducted a

variety of programmes, most of which dealt with subject matter, planning of tests, evaluation and audio-visual aids. No effort was made to involve teachers in the planning, evaluation and follow-up of inservice programmes. The school teachers had no access to the college libraries except while participating in inservice programmes. Inservice programmes were run as weekend courses.

However, in recent years a few studies have been reported (SCERT, Andhra Pradesh 1980, 1981 and Butala 1987). The studies undertaken by SCERT, Andhra Pradesh are evaluation studies whereas Butala (1987) studied the inservice education programmes conducted by the secondary teacher training colleges of Gujarat.

It may be observed that all the studies reported are conducted at secondary level except Sachdev's (1971). Srivastava (1966) and Sharma (1982) have studied the inservice programmes with a historical perspective. Mama (1980) has shown the state of affairs of organization of inservice programmes. There is an urgent need to identify the inservice training needs of higher secondary teachers and design effective inservice teacher education programmes.

2.2.6 Programme evaluation studies, Development of Programmes, Alternative models

2.2.6.1 Programme evaluation studies

Sharada devi (1964) compared the traditional and basic method of training and developed an integrated pattern of teacher education. Gupta (1977) found that inspite of the improvement in inputs, the quality of output had not commensurately resulted. Kohli (1974) found that theory should be reduced to fifty per cent and practical work should be increased.

Kohli (1974), Bhatia (1986) have found the need for increasing the duration of the course.

Patted and Mench (1979) found that there is need for professional preparation of college teachers. Singh (1980) studied the preservice and inservice programmes for higher education teachers. It was found that the aspects of the programme helpful for college teachers were techniques of teaching, skills leading to effective teaching, skills of understanding the behaviour of students, developing confidence in teaching, better knowledge of motivational factors, knowledge of educational psychology and techniques of evaluation.

Sinha (1980) found that trained teachers were professionally efficient than the untrained teachers in terms of knowledge of the subjects, preparation of teaching, self-confidence, voice, pronunciation, facial expression and in actual classroom teaching taken as a whole.

All the studies are conducted at the secondary level except two studies, viz. Patted and Mench 1979 and Singh 1980 (at higher education level). A few studies have suggested that the training programme should be extended to two years (Sharada Devi 1964; Kohli 1974; Bhatia 1986). The teacher education course for higher education teachers should be of one year duration (Patted and Mench 1979; and Singh 1980). There is no study reported at the higher secondary level of teachers. Therefore, there is an urgent need to examine the needs of higher secondary teachers and design teacher education course according to the needs of higher secondary teachers.

2.2.6.2 Studies concerning development of models of teacher training.

There are only three studies reported in this sub area. This clearly shows that teacher educators and researchers have

given very less attention to the development of programmes. Perhaps, the difficulties involved in developing the model, the institutional support needed, the finance, may be some of the reasons for less number of studies in this area. It may be noted that the studies are made on practical models to solve the problems of training than models based on some theory.

The studies reported were as follows:

Exemmal (1980) constructed certain models for teaching school Botany using environmental and ethnic resources and tested the efficacy of the models. It was found that the environmental approach was significantly superior to the formal approach in terms of immediate post-teaching and delayed memory scores. Kakkad (1982) developed two models for secondary teachers training. The components of the models were (i) pedagogical theory, (ii) School Experience programme, (iii) Field Experience programme, (iv) Sessional Work and related practical work.

Sharma (1982) developed instructional materials in civics at +2 level for pre-service and inservice teachers. It was found that ninety per cent of the student-teachers obtained distinction marks after studying modules I and II whereas 85 per cent of them reached the distinction level after studying module III. A majority of the student-teachers expressed favourable opinions about the different aspects, viz., physical aspect, general nature, nature of content, organization, illustrations, references, style and instructional aids of the three-modules.

Of the three studies reported, two studies concern teacher education programmes for secondary teacher (Exemmal 1980 and Kakkad 1982), only a single study i.e. Sharma (1982) is reported on teacher training concerning higher secondary

teachers. However, in recent years there have been some studies. (Kadwadkar 1984; Roy 1985; Natarajan 1984; Arora 1986).

This clearly shows that not enough work has been done in this area. There is a need to explore various aspects of teacher training at higher secondary level with a wholistic perspective.

PART II : REVIEW OF PROGRAMMES

2.3 Training programmes for plus two teachers.

In order to fulfil the objective 2, (please refer to p3]) here an attempt has been made to study the preservice and inservice training programmes organised for higher secondary teachers.

2.3.1 Preservice teacher training programmes

The preservice teacher education programmes specifically organised for higher secondary teachers are few in number.

These preservice programmes are studied in order to understand the structure of course and to identify the course elements required for higher secondary teachers.

2.3.1.1 The course at Nagpur University

Nagpur University, Nagpur introduced two courses viz., B.M.Ed. (Bachelor of Mathematics Education) and M.M.Ed. (Master of Mathematics Education) from the academic session 1979-80. The B.M.Ed. course is an integrated course; it has papers on mathematics at B.Sc. level and papers on pedagogy. Those who pass B.M.Ed. will be eligible to teach mathematics at high school level viz., Standard IX and X.

The M.M.Ed. course was introduced for training teachers for secondary and higher secondary level i.e., those who pass M.M.Ed. course will be eligible to teach mathematics at higher secondary level viz., Standard XI and XII. The M.M.Ed. course is not equivalent to M.Sc. in mathematics since the students cover only six papers out of ten prescribed for M.Sc. examination in mathematics. However, the M.M.Ed. course is different from traditional courses like M.Sc., B.Ed., M.Ed. in the sense that it integrates the two disciplines viz., mathematics and education and has been designed specially to produce competent teachers of mathematics. The M.M.Ed. course is of two years' duration. This course consists of six papers of M.Sc. mathematics and four papers of M.Ed. The evaluation is done by written examination as well as practical examination in teaching.

The practice teaching programme for these courses is not much different from the traditional programme except that all modern techniques of teaching mathematics are emphasised. Since, the courses have been started under the special scheme of U.G.C., it could be said that, the course has the scope to cater to the whole country.

2.3.1.2 An experiment at Kurukshetra University

A four year integrated course (after matriculation) for the preparation of secondary school teachers was started in the college of Education at Kurukshetra in July, 1960. In the beginning, the courses for the scheme were so devised as to prepare subject teachers with more thorough and deeper background in their subject areas. For example, teachers for mathematics were to have more papers in mathematics as a major subject with even an advanced course in mathematics with other minor courses in other subjects. Similarly, teachers for English or Hindi were to have more papers in the languages as

their major subjects with some courses in minor subjects.
But, the graduates of this scheme were not allowed to do
their M.A./M.Sc. even in the university at Kurukshetra on
the plea that the graduates did not fulfil the required
prescription for full B.Sc. or B.A. degrees to claim
admissions in M.A./M.Sc. In order to overcome this difficulty
the scheme of courses had to be revised (from 1965 onwards)
and the four year integrated course was made equivalent to
the regular B.A./B.Sc. courses prevalent in the university
with additional professional input equal to the B.Ed. degree.
In the year 1967 the degree formerly called as B.A./B.Sc.
(Education) was redesignated as B.A., B.Ed./B.Sc.,B.Ed.

Some teacher educators criticised this integrated
course that the trainees of this course were not qualitatively
equal to the traditionally trained graduates. Further, it was
opined that as the entry point was after matriculation, the
trainees were immature because five years' work could not be
satisfactorily done in four years.

In order to examine these criticisms, the Punjab Government
appointed a committee of experts under the Chairmanship of
Dr. A.C. Dave Gowda, the then Director of D.E.P.S.E. (The
Directorate of Extension Programmes for Secondary Education).
The purpose of the committee was to compare the performance
of the two sets of trainees i.e., those from the college of
Education, Kurukshetra and those from the training colleges
at Patiala, Jullundur and Chandigarh. The University Grants
Commission also reviewed the working of the four year integrated
course in July, 1968. The Committee was of the opinion that
the students of the four year integrated course were satisfied
with the course and that they were better motivated which
resulted in more achievement than these of their comparable
group in the university. One advantage of the scheme cited

by the U.G.C. was that it enable the students of low income
groups to continue their higher education. It also suggested
to compare the performance of these graduates with the
traditionally trained teachers. Shanker (1969) compared the
academic performance of the four-year integrated course
students with Arts or Science graduates of Kurukshetra
University and found that in the academic field in almost
all the areas in Arts/Science subjects, the trainees of
the four year integrated courses did better than the other
graduates of Kurukshetra University in the same Arts/Science
subjects, when the courses were exactly the same. In the
professional subjects as well as in practice teaching the
integrated course trainees achieved more than the traditional
teacher training course students. However, Shanker (1975)
states that this scheme of preparing teachers was discontinued,
for the state government thought that the cost per trainee was
much higher in this scheme than the training programme provided
for B.Ed.

2.3.1.3   The M.Sc. Ed. Programmes

A relatively well organised preservice teacher education
programme for higher secondary teachers are provided at the
Regional College of Education, Mysore and the Regional College
of Education, Bhubaneshwar. The M.Sc. Ed. programmes offered
by the Regional Colleges are the only preservice programmes
available for higher secondary teachers in the country.
Therefore, a detailed study of the course structure and the
organisation of the M.Sc.Ed. programme was undertaken. The
study of these programmes provided an insight with regard to
the organisation of curriculum for higher secondary teachers.

The details of the study of the course structure and the
opinions of teacher educators concerned with M.Sc.Ed. programme
are presented here.

2.3.1.3.1 The course structure

The M.Sc.Ed. courses were introduced in the Regional
College of Education, Mysore in the year 1974. The college
offers three courses for higher secondary science teachers.
They are:

M.Sc.Ed. Chemistry   )
M.Sc.Ed. Mathematics   ) 4 semester integrated courses
M.Sc.Ed. Physics   )

The M.Sc.Ed. degree courses in Mathematics, Physics,
and Chemistry are the approved courses of the university of
Mysore run in the college for preparing higher secondary
teachers (Plus two stage teachers).

The scope and nature of the courses offered for the
M.Sc.Ed. degree in these subjects are of the required standard
so as to make them eligible for the posts which require
master's degree in the subject and for higher studies. The
admission for these courses are/done on an all India basis.
The admission requirements for these courses are as follows:
B.Sc. degree and B.Ed. degree of the University of Mysore or
of any other university considered as equivalent thereto,
offering the corresponding major subject at the degree level,
securing atleast 50% marks in the aggregate of all the
subjects of B.Sc. and B.Ed. taken together and atleast 50%
marks in the cognate subject.

B.Sc. graduates with atleast 60% of the marks in the
aggregate of all the optional subjects taken together and 60%
marks in the cognate subjects are eligible for admission.
However, they shall be required to offer additional courses
in education concurrently.

A careful examination of the topics covered in the M.Sc.Ed. courses reveal that the courses in science content which must form part of any master's level degree in a subject along with the related components of laboratory work (as in the case of chemistry and physics) are adequately treated to match the standards expected of the pure M.Sc. programmes of the universities. (For further details of the course outline of M.Sc.Ed. courses please refer Appendices IIA, IIB, IIC and IID).

The Regional College of Education, Bhubaneshwar, Orissa, offers the two year master's degree in life science education programme for prospective higher secondary science teachers. (For details about the course outline please see Appendix IID and IIE). This course has been introduced for the first time in the Regional College of Education, Bhubaneshwar and is open to students on all India basis. The students are admitted into this course from two backgrounds i.e., fresh B.Sc. graduates and candidates having B.Sc., B.Ed.

Comments : The M.Sc. Ed. programmes are integrated courses with emphasis on the content i.e., Science Courses. The course designers have cautiously chosen the fundamental concepts in each of the specialisation (Physics, Chemistry, Mathematics and Life Sciences) so as to provide strong background in content areas (as evident from the course outlines presented in the Appendices IIA, IIB, IIC, IID and IIE). It is also comparable to the content areas offered in regular M.Sc. courses. However, in M.Sc. Ed. Courses the emphasis is on mastering of the basic concepts for teaching and research is secondary. In practice, the Regional College of Education, Mysore as well as the Regional College of Education, Bhubaneshwar admit fifty per cent of the total number of seats by candidates having B.Sc.B.Ed. degree and they are exempted from internship programme. The fresh B.Sc. graduates who undergo M.Sc.Ed. course are required to undergo internship programme. This clearly shows that adequate emphasis has not been placed on practice in teaching. There is need to strengthen the

internship programme. The Regional College of Education, Mysore offers Science/Mathematics Education course entitled "Problems of Higher Education" in the third semester of M.Sc.Ed. course. A careful analysis of the course shows that there is no emphasis on higher secondary level and problems at this level. It seems that course designers have thought higher secondary education could be subsumed under higher education and they have elaborately detailed the course outline of 'Problems of Higher Education'. The Regional College of Education, Bhubaneshwar has tried to be specific in the course outline and has dealt with problems and perspectives of higher secondary level of education.

2.3.1.4   A study of opinions of teacher educators of
           M.Sc.Ed. course

The investigator prepared a questionnaire for teacher educators concerned with M.Sc.Ed. programme. The purpose of the questionnaire was to study the opinions of teacher educators regarding M.Sc.Ed. programme and to study the components of the M.Sc.Ed. course in order to identify the specific needs for the higher secondary teacher training programme. The investigator personally met a few teacher educators and discussed various issues to develop proper perspective regarding the M.Sc.Ed. programme. The literature relevant to M.Sc.Ed. programme was also studied.

Sample for the study : All the teacher educators in the Regional Colleges of Education, Mysore and Bhubaneshwar concerned with M.Sc. Ed. programme constituted the sample for the study. Thirty teacher educators have responded for the questionnaire. The number of respondents from each department is shown in Appendix IIF.

The Questionnaire for Teacher Educators (R.C.Es.)

This questionnaire was prepared to collect information regarding the M.Sc.Ed. programme. Further, the opinions of teacher educators concerning various components of M.Sc.Ed. programme was collected. The questionnaire has been presented in Appendix IIG and II H, to provide further details regarding the structure of the questionnaire.

Data Collection : The data were collected through mailing the questionnaires. The investigator visited the Regional College of Education and personally met the teacher educators and discussed various issues concerning M.Sc.Ed. programme. This provided a gestalt view of the organisation of the M.Sc.Ed. programme.

Data Analysis : The data collected were qualitative in nature. Percentage analysis has been made for few items. u /
Some of the items are descriptive in nature (open ended questions). These items were included in the questionnaire in order to collect free and frank opinion of teacher educators regarding M.Sc.Ed. programme. Content analysis technique has been adopted to analyse the responses of the open ended questions. Certain major issues which emerged out of the analysis have been presented in the following paragraphs.

Objectives of the M.Sc.Ed. course :

Majority of the teacher educators in the study (97%) have opined that the objectives of the M.Sc.Ed. course would adequately cover the purposes of higher secondary science and mathematics teaching. Majority of the teacher educators have (more than 60%) approved the following objectives as relevant for higher secondary teacher training:

i. To enable the student teachers to plan, design and execute the appropriate learning experiences in science and mathematics.

ii. To enable the student teachers to understand and appreciate the basic structure of mathematics and science and their relation with the environment.

iii. To develop in the student teachers cognitive, affective and psychomotor skills for teaching science and mathematics by providing the appropriate learning experiences with reference to high school and +2 level.

iv. To expose the student teachers to modern techniques of evaluation in science and mathematics.

v. To enable the student teachers to understand the changing nature of the objectives of mathematics and science at various stages of school education in general and particularly at the higher secondary level and high school level.

vi. To develop in the student teachers the innovative attitude towards teaching.

vii. To develop in the student teachers skills in making use of educational technology in teaching science and mathematics.

viii. To develop in the student teachers skills in guiding and counselling the adolescent in solving his personal and academic problems.

ix. To provide the student teachers with knowledge about the bio-psycho-social needs of the adolescent and their problems.

Curriculum

Majority of the teacher educators have opined that the M.Sc.Ed. course is able to satisfy all the needs of higher

secondary science teachers (67%). However, a significant number of teacher educators (33%) have opined that the M.Sc.Ed. course is not able to satisfy all the needs of the higher secondary science teachers. These findings point out the need to examine the curriculum of M.Sc.Ed. programme with respect to the needs of the higher secondary teachers.

Some of the major inadequacies in M.Sc.Ed. programme reported by the teacher educators were:

- Certain components are missing such as the use of educational technology in teaching science, a study of different curriculum development projects, undertaken in India and abroad.

- Fresh B.Sc. graduates who are admitted do not get adequate exposure in teaching practice. The students do not have opportunities to teach lessons at +2 stage.

- The curriculum is too theoretical and it does not meet the direct needs of higher secondary school teaching.

- The methodology course does not give the student any help in designing learning experiences and demonstrations at the plus two level.

These observations of the teacher educators are significant and in the light of these observations the M.Sc.Ed. course structure has to be reexamined. However, it may be observed here that the substantive matter provided in the M.Sc.Ed. course is adequate. The internship being provided to fresh B.Sc. graduates is a weak point in the programme. There is a need to strengthen the internship programme and it has to be provided to all the trainees irrespective of their formal previous training of the candidate. (At present B.Sc. B.Ed. candidates are exempted from undergoing internship).

The effectiveness of the integrated programme :

This has been a controversial issue. However, majority of the teacher educators have opined that M.Sc.Ed. course is effective from the point of view of content for a higher secondary teacher. But, the methodological aspects and the educational component provided needs to be examined and modified to suit the needs of higher secondary teaching.

One of the teacher educators has described the current position as follows:

"The M.Sc.Ed. course is an effort in the direction for preparing teachers at the +2 level. Although a proper balance between the teaching of core courses in content at the post-graduate level and the relevant pedagogical courses has been made, yet, at present, there is no direct integration between these two aspects of the course. The post-graduate courses in the subjects are at present taught by the subject faculty and the pedagogical courses largely by the faculty of education."

"For an effective integrated programme there should be a directed attempt to discuss content specific teaching strategies by the subject faculty. The training in the use of educational technology for teaching science at the plus 2 level will also bring about integration between professional and content components of the course."

It may be observed here that there is no systematic study conducted to find out the extent of effectiveness of the integration in M.Sc.Ed. course. The products of these courses have been successfully employed in central schools and some of them have gone for further studies in institutions of higher learning (i.e. Tata's Fundamental Research Institute, IITs etc).

This clearly points out that there is need for more interaction between subject experts and the experts in professional areas. This lack of interaction may be the major

lacunae contributing to the less effectiveness in integration. Further, there is a need to integrate substantive aspects with professional aspects with an adequate emphasis on the practical component.

Equivalence of M.Sc. Ed. with other post-graduate courses

Majority of the teacher educators (67%) think that with regard to the depth of the content covered the M.Sc.Ed. programme is at par with the M.Sc. programme offered in the respective universities. However, thirty three per cent of the teacher educators have opined that the M.Sc.Ed. course is not at par with regular M.Sc. course offered by the respective universities.

One of the senior professor has expressed the current position as follows:

"The M.Sc.Ed. programme is at par with M.Sc. Courses as far as the teaching of the core courses at the post-graduate level in the subject is concerned. However, special coursesof study in subjects are not covered, as the science education is offered in lieu of it as an alternative. Institutions such as Madras University, Delhi University, Indian Institute of Science, Indian Institute of Technology, Bhabha Atomic Research Centre, examined the post-graduate study with reference to core courses and accorded M.Sc. equivalence to M.Sc.Ed. course".

Alternative models :

Majority of the teacher educators (70%) have recommended separate teacher training programme for higher secondary teachers. In this connection a few important observations were made:

- The B.Ed. programme is too short.
- The content has to be emphasized.

- The teacher educators should be highly specialised in their field.

- Introduction of a few pedagogical papers in regular M.Sc. course was suggested.

Another significant suggestion was that higher secondary teachers should be trained through inservice programmes. The training programme may be modular, devoting specific attention to instructional methods, evaluation and such other relevant areas in separate modules. The teachers can get training in one module at a time so that they will not have to be absent from their school for long periods.

The following course structure has found preference with the majority of the teacher educators:

- An indepth course in philosophy of science with a practical orientation and relevance to higher secondary curriculum.

- An indepth comparative study of curriculum development and their implications for teaching at the level of senior secondary school.

- Instructional methodology, evaluation and use of educational technology for teaching.

- Research methodology course.

- A six week internship could be incorporated into the course content.

- Single subject specialisation has to be introduced.

- Foundation courses relevant to the level such as philosophy, psychology, evaluation, guidance.

- Development of some core teaching skills. Practice of lessons with teaching skills in a simulated condition.

The alternative course structure suggested by a significant number of teacher educators was as follows: (for chemistry student teachers).

1. Nature of science and history of science.

2. Content enrichment course/Review of some units of M.Sc. course in chemistry.

3. Two papers on chemical education covering curriculum development, evaluation, design of teaching learning strategies, design of instructional materials, laboratory work, investigatory approach, improvisation of apparatus, instructional methodology and design of new experiments.

4. Educational technology and its application at the plus two level. Training in the development of teaching aids and handling of audio-visual equipments.

5. Psychological foundations for +2 level.

6. Project work.

7. Intensive internship programme at +2 level.

M.Sc.Ed. classroom activities :

Majority of the teacher educators have reported that seminar, lecture-cum-demonstration and demonstration methods are frequently used for M.Sc.Ed. teaching. The M.Sc.Ed. students have to submit atleast two projects or assignment in their respective specialisation. The M.Sc.Ed. students are expected to have the teaching skills such as set induction, explaining, illustrating with examples, lecture, demonstration, reinforcement, discussion, stimulus variation, preparation and use of teaching aids etc. Apart from these teaching skills, the M.Sc.Ed. students are expected to be trained in the practical skills such as cataloguing, classifying, maintaining stock, weighing, filtration, precipitation, distillation,

crystallisation, setting of Beckman's thermometer, improvising laboratory aids, etc.

Majority of the teacher educators have reported that they do not get any complaints about evaluation. Some teacher educators are of the opinion that the evaluation course for M.Sc.Ed. students [have to be examined.

Guidance and Counselling : Majority of the teacher educators (60%) have opined that there is need to provide training in techniques of guidance and counselling to each higher secondary teacher. Some teacher educators (17%) think that these sort of training may be provided to some selected teachers to make them specialists. However, a significant percentage of teacher educators (40%) think that there is no need to have any training in guidance and counselling.

Internship Programme : The internship programme is an additional requirement for the fresh B.Sc.'s. Those who are already B.Ed. degree holders are exempted from internship programme. In the internship programme, each student teaches a minimum of five lessons and maximum being ten lessons for a period of 10 to 15 days. They are required to prepare a unit test. The marks allocated for various activities of internship are:

	Marks
Actual teaching	30
Observation records	10
Unit test	10
Total	50

Majority of the teacher educators think that duration of the internship is inadequate. They have suggested that the duration of the internship should be for one month. They have

also suggested that the M.Sc.Ed. students should be sent for teaching at secondary and higher secondary level.

Co-curricular activities :

Majority of the teacher educators have participated or organised co-curricular activities. They have recommended that the M.Sc.Ed. students should be trained in organising various co-curricular activities.

In-service programme : Most of the teachers educators have been involved in inservice programmes. Majority of the teacher educators have/suggested the following inservice programmes:

  - State level orientation programmes to update the knowledge of the teachers in pure and applied sciences.

  - Summer institutes have to be organized.

  - Seminars, content enrichment course (through distance learning packages and contact programmes for demonstration of laboratory skills) have to be organised.

2.4   Inservice Teacher Training Programmes

Formal inservice training programmes organized specifically for higher secondary teachers on a regular basis are less in number. The university of Bombay offers one year course for higher secondary teachers and awards Diploma in Higher Education (please refer Appendix II J for the course details).

2.4.1 The Madras University awards to the participants 'Diploma in Higher Education' (D.H.Ed) after completion of one semester course on methods of teaching and evaluation in higher education. The participants of this course are the lecturers who are already working in

the university/college departments. This university
has made a few centres in the affiliated colleges also
for conducting such course, for example, R.K. Mission
Vidyalaya, Coimbatore.

2.4.2 In order to study the inservice programmes organized
for higher secondary teachers, the investigator designed a
questionnaire for co-ordinators of the extension services
departments. (Please refer appendix II F for further
details). The investigator also conducted personal
interview with the co-ordinators to collect detailed
information regarding the inservice programmes.

2.4.2.1 The structure of the questionnaire

The questionnaire for co-ordinators consisted of three
sections (I, II and III). Section I was concerned with the
inservice training programmes organized for higher secondary
teachers. Section II was concerned with the inservice
training programmes organized for secondary teachers, and
section III was concerned with the other activities of the
extension centre organized for higher secondary as well as
secondary teachers. (For further details please refer
appendix IIK).

2.4.2.2 **Sample :** All the co-ordinators of extension services
department, continuing education in Gujarat and all the
co-ordinators of all the four Regional Colleges of Education,
constituted the sample for the study. (details regarding the
number of extension centres covered are provided in Appendix
II L).

2.4.2.3 **Data Collection :** The questionnaire for co-ordinators
was mailed to all the co-ordinators in the sample. At the
first instance, some of them filled the questionnaires and
sent it back. But, the investigator had to send reminders to

collect the remaining data. The investigator personally visited most of the extension services departments in the sample and could collect interview data from a few co-ordinators together with their valuable opinions regarding the organisation of inservice programmes.

2.4.2.4 Data analysis :

The investigator considering the nature of data collected, decided to analyse qualitatively. Essentially, the technique adopted for analysing the data has been content analysis. For the facility of presentation, the analysis has been presented in three sections. Percentages have been computed for certain items and it is indicated along with the generalization. (The percentage has been shown in the brackets). The data obtained from interview also has been content analysed and synthesised with the data of questionnaire. (For further structural details about the interview schedule please refer Appendix II M).

Section I

Section I deals with the inservice training programmes organized for higher secondary teachers.

Objectives of inservice programmes

Majority of the co-ordinators ~~have~~/recommended the _has_ / following general objectives for higher secondary inservice teacher training programmes.

1. To update the knowledge of content of the teachers in their specific subjects areas.
2. To acquaint teachers with new teaching techniques.

3. To guide the teachers in planning their classroom teaching and evaluation.

4. To train teachers to be innovative and encourage experimentation.

5. To help the teachers for the preparation of instructional materials, teachers guides, work books, etc.

6. To provide special programmes based on special needs of teachers.

7. To provide orientation to educational administrators.

8. To help teachers in solving their academic problems.

Majority of the co-ordinators ~~have~~/stated that the *has*/ objectives have been realized partially (76%). However, some co-ordinators (24%) have stated that the objectives have been realized fully. This clearly shows the need for examining the inservice programmes for higher secondary teachers. Further, majority of the extension services departments have not conducted any field survey to know the needs of higher secondary teachers (76%). This further strengthens the argument for examining the needs of higher secondary teachers.

Nature of inservice programmes for higher secondary teachers

In order to facilitate the study of the nature of inservice programmes organized for higher secondary teachers, the data concerning items 4A, 4B, 4C, 4E, 5 and 7 have been combined. Table No. 3.1 describes the inservice programmes organized for higher secondary teachers, the mode of conduct of the programme, the areas covered, the total number of participants, Nature of Participants, duration, venue, region of the participants.

Observations : The study of ~~the~~ table No.2.1 shows that a   b) Caf /
variety of programmes were organized such as seminars, talks,
lectures, demonstration, discussion, project, group work,
workshop, conference. It also clearly shows that majority
of the programmes have been organized for higher secondary
teachers. Although, a large number of teachers have been
trained, it could be noted that there is no consistent
training programme offered on a regular basis.

Majority of the programmes ~~are~~/on science subjects   / is
(out of 107 programmes 33 programmes are on science). The
programmes concerning Arts subjects and the programmes coming
under the category 'others' take the second place (25
programmes are on Arts, 25 programmes are on other subject
areas out of 107 programmes). This clearly shows there has
been a variety of programmes organized. ~~The~~ table No.2.1   b) Caf /
clearly shows that relative emphasis on Arts, Commerce,
Languages are less in comparison to the science programmes.
The number of programmes organized in arts subjects are more
in the extension services departments in Gujarat. Whereas in
the Regional Colleges of education science programmes are more
in comparison to programmes organized in other areas. This
clearly shows the importance given by each extension centre
to different subject areas. Some of the extension centres
have rightly given more emphasis on content enrichment
programmes. However, there is need to increase the number of
such programmes giving adequate attention to the quality of
the programme. The refresher courses also needs to be
organized on various topics regularly. It may be observed
that majority of the programmes are either lectures, seminars
or workshops. Although, these programmes are very much needed,
the extension services departments could think of more
imaginative, realistic programmes to serve the needs of higher
secondary teachers. There are several problems faced by

extension services centres such as the lack of trained
personnel, lack of adequate funds, co-operation from school
authorities etc. These problems have to be systematically
studied on an urgent basis and adequate measures have to be
taken. Many co-ordinators have reported that the lack of
adequate fund is the main problem in organizing the inservice
programmes. The lack of funds limits the co-ordinators to
organize programmes for shorter duration, usually - ranging
from 2 days to 10 days. With regard to the representation
given to different regions it may be observed that the
co-ordinators have generally covered most of the areas in
their jurisdiction. Further, they have pointed out that the
needs of higher secondary teachers have to be identified in a
systematic way.

Regarding the period in which the inservice programmes
have to be organized, most of the departments have stated that
it has to be decided looking to the convenience of the
participants. Majority of the departments are organizing
inservice programmes either on working days or on weekly
holidays. Only two departments (out of 13) have organized
inservice programmes in summer holidays. Co-ordinators are
of the opinion that short term programmes ranging from two
days to one week, are more feasible to organize than a long
term course considering the availability of time of teachers,
funds etc. However, there is need to encourage long term
regular inservice programmes.

Motivational aspects

Majority of the participants expect travelling allowance
and dearness allowance to be paid for attending inservice
programmes. Almost all the extension services departments pay
T.A. and D.A. to out station participants for most of the
programmes. Some participants attend the inservice programmes

for their professional growth and some think that it helps
them in getting their promotion.

The use of audio-visual aids :   The Regional Colleges of
Education have fullfledged Audio-visual education department
with all the required facilities, equipment as well as trained
personnel. It has been reported that the required audio-
visual aids are used effectively in organising inservice
programmes. Majority of the extension services departments
in Gujarat have gadgets such as 16 m,m, projector, overhead
projector, Epidiascope, Tape recorder and they are utilized
for providing inservice programmes. However, the co-ordinators
have observed that when the equipment becomes dysfunctional, it
takes a long time to get it repaired due to budget restraints
and long procedure to be followed in accounting for the repair.

Evaluation of the Programmes :

Majority of the extension services departments have
either used oral feedback or questionnaire, to evaluate higher
secondary teachers. A few departments have used procedures
such as personal visits, using rating scale, or organising
further sequencial programme. A few departments have not made
any systematic effort to get the feedback. However, majority
of the extension services departments have reported that a
meeting of the principals and education officers are held to
perceive the changes and further, the participants are
approached to get their self perception about the programmes.

Follow-up of the Programmes :

Seven extension services departments (out of 13) have
some form of follow-up activities such as organizing continuous
seminars, workshops, organising programmes sequentially,
conducting survey. The co-ordinators opine that the follow-up

activities have to be further strengthened. All the extension services departments have reported that there is no resistance from teachers for the follow-up activities. The reactions of the teachers for the follow-up programmes have been varied. Majority of the teachers have found that inservice programmes are useful and they like feedback to be given about their performance.

Special Programmes :

Some extension services departments have organized some innovative and special programmes for teachers. The significant programmes have been listed as follows:

1.	Content enrichment programmes	}	C.C.E., Bilimora
			C.C.E., Modasa
			E.S.D., M.S.University,Baroda
2.	Study circles in different subjects	}	E.S.D. A.G. Teachers Training College, Ahmedabad
			E.S.D., M.S.University, Baroda.
3.	School Renewal programmes	}	E.S.D., M.S.University, Baroda.

Section II

This section is concerned with the inservice training programmes organized for secondary teachers.

Majority of the co-ordinators in the study have recommended the same objectives for the secondary teachers also. (Please refer page 103-104 for the objectives for higher secondary teachers). Majority of the Co-ordinators think that to a large extent the objectives have been realized.

Nature of the inservice programmes :
_____

In order to facilitate the study of the nature of
inservice programmes organized for secondary teachers, the
data concerning items 15A, 15B, 15C, 15D, 16 and 18 have
been combined and presented in the form of a table. Table
No.2.2 shows the details regarding the inservice programmes
for secondary teachers, the mode of conduct of the programme,
the areas covered, the total number of participants, nature
of participants, duration, venue, region of the participants
and the period in which the programmes were organized.

Observations :   The study of the table No.2.2 shows that
a variety of programmes are organized such as seminars, talks,
demonstration, lecture, discussion, project, workshop,
conference etc. It also shows that majority of the programmes
have been organized for secondary teachers. Although a large
number of teachers have been trained, it could be noted that
there is no consistent training programme offered on a
regular basis.

Majority of the programmes are on science subjects.
(82 programmes are on science area out of 284 programmes).
It shows the thrust of the programmes. There have been 78
programmes on languages. This shows that there is more need
for language programmes. There have been 62 programmes
coming under the head 'other programmes'. This indicates that
there is a judicious mixture of additional programmes. The
programmes on 'Arts' subject area has been comparatively less.
(43 programmes). Surprisingly, the least number of programmes
are organized for commerce area (19 programmes). One reason
that may be given is that commerce is not a regular subject
at the secondary stage. However, it is one of the most popular
course at the higher secondary stage.

Some of the extension services departments have rightly
given more emphasis on content enrichment programmes. With
the frequent changes in the syllabi the orientation of
teachers in different subjects have become a vital need.
Although, a few summer schools have been organized; it could
be observed that the summer schools have to be organized in
more number on topical issues. Many workshops have been
organized to develop instructional materials and to discuss
the changes made or to be made in the syllabus. Lectures and
seminars have been frequently organized feeling the needs of
different regions. A considerable number of participants
have been provided opportunities to take part in the inservice
programmes. The nature of participants have also varied
such as teachers, teacher educators, principals, administrators,
co-ordinators, librarians, etc.

Some of the problems in organizing the inservice
programmes are: the co-ordinators and some staff in the
extension services department are honorary workers and hence
they are not able to devote full time for these activities,
the funds made available to inservice programmes are
inadequate, the grant is not released in time, the infra-
structure facilities are insufficient. These problems are
very significant and they have to be sorted out on a priority
basis and solutions have to be worked out realistically.
Regarding the period in which the inservice programmes have
to be organized, majority of the co-ordinators (77%) have
stated that inservice programmes are organized during working
days. Forty six per cent of the co-ordinators have stated
that the inservice programmes are organized in weekly
holidays. A few departments of extension services have
organized inservice programmes in first term vacation and
summer holidays also.

It may be observed that co-ordinators have opined that organising inservice programmes during working days or weekly holidays are more feasible when the programme is of short duration. Further, the user agencies such as schools also co-operate well when the duration of training is very short. However, there is need to encourage long term inservice programmes.

Evaluation of the programmes :

Majority of the extension services departments have either used oral feedback or questionnaire to evaluate the inservice programmes. A few departments have not made any systematic effort to get the feedback.

Section III

Section III is concerned with the other activities of the extension centre organized for higher secondary as well as secondary teachers.

Library Services :

Out of 13 departments of extension services, only 6 departments offer library services for secondary and higher secondary teachers. The type of services offered varies from one institution to another. However, the general services offered are: i) providing books, and magazines for reading during workshop or seminar. ii) giving films, film strips, teaching aids such as maps, charts etc. as loan, iii) some books are issued on loan for reference for a fortnight.

Correspondence Courses : The Regional College of Education, Mysore and Bhopal offer summer-school-cum-correspondence courses leading to B.Ed. degree.

<u>Meetings</u> :   Majority of the extension services departments
(69%) do have meetings of higher secondary teachers and
principals from local schools. These meetings are convened
once or twice a year to understand the academic difficulties
of teachers and to get suggestions about the organisation
of inservice programmes. The co-ordinators think that the
organisation of such meetings are very useful to get feedback
about the programmes and to get sensitized to the needs'and
problems of higher secondary teachers.

<u>Other Programmes</u> :   National Council for Teacher Education,
N.C.E.R.T., New Delhi has prepared a programme entitled
'College Teacher Education Programme' (1980). Lulla B.P.
(1983) has developed 'an orientation programme in Educational
methodology for college teachers'. It may be observed that
these programmes have not been tried out in field situations.

2.5   A review of secondary and higher secondary teacher
       education programmes of some countries

A few secondary and higher secondary teacher education
programmes of some countries have been presented with a view
to understand the teacher education programme in a global
perspective. For this purpose, teacher education programmes
of some developed countries and those of some developing
countries have been selected. In order to provide a clear
background, briefly the system of education has been described.

2.5.1 System of teachers training in England, Wales and
       Scotland.

The minimum age for entry to the initial training course
is 18, and there is no upper age limit. The course leading to
qualified teacher status normally lasts three years but older
students with suitable previous education or experience may
be allowed to take a shorter course of two years or exceptionally,

one year. All the universities with academic links with the
colleges have arrangements by which suitable students may
obtain a Bachelor of Education degree, together with a
professional teaching qualificatior, by means of a four-year
course. An increasing number of colleges offer one-year
post-graduate courses of professional training.

Teacher education and training in Britain is in a
continuous state of evaluation and planning.

The Mc Nair Committee's Scheme (1944), when adopted
resulted in the setting up of twenty Area Training Organiza-
tions (ATOs) each with a university school or an Institute
of education at the centre. The number of constituent colleges
grew to over 160. These, previously known as training
colleges, are now called colleges of education since 1963
(Robbins report 1963).

In 1960 the teacher's certificate course was increased
from two to three years. (Mc Nair 1944). The B.Ed. degree
was introduced (as recommended by Robbins, 1963). Selected
students study for a year more after achieving qualified
status. In some ATOs students were selected for the B.Ed.
course before completion of the certificate course.

The whole system of teacher education was the subject
of an inquiry by a committee under the chairmanship of Lord
James Rusholme which published its report in January, 1972.

A white paper on Education : A framework for expansion,
published in December, 1972 was an uptodate statement of the
educational policy for England and Wales. As far as teacher
training is concerned it accepts the main objectives of the
James report (1973) and it has envisaged the following changes:

1. Teaching should become, in time, an all-graduate profession.

2. A two year Diploma in Higher Education Course which may be taken in any Higher Education institution should form the main foundation of the teacher training course.

3. Diploma in Higher Education students would not be committed to any one vocation though some may include educational studies in their courses.

4. Inservice training should have high priority.

5. A.T.Os should be abolished and new regional bodies should administer inservice training in professional centres.

6. Having obtained a Dip.H.Ed. the student may regard it as a terminal qualification or choose a particular one year course related to his Dip.H.Ed. one of these could be a B.Ed. with qualified teacher status.

The Council for National Academic Awards (CNAA) is expected to play a vital role in validating the Dip.H.Ed. and the new 3 year B.Ed. degree.

Dr. Monk, M.,Director, All India Science Education Project, Chelsea College, University of London, London writes ' that they have two types of courses (preservice). One year full time Post-Graduate Certificate in Education Course and also a one year equivalent component of a four year full time B.Sc. with education course. However, he emphatically states that there is no specific teacher training programme for higher secondary teachers (i.e., Sixth form). He has explained the reason for the non-availability of such a course in these words:

> The PGCE course, as with all of our courses, is not specifically linked with any stage of secondary education. Indeed, some of our PGCE students will go on to teach science and mathematics in what we call middle schools

(ages 7 to 11). However, the majority leave us for posts in the secondary sector.

In Britain at the moment there is no differentiated training for teachers at the higher secondary level (the sixth form). We would expect most of our trained teachers to spend some of their time teaching at higher secondary level during the routine work they do in their schools. This is because the majority of schools throughout the UK are for pupils from 11 through to 18. This covers both junior and higher secondary levels. The teachers work with all ages within that bracket. As majority of pupils, until recently, in British schools finished their education at 16 years of age we have concentrated our preservice work on the junior secondary stage."

He further writes that there are four colleges around England specifically set up to train teachers who work in further education colleges. The bias to the training is vocational.

This clearly shows that teacher education institutions have concentrated on the secondary stage.

2.5.2 System of teacher training in Scotland.

The system of teacher training in Scotland differs in some respects from that in England and Wales. The Departments of Education of the Scottish Universities do not provide course of initial teacher training for graduates but Stirling offers a course within the university leading both to a degree of B.A. and to qualification as a teacher. In Scotland there is a clear cut distinction between qualifications required for primary and for secondary teaching. The courses provided at the colleges for secondary teaching are as follows:

1.   Four-year course, leading either to a primary or a secondary qualification provided jointly by a college and a university leading to B.Ed. of the University (or awarded by the (NAA);

2. One-year course of professional training for graduates leading either to a primary or a secondary qualification.

Initial teacher training

Duration : Three academic years.

Entrance qualification : Candidates must be 18 years in the year of entry, must have atleast 5 passes at 'O' level in G.C.E. examination. Candidates should have undertaken further study beyond 'O' level and preferably have atleast one pass at 'A' level.

Specialised degrees such as M.Sc. in Chemical Education, Physics Education, Science and Technical Education subjects are also offered by the various universities.

2.5.3 Teacher education in the U.S.S.R.

Education in the USSR is a state concern. The training of teachers in the Soviet Union has been organised on three different levels: in Teachers' seminars for primary schools, in Teachers' Institutes for higher elementary schools and in the Universities for secondary schools.

The old teachers' seminaries have been developed into Teachers' Institutes which have become the training ground for primary and intermediate school teachers. At present seven years of schooling is required for the entrants into the Pedagogical Technicums (old Teachers' Institutes) or, as they are now called, pedagogical secondary schools. The course lasts for four years. The teachers of secondary schools are trained in special Pedagogical Institutes (usually three years) or in university faculties (four years). Candidates possessing matriculation certificate have to pass an entrance examination for admission to the programme.

The types of entrance examination an individual is required to take, depend upon this teaching subjects. A future teacher of mathematics, physics, astronomy or fundamentals of production takes entrance examinations in Russian literature, a foreign language, physics, and mathematics. Those who expect to teach foreign languages take examinations in Russian, literature, a foreign language and history of the USSR. In selecting students the institute gives preference to those with the highest grades in their special subjects.

It may be observed that the current teacher education programme in the USSR are fully integrated with the main stream of education generally and with the higher education particularly. Besides, professional preparation in pedagogical subjects is a prerequisite for all teachers.

2.5.4 Teacher education in the Republic of Korea

Secondary school science teachers are prepared in 21 colleges of education (COE) which offer one or more science education majors among physics, chemistry, biology and earth science education, starting after the 12th grade.

Even though colleges of education do not have a common curriculum, there are many similarities in the offered courses and required credits. The average numbers are: the total required credits for graduation is 140; 57 credits are for sciences, 5 for science education; 14 for general pedagogical theories; and 2 for practical teaching. The college of education graduates are certified to teach general science in junior high school and the major course in senior high school.

There are also many colleges of natural science which provide special pedagogy courses for a second level teacher certification for secondary school science teachers, but the government policy is to taper off this programme.

2.5.5   Teacher education in Sri Lanka

The science teachers who handle grades 11 and 12 are university graduates in science subjects. They may get the opportunity of being trained at the university after a minimum period of 5 years of teaching. Much could be achieved by the proper designing of preservice courses. As at present, preservice courses consist mainly of lectures in all subjects. Laboratory experiences are limited to science subjects. The teaching practice gives only limited experiences in classroom teaching. Various stages of curriculum development need to become part of their experiences. For Science teachers of grades 11-12 level, the inservice programme is carried out by the Curriculum Development Centre staff. The inservice programme is implemented with the help of staff from teacher's colleges, universities, and circuit education officers.

2.5.6   A review of teacher education programmes in U.S.A.

The requirements for teachers' certificates vary among the states. Usually the state department of education, or state certification board, issues certificates which permit teachers to be employed within the state. Forty four of the states require atleast the completion of a four-year course, with the teacher's degree, as the minimum for high school teaching; the tendency to require atleast a fifth year of work beyond the bachelor's degree is gradually increasing.

Secondary school teachers are generally prepared by the colleges of liberal arts. They follow the regular programme leading to the Bachelor of Arts or Bachelor of Science degree. They have a 'major' or field of concentration just like other students. There is one difference between the bachelors programme for future secondary school teachers and that for the others. In the former, a certain number of courses in 'education' or Pedagogy are required such as history of education, philosophy of education, educational measurements, educational psychology, and practice teaching. The practice teaching is done in campus school or laboratory school.

Some college students who intend to enter secondary school teaching prefer to follow the normal bacculaureate programme, omitting the education courses, and then enter a graduate school of education and take the complete pedagogic training in one year i.e., the fifth university year, or else in a year and a summer.

The curriculum has been accepted as a dynamic factor in education and it undergoes changes with the changes in society.

2.5.7 Teacher training in Sweden

In Sweden all teacher training programmes include subject studies, pedagogies, methodology and practical work. Pedagogies include also psychology. All categories of teachers do their practical work in municipal schools.

The subject teachers at the upper level (age group 16 to 18 years) should have a background education of 12 years, 3 years of subject studies at the university and one year training at the teacher training colleges.

The Committee on Teacher education (1969) proposed a scheme and it has been adopted from 1, July, 1975. The scheme is:

A total of four years' basic studies is needed for comprehensive and upper secondary school teachers. Curriculum will comprise 3 years' subject studies of atleast two subjects together with teacher education and practical training. One year post-graduate course of studies in education together with practical teacher training will be given at a college of education. Teacher education will be supplemented by systematic inservice training.

2.5.8 Teacher education in Cuba

The teacher training programme may be divided into 3 phases. (i) primary teacher training, (ii) lower and pre-university teacher training and (iii) special teacher training.

Teachers of secondary education includes teachers of basic secondary schools, pre-university schools and agricultural, industrial and technological institutes. Teachers for all these institutions are given professional education in the university institutes of education, which were created after the revolution. At present, there are five institutes of education in Cuba. The curriculum of these institutes includes professional courses and practice teaching in secondary schools.

2.5.9 Teacher education in Bangladesh

The colleges of education provide integrated teacher education programme, where in teacher education is integrated with higher education in order to produce graduates with B.A. in Education degree. Students who have passed the H.Sc. examination are admitted in the course which is of three years duration. The graduates of the programme are expected to become teachers of secondary schools.

The Bachelor of Education course is provided in the six teacher training colleges of Bangladesh. The minimum qualification for entering into the training programme is a Bachelor's degree in Arts, Science or Commerce. The duration of the training programme is one academic year and the programme consists of both theoretical and practical aspects.

Institute of Education and Research (IER), University of Dhaka provides the Diploma-in-Education which is equivalent to the Bachelor of Education degree of the teacher training colleges. The minimum qualification required for getting admission to the Diploma-in-Education programme is the same as that for the Bachelor of Education degree, and the duration of the programme is one academic year.

2.5.10   Review of experiences

The teacher training at secondary and higher secondary levels are provided in many countries. Generally, two main organizational patterns are being followed: the first is where the content is learnt in the universities and colleges at the undergraduate level generally for a period of 3-4 years leading to a Bachelors degree and then one year professional training with practice teaching is provided in a teacher training college or university department of education. This pattern is typical in countries such as Bangladesh, India, Malayasia, Nepal, Pakistan, Sweden and England. The other pattern is a four year integrated course of (science) content and pedagogy, including practice teaching, with a wide scope for liberal education. This pattern is being followed in China, Philippines, Republic of Korea, England, Scotland, U.S.A. and U.S.S.R. on a wide scale and in a few colleges on an experimental basis like, in India, Malaysia and Pakistan.

It may be observed here that in many countries differentiation
has not been there in secondary and higher secondary level of
schooling. Most of the countries have integrated education.
The teacher education also reflects the nondifferentiation.
However, in a few countries like India, Republic of Korea
attempts are made to differentiate the teacher education
courses according to the levels of education. Particularly,
there has been some attempts to differentiate secondary
education from that of higher secondary education. Further,
it can be seen that there has been an organic link between
secondary and higher secondary levels of education.
Corresponding to it, the teacher education has been organized
to reflect the outgrowth of the stage and the variations that
could be accounted for in late addescence.

PART III

2.6   Implications of the related researches and programmes
       on teacher education for the present study

2.6.1 This overview of the researches and programme tries
       provide a gestalt view of the bases in teacher education
       helpful for evolving the programme of teacher education.
       It may be observed that the researches directly
       concerning higher secondary teacher education are very
       less in number and the programmes organized preservice
       as well as inservice have been inadequate in various
       aspects such as the number of participants covered
       are less and the programmes are not very well organized
       on a regular basis.

       The overview has been presented topically for the
       purpose of showing the relationship between the
       researches and programmes.

2.6ᵥ2 The need for reorganisation of B.Ed. programme

Many studies have pointed out that the B.Ed. programme has to be reorganized in terms of content and processes (Joseph, 1967; Shukla, 1976; Sharma 1982; Mathur 1987). Majority of the teacher educators and higher secondary teachers have said in one voice that there is need for reorganisation of the B.Ed. programme.

The higher secondary teachers needs are not met with adequately (Goyal and Chopra, 1979) and the number of inservice programmes organized for higher secondary teachers are (107) less than the programmes organized for secondary teachers (i.e.284 programmes were organized for secondary teachers). This clearly shows that adequate attention has not been given to the training needs of the higher secondary teachers. The preservice programmes are very few in number and they are not able to cater to all the needs of all higher secondary teachers. This clearly shows that there is need to design programme for higher secondary teachers. Only two studies have been reported concerning the functions of teachers (ADEP and Department of postgraduate studies in education, Bangalore (1974). This clearly shows that there is need for a finer analysis of the functions of higher secondary teachers.

2.6.3 Structural aspects

2.6.3.1 Duration of the programme

Majority of the studies have recommended two years duration as desirable (Ganju 1973; Sulthana 1976; Sharada Devi 1964; Kohli 1974; Bhatia 1986). The preservice programmes organized (i.e. M.M.Ed. programme and M.Sc.Ed. programmes) have been of two years duration. More over, the meaningful training components can be included when the programme duration

is adequate. Therefore, it may be necessary to fix the duration of higher secondary teacher training as two years.

2.6.3.2 Curricular aspects

2.6.3.2.1 Foundation courses

The foundation courses are not organised around well defined aims and principles. (Sharma 1972; Sharma 1982; Kapaale 1981). The foundation course does not reflect the culture (Kapaale 1981). Patel (1971) has found that curriculum for audio-visual education was inadequate and the topics taught in the audio-visual education programme are elementary in nature. In M.Sc.Ed. programme also proper focus has not been given for foundation aspects concerning higher secondary teachers. These findings clearly shows that the foundation courses have to be reexamined for its relevance and reorganise in such a way that it reflects the needs of higher secondary teachers.

2.6.3.2.2 Methods and Approaches

A large number of studies are found on methods and approaches. Most of the studies are done at the doctoral level and they are experimental studies. Most of the studies have taken achievement as the criterion for testing the efficacy of the strategy/style (Shaida 1976; Roy 1977; Chakraborthy 1978; Sundaralakshmi 1981 and Yadav 1983). However, the results have been inconclusive. It may be observed that there are no studies showing some strategy to be effective at higher secondary level. There is an urgent need to develop strategies for higher secondary level teaching. The review of the programmes revealed that non-directive methods are more suitable for higher secondary teaching. Methods such as seminar, lecture-cum-demonstration, demonstration, panel discussion

symposium are frequently used for training higher secondary teachers.

It has been found that teacher training techniques such as microteaching interaction analysis, siamulation methods are found to be effective in training teachers (Passi and Shah 1973; Bhattacharya 1975; Das, Passi and Singh 1976; Joshi 1977; Sharma 1979; Tareen 1980; Raghava Kumari 1978; Johnston 1976; Willett 1976; Karani 1979; Cruickshank 1967, Kersh, 1963; Twelker, 1968; Merriman 1972; Van Mondfrans and Smith 1970; Kissock 1971; Borg 1972; Shea 1974; Saunders et. al 1975; Franklin 1981; Howdyshell 1976). However these techniques are not tried on higher secondary teachers and found effective. It can be assumed that these forms of training will be effective in training higher secondary teachers also for these techniques are found to be effective in training primary as well as secondary teachers.

2.6.3.2.3 Evaluation

The study of the programmes has revealed that there is need to have both internal as well as external evaluation but the evaluation should be continuous.

2.6.3.2.4 Practice teaching

Srivastava (1970) revealed that practice teaching formed an essential and compulsory item in all teacher preparation programmes. Mani and Gonsalves (1977) have found that there is a positive relationship between the self concept and performance in practice teaching. The extended practicum seems to enhance the self concept as a teacher which in turn has a positive impact on the teaching performance. (Clifton and Covert 1977; Kaufman and Shapson 1977; Wideen and Holborn 1983). Therefore, an attempt has been made in the proposed model to provide adequate emphasis on practice teaching in terms of the

duration of the programme and the structure of the programme. It may be observed that a few studies are reported on supervision. (Prakash and Mehrotra 1974; Pande 1980). The supervision for developing teaching competence needs to be systematic, reciprocal and school based. In recent years, there has been more emphasis on clinical supervision (Cogan 1973, and Goldhammer et. al (1980); Sullivan 1980; Grimmett 1981; Sergiovanni 1982; Acheson and Gall 1980; Rudduck and Sigsworth 1983). This trend suggests that more importance to be placed on the adequate understanding of the trainee and the development of the individual according to his ability. A significant number of studies have shown a positive relationship between the teaching styles of student teachers and those of their co-operating teachers. (Seperson and Joyce 1981). This findings have been taken into consideration while designing the teacher education programme. It may be observed that most of the studies are done at the secondary level and there is need to design more studies at higher secondary level for the distinctive stage characteristics of higher secondary students demand a special training for teachers. The teacher educators concerned with M.Sc.Ed. programmes have also emphasized that there is need to strengthen the practice teaching considering the specific needs of higher secondary teachers.

2.6.3.3 Integrated courses

There is no clearcut evidence to show that integrated course is superior to the traditional teacher training. However, an attempt has been made by researchers to develop integrated courses considering that integration of content and methodology helps the trainee to improve teaching competence. (Sharada Devi 1964). The experience of organising integrated teacher education

programmes suggests that integrated training programme helps
the trainee to develop subject (content) competence along
with the proficiency in methodology. But, organisation of
integrated programmes involves more resources. Majority of
the teacher educators have suggested the integration of content
with methodology and there have also suggested that it is
desirable to have integrated programmes.

2.6.4 Inservice programmes

Most of the studies reported are at the secondary level.
A single study is reported at higher secondary level (Sachdev
1971). The studies indicate that a serious attempt has to be
made to identify the inservice needs of teachers. A few studies
have developed models of inservice training (Hall and Myers
1974; Reyna 1982; Huppert 1984; Bolak 1983). Although a few
models are found to be effective, it needs to be validated
against different samples of teachers.

2.6.5 Development of models

It may be observed that very few studies are done in
this aspect. A few studies have developed teacher training
models such as Exemmal 1980; Kak**Xdd** 1982; Peterson 1975;
Evans 1979; Carney 1977; Zeitone 1979; Sithipong 1979;
Koop 1980; Yinger 1980; De Trijillo 1981; Mc Mohan 1984.
However, it may be observed that all the studies have
been done at the secondary level. Sharma (1982) developed
instructional materials in civics at +2 level for preservice
and inservice teachers. This clearly shows the paucity of
studies at the higher secondary level. A very few preservice
and inservice programmes organised for higher secondary
teachers implies that adequate attention has not been given
for the training of higher secondary teachers. This clearly
shows that there is need to design and organize more preservice
and inservice programmes for higher secondary teachers.

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Edu   stands for 'Education'.

ED.D.   Doctor of Education.

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II Survey   M.B. Buch, Second Survey of Research in Education, Society for Educational Research and Development, Baroda, 1979.

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Univ.   University.

Ph.D.   Doctor of Philosophy.

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