CHAPTER 3
DIAGNOSIS, FORMULATION OF OBJECTIVES 
AND SELECTION OF CONTENT AND 
LEARNING EXPERIENCES

The curriculum theory since 1900 has been greatly concerned with the delineation and clarification of objectives. About 1925, the statements of objectives began to be selected on the basis of the needs of students more than on the analysis of life activities. Thus, the objectives were formulated for the present needs of the learners more than future adult living. Between 1940 and 1950 the concept of student-teacher planning and co-operative selection of goals by students and teachers, community leaders and parents came in the vogue. Since 1950, attempts have been made to state objectives in behavioural terms in such a way as to provide for the subsequent evaluation of the curriculum.

Classification of Curriculum

Curriculum can be classified broadly as:

(a) Subject-matter curriculum, including separate subjects, correlated subjects and broad fields. Here, the emphasis is on facts and skills on subject-matter set-out to be learned.

(b) The correlated curriculum which attempts to overcome the crippling limitations of separate subjects curriculum. Here, various subjects are related so that each can better reinforce
and complement the other. (c) The broad-fields curriculum which is a modification of the correlated curriculum. Here, the subjects are grouped into broad fields such as language arts, social studies, mathematics etc. (d) The developmental-activity curriculum which tries to fit the scope and sequence of each child's activities and experiences in school to his biological, intellectual and social growth. It is also called learner-oriented curriculum. (e) The core-curriculum where two or more subjects or broad fields are joined. It seeks to include within it, the societal universals of democratic living, implemented through the study of the social problem. For the present investigation, the investigator has accepted the concept of the subject-matter curriculum as he was mainly interested in developing a course of instruction in population education as a separate subject for the secondary teachers under training.

Though the concepts of curriculum differ according to the emphasis given on the nature, sequence or organisation, they have some elements in common. Taba has very clearly stated this fact in the following words:

All curricula, no matter what their particular design, are composed of certain elements. A curriculum usually contains a statement of aims and of specific objectives; it indicates some selection and organisation of content; it either implies or manifests certain patterns of learning and teaching.... Finally, it includes a program of evaluation of the outcomes.

( Tabo, 1962 : 10 )
Model of the Process of Curriculum Development

Any attempt in the development of curriculum requires some framework or model which can provide a theoretical rationale. It is a way of organising thinking about all matters that are important to curriculum development. It attempts to answer some fundamental questions such as what the curriculum consists of, what its important elements are, how these are chosen and organised and how the curriculum is evaluated.

Herrick and Tyler state that such a framework or model of curriculum has to impart the following three functions:

(1) to identify the critical issues or points in curriculum development and the generalizations which underlie them.

(2) to point out the relationships which exist between these critical points and their supporting structure.

(3) to suggest the approaches that need to be made to resolve these critical issues.

( Herrick and Tyler, 1950 : 1 )

According to Taba:

Curriculum design is a statement which identifies the elements of the curriculum, states what their relations are to each other and indicates the principles of organisation and the requirements of that organisation for the administrative conditions under which to operate.

( Taba, 1962 : 421 )
Several attempts seem to have been made to develop various frameworks for the development of curriculum in population education. Lulla (1971: 34-43) has suggested a model of population education at various stages while considering operational implications for promoting population education. Mehta (1970: 59-62) has outlined some practical steps to be taken for the development of curriculum for the schools. Wadia (1971: 144-150) has developed a schematic plan for population education for the Family Planning Association of India. D. Gopal Rao (Kuppuswamy, Rao and Kanth, 1971: 115-123) has discussed few considerations for development of curriculum in population education. He has also innovated a conceptual model for population education curriculum. (1974: 48-76) K. Sheshagiri Rao (Kuppuswamy, Rao and Kanth, 1971: 125-134) has given a project proposal for development of curriculum on population education in Indian schools. Faneuff (1972) has carried out an action research for developing a pilot model for teaching population dynamics. Shin (1974) has discussed the strategy of curriculum development for population education in the research report. The report of the seminar-workshop organised under the auspices of U.P. Asian Labour Education Center - International Labour Organisation in November, 1975 in Quezon City, the Philippines outlines various models for curricula development for the organised sector.
After conducting a careful study and survey of the models and frameworks referred above and also of other relevant literature, the investigator framed the model (Figure 2) for the process of developing curriculum in population education for secondary teachers under training.

From Figure 2, it is clear that the investigator had planned to develop the curriculum keeping in view the following six phases:

- **Phase 1**: Diagnosis
- **Phase 2**: Formulation of objectives
- **Phase 3**: Selection of content
- **Phase 4**: Selection of Learning experiences
- **Phase 5**: Organization of content and learning experiences
- **Phase 6**: Evaluation
Figure 2
MODEL FOR THE PROCESS OF DEVELOPING CURRICULUM IN POPULATION EDUCATION
The basic assumption on which this model rests is that the end of education is to change behaviour and curriculum should help in the attainment of that end. Further, though the phases included in the model are separate and sequential, the investigator wishes to suggest that they are interrelated and interdependent and they form a cyclic process. Each phase is a logical development from the preceding one and over time the final phase affects the initial one.

Keeping this model in view, the investigator then proceeded to develop the curriculum in population education for secondary teachers under training. The strategy and a scheme of work developed and followed for the first four phases are described in this chapter while those of the fifth and the last phases are described in the subsequent chapters.

**Phase 1: Diagnosis**

Diagnosis is the first phase in curriculum development. It is a process of determining the facts which need to be taken into account in making curriculum decisions. It is an important first step in determining what the curriculum should be for a given population. Formulation of objectives can proceed only after the diagnosis of the nature and needs of the learner is carried out.
While defining the terms in Chapter 2, the investigator has stated that 200 trainees of the Secondary Teachers Training College, Ahmedabad during the academic year 1977-78 form the sample for the tryout. There were 220 trainees during the academic year 1977-78 at the college out of which 89 were women and 131 men. Out of this 89 women and 111 men (total 200) were included in this experiment. The diagnosis of the sample revealed the following characteristics:

(a) Age: Table 1 gives the age wise distribution of the sample of student teachers included in this experiment.

<table>
<thead>
<tr>
<th>Class interval of age</th>
<th>No. of Student Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-23</td>
<td>98</td>
</tr>
<tr>
<td>24-28</td>
<td>85</td>
</tr>
<tr>
<td>29-33</td>
<td>15</td>
</tr>
<tr>
<td>34-38</td>
<td>1</td>
</tr>
<tr>
<td>39-43</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>
A glance at the table shows that 98 student teachers out of 200 (49 per cent) are of 19-23 age group. While 42.5 per cent are of 24-28 age group. The student teachers of the age group of 29-33 form only 7.5 per cent of the sample. While those of the age groups of 34-38 and 39-43 form 0.5 per cent each of the sample. This clearly indicates that the majority of the student teachers of the sample (91.5 per cent) are of the age group 19-28.

(b) Marital Status of the Student Teachers: Table 2 shows the marital status of the student teachers included in the sample of this investigation.

<table>
<thead>
<tr>
<th>Marital status</th>
<th>No. of Student Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>72</td>
</tr>
<tr>
<td>Unmarried</td>
<td>128</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>

From the table it is apparent that 72 out of 200 student teachers (36 per cent) are married while 128 out of 200 student teachers (64 per cent) are unmarried. This clearly indicates that as the majority of the student teachers
are unmarried, importance and need of orienting them to population education is certainly much more.

(c) Areawise Composition of the Student Teachers: The student teachers included in the sample of this investigation not only hailed from different districts of Gujarat but also from other states of India and a union territory. The data about the areawise composition of the sample are shown in Table 3.1 and Table 3.2.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>State</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bihar</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Delhi</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Diu*</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Gujarat</td>
<td>68</td>
<td>98</td>
<td>166</td>
</tr>
<tr>
<td>5</td>
<td>Karnataka</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Kerala</td>
<td>4</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Madhya Pradesh</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Maharashtra</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Punjab</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Rajasthan</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>Uttar Pradesh</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>West Bengal</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 89 111 200

* Union Territory
Table 3.1 clearly indicates that though 83 per cent of the sample of the student teachers hail from Gujarat, the sample includes student teachers from ten other states and one union territory. Thus, the sample does not consist of the student teachers from Gujarat only.

Table 3.2 shows the district-wise distribution of the student teachers hailing from Gujarat.

**TABLE 3.2**

**DISTRICT-WISE DISTRIBUTION OF STUDENT TEACHERS HAILING FROM GUJARAT**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>District</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ahmedabad</td>
<td>19</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>Amreli</td>
<td>1</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Baroda</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Bhavnagar</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Broach</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Bulsar</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Gandhinagar</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Jammagar</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Junagadh</td>
<td>5</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>Kheda</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11</td>
<td>Mehsana</td>
<td>4</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>12</td>
<td>Panchmahals</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Rajkot</td>
<td>11</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td>14</td>
<td>Sabarkantha</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>Surat</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Surendranagar</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total**  68  98  166
From Table 3.2 it is quite clear that the sample represents 16 districts of Gujarat. It is not restricted to the student teachers from Ahmedabad City only.

(d) Educational Qualifications: The student teachers included in the sample of this investigation possessed the minimum qualification of a bachelor's degree. But some of them even possessed a master's degree. The particulars about their basic degree in different faculties are given in Table 4 below:

TABLE 4
EDUCATIONAL QUALIFICATIONS OF STUDENT TEACHERS

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Degree</th>
<th>No. of student teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B. A.</td>
<td>127</td>
</tr>
<tr>
<td>2</td>
<td>B. Com.</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>B. Sc.</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>200</td>
</tr>
</tbody>
</table>

A glance at the table shows that 127 out of 200 student teachers (63.5 per cent) are arts graduates while 59 out of 200 student teachers (29.5 per cent) are science graduates and 14 out of 200 (7.0 per cent) are commerce graduates. Though the number of student teachers in the
arts faculty are more than the science and commerce faculties, the sample represents all the three faculties.

Though an attempt has been made to diagnose the variables such as age, sex, marital status, area to which they belong and educational qualifications of the sample through this diagnosis, the investigator has taken the sample of the student teachers as a whole for the sake of this investigation as he was interested mainly in finding out the efficacy of the curriculum on the group of the student teachers as a whole. So the investigator has not intended to find out the effectiveness of the curriculum according to the variables stated above.

After knowing the characteristics of the sample such as age, sex, marital status, area to which they belong and educational qualifications, the investigator tried to be conversant with the background of knowledge and attitudes that they have in the area of the present investigation. As all of them were graduates, they did possess some awareness regarding the problem. Some of them were commerce graduates and arts graduates with economics as one of the subjects. So they did know about the population problem. Still however, in the beginning of the academic year 1977-78 the investigator asked the trainees to write a short free composition on "Our Population Problem." While going through their write-ups, the investigator was
convinced that most of them were aware of the seriousness of the problem. Though they were lacking in the specific knowledge and information, they possessed some background of the area of the subject of this investigation.

After completing the first phase of diagnosis the investigator set up on the work of the formulation of objectives.

Phase 2: Formulation of Objectives

For the formulation of objectives, the investigator studied the related literature. Bloom (1956) and Krathwohl (1964) have attempted to produce, using educational-logical-psychological principles, a complete taxonomy of the objectives in cognitive, affective and psychomotor areas. The value and utility of these objectives lie in the fact that they present the intended behaviour of the students. They also suggest that besides information, there are abilities and skills which can be cultivated. The cognitive domain includes the behaviour pertaining to knowledge and intellectual abilities or skills and the affective domain includes those objectives which stress an emotion, a feeling tone or a degree of acceptance or rejection.

So the first two domains from which the investigator has formulated objectives are the cognitive
domain and the affective domain. But the investigator feels that as the goal of population education is the inculcation of certain attitudes and values leading the target group to behave rationally, some objectives relating to behaviour should also be included. These objectives may be about the observable population behaviour, non-observable population behaviour or delayed behaviour i.e. the behaviour which can not be practised in life situations for the present. Thus, the investigator has formulated general and specific objectives from three domains - the cognitive, the affective and the behaviour.

The objectives are usually stated as general objectives and specific objectives. General objectives are long-term objectives. They can not be developed or achieved during the course of a single teaching-learning unit. They very broadly outline the expected behaviour expressed as categories of intended outcomes, the expected products of educational endeavour. The specific objectives, on the other hand, describe behaviour to be attained in a particular unit or a period. They are short-term objectives. Their chief function is to guide the making of curriculum decisions on what to cover, what to emphasize, what content to select and which learning experiences to stress. It is needless to say that the specific objectives should be consistent with the general overarching ones and in their totality express the vision of the general objectives.
The investigator has kept in mind the following principles discussed at length by Taba (1962: 199-205) to guide the formulation of objectives:

(1) A statement of objectives should describe both the kind of behaviour expected and the content or the context to which that behaviour applies.

(2) Complex objectives need to be stated analytically and specifically enough, so that there is no doubt as to the kind of behaviour expected, or what the behaviour applies to.

(3) Objectives should also be so formulated that there are clear distinctions among learning experiences required to attain different behaviours.

(4) Objectives are developmental, representing roads to travel rather than terminal points.

(5) Objectives should be realistic and should include only what can be translated into curriculum and classroom experience.

(6) The scope of objectives should be broad enough to encompass all types of outcomes for which the school is responsible.
After taking the above listed principles into consideration, the investigator formulated the following general and specific objectives for developing the curriculum in population education for the secondary teachers under training:

**General Objective No. 1:**
To enable the student teachers to acquire knowledge and understanding of the dynamics, determinants, consequences and control of population growth.

**Specific Objectives:**

(1.1) To enable the student teachers to acquire knowledge and understanding of the meaning, concept, scope and importance of population education.

(1.2) To enable the student teachers to acquire knowledge and understanding of the demographic concepts.

(1.3) To enable the student teachers to acquire knowledge and understanding of the population situation in Gujarat and India in the context of the world population situation.

(1.4) To enable the student teachers to acquire knowledge and understanding of the factors affecting growth rate and birth rate of population.
(1.5) To enable the student teachers to acquire knowledge and understanding of the economic consequences of population growth.

(1.6) To enable the student teachers to acquire knowledge and understanding of the effects of unchecked growth of population on environment and natural resources.

(1.7) To enable the student teachers to acquire knowledge and understanding of the relationship between food problem and growth in population.

(1.8) To enable the student teachers to acquire knowledge and understanding of the social implications of growth in population.

(1.9) To enable the student teachers to know and understand that the problem of urbanisation arises due to unabated growth of population.

(1.10) To enable the student teachers to acquire knowledge and understanding of the effects of population growth on education.

(1.11) To enable the student teachers to know and understand how population growth affects life, health and nutrition of family.
(1.12) To enable the student teachers to know and understand the role of the teacher as a population educator.

**General objective No. 2:**

To enable the student teachers to develop appreciation, awareness and attitudes favourable to population control.

**Specific objectives:**

(2.1) To enable the student teachers to be aware of the fact that rapid population growth is the result of the saving and prolonging of lives due to modern health practices.

(2.2) To enable the student teachers to be conscious and to feel concerned about the serious problems posed by the population explosion at the micro and macro levels.

(2.3) To enable the student teachers to be aware of the fact that the size of a family can be planned and that it is not a matter of fate.

(2.4) To enable the student teachers to develop positive attitudes for limiting the size of the family and for planned parenthood.

(2.5) To enable the student teachers to appreciate the family welfare policies and programmes of the country.
(2.6) To enable the student teachers to appreciate population education as an effective means of social change and reconstruction.

(2.7) To enable the student teachers to develop positive attitude for eradicating superstitions and wrong beliefs and barriers which stand in the way of population control.

(2.8) To enable the student teachers to develop awareness and attitudes necessary for their future role of a population educator.

(2.9) To enable the student teachers to develop an attitude for a better way of life resulting from planned and small family.

General objectives No. 3:

To enable the student teachers to develop skills and abilities necessary for their future role of a population educator.

Specific objectives:

(3.1) To enable the student teachers to develop the skill of communicating population education concepts to secondary school students.

(3.2) To enable the student teachers to develop the ability of collecting and interpreting demographic data.
(3.3) To enable the student teachers to develop ability to make correct and rational decisions in matters relating to family size and population.

(3.4) To enable the student teachers to develop the skill of presenting demographic data through graphs, charts, tables and figures.

(3.5) To enable the student teachers to develop skill in participating effectively in group discussion.

(3.6) To enable the student teachers to develop the skill of preparing and or using audio-visual aids for teaching the concepts relating to population education.

(3.7) To enable the student teachers to develop the ability of comparing, contrasting and analysing different situations and of drawing conclusions therefrom.

(3.8) To enable the student teachers to develop the skill in integrating concepts relating to population education in various co-curricular activities.

**General objective No. 4**:

To enable the student teachers to develop and accept rational and responsible behaviour patterns in population situations at the micro as well as the macro levels.
Specific objectives:

(4.1) To enable the student teachers to demonstrate the ability to collect, present and interpret demographic data.

(4.2) To enable the student teachers to appraise the population problems of the state, country and the world.

(4.3) To enable the student teachers to strive for a higher socio-economic status by restricting the size of the family.

(4.4) To enable the student teachers to evaluate the relationship between family size and the quality of life.

(4.5) To enable the student teachers to be the agents of change and to work actively for population control.

(4.6) To enable the student teachers to co-operate actively with the agencies working in the field of population control.

(4.7) To enable the student teachers to develop confidence that many problems of the family, state, country and world could be solved by controlling population growth.
(4.8) To enable the student teachers to aspire and to work for better conditions of living by accepting the norm of a small size family.

(4.9) To enable the student teachers to advocate and accept the practice of late marriage.

Thus, the four general objectives were formulated and several specific objectives were derived from each of the general objectives. The investigator has taken utmost care to formulate these objectives in such a way as would indicate both the behavioural aspects and content aspects. It is hoped that they would serve as guides in the attainment of the objectives of this investigation and also as guides in the selection of essential and desirable subject matter or the content, learning experiences, methods of teaching and teaching devices. It is further hoped that they would serve as bases in measuring the effectiveness of the learning and the teaching activities. The investigator, however, does not want to suggest that the objectives formulated here are final exhaustive and all conclusive. There is always a scope for improvement, alteration, addition and reduction in an exercise like this.

After finishing the task of formulating the objectives, both general and specific, the investigator undertook the process of selecting the content which forms phase 3 of the model.
Phase 3: Selection of Content

The selection of proper content is a very important phase in the process of the curriculum development. In fact, this phase of the process of the curriculum development is related to all the other phases. The curriculum content is selected keeping in view the characteristics and nature of the target group sorted out during the first phase of diagnosis. Further, the selection of the content is primarily determined by the operations of Phase 2: Formulation of objectives. Moreover, the selection of the content is intimately related to phase 4: selection of learning experiences and Phase 5: organisation of content and learning experiences. Finally, the evaluation of the curriculum also depends on the content of the curriculum. Thus, the selection of proper content should be done very carefully and systematically.

Several attempts have been made to select content for the population education programmes for various target groups. D. Gopal Rao (1974: 88-94) has suggested unitwise contents of a teacher education programme. Mehta and Parekh (1974: 14-23) have given a draft syllabus for secondary teachers training colleges. Mehta (1971: 45-55) has discussed the content and method of teaching population education in schools. Lulla (1971: 34-43) has given course outline for reorientation of teachers.
Wadia (1971: 147-148) has listed certain aspects which can be included in a population education programme. Johnston (1975: 24-26) also talks of how to decide content of the programme for population - family life education for out-of-school youth. Wayland (1973: 5) has selected certain areas that constitute a general picture of the content base for population education.

Thomas M. Risk has given basic criteria which can be useful in selecting the contents of a curriculum. He states:

Good subject matter should:

1. contribute directly to the attainment of the desired outcomes.

2. be within the comprehension of the individual students - that is, be adapted to their level of maturity and training.

3. be of interest to the students taking the course or be of a kind that can be made interesting.

4. be valuable in itself in meeting other school and life needs of the students.

5. serve as the basis for acquiring more learning, especially as preparation for other courses that may be taken later.

6. be of high value in comparison with other subject matter that could be used.

7. be of high relative value in contributing to indirect values or outcomes to be attained in the course.

(Risk, 1965: 144)
After conducting a careful study of the relevant literature and following the criteria given by Thomas M. Risk, the investigator then followed the procedure for selecting the content for the curriculum in population education for secondary teachers under training described hereunder:

Step I: During Phase 1, the investigator had made diagnosis of the characteristics and interests of the target group. As stated earlier, most of the student teachers included in the sample were in the age group of 19-28, and 64 per cent of them were unmarried. It was also found out from the free composition written by them that they lacked in specific knowledge about the population concepts. This indicates that the content of the curriculum should be such as would evoke interest in young, married and unmarried student teachers in the various aspects of the population problem and help them develop positive attitudes and awareness of population control. Hence, the investigator decided to select the contents of the proposed curriculum from the following four areas:

(i) Demography
(ii) Determinants and consequences of population growth
(iii) Population control
(iv) Teacher as a Population Educator
Step II: After this, the investigator tried to develop the content outlines keeping in view the objectives formulated by him during the course of Phase 2 discussed earlier. In fact, the content of the curriculum represents a translation of the objectives in concrete terms for the specific target group.

During Phase 2, the investigator has formulated four general objectives relating to knowledge and understanding, appreciation, awareness and attitudes, abilities and skills and behaviour. But while selecting the contents for the proposed curriculum, the investigator mainly considered the first general objective relating to knowledge and understanding. It is hoped that this knowledge and understanding will lead to attitudinal change and awareness in more rational decision-making about individual fertility behaviour, or more rational decisions about population issues as they bear upon the quality of life. Hence, the content of the curriculum is derived from the cognitive area of knowledge and understanding only. The emphasis is upon knowledge, information and understanding that leads to awareness, formation of positive attitudes and acquisition of expected abilities and skills.

The first general objective formulated by the investigator from the cognitive domain reads:

"To enable the student teachers to acquire knowledge and to develop understanding of the dynamics, determinants,
consequences and control of population growth." From the specific objectives of this general objective, the investigator developed the outlines of the contents. This is given in Table 5.

**TABLE 5**

OUTLINE OF THE CONTENTS DEVELOPED FROM THE SPECIFICATIONS OF THE GENERAL OBJECTIVE FROM THE COGNITIVE DOMAIN

<table>
<thead>
<tr>
<th>No.</th>
<th>Specific objective</th>
<th>Outline of the content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>To enable the student teachers to acquire knowledge and understanding of the meaning, concept, scope and importance of population education.</td>
<td>Population education - its meaning, concept, scope, need and importance and objectives.</td>
</tr>
<tr>
<td>1.2</td>
<td>To enable the student teachers to acquire knowledge and understanding of the demographic concepts.</td>
<td>Demographic concepts such as birth rate, death rate, migration, density, sex ratio, life expectancy.</td>
</tr>
</tbody>
</table>

contd.
<table>
<thead>
<tr>
<th>No.</th>
<th>Specific objective</th>
<th>Outline of the content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>To enable the student teachers to acquire knowledge and understanding of the population situation in Gujarat and India in the context of the world population situation.</td>
<td>Population situation in Gujarat and India in the context of the world population situation.</td>
</tr>
<tr>
<td>1.4</td>
<td>To enable the student teachers to acquire knowledge and understanding of the factors affecting growth rate and birth rate of population.</td>
<td>Factors affecting growth rate and birth rate of population.</td>
</tr>
<tr>
<td>1.5</td>
<td>To enable the student teachers to acquire knowledge and understanding of the economic consequences of population growth.</td>
<td>Relationship between population and production. Relationship between growth of population and standard of living. Economic ills resulting from rapid growth in population. contd.</td>
</tr>
</tbody>
</table>
TABLE 5 contd.

<table>
<thead>
<tr>
<th>No.</th>
<th>Specific objective</th>
<th>Outline of the content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>To enable the student teachers to acquire knowledge and understanding of the effects of unchecked growth of population on environment and natural resources.</td>
<td>Adverse effects of population growth on healthy environment - pollution - noise. Population growth and its relationship with renewable and non-renewable resources.</td>
</tr>
<tr>
<td>1.7</td>
<td>To enable the student teachers to acquire knowledge and understanding of the relationship between food problem and growth in population.</td>
<td>Population growth and growing pressure of people on land. Inadequate food production to meet the requirements of growing population. Rapid growth in population as a hindrance to green revolution.</td>
</tr>
<tr>
<td>1.8</td>
<td>To enable the student teachers to acquire knowledge and understanding of the social implications of growth in population.</td>
<td>Social ills and problems arising out of unabated growth of population such as: - traditionalism contd.</td>
</tr>
<tr>
<td>No.</td>
<td>Specific objective</td>
<td>Outline of the content</td>
</tr>
<tr>
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</tr>
<tr>
<td>1.9</td>
<td>To enable the student teachers to know and understand the problem of urbanization arising out of an unabated growth of population.</td>
<td>Urbanization as a result of population growth. Effects of urbanization such as: - over-crowding - poor housing facilities - inadequate supply of basic necessities like water - stress and strain on transport - poor health services. contd.</td>
</tr>
<tr>
<td>No.</td>
<td>Specific objectives</td>
<td>Outline of the content</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.10</td>
<td>To enable the student teachers to acquire knowledge and understanding of the effects of population growth on education.</td>
<td>Population growth and increasing rate of illiteracy - its consequences - problem of pressure on enrolment at all levels - scarcity of school buildings and equipments - increase in teacher pupil ratio - problem of quantity Vs. quality.</td>
</tr>
<tr>
<td>1.11</td>
<td>To enable the student teachers to know and understand how population growth affects life, health and nutrition of family.</td>
<td>Effects of early and late marriages on population growth. Interrelationship between family size on the per capita availability of food, clothing, shelter, educational facilities. Effects of malnutrition and under nutrition. Responsible parenthood and welfare of family.</td>
</tr>
</tbody>
</table>
### TABLE 5 contd.

<table>
<thead>
<tr>
<th>No</th>
<th>Specific objectives</th>
<th>Outline of the content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.12</td>
<td>To enable the student teachers to know and understand the role of the teacher as a population educator.</td>
<td>Qualities and attitudes of a teacher as a population educator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expected skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expected skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Techniques and tools for communicating population concepts to secondary pupils</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- organisation of cocurricular activities — use of audio-visual aids and devices for population education.</td>
</tr>
</tbody>
</table>

**Step III**: After translating the specification of general objective 1 into the outlines of the content, the investigator got those outlines cyclostyled and sent them to experts and resource persons in India for their suggestions. Out of the fifty copies mailed, the investigator got back twenty four which is quite encouraging. It is gratifying to note that all of them endorsed the content developed as satisfactory and there
were hardly any suggestions for modification of the contents.

In this way the content for the curriculum in population education for secondary teachers under training was developed on a rational basis and in a systematic manner.

Figure 3 shows the content areas of the curriculum in population education.
Figure 3

CONTENT AREAS OF CURRICULUM IN POPULATION EDUCATION FOR SECONDARY TEACHERS UNDER TRAINING
Phase 4: Selection of Learning Experiences

The fourth phase of the model of the curriculum suggested by the investigator is selection of learning experiences. After selecting the contents in the previous phase, the investigator began the work of selecting learning experiences. It is said that learning takes place through the experiences which the learner undergoes. Hence, it is through these experiences that learning will take place, and objectives formulated and selected during Phase 1 will be attained.

Explaining very clearly the meaning of the term "Learning Experience", Tyler states:

The term "learning experience" is not the same as the content with which a course deals nor the activities performed by the teacher. The term "learning experience" refers to the interaction between the learner and the external conditions in the environment to which he can react. Learning takes place through the active behaviour of the student, it is what he does that he learns not what the teacher does.

(Tyler, 1969 : 63)

Thus, Tyler, views learning experiences as the interaction between the learner and the external conditions in the environment. This means that learning experiences could be provided through setting up an environment so as to stimulate the desired type of reaction from the learners.
In the present case, the investigator had good opportunities and scope to set up stimulating situations that can evoke the kind of behaviour desired from the student teachers of the Secondary Teachers Training College, Ahmedabad where he is a lecturer.

It should also be noted that though learning experiences are not just the same as objectives and content, they are closely related to objectives and content on one hand and evaluation on the other. In fact, the learning experiences can be selected only by keeping in view the objectives formulated and the content selected. In a well conceived and properly developed curriculum these phases are so interrelated that they fuse among themselves within the framework of the curriculum. Such an intimate interrelatedness of objectives, contents, learning experiences and evaluation within the framework of curriculum in population education is shown in Figure 4.
Figure 4

INTERRELATEDNESS OF OBJECTIVES, CONTENT, LEARNING EXPERIENCES AND EVALUATION IN THE FRAMEWORK OF THE CURRICULUM OF POPULATION EDUCATION
Tyler, (1969 : 65-68) has discussed certain general principles that apply to the selection of learning experiences. They are summarized hereunder:

(1) For a given objective to be attained, a student must get experiences that give him an opportunity to practice the kind of behaviour implied by the objective.

(2) The learning experiences must be such that the student obtains satisfaction from displaying on the kind of behaviour implied by the objective.

(3) The reactions desired in the experience should be within the range of possibility for the students involved.

(4) Many experiences could be used to attain the same educational objectives.

(5) The same learning experience will usually bring about several outcomes.

Learning experiences are usually divided into direct experiences and vicarious experiences. A direct experience refers to learning activity that involves first hand experience with the relationships concerned in the outcome to be attained. It includes what is commonly referred to as perceptual learning. A vicarious experience is an
experience through which the learning is acquired without first hand or direct experience with the relationship involved. It makes use of the direct experience of others. Such vicarious learning experiences are very important because it is impossible for us to have all of the first hand experiences that are necessary to desired outcomes.

Keeping in view the objectives formulated and content selected for developing the present curriculum, the investigator has selected the following learning experiences:

(I) Direct Learning Experiences:

(1) Gathering information about the various aspects of population problem.

(2) Acquiring understanding about the impact of population growth on the various aspects of the individual and the social life.

(3) Observing the effects of population growth at the micro and macro levels.

(4) Listing important points, facts and figures.

(5) Collecting relevant literature.

(6) Presenting the demographic concepts and data through graphs, charts, tables and figures.

(7) Presenting one's views, either orally or in writing, in favour of population control.
(8) Suggesting solutions to the problems raised by unabated population growth or solving problems posed in hypothetical situations.

(II) Vicarious Experiences:

(1) Reading books, magazines, reports etc. on various aspects of the population problem.

(2) Listening to lectures, talks and oral discussions.

(3) Observing pictures, maps, charts, tables, figures, films, slides and other illustrative material.

(III) Combination of Direct and Vicarious Experiences:

(1) Practice teaching with an emphasis on population concepts.

(2) Taking part in discussions.

(3) Collecting material for the bulletin board and its arrangement and exhibition.

(4) Asking questions.

(5) Solving problems posed in hypothetical situations.

(6) Comparing, contrasting, analysing, summarizing the population situations of various countries.
(7) Participating in the co-curricular activities relating to population education.

(8) Preparing and making use of audio-visual material relating to population education.

While selecting the learning experiences stated above, the investigator took care to see that all these learning experiences contribute substantially in attaining the objectives formulated and in elucidating the content selected. It is obvious that in practical learning situations, we cannot completely separate these learning experiences by types or according to the objectives aimed at or from the point of view of the contents. Hence, no effort has been made to give objectivewise or the contentwise learning experiences as that would result in unnecessary repetition.

In this way, the process of diagnosing the nature and the need of the learners, formulating the objectives, selecting the content and selecting the learning experiences which formed the first four phases of the curriculum development was complete.