

CHAPTER - 3

METHODOLOGY

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## CHAPTER - 3

### M E T H O D O L O G Y

This chapter presents specific details regarding various aspects of Methodology adopted in the present study, under its six sections namely, development of curriculum, try out, sampling, instrumentation, procedural details and the way data collected in the study.

#### 3.1 DEVELOPMENT OF THE CURRICULUM OF FAMILY LIFE EDUCATION

As explained in Chapter One, the Curriculum of Family Life Education in the present study involves six phases in its development that is,

- i) Diagnosis of needs of the students;
- ii) Formulation of objectives;
- iii) Selection of content and learning experiences;
- iv) Organisation of content and learning experiences;
- v) Evaluation; and
- vi) Modification of the Curriculum in the light of the results obtained.

The phases One to five involved in the process of curriculum development of Family Life Education, are discussed separately here, wherein, each phase is sequential and logically developed from the preceeding one. The sixth phase, that is, the modification of the Curriculum in the light of the results obtained is discussed at the end of the Chapter Four.

##### 3.1.1. Diagnosis of needs of the students:

In order to develop a curriculum of Family Life Education, three important criteria were taken into consideration.

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One, the needs of the learners as hypothesized or assessed by the psychologists in the area of adolescence and by other curriculum developers in the area of Sex and Family Life Education. For this purpose, studies related to the adolescent development and other resources were consulted. Two, the developmental tasks proposed by the psychologists based on the adolescents' growth and development. For this purpose, a few developmental tasks as proposed by the psychologists were taken into consideration. This has already been mentioned in Chapter One (refer sub section 1.25 of Chapter One). Three, the needs obtained by the learners themselves, their priorities, their degree of interest, maturity, and the extent of their past learning were also taken into consideration. For this purpose, a Questionnaire seeking the students' needs and interests towards knowing certain topics like, biological self, self understanding and understanding others, Human Reproduction, Human Sexuality, Venereal diseases, Family Planning, Marriage and Family, Economics of the Family, masturbation and Homosexuality was administered to 150 students belonging to two local schools of Baroda. Those areas towards which majority of the students showed their interest was taken into consideration. The Questionnaire pertaining to the need and the interest of pupil to evolve the curriculum of Family Life Education is given in the Appendix 'B' of this report. During analysis, the items were pooled together and brought under particular areas as indicated in the Table for convenience purpose. The positive responses made by the majority of the pupils, that is 60% and above, were taken into consideration.

The table given below indicates the number of pupils who expressed their needs in knowing the particular areas mentioned.

TABLE 3.1 Table indicating the number of pupils expressing the positive and negative responses in knowing the particular areas mentioned

TOPICS	NO. of Respondents			NO. of Non-Respondents
	Positive (Yes)	Negative (NO)	Inde- finite	
1. Human Repro- duction	86.7%	6.7%		6.7%
2. Human Sexuality	96.7%	3.33%		-
3. Self understand- ing and under- standing others	96.7%	-		-
4. Venereal Diseases	91.33%	8.7%		-
5. Family Planning and Birth Control	83.33%	-		16.7%
6. Marriage and Family	66.7%	13.33%		20%
7. Economics of the Family	33.33%	46.7%		20%
8. Homosexuality	75.33%	6.7%		18%
9. Masturbation	68%	20%		12%

### 3.1.2. Formulation of Objectives:

Based on the needs of adolescents as assessed by eminent workers in the related fields like psychology of Adolescence, Sex and Family Life Education and based on the needs and interests expressed by most of the students as presented in the Table 3.1. The following general objectives of Family Life Education were laid down.

1. To provide knowledge and understanding of matters related to the biological self, so that one comes

to terms with one's own sexuality and develops a positive attitude towards one's self and towards one's opposite sex members.

2. To correct and alleviate some of the common worries and misconceptions related to the growth of the biological self.
3. To develop the habit of using proper terminology in reference to the body.
4. To develop self-understanding and objectivity about self, and contribute to the emotional and the social growth of the individual, so that he or she develops a healthy personality.
5. To help perceive others objectively, in order to develop healthy relationships.
6. To provide knowledge and understanding of matters related to Human Sexuality, so that one not only learns what it is like, but also develops positive attitude towards sexual matters.
7. To correct some of the common worries and misconceptions related to Human Sexuality.
8. To provide enough knowledge about the misuses and aberrations of sex to enable the individual to protect himself or herself against exploitation and maintain his or her physical and mental health.
9. To provide knowledge about the physiology of Human Reproduction and related aspects of family life, so that he or she will function as an effective parent.
10. To enable learners to acquire the knowledge and the attitudes necessary to make informal decisions about population events and issues which affect the present and the future quality of life for themselves, their families, communities, societies and Nations.

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11. To provide knowledge about the marriage and the Family, so that one makes a wise decision while making the choice, understand the other person and make the marriage a stable one, and adequately function as a member of a family and eventually as a parent.

These above stated objectives are the broad objectives of the Curriculum. Based on these broad objectives of the curriculum, the content was selected. Along with this, the suitable learning experiences were also chosen.

### 3.1.3. Selection of the Content and the Learning Experiences:

The third phase of the curriculum process is the selection of content or subject matter and learning experiences which tend to become the principle concern. As mentioned in Chapter One, the curriculum is developed around three major themes which are:

- i) personality development of the Adolescents;
- ii) the biological, the psychological and the sociological aspects of Human Sexuality; and
- iii) the biological, the psychological and the sociological aspects of the Family. The outline of the content is given hereunder.

1. Biological self- the male
2. Biological self- the female
3. Perception of the self (psychological and social)
4. Perception of the other
5. Building up Relationships
6. Human Sexuality- a basic response to parenthood.
7. Human Reproduction- the biological basis of the family.
8. Population Growth- a problem

9. Contraception
10. Venereal diseases
11. Marriage and Family
12. Conflict and Adjustment in Marriage
13. The Nature of Family

A detailed picture of the developed curriculum of Family Life Education is presented in the Appendix 'I' of this report.

It should be noted that, among the above stated thirteen units, four units were selected from the Twelvth Standard biology Syllabus. They are Sex determination and sex differenciation in man, (included under the heading 'Human Reproduction' in the present curriculum of Family Life Education) Human Development, Population problem and Family Planning. The content of these four units as presented in the text books suffered from certain deficiencies like i) paid very little attention to the basic concepts that have to be developed in pupils; ii) did not clarify the meanings of most of the terms used; iii) continuity was not maintained in its presentation of facts; iv) the facts were just presented as mere biological facts and never paid attention to the attitudinal development; and v) the diagrams were not presented in a lucid and a clear manner. Hence, it was considered necessary to re-organise the units in such a way as to incorporate the logical and the psychological ordering of knowledge, explain the concepts by drawing illustrations from daily life experiences and present the facts in a more detailed manner supported by relevant diagram. Along with this, measures were taken to create enough opportunities in the content, for the attitudinal development even.

To develop the whole curriculum of Family Life Education, the fields like Biology, Psychology and Sociology were explored. One point of major importance is, these content fields



were not viewed as treasures of knowledge to be transmitted to the students, but as a way of understanding a limited number of basic ideas, so that the scope of curriculum acquires a different meaning. For example, instead of just stuffing students with mere biological facts, emphasis was laid much upon what basic ideas should be made to understand, what questions need to be asked and answered and how these varieties of ideas, questions and answers fit into developing an orientation to the self and to the world. The content, which were drawn from the various fields of knowledge mentioned, were examined in terms of their basic ideas and principles to determine which are most relevant to gaining a balanced orientation to the nature of the world, which in turn, leading to the integration of knowledge without a corresponding loss in depth, precision and intellectual discipline. Only after this basic ideas determined, were the specific facts laid down. The scope of content also include such matters as the methods of interpretation and generalisation to be cultivated, the type of logical process to be mastered, the type and the level of application to be pursued, the kinds of attitudes to be generated, or the sensitiveness to be developed- in other words, the behavioural objectives. It is important to note here, that the content cannot be directly related to the broad or the general objectives of the curriculum of Family Life Education. To relate directly so is to employ an illicit curriculum process, where the general aims become divorced from the learning process, which is then directed towards 'hidden agendas', implicit goals which are never explicitly stated in behavioural terms. In such cases, the content takes precedence over the expected behaviour inferred from general aims but never specifically spelled out. Since it is impossible to set up proper learning experiences to bring about the desired behavioural changes without an operational statement of the nature of behaviour intended, the present study planned

the behavioural objectives based upon the Bloom's taxonomy of educational objectives. A few such behavioural objectives which are adopted in this study to evaluate the desired behavioural outcomes are, i) knowledge; ii) comprehension; iii) application; iv) analysis; v) skill and vi) attitude. Knowledge includes those behaviours and test situations which emphasise the remembering, either by recognition or recall- of ideas, material or phenomena; comprehension represents the lowest level of understanding. It refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications; Application includes the use of abstraction in particular and concrete situation, wherein the abstraction may be in the form of general ideas, rules of procedures, or generalised methods, technical principles, ideas and theories which must be remembered and applied; Analysis involves the breakdown of communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/ or the relations between the ideas expressed or made explicit. Such analyses are intended to clarify the communication, to indicate how the communication is organised and the way in which it manages to convey its effects, as well as its basis and arrangement; Skill involves drawing the diagrams accurately and labelling them neatly and clearly and Attitude involves expressing one's opinions or ideas positively or negatively towards a particular object. The specification of behavioural objectives for each unit of the curriculum are given in the Appendix 'K' of this report.

Along with this specification of behavioural objectives and selection of content, the learning experiences are selected as a means of instilling or changing behaviour as specified in phase three of the Curriculum process. Two problems in this regard faced are sorting out of experiences which are appropriate for students to share and which are appropriate for individual students. Though both the problems are legitimate, they are difficult and both involve selection of experiences and materials from a broad range of possibilities. It should be noted that a given strategy or medium is not equally suitable for the attainment of all objectives. As different ends demand different means, the task is to choose from all available strategies and media; those most likely to bring about each specific behaviour intended. Today, when compared to past, a good number of instructional techniques of proven potentials, in the achievement of certain instructional objectives are available to educational practitioners. What is required, is the identification and selection of appropriate components of instruction and organising them to fit into the curriculum strategy for achieving various objectives. As mentioned in the earlier chapter, development of such a curriculum would be guided by considerations such as curriculum objectives to be achieved, learner's characteristics, nature of the curriculum content and the resources available.

In order to facilitate the identification of different instructional components, which form a main part of the Curriculum development, the investigator taught the subject, Family Life Education course for a period of three months to Standard XII students of Indian Petro-chemicals Limited School in Baroda, where the curriculum was to be implemented later. During this period, the investigator could get a prior knowledge about the level of maturity, language ability and study habits of the students. Alongwith this, the organisational pattern of the school, the resources available, etc., were studied in a comprehensive

manner. Added to this, was also studied, how the biology teachers of the school handled those topics related to human development, population problem, Family Planning and so on. On the basis of the knowledge obtained regarding the learners' characteristics and the facilities available in the school, the possible instructional components to constitute the phase three of the curriculum were identified. It was observed that the School Biology teachers do not take efforts to teach those topics related to Human Reproduction, Population problem and Family Planning given in the syllabus. The topics were handled in a brief manner, avoiding most of the important issues, concerning Human Reproduction and Family Planning.

The most used technique was the 'lecture method' and the other supportive media through which the pupils could have comprehended better like audio-visual aids, discussions, question-answer sessions were not made use of, by the teachers. Hence, to provide appropriate learning experiences in order that the pupils can achieve the desired objectives, a few instructional components like, structured lectures, self-instructional materials, team teaching, discussions, questioning techniques were examined for their utility in teaching the curriculum of Family Life Education for the Standard XII. With the background of knowledge obtained through the experience, certain instructional components to constitute the phase three of the curriculum were arrived at. Concomitantly, certain considerations were kept in view, while identifying different instructional components. These are presented hereunder.

i) Human Interaction: An important modality which gains prominence in the process of instruction, is Human Interaction. The inter-personal relationship that a learner develops among his classmates and with the teacher will facilitate the individual's re-organisation of himself, so that he will i) be more integrated, more effective; ii) have a more realistic view of himself;

iii) be less defensive and more adaptive to new situations and information; iv) develop effective communication skills; v) higher cognitive abilities like critical and analytical thinking; and vi) develop qualities like co-operation, tolerance, objectivity, etc. In order to provide learners with adequate opportunities to engage in such interaction, the group discussions and lectures were identified as instructional components of the Curriculum.

ii) Self-awareness: As one of the objectives of Family Life Education demands the development of positive attitude towards the self and the other members, a need arises for self-exploration and self-awareness of learners which in turn, should increase the capacity to develop inter-personal awareness and understanding. For this purpose, exercises as an instructional component of the Curricular strategy was identified.

iii) Individualisation of Instruction: At the higher secondary level, as the learners being at the stage of adolescence, exhibit the characteristic need to be independent. Hence, individualisation of instruction which involve many techniques like self-instructional materials, library work, assignments and dialogue-form, were incorporated in the strategy with an objective that, the instruction provided should gradually develop in learners, certain personality attributes and skills which would enable them to pursue knowledge independently.

iv) Development of the Method of inquiry: Inquiry method is identified as one of the instructional component with a notion that the learners should be motivated to increase the complexity of their intellectual structure and seek continually to make their 'encounters' more meaningful, that is, to obtain a new level of relatedness between and among separate aspects of one's consciousness and with this to develop a capacity to enquire into

and reflect on the nature of social life, particularly, the course of their own lives and the direction of their society.

The various instructional components provided for the learning experiences of students, which form a main constituent of the Curriculum are listed hereunder.

1. Introduction by the Teacher
2. Deviated programmed learning
3. Lecture
4. Dialogue form
5. Discussion
6. Guided discovery
7. Audio Visual
8. Case study
9. Summary
10. Question box
11. Glossary
12. Exercises.
13. Assignments

#### 3.1.4. Organisation of the Content and the Learning Experiences:

As explained earlier in the Chapter One (refer Section Two of Chapter One), continuity, sequence and integration form the basic principles of organisation of the content and the learning experiences. The objectives that had been formulated and the corresponding experiences provided take cognisance of what most probably have gone into earlier experiences and what the learners shall have to proceed with later, thereby maintaining continuity between what has been learnt and what they have to learn. For example, while teaching Human Reproduction, the basic concepts of reproduction and reproduction in plants and animals which the students have already learnt in their earlier classes were recalled thereby establishing a continuity with the present unit which the students have to learn. Alongwith the continuity, a logical sequence was maintained from one unit to the next.

Measures have been taken to see that, the sequence meaningfully occurs while passing from one concept to the next, within the same unit. As regards, the integration of various fields of knowledge in the curriculum appropriate points at which the concepts could be integrated were identified, for example, the three domains of the personality development of an adolescent, namely, the biological self, the psychological self and the social self.

Organisation of the content also involved, the preparation of Flow Charts, Individual flow charts in respect of each unit and a comprehensive Flow Chart indicating links between concepts in various units were prepared. These flow charts are presented in the Appendix 'J' of this report.

Regarding the organisation of learning experiences, it should be noted that all those techniques which have been mentioned earlier in this chapter, have occurred in various combinations, while structuring the learning experiences for each unit. This was done, based on the behavioural objectives specified for each unit, their sequence and the structure of content matter in the unit. Below are given, a brief explanation of the techniques that are involved in the instructional domain of the curriculum developed in the present study. This explanation comprises of the purpose behind each technique and the way it was carried out with an illustrative example used.

i) Introduction:

Purpose: i) To lead pupils from known to unknown.

- ii) To arouse the pupils' interest and curiosity.
- iii) To inform the pupils of what the unit is about.
- iv) To show the relationship with preceding units.
- v) To learn more about the learners, their interests, abilities, their present knowledge about the topic.

Procedure: Every unit began with an introduction phase which provided a linkage to the unit that preceded. The introduction

was made by the investigator, irrespective of whether the unit was to be self-instructional or otherwise. The mode of introduction varied from unit to unit. In certain units, the introduction began by posing a problem to the pupils, in order to arouse their curiosity as well to create an opportunity for pupils to think on their own to arrive at a possible solution or an answer. In certain other units, the concepts were approached directly after a brief reiteration of the preceding unit, thereby showing a logical linkage of concepts with that of preceding units. Besides this, the self-instructional material supplied to pupils, contained the introduction phase comprising the above styles, along with the information of what the unit is about and the direction in which they will have to go over the unit.

Based on the learners' interests, abilities and their present knowledge about the topic that were exhibited during the introductory phase, the activities like debates, assignments and the other activities were planned by the Investigator. The illustrative examples to explain the two styles adopted in the Introductory phase are given hereunder.

Illustration- 1 (Posing a problem)

Sub-unit- Hormones and Sex determination

To the pupil: In the previous units, you have learnt about the Reproductive system of a man and a woman. You know that the man's reproductive organs are known as Testes and the woman's reproductive organs are known as ovaries. You also know that when fertilisation takes place between the sperm and the ovum, conception occurs and a male or a female child is born. How do you think the sex of the child is determined?

Illustration- 2 (Direct Explanation)

Sub unit- Human Development

To the pupil: You have studied in the previous unit about the reproductive structures of a man and a woman and how and when the reproduction takes place and so on. In this unit, we shall study the mode of development of a Human child.



ii) Deviated Programmed Learning:

- Purpose: i) To provide basic information about certain concepts.  
ii) To facilitate self-learning.

Procedure: Deviated Programmed Learning as a technique was used in certain units of the curriculum. This technique was preferred to Programmed learning, as most of the students seem to have felt reluctant to respond to the frames of the conventional Programmed material, when the pilot study was conducted. In the deviated programmed learning, the information related to a particular idea has been provided in the form of small paragraphs with adequate illustrations and diagrams. After the completion of a paragraph containing a particular idea, questions were given to be answered. The correct answers to questions for self-checking and feedback were given after this.

An illustration describing the technique Deviated Programmed Learning is not given here, since it is fairly long, describing the concepts in quite large paragraphs. Units planned using deviated programmed learning as a technique is given in the second volume of this report.

iii) Lecture:

- Purpose: i) To explain certain concepts which cannot be learnt through instructional material or any other method.  
ii) To facilitate interaction with pupils by raising questions, receiving questions, clarifying their doubts and misconceptions.

Procedure: Certain units where it was felt that an explanation is essential, the lecture technique was used. The teacher explained the concepts with the help of Black board, charts, diagrams, pictures and models, after which the question and answer session was held. During this, the pupils were allowed to raise questions, ask doubts and put forward certain problems and ideas before the

teacher. The teacher, besides putting certain questions and problems before the students, clarified their doubts and misconceptions and also answered their questions. Though the lectures contained a detailed explanation of concepts, the cyclostyled material with the same information was supplied to pupils. The units where this technique was used is presented in the second volume of this report..

iv) Dialogue-Form:

Purpose: i) To make pupils' learning easy.

- ii) To motivate pupils by presenting them to simulated situations.
- iii) To clarify certain doubts and misconceptions of pupils.

Procedure: This technique was used in teaching certain units, where it was thought the concepts have to be presented in a simple and in a natural manner, giving scope to the development of affect attributes, at the same time, not neglecting the cognitive elements which have to be conveyed. The simulated situations like dialogue between the teacher and the pupil, the Doctor and the pupil, over certain topics like nocturnal emission, menstruation and so on, were plotted and given as an instructional material. Here, attempts have been made to clarify certain worries, misconceptions, and doubts which are normally experienced by adolescents of that age. A brief summary of whatever concepts presented in the dialogue-form was given at the end. Following this, were given the questions for pupils to answer and the correct answers were provided on the next page for them to verify their answers. The units where this technique was used is presented in the second volume of this report.

v) Discussion:

Purpose: i) To facilitate learning

- ii) To initiate the unit.
- iii) To help the pupils think critically

iv) To develop a desirable and positive attitudes and behaviours, such as respecting the opinions of others, rejecting unreliable or unqualified evidence, not jumping to hasty conclusions, listening intelligently, speaking effectively and participating co-operatively and democratically.

v) To enable pupils to interact effectively with Teacher as well as with other members of the class.

Procedure: Wherever the discussion technique was used, the teacher first began with a question or with pictures and drawings on the Bulletin board, in order to arouse an interest in pupils. The main point which should be noted here is, the discussions were never conducted in a vacuum. Care was taken while planning the discussion, to see that the pupils had some previous background or learning experience related to the topic for discussion, so that they can make an intelligent and a constructive contribution to the questions and the problems raised by the original initiating activity. When this process occurs, the unit was directed towards successful participation and completion. While the unit was in progress, care was taken to explain or clarify certain doubts, misconceptions raised by the participants. The unit where this technique was used is presented in the second volume of this report.

vi) Guided Discovery:

Purpose: To help pupils to arrive at solutions on their own, to the problems posed, by contacting and consulting the relevant sources.

Procedure: This method was used for teaching certain units, wherever the possibilities of pupils arriving at solutions on their own, by gathering information from reliable sources to the problems posed. The investigator while dealing with the particular unit, focussed on sensitizing the pupils to a particular kind of problem existed in the content. The problems posed

were of various origins like, biological, psychological and sociological domains of the self. The pupils were encouraged to form hypotheses which expressed the antecedents and consequents of the proposed relationship, an explanation, policy or solution. In order to verify their hypotheses, the pupils gathered data from relevant sources like contacting medical practitioners, population cells, psychologists and libraries. At this stage, the teacher guided them into proper inquiry by telling about the relevant sources that they can contact. With the relevant information gathered, the pupils presented the solution or an explanation in front of the other peers in the class. The unit where this technique was used, is presented in the second volume of this report.

vii) Audio-Visual Presentation:

- Purpose:
- i) To make ideas and concepts clear.
  - ii) To help raise learning from verbalism to true understanding.
  - iii) To make learning interesting and vivid.

Procedure: Audio-visual aids used in this study include slides, transparencies, pictures, charts and so on. Certain pictures were projected through Epidiascope. Slides were prepared by drawing diagrams on drawing sheets cut to the size of 10" x 6" with Indian ink which were later photographed. The Film negatives were developed into 2" x 2" slides. Transparencies were prepared by tracing the diagrams on cellophane papers in indian ink. For this purpose, transparent papers were cut to the size of 4" x 4". Colour ink was used to represent the parts distinctively. After this, the transparencies were bordered on all sides with hard cover paper strips. These were projected through overhead projector. The projection was accompanied by the explanation made by the teacher. After this, questions related to the

presentation were given on cyclostyled copies along with the entire presentation made. As usual, the answers were given at the end for self evaluation of pupils.

Illustration: Unit- Biological self- the Male

You have learnt that the male Reproduction organs are known as Testes and they secrete hormones and so on. Now, let us learn what these hormones are. The first pituitary secretion is called Follicle Stimulating hormone (FSH). The Hormone stimulates sperm production in the male. The second Hormonal telegram from the pituitary gland instructs the testes to produce male sex hormone.

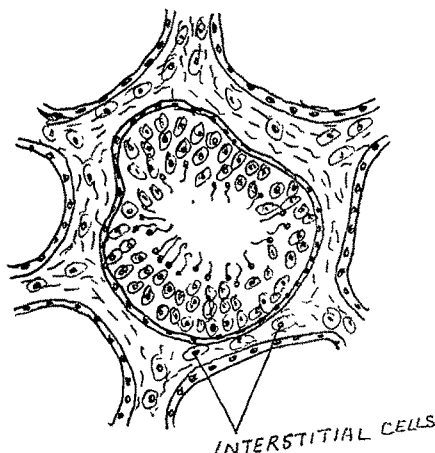


FIG.

This hormone is called Interstitial Cell Stimulating Hormone (ICSH). You may be wondering why this hormone is called by this particular name. This hormonal substance stimulates a special group of cells in the testes called the Interstitial cells. Hence, the name Interstitial cell stimulating hormone. You may see these cells in the figure given.

viii) Case Study:

- Purpose:
- i) To help pupils develop self-confidence in their inter-personal relations and to help gain insight into the behaviour of others.
  - ii) To stimulate analytical thoughts in pupils.
  - iii) To develop co-operative thinking and action.
  - iv) To give an opportunity to look at situation with which they can identify strongly, and also to help the pupils to understand the causative

factors in these situations, so as to avoid certain problems in their own lives.

Procedure: Case study is identified as one of the important instructional component in the present study. Case studies suitable for use in the present kind of curriculum of Family Life Education, were obtained from certain relevant sources. The Case study used to teach the specific concept in that particular unit was presented in the class, after which the questions were raised as a start mark of discussion. A series of well-thought out questions were prepared in advance by the investigator, in order to lead the discussion and guide the discussion into profitable channels. These case studies followed by questions were given to the pupils in the form of cyclostyled material.

Illustration: (Sub unit- Defensive- Mechanisms)

Henry had been a lonesome, unhappy boy. Quite chubby he was commonly called "Fat so" by the other boys. He detested the nickname, but could do little about getting rid of his pudginess. The more lonesome he was, the more he ate. Henry knew he was considered a sissy and he had wished a thousand times that he had never been blessed with "that wonderful head of beautiful, curly red hair" of which his mother was so proud. He was never able to hold his own in games, sports or other activities because he was poorly co-ordinated and because he made such a big fuss whenever he got hurt in any way. In early adolescence, when the other boys started going with girls, Henry was still the lonely outsider. It was then that, he became interested in Chemistry. He set up a small laboratory in his garage and he hurried there eagerly everyday after school. His mother boasted that he knew more chemistry than his teacher. Henry was determined to bring himself to the favourable attention of his classmates and this seemed to be a way of doing so. He became an outstanding student and later, a medical doctor.

Points for Discussion:

1. Do you think that Henry was genuinely interested in Chemistry, hence he pursued his interest?
2. Why was Henry determined to attract the attention of his classmates by doing well in chemistry, setting up a laboratory and so on?
3. Can you name the defense mechanism what Henry was using? Do you think it is desirable?
4. Do you think Henry will be happy to be married to a girl? If not, what could be the reason?
5. What are your suggestions for Henry to see the reality as it was and to overcome his weakness?

ix) Exercises:

Purpose: i) To help the pupils to discover their ourselves.

ii) To help the pupils understand others.

iii) To help the pupils improve their interpersonal relationships.

Procedure: To teach certain units pertaining to 'Development of self-concept', 'Perception of self and others', where the individual's role in knowing his or her own self becomes very important, Exercises as a technique of teaching was used. Here the pupil is totally involved in knowing about himself or herself as well as about others, by working out the exercises given on a cyclostyled sheet. Along with this, exercises, facilitate learning the concepts underlying them. Beneath each exercise, the concept pertaining to that was given, along with which, instructions to work out the next exercise was also given. Sometimes, these exercises done by the pupils were discussed either in groups or individually.

Illustration: Unit- Perception of the Self.

Exercise- 1.

Consider your physical self and your outer self by answering the following question, using this scale: 1= Never; 2= Almost never; 3= sometimes; 4= almost always; and 5= always. You may wish to add comments or reactions in the space provided.

1	2	3	4	5	Physical Self
					1. Do you consider yourself healthy?
					2. Are you satisfied with your physical health?
					3. Do you consider yourself attractive?

x) Question Box:

Purpose: To encourage the pupils to ask questions about the problems that are really worrying them.

Procedure: One technique that is widely used in many courses and particularly, in Family Life and Sex Education courses, is the Question Box. Pupils who found themselves reluctant to ask certain questions or doubts in the open class room, were asked to write them on a sheet of paper and put it in the Question box. These questions were arranged later by the investigator, according to the themes of the questions. Those questions expressing a common theme were pooled together and later explained to the class. Suggestions were also made to those pupils whose questions were too personal or too controversial to be included in the classroom discussion, to seek a personal interview with the investigator, after the class is over. A few questions posed by the pupils are given below.

Illustration:

1. Is it healthy to masturbate?
2. How often one can masturbate?
3. I have never experienced 'wet dreams' till now. I am 16 years old. Does this mean that I am not a man?
4. Can one take hormone pills to get large breasts?



xi) Summaries:

- Purpose: i) To help pupils to get an overall picture of what they studied in that particular unit.
- ii) To facilitate revision at the time of tests.
- iii) To establish and retain a link which is necessary where many concepts are involved.

Procedure: At the end of each unit, is given the summary where a brief consolidation of whatever had been taught is presented. In certain units, where it is divided into sub-units because of lengthy content, summary was given after each sub-unit. These are presented in the second volume of this report.

xii) Glossary:

- Purpose: i) To enable pupils to know the meaning of difficult terms used in the unit.
- ii) To enable pupils to use proper terminology.

Procedure: A list of vocabulary sheet was prepared which contained most of the difficult terms which pupils may find difficult to understand the meaning. Along with this, those biological terms which are frequently used in the units were also identified and included in the list. Even experts' judgement over the difficult and the non-difficult words were considered while preparing this. Finally, a glossary containing meanings for all those difficult terms which appeared in a particular unit was prepared and attached to the particular instructional material of that unit.

Glossaries pertaining to each unit are presented in the second volume of this report.

xiii) Assignment:

- Purpose: i) To set the direction of learning.
- ii) To motivate the pupils
- iii) To make the task clear and definite to pupils.

Procedure: An essential part of any lesson is the assignment. After the completion of each unit, assignment was given to pupils. Assignment was usually a nature of reference work to be carried out by pupils on their own. It also consisted of collecting information regarding the task given and preparing a detailed paper. To make sure that the pupils understand the problem, it was well defined in the class, so that the pupils knew how to go about solving it. In case of certain assignments where the pupils have to seek information, the investigator briefed them about the source of contacts. Assignments given under each unit is presented in the second volume of this report.

These were a few of the techniques adopted in developing the curriculum. It is to be noted that these techniques occurred in combinations in most of the units.

### 3.1.5. Evaluation:

As mentioned, the fifth phase in the Curriculum development is, coming to the conclusions about the success or failure of the course by means of some measurement or assessment of change in behaviour. This is not to inquire merely whether the curriculum has been effective or ineffective. Rather it is to ascertain what effect the curriculum has had—that is, what changes it produced in pupils. For this purpose, in the present study, the criterion referenced tests were used wherein, unlike the norm-referenced measurement, the scores were interpreted as having some sort of absolute meaning in terms, for instance, of level of performance. Underlying the concept of achievement measurement is the notion of a continuum of knowledge, acquisitions ranging from no proficiency at all to perfect performance. An individual's achievement level falls at some point on this continuum as indicated by the behaviours he displays during testing. The degree to which his achievement

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resembles desired performance at any specified level is assessed by Criterion- referenced measures of achievement. Measures which assess students' achievement in terms of Criterion standard thus provide information as to the degree of competence attained by a particular student which is independent of reference to the performance of others. For the purpose of assessment as mentioned above, seven criterion tests and a comprehensive test were prepared. The details of comprehensive test are given under the heading 'Instrumentation' in this chapter. The Criterion tests were administered after the completion of a unit in certain cases, and in certain cases after the completion of two or three units. For instance, the Criterion test-I was given after the completion of first two units, that is, Biological self- the male and Biological self- the female. In the same way, the criterion test-2 involved the next three units-(perception of the self, perception of the other and Building up relationships). The Criterion test 3,4 and 5 involved the unit Seven(Human Reproduction); the Criterion test-6 involved the units 8 and 9 (Population problem and the Contraception) and the Criterion test-7 was given on the unit-10 (Venereal diseases). This was done so, with two reasons- one is to save time, as the students had the other routine classes to attend to; and two is, since certain units dealt with a common theme, it was felt convenient for testing purposes. Among the thirteen units, only nine units were assessed by the Criterion tests, whereas, the rest four units were not assessed. This was due to two reasons- one being, the content under those units were of more affective and debatable in nature, and the second reason being, the insufficiency of time allotted for the conduct of the study as the pupils were to prepare for their final examinations of the year. Hence, in these units certain assignments and exercises were given to the pupils to be done at their homes leisurely. For the development of

Criterion test, a list of behavioural objectives in respect of the particular unit was used as the criterion. The behaviour specified were inclusive of cognitive and affective domains- that is, knowledge, comprehension, Application, Analysis, Skill and attitude. All the units were not manifested with all those categories of behaviours mentioned. This was dependent on the nature of the content, and the kind of demands required by it. The test items were constructed against each behavioural objective of the unit. The test items were of the following types; fill in the blanks; matching, multiple-choice, short answer and Essay type questions. The constructed test items were given to experts for scrutinizing the suitability of the item to the behavioural outcomes intended, difficulty level of the item, language suitability and so on. Certain items were modified based on the experts' suggestions. Scoring procedure was decided in respect of each item belonging to the criterion test. The scores obtained were converted into percentages, in order to validate the curriculum in terms of its effectiveness on pupils' cognition and affect.

The sixth phase, that is modifying the curriculum in the light of results obtained from the above phase, is discussed in the Chapter Four of this report.

### 3.2 TRY OUT OF THE CURRICULUM:

The developed curriculum was tried out during the year 1981 on a sample consisting of thirty pupils of XII Standard from I.P.C.L. School at Baroda. This tryout gave a picture of the working of the curriculum, especially those areas like the content chosen and the suitability of the instructional materials in the natural classroom set up. Along with this, it also gave an idea of the time consumed, and availability of resources. Modifications were made in the content specification and instructional material, wherever it was felt necessary.

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### 3.3 INSTRUMENTATION:

The instruments that are described in this chapter were made use of to measure the following:

- i) Pupils' needs and interests pertaining to certain areas, in order to construct the curriculum of Family Life Education.
- ii) Pupils' achievement in Family Life Education.
- iii) Pupils' attitude towards the self, opposite sex members, sexual matters, marriage and Family.
- iv) Pupils' socio-economic status.
- v) Pupils' Family Adjustment
- vi) Pupils' reactions towards the curriculum.

Of the above, instruments with regard to pupils' needs ~~and~~ and interests, achievement tests, attitude scale, Family Adjustment and reaction scale were devised by the investigator.

The details of each instrument are given hereunder:

i) Questionnaire measuring pupils' needs ~~and~~ interests:

To measure the pupils' needs and interests, in order to construct the curriculum of Family Life Education, certain areas like, Biological growth of a male and a female, Human Reproduction, Human Sexuality, understanding oneself, Boy-girl relationships, venereal diseases, Family Planning, Homosexuality, masturbation, Marriage and Family and Economics of the Family, were chosen. Questions seeking whether they are interested in knowing these areas were framed. Pupils were also asked to mention any other similar areas in which they are interested and ready to learn. Questions were framed by using a three-point scale (Yes, No, indefinite). The questionnaire was comprised of total 53 items. This questionnaire is presented in Appendix 'B' of this report.

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ii) Achievement tests:

To study the achievement of pupils, two devices of measurements were employed. One is, the Criterion tests developed for each unit, where the degree to which the pupil's achievement resembles desired performance at specified levels. The details of the Criterion test are already presented in the Section 3.1.5. of this Chapter. The Criterion tests are given in the volume Two of this report at the end of each unit. Two, a Comprehensive test which was developed for all units comprising the whole curriculum. The details regarding the comprehensive tests are as follows:

Comprehensive tests: Just as in Criterion tests, where the approach to evaluation was Criterion-referenced, here too the approach to evaluation is criterion-referenced testing, which is independent of reference to the performance of others. But here, unlike criterion tests, the test items were constructed to measure each terminal behaviour, comprehensive tests sampled the terminal behaviours comprising the whole curriculum. An analytic discussion of what is to be measured and how it is to be measured- including inferences as to what kinds of test items will provide the desired sorts of measures, and why, were held with a group of experts before constructing the test. Care was also taken, to construct the test in a parallel form, item by item to those in the initial form. This is because of the fact that if multiple administrations of the tests to the same examinee are contemplated in a study of research like the present one. Where pre test and post test data are involved, there is every possibility of pupils getting sensitized to the test items. Though independently constructed parallel forms, wherein each new form is based on a brand new sampling of content

from the curriculum or from whatever else defines the domain is more appropriate, the parallel form item by item is used to construct the test as the test specifications define the test content item by item.

Keeping in view, the specific behavioural objectives in terms of Knowledge, comprehension, Application, Skill, analysis and Attitude which were aimed at in the course. The test items were constructed by the investigator. Measures were taken to see that atleast a few concepts in each of the 13 units covered by the investigator would find representation in the test. As mentioned earlier, the discussion held with a group of experts was considered while preparing the items. The items were of various types, namely, fill-in-blanks, multiple choice, matching, one sentence answer, true-false, short answers, essay answers, completing the diagram, labelling and identifying the diagrams and so on. The items thus framed were further edited by the investigator from the point of view of language suitability and ambiguity. The content validity of the test was obtained by giving it to other two experts for scrutiny, who studied the items of the test in terms of their sampling individual units and ensuring a coverage of behavioural objectives comprising Knowledge, comprehension, application, analysis, skill and attitude. On the basis of their suggestions, appropriate modifications in the test items were made and a total of 148 test items were selected to constitute the comprehensive test. The items of the test were so arranged that the similar kinds of items appeared together, and care was taken to see that each set of items was preceded by specific instructions, as to how the learner would have to respond to the set of items. The total time allotted for performance on the test was two hours. The scoring procedure was decided by considering 35 as minimum, 35 to 60 as average, 61 to 80 as good, 81 to 100 as an outstanding performance. For the purpose of Validating the curriculum

as well as for convenience sake, the scores obtained by pupils were converted into percentages. The Comprehensive test of both parallel forms are given in Appendix 'E' and 'F'.

### iii) Attitude test:

One of the goals of education is development and modification of attitudes. This may occur because of a particular set of necessary and sufficient conditions created by a particular communication- the same set of necessary and sufficient conditions which had been theoretically specified and empirically verified to produce attitude change in other situations. From this view point, it was felt necessary to study if the developed curriculum with its planned strategy to develop the cognitive and the affective elements in the specified field had any effect at all in cognitive gain and development or modification of attitudes in pupils. Hence, an attitude test comprising of several psychological elements towards which, the attitudes were measured was constructed. The details pertaining to the development of the test are presented in what follows:

Attitude and its measurement: 'Attitude' is one of the most ubiquitous of all the terms used in social science. Allport (1935) and Thomas and Znaniecki (1918) have described it as social psychology's central problem and the concept is heavily represented in practically all of the social sciences. This widespread usage has detracted from the operational clarity of attitude and rendered it a pot pourri term with no generally accepted definition. In an effort to simplify the construct of attitude to one that could be studied by methods then available, the pioneer's in attitude measurement tended to define the term "attitude" narrowly (Lemon, 1973), in terms of the intensity of affect for or against a psychological object (Thurstone, 1928). The development, modification or change of attitude is attributed to the independent variables conditioning



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it. The general theoretical view underlying this (Rosenburg, 1953) is, when a person has a relatively stable tendency to respond to a given object with either positive or negative affect, such a tendency is accompanied by a cognitive structure made up of beliefs about the potentialities of that object for attaining or blocking the realisation of valued states. In the present study, a similar stand is taken, that is, whatever attitude a pupil has acquired towards the particular object, is correlated with the content of its associated structure, either positive or negative, available in his communicative surroundings.

The present study, besides validating the curriculum in terms of measuring its effectiveness on pupils' cognition, also attempts to study whether the cognitive structure provided through the planned curriculum has had any influence on pupils' attitude towards the selected elements. In this regard, the next point of concern is about the attitude measurement.

Attitude scales attempt to determine what an individual believes, perceives or feels. Although Thurstone (1929) described a procedure whereby the scale scores for items could be inferred from the attitudinal responses without asking judges to sort the items along the attitudinal dimension, it was Likert's (1932) monograph that received the greatest attention among psychologists who wished to score attitudes directly from the attitudinal responses without recourse to a panel of judges. What is significant about Likert's Summative Scaling method is that, it assumes that attitudes can be assessed by counting the number of pro or anti opinion statements a person is willing to endorse, rather than trying to identify the statement which is ideal for the person as a statement of his opinion, while the different forms of scaling may be highly correlated. This must not disguise the fact that they are founded upon different premises, and have different definitional implications. Likert, who was the pioneer of this technique found that this system

of integer weights correlated highly with a system of weights derived from tables of the normal curve and this relatively simple system of integer weights is to be preferred to a more sophisticated one.

Attitude measurement in the present Study: Viewing into the advantages of Likert's scale, when compared to Thurstone's as explained in the preceding paragraph, the Likert's method of Summative scaling was chosen to measure the attitudes of pupils in the present study. In the present study, the attitudes of pupils were measured towards the five elements which are as follows:

1. Attitude towards self
2. Attitude towards the opposite sex members
3. Attitude towards sexual matters
4. Attitude towards marriage
5. Attitude towards Family.

The first element, that is, attitude towards the self is referred to as measures of self-concept. Here the term 'attitude' is used to measure the self as it includes facts, opinions and values with regard to the self, as well as favourable or unfavourable orientation towards the self. From the definition of Murphy(1947) about self, that is "the individual known to the individual", it is conceived that the self is squarely located in the realm of attitudes. Just as one has attitudes towards an endless number of objects in the world, one also has attitudes towards his or her self which is possible for measurement. As one's self-concept or attitude towards one-self involves the way he or she looks at his or her self (social statuses, roles, physical characteristics, skills, traits and other facets of content). Measures of self-concept are used in many educational research studies, especially studies designed to investigate the relationship between self-concept

and other variables such as achievement, motivation, interest, adjustment and so on.

In the present study, the test designed to measure the attitude towards self consisted of three sections, namely, the biological self, the social self and the psychological self. To measure the biological self, items were constructed separately for boys and girls, whereas ~~the~~ the other two sections (psychological and social self) were common to both the sexes. To measure the attitude towards the opposite sex members, the tests were once again constructed separately for boys and girls, where the content of a few items remained similar. Attitude towards the sexual matters included, items based on venereal diseases, masturbation, Homosexuality, Human sexuality and so on. Remaining two elements measured the attitudes towards the marriage and family. A large number of statements were prepared for all the five attitudinal subjects. The pupils were asked to indicate their opinion to each statement on a five-point scale which is as follows:

"Strongly agree, agree, undecided, disagree, strongly disagree".

A few other statements which were constructed similarly on a five-point scale had the following indicators:

"Almost true, true, somewhat true, not true, not at all true".

A balanced number of positive and negative statements were included, with the scale values being reversed for negative statements. The pool of items representing each attitudinal element under the study were given to the experts for scrutiny.

#### Administration of the Initial Format:

The next step, however, involved 80 girls and 70 boys of XII Standard selected from two English medium Higher Secondary schools of Baroda city. The test, along with the necessary directions, was administered to the sample, during

the year 1981. Administration of the test was carried out in both the schools on the same day. It may be mentioned that the school where the curriculum was to be implemented, was not considered for this try out. This was done with a view to avoiding any diffusion of information about the test. Description of the sample chosen for the try out of the initial format of the test is presented in the Table 3.2 For the purpose of item selection, only 64 girls and 49 boys were considered, since the rest 16 girls and 21 boys did not complete the test in all respects.

TABLE 3.2 Description of sample of students considered for the try out of the initial format.

Sl. NO.	Name of the School	Total No. of pupils responded	No. of pupils considered
1.	Jesus Mary Convent	80	64
2.	Baroda High School	70	49
TOTAL		150	113

The obtained data was analysed by item-correlation method. Thus, the item correlation with total score is obtained by using computer program, for increasing homogeneity of the scale. The items obtained with highest correlations were chosen for the final form of attitude test.

The Final Format:

Through the process of item analysis and selection mentioned earlier, the final format of the test was arrived at. In Table 3.3, the details pertaining to the total number of items in the initial format and in the final format, under each attitudinal element are furnished.

TABLE 3.3 indicating total number of items in the Initial Format and the total number of items considered for Final format after item analysis.

Sl.No.	Attitude Tests	Initial Format	Final Format
1.0	<u>Attitude towards self.</u>		
1.1	Physical self	100	80
1.2	Social Self	34	30
1.3	Biological Self		
a	Boys	47	29
b	Girls	49	46
2.0	<u>Attitude towards opposite Sex members</u>		
	Boys	81	38
	Girls	72	48
3.0	Attitude towards sexual matters	53	50
4.0	Attitude towards Marriage	41	28
5.0	Attitude towards Family	25	25
TOTAL ITEMS		502	374

The final format of the test is presented in Appendix 'G' of this report.

iv) Socio-Economic Status Scale (SES Scale):

To measure the socio-economic status of students, Kuppuswamy's SES Scale was used. This scale measured the Educational level, occupational level and the annual income of parents. The SES Scale is given in Appendix 'C' of this report.

v) Family Life Inventory:

To study the adjustment of adolescents in their family, a family life inventory was developed. This inventory consisted of items under four sections. They are:

- i) Relations with parents
- ii) Relations with brothers
- iii) Relations with sisters; and
- iv) Attitude towards their Home.

This inventory measured all the above four components on a five point scale which is as follows:

"True, nearly true, half true, slightly true, not true"

The inventory is comprised of total 95 items. After the construction of inventory, it was subjected to the scrutiny of two experts in the field. The final form of the inventory is given in Appendix 'D' of this report.

vi) Students' Reaction Scale:

A Reaction scale was constructed in order to know pupils' reactions towards the various components of the curriculum and the curriculum as a whole. The Reaction Scale constituted of four main domains, namely, the content included in the Curriculum, the instructional inputs used in teaching the content, the place of curriculum in school as a separate course or as an integral part of the school subjects and teaching the subject, whether by the school teachers or by specialists from outside the school. With regard to each aspect, at first, a paragraph was provided which helped the pupils to recall the content and the instructional inputs used to teach, how it was used and so on. This was followed by a series of questions both open ended and closed type pertaining to that particular aspect towards which the reaction has to be obtained. The questions were particularly framed so that the pupils' responses would be focussed on the appropriateness of the content, the instructional inputs, the deficiencies felt by pupils in the

conduct of it, their suggestions if any, for the improvement of the curriculum. The initial reaction scale was discussed with a group of experts and necessary modifications were made. The final format of the scale contained a total of 35 main questions, which had many sub-questions under each. Blank space was left after each question, so as to enable pupils to write their responses.

### 3.4 DESIGN OF THE STUDY:

As mentioned earlier in Chapter One, this study is basically a developmental effort, wherein, the research is concerned with development and validation of curriculum of Family Life Education. This effort has been carried out in the actual context without disturbing the setting for experimental purposes, in order to examine the inter-relationships existing among wide range of variables in actual conditions. In this way, the investigation was designed as per the requirements of a typical an experimental study where the concern is to carryout investigation under actual field conditions. Although the study was confined to only one group with which the developed curriculum was experimented, for a comparison purpose, one control group was employed. Besides the investigation being an-experimental study, it is also inclusive of certain aspects of basic research where understanding the interplay of certain variables and establishing relationships occur. Three such instances in the present study are i) the relationship between achievement in the curriculum of Family Life Education and the attitude developed towards the chosen elements; ii) the relationship between socio-economic status and Family adjustment of pupils; and iii) the relationship between the Family adjustment of self-attitude formation in pupils. The relationship between these variables were studied at specific points of the investigation and the data pertaining to these are reported statistically.

### 3.5 SAMPLING:

To study the effectiveness of the curriculum in terms of pupils' achievement and attitude, two groups of twenty six students each belonging to two different English medium schools of Baroda, namely, IPCL and Baroda High School were chosen. The students belonging to IPCL were treated as Experimental group, whereas the students belonging to Baroda High School were treated as Control group. The Control group was chosen from different schools instead of from the same school, due to the unavailability of a similar group belonging to Science stream in the school where the Experimental group was chosen. An attempt has been made to achieve equivalence of groups to the extent possible on the basis of criteria like sex, age, socio-economic status and the stream of subject chosen in the school. Both the groups (Experimental and Control) had 16 boys and 10 girls respectively. These students belonged to the academic year 1981-82.

As was mentioned earlier, that the investigation was planned to be carried out in natural setting without disturbing the actual conditions, the intact groups available were considered for the study. Initially, the sample in Control group was 29 when the pre-tests were administered. Later, the sample was equilised to that of Experimental group, as three students from the Control group dropped out during the implementation of the curriculum to the Experimental group. Hence the pre-test values obtained from these three students were not taken into consideration. The experimentation was restricted to a single group only, because having to work with two or more groups within the same school would bring in the difficulty of planning the curriculum in various ways depending on the students' background such as Arts and Commerce. Teaching the same curriculum in other schools would again place a heavy responsibility on the investigator for organising the instructional components based on the pupils' characteristics and



availability of resources in those schools from which the pupils come from. Besides this, the kind of effect the curriculum may have on students need constant attention and continuous work with the group. Moreover, small group was considered to be advantageous, as greater precision was desired and in which many measurements were taken upon each subject.

### 3.6 PROCEDURAL DETAILS OF THE STUDY:

The investigation of the study involved i) administration of pretest; ii) implementation of the curriculum; and iii) administration of the post test. These have been presented separately under three headings. Before the administration of tests, or conduct of the study, a letter was drafted in order to seek parents' reactions and opinions regarding their children undergoing the Family Life Education course. The drafted letter was cyclostyled and sent to the parents of the Experimental group students. Majority of parents had no objection to their children undergoing the course. This was expressed in their response to the school Principal. The letter to parents is given in Appendix 'A' of this report.

i) Administration of Pre tests: The final form of the tests arrived at after try out, was administered to the Experimental and the Control group as Pre-tests, before the developed curriculum of Family Life Education was implemented to the Experimental group. The pre tests that were administered to the pupils are the Comprehensive and the Attitude tests.

Comprehensive test: This test was administered to both Experimental and control group belonging to two different schools of Baroda (IPCL- Indian Petro Chemicals Limited and Baroda High School) on the same day at different timings. The time taken by pupils to complete the test was two hours.

Attitude test: All sections of the attitude test were not administered on the same day, as the pupils had other regular classes to attend. Hence, section one of the Attitude

test which was quite long, was administered on one day to both Experimental and control group and the rest four sections of the attitude test were administered on the following day to both the groups. The time taken totally by pupils to complete the whole test was two hours.

Socio- Economic Status Scale (SES Scale): The SES Scale of Kuppaswamy was administered to both Experimental and Control group. Some pupils who were not aware of their parents' income did not fill the questionnaires on the same day, as they had to get the details from their parents. On account of this, those pupils who were unable to fill the questionnaire were permitted to fill in after they obtained the information from their parents.

Family Life Inventory: This inventory was even administered to both Experimental and Control group. The duration taken to fill this inventory was thirty minutes by both the groups.

ii) Implementation of curriculum: The curriculum of Family Life Education which was developed through the initial try out was implemented to the experimental group in the year 1981-82, for a period of three months. Implementation began with an introductory unit, namely, 'Importance of Family Life Education'. This was taught through lecture accompanied by cyclostyled instructional material. Through this unit, it was made known to the pupils that, why they should be learning the course and how they would be studying the course and so on. Criterion test was not given at the end of this introductory unit, since it was an orientation unit. This unit was followed by the teaching of the rest of the units. Each unit was introduced through a brief introduction. The concepts in each unit were taught through the different components selected. Though

the combination of instructional components has varied across the units, a few components commonly appear in all units. The instructional material giving details of teacher's and learner's behaviours was cyclostyled and given to each pupil during the conduct of it. At the end of instructional material of each unit, the summary and the glossary were given. A question box was arranged in the classroom, so that the pupils who don't feel free enough to ask questions openly in the classroom, may write their questions on a slip of paper and drop it into the Box. Once in two days, the slips were gathered, read by the investigator and pupils' questions were answered in the classroom. Along with this, certain articles and paper cuttings were displayed on the Bulletin board in which pupils took a lead and showed responsibility in organising the activity. After teaching a few concepts in each unit, discussion sessions were organised to clarify pupils' doubts and also to give them an opportunity to exchange their views on the concepts learnt, as well as to review whatever they had learnt in that unit. Besides all these, another important feature which should be noted is, guest speakers from various fields were contacted to deliver talks on the chosen topics. Three such guest speakers who delivered talks to pupils were professionals working in the fields like medicine and psychology. To evaluate pupils' performance, the criterion test was administered at the end of each unit. Sometimes, the criterion tests were the combination of two or more units expressing a similar theme in which case, the criterion test was given after the completion of these units in sequence. After the test, feedback sessions were organised to discuss the performance of the pupils on criterion tests, immediately after each test.

iii) Post Administration of tests: After the completion of the course, the parallel form of the comprehensive test and the attitude test were administered as post tests. Along with this, a Reaction Scale measuring the pupils' reactions towards the curriculum was also administered. This scale was administered only to the Experimental group, whereas the former two tests were administered to both, that is, Experimental and Control group. These tests were administered on three subsequent days successively, as there was unavailability of time and free periods to administer the tests.

The data obtained in the form of pupils' achievement, pupils' attitude towards the chosen elements, their reactions towards the curriculum and the data pertaining to certain variables chosen to study the relationships, were treated in specific ways to provide evidence with respect to the objectives of the study. Details pertaining to the treatment of the data obtained for each objective appear in the following chapter.