CHAPTER III

METHOD

Curriculum development is an experimental process which is dynamic in its nature since it incorporates a large body of knowledge and experience of educationists and researchers. The planners, organisers and administrators of education must scrutinize educational programme from time to time, depending on the need of the learners, to provide most effective and suitable educational programmes for children of different age levels.

Population education is of recent origin and efforts are being made to develop a suitable curriculum on population education for different age groups. The formal content of the syllabus on population education needs to be extensive and has to be based on various surveys relating to population problems and their effects (Chandra, 1976). The NCERT, New Delhi (1971) has made pioneering efforts at all levels, i.e., I to XI standards. A separate syllabus was also drafted for the teacher training institutions in the country.

Keeping in view the importance given to population education in the National Population Policy of Government of India and the felt need for developing a knowledge-based curriculum on population education for the secondary school

students, the present study was contemplated in two phases. The first phase of the present study aimed at developing an educational programme focusing attention on the following areas of population education as suggested by Mehta, (1972):

1. Demography,
2. Determinants and Consequences of Population Growth,
3. Human Reproduction, and
4. Family Planning.

The second phase of the study concentrated on conducting and evaluating the population education programme for secondary school students of Udaipur, Rajasthan.

The details of the procedure adopted for developing, conducting and evaluating the population education programme for secondary school students of Udaipur, Rajasthan, was as follows:

PHASE I : DEVELOPING A POPULATION EDUCATION PROGRAMME FOR SECONDARY SCHOOL STUDENTS OF UDAIPUR, RAJASTHAN.

Procedure of Developing a Programme

In order to prepare a meaningful and need-oriented programme on population education the following were taken

into consideration:

1. A complete survey of the theoretical and research literature available including the draft syllabi, if any, prepared within and outside the country.

2. A survey to find out the existing knowledge and understanding of the students/target group on different population issues at the micro and macro levels.

The review of literature on Population Education Programme and the draft syllabus prepared by NCERT (1971) helped the investigator for formulating an hierarchically ordered curriculum with suitable concepts for the understanding they promote in the students. In order to collect bench mark data to build a need-oriented or knowledge-based curriculum a study was conducted by Karnick and Dave in 1978. This study focused its attention on assessing the existing knowledge of the students on the major population issues by administering a Knowledge Inventory to 550 secondary school students of Udaipur District, Rajasthan. An attempt was also made to find out the level of understanding of these students on various aspects of population through story situations on a sub-sample of 50 students out of the total sample. These students were randomly selected from both the sexes and two types of schools, namely, coeducational and non-coeducational.

Based on the literature search, the results of the study conducted by Karnick and Dave (1978), a basic frame-work of Population Education Programme was prepared by the investigator for the secondary school students of Udaipur, Rajasthan (for details refer Chapter IV).

PHASE II : CONDUCTING AND EVALUATING THE POPULATION EDUCATION PROGRAMME

Locale of the Study

The present study was conducted in Udaipur City, Rajasthan for the following reasons:

1. It is a backward state as indicated by the two indices i.e. the low literacy level and age at marriage as compared to other states in India.

2. It is increasing rapidly in its population. The population of Rajasthan, as per the Census Report of 1981, is ranked 9th amongst all the states of our country. Moreover, the decennial growth during the years 1971-81 has increased by 5 per cent, which is of great concern.

3. Udaipur, being the home town of the investigator, facilitated in carrying out all the steps of the entire study with full support and cooperation of the students as well as

the school administrators which is very essential for the success of such studies.

Sampling Frame

In order to conduct and evaluate a population education programme planned by the investigator two non-coeducational secondary schools in the city of Udaipur, Rajasthan, were selected/based on the cooperation extended by the school authorities for the said purpose. Fig.5 gives the view of the two schools selected for study.

Fig. 5 - Physical View of the Two Schools

Fateh High School

Taiyabiah High School

A. The Brief Descriptions of Two Schools is as follows:

1. Fateh Secondary School for Boys: This is a Government school for boys with a big building and outdoor area. The school runs in two shifts - morning shift from 7.00 a.m. to 12.30 p.m. and afternoon shift from 12.30 p.m. to 6.00 p.m. All classes are held in each shift. There are about 600 students in each of the two shifts. The IX and X classes have 27 sections (including both shifts), about 35 students are enrolled in each of the sections.

The school staff includes one headmaster, the two shift-in-charges (who are senior teachers), 49 grade II and 3 grade III teachers. None of the staff has received any special training related to population education.

The school has its own Library containing about fifteen thousand books - related to the school subjects and for general reading but there is none specifically on population education. The books are both in Hindi as well as English. The Library subscribes to 27 monthly magazines, 7 fortnightly, and 8 weekly magazines in Hindi, English, Urdu and Sanskrit. Besides this, there are about 7 daily newspapers coming in the Library in Hindi as well as English. Unfortunately, there is no special newsletter or bulletin on population education in the Library. The students have a regular Library period allotted in the time-table. They are allowed to borrow books from the Library but not the magazines for the home reading.

The school organizes a variety of co-curricular and extra-curricular activities once or twice a week like N.C.C., Scouting, games, and sports,debates, essay writing, talks by the students on special occasions, talks by experts and so on.

The school has a population study club constituted of one staff in-charge and about 40 students. This club is governed by the Population Cell, University of Udaipur, Udaipur. Since the staff in-charge has not received any special orientation or training in population education, no activities related to population education were conducted during the last year.

2. Taiyabiah Secondary School: This is a private school which is financially supported by the Bohra community. The school runs in two shifts i.e. 7.30 a.m. to 12.45 p.m. and 12.45 p.m. to 6.00 p.m. In the morning shift the classes are for the upper Primary and Secondary students whereas in the afternoon the building is used to run the primary classes. Only the children from the Bohra community are given admission to this school.

In the morning shift there are 480 students in all, Out of these 160 students are in the IX and X classes. In IX and X classes only girls are given admission whereas in the upper primary both boys and girls are enrolled.

There are 33 members of staff (both teaching and

non-teaching including the headmaster) in the morning shift, out of these 11 teachers including the headmaster take care of teaching IX and X class students. None of the teachers had any special training of orientation in connection with population education.

The school library has appropriately 4040 books which includes the books related to their religion, general reading and text-books (school subjects). There are no special books related to population education. The books are in Urdu, English and Hindi languages. The Library subscribes for various kinds of magazines - i.e. 3 tri-monthly, 13 monthly, 5 weeklies and 4 daily newspapers. Most of them are in either Urdu or Hindi with a few in English language as well. Like Fateh school, this library also does not have any special bulletin or newsletter related to population education. The students are given two periods per week for Library reading in which they can read any book/magazine or newspaper. Whenever there is no teacher (e.g. when she/he is on leave etc.) for a particular period/class the students are sent to the library. The IX and X class students are allowed to borrow books for home reading.

The school organizes various types of extra-curricular activities like debates, creative writing, general compositions, articles for magazine/wall magazine, games and sports activities. These are usually organized on Saturdays. There are no activities specially

arranged in connection with population education/situation.

B. Sample and Sample Selection

The sample for the present study was drawn from IX and X classes of the two non-coeducational secondary schools in the city of Udaipur, Rajasthan (one school for boys and the other for girls). The method of sampling adopted was purposive in nature to avoid the problems related to teaching i.e. all the students of the 2 sections - one section of IX and one section of X classes were taken for the sample so that the students of other sections of IX and X were not disturbed in their lessons.

Initially, 52 girls from IX D and X A classes and 55 boys from IX A and X B classes were considered as sample for the present study in order to overcome the category of no response and absenteeism. Finally, the sample for the present study comprised of 50 boys and 50 girls from IX and X classes making a total of 100 students (i.e. 50 boys and 50 girls.)

Demographic and Socio-Economic Characteristics of the Sample

1. Demographic Characteristics of the Sample

The Table 6 gives the agewise distribution of the Ss.

Table 6 : Agewise Distribution of the Ss

Age in years	Boys	Girls	Total
13	6	0	6
14	24	15	39
15	12	14	26
16	7	20	27
17	1	1	2
Total	50	50	100

Table 6 shows that 39 per cent of the Ss were of the age 14 years, of which 24 per cent were boys.In respect of the age 16, 20 per cent were girls and 7 per cent were boys. Only one boy and one girl belonged to the extreme age of 17 and 6 per cent of the boys belonged to the age 13.

In respect of the family size the responses were available in 97 per cent of the cases, the rest did not respond. The average family size reported was 6.88 (or 6.9).

Eleven per cent of the boys were in the first order of birth as compared to 8 per cent of the girls. Fifteen per cent of the girls and 12 per cent of the boys were in the third order of birth and 5 per cent of the girls and one per cent of the boys were in the fifth order of birth.

Out of the total respondents 11 per cent stated that they neither had sisters nor brothers i.e., they were the only child of the family. 35.5 per cent either had a brother or a sister and 28 per cent had at least two brothers and two sisters. The rest (i.e. 25.5 per cent) had brothers ranging upto 5 and sisters upto 6.

From the total sample of girls (i.e. 50 girls) 18 per cent stated that they had not yet to start their menstruation. For the rest of them (i.e. 82 per cent) menarche had set in. For the majority of those who had started menstruation the period/duration ranged from the past two to three years.

2. Socio-Economic Characteristics of the Sample

Family Type: Fifty eight per cent of the respondents statedthat they belonged to nuclear family, 29 per cent to joint family, 5 per cent to extended family and 8 per cent did not respond.

Literacy Status: Only 6 per cent of the respondents' fathers were illiterate as against 16 per cent respondents' mothers. Sixty seven per cent of the respondents' fathers had 1-11 years of schooling as against 79 per cent of the respondents' mothers. Twenty three per cent of the respondents stated that their fathers have had college education comprising of technical degrees, graduation and post-graduation as against 4 per

cent of respondents' mothers. Information was not available in respect of educational status of the fathers and mothers from 4 and 1 per cent respondents' respectively.

Occupation: Out of the total respondents 57 per cent stated that the main occupation of their fathers was business and another 37 per cent stated that they were employed either in Government or private services of varied nature. Six per cent of the respondents' fathers were agriculturists/farmers.

Of the total respondents 96 per cent stated that their mothers were engaged in household work and only 4 per cent stated that their mothers were gainfully occupied by entering into the labour force.

Family Income: The average income of the family as reported by the respondents was Rs.749.47 per month, 5 per cent of the respondents were not aware of their family income and hence did not give any information on this aspect.

Tools

The following tools were used for the purpose of data collection in the present study:

1. Knowledge Inventory

The Knowledge Inventory developed by Karnick and Dave in 1978 (refer Chapter IV) was made use of by the investigator for the present study as well to find out the knowledge content of the Ss on the four areas of population education under study. They were: demography, determinants and consequences of population growth, human reproduction and family planning. The Knowledge Inventory consisted of 40 multiple choice statements. Each statement had 5 alternative choices. Out of which 3 possible answers were given, one "don't know" and one "any other answer". This was administered on 550 students by Karnick and Dave, 1978, to collect the benchmark data in order to develop the curriculum on population education for the students of IX and X class (refer Chapter IV). These students did not express any difficulty in understanding the content, construction and language of the Knowledge Inventory. The experts were consulted to ensure the relevance of the content of the Knowledge Inventory and in order to ascertain the efficiency of the same in terms of item difficulty it was later subjected to difficulty indices for chance success. Hence, the same was used for the present endeavour as well (Appendix F).

2. Story Situations

In order to find out the level of understanding of the Ss on the four major population areas under study,

initially eight story situations were formulated with a purpose to serve as a semi-projective techniques. Certain probe questions were also formulated with each situation to elicit indepth responses of the Ss on each of the situations. From the review of literature it was inferred that the projective techniques are more suited for eliciting the understanding of the respondents in terms of their views and reasons for the same on the sensitive issues in relation to population dynamics. These eight story situations along with their probe questions which were pretested, were administered on 50 Ss randomly selected from the 550 Ss who were administered the Knowledge Inventory in the study by Karnick and Dave, 1978 (refer Chapter IV).

Based on the analysis of responses of the Ss these were duly modified as:

(a) some of the concepts were difficult to understand, e.g. abortion and unwanted pregnancy and consequences of abortion.

(b) some of the concepts were duplicated and hence the situations could be easily merged, e.g. age at marriage, relationship between early marriage and the education of couple, their employment status, early child-bearing and health of mother and child and quality of life etc.

5

Finally, two parallel sets of 5 story situations and the probe questions representing three designated areas of study (leaving the area on demcgraphy) were formulated for administering at the pre and post tests level. The area on demography was not included for the reason that the area on demography in the Knowledge Inventory had the statements related to the factual information. However, the consequences of demographic changes e.g. migration was taken into consideration for inclusion in the story situations. In order to further ensure the suitability of the content and construction of these situations, they were given to 3 experts in the field of Home Science Education and Extension, Child Development and Social Work who are research guides on population education or closely associated to marriage and family area. They were supplied with various concepts, typed on paper slips, and 5 envelopes each for 5 situations with a request to:

1. sort out the concepts underlying the 5 situations and put them respectively in the 5 envelopes provided,

2. evaluate the content and construction of each situation and their probe questions in terms of their suitability for eliciting the level of understanding of secondary school students on population dynamics,

3. check whether the situations in sets I and II are parallel in terms of bringing out the same concepts.

The categorization of the concepts under the 5 situations matched with the one done by the investigator except for a few concepts in which one expert differed from the other two. The Table 7 gives the per cent agreement for the categorization done by the 3 experts and the investigator.

Table 7 : Per cent Agreement among the Three Experts and the Investigator on Categorization of the Concepts Underlying the 5 Situations under the Three Major Areas of Study for Understanding

Situation	Sr. No.	Population Concepts	Per cent Agreement
I	1.	Relationship between demographic process - migration - and the population situation (density) of a place.	100
	2.	Impact of population situation on the living conditions of the family and families in general.	100
	3.	Education of children and economic condition of a family as determinants of population growth of a place.	100
	4.	Consequences of migration in relation to population situation.	100
II	5.	Preference for age at marriage.	100
	6.	Relationship between the age at marriage and child bearing (early marriages lengthen the child bearing period).	100

Situa -tion	Sr. No.	Population Concepts	Per cent Agreement
	7.	Need to educate those who are entering marriage/reproductive period about marriage and family planning etc. (through population education) by the school.	100
	8.	Relationship between mother's age and number of children.	75
	9.	Relationship between family size and happiness of the family.	75
III	10.	Preference for family size of rich.	100
	11.	Whether the rich should adopt family planning.	100
	12.	Relationship between increased pregnancies and health of mother.	100
	13.	Children are not gifts of God but should be decided by the couple (or are in the hands of the couple).	100
	14.	Relationship between richness and large family.	75
IV	15.	Preferences for family size of poor.	75
	16.	Whether poor need to limit the family size.	100
	17.	Preference for sex of children.	100
	18.	Preference (desire) for having at least one son as determinants of population growth.	100
	19.	Preference for spacing (difference in age) between two children.	100
	20.	Religious belief (like 'Pooja' and 'manata') as determinants of population growth.	100

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Situa -tion	Sr. No.	Population Concepts	Per cent Agreement
V	21.	Relationship between the family size and happiness of the family.	100
	22.	Relationship between the family size and standard of living of the family.	75
	23.	Relationship between family size and subdivision of property.	100
	24.	Preference for family size for the progress of our villages.	100

But since out of three experts, two had the agreement which matched with the investigator's categories, they were retained. Further, all the three experts found the content as well as the construction of the situations and their probe questions suitable. The situations in sets I and II were found parallel by all the three experts. These were then pilot tested on 20 Ss for their comprehension. As the Ss had no difficulty in comprehending the situations they were translated into Hindi for the purpose of data collection for the present study.

Inter-rater Reliability was established to score the responses of the Ss under the three levels of understanding i.e. High, Moderate and Low understanding. For this purpose, a team of three raters was requisitioned (including the investigator) to rate the Ss' responses

9 independently by providing a prior criteria of expected responses (Appendix G2). Ten Ss were randomly selected for this purpose from 20 Ss who were pilot tested for the comprehension of the story situations. Their rating indicated a high degree of inter-rater reliability ranging from 98 per cent to 100 per cent agreement on the items. Table 8 gives the rating of the three raters on the various items of the story situations.

The high inter-rater reliability indicated that there was negligible disagreement between the rating of the investigator and the other two raters and therefore, the same criteria was used by the investigator for the present study to rate the responses of the Ss for the three levels of understanding as stated earlier (see page).

3. Daily Lesson Evaluation Proforma

A Lesson Evaluation Proforma was prepared by the investigator to find out the suitability and acceptability of the lessons taught to them in terms of content, teaching method and language and teaching aids. The lesson evaluation proforma had two sections:

Section A - had the objective type questions to find out the knowledge and understanding developed by the Ss during the teaching process in respect of each of the lesson plan. The objective type of questions were preferred looking to the time factor in answering as well as evaluation.

Section B - had the open-ended statements to find out the reactions of the Ss regarding the content, teaching method and language, and teaching aids used.

This lesson evaluation proforma was translated into Hindi for the purpose of pre-testing.

Pre-testing of Lesson Evaluation Proforma: In order to pre-test the lesson evaluation proforma it was

necessary to expose the Ss to the content of all the lessons as pre-requisite to this. Hence, a pilot study was conducted on 10 boys and 10 girls separately. These Ss were randomly selected on the basis of availability as the students were on the preparation leave for their final examinations. They were first exposed to the content of the lessons (refer Chapter IV) and every day after the teaching of each of the lessons, the daily lesson evaluation proforma was given to the Ss to find out:

1. whether the Ss had difficulty in understanding the questions in the lesson evaluation proforma (both sections) in terms of its construction and language,

2. whether the content coverage under this evaluation proforma was adequate enough to judge their knowledge and understanding on each of the respective lessons.

The responses of the Ss on the two sections revealed that they did not find any difficulty in understanding the construction and language of the questions. During the time they filled in these proforma, they did not raise any difficulty or queries. Moreover, it can be further inferred from the marks obtained by the Ss that they did not experience difficulty in comprehending the content and the coverage for the respective lessons.

3

Hence, the daily lesson evaluation proforma were retained as they were except that the modification/addition was made for one lesson that was developed on human reproduction. These were translated into Hindi for use in the present study. (Appendix H)

4. Overall Programme Evaluation Guideline

Programme evaluation guideline prepared by the investigator consisted of open-ended statements to find out the reaction of Ss to the total programme in terms of the acceptance of the content taught, language and audio-visual aids used, their preference for the sex of the teacher to teach the course. Besides this their reaction was also asked for in terms of their acceptance of the fact that this education is important or needed for parents, teachers and children. Thus, it covered the various aspects of the programme evaluation.

Pretesting of Programme Evaluation Guideline: The programme evaluation guideline was administered to the above 20 Ss (10 boys and 10 girls who were exposed to the teaching of lessons). Out of these 20 Ss, 5 Ss were randomly selected and interviewed to check the reliability of their responses. The pre-testing was conducted to find out whether the Ss had difficulty in understanding the construction and language of the open-ended statements to obtain their reactions on various aspects of the overall programme evaluation. At the end a statement was included

to find out any other information they feel important to impart about the programme besides the ones asked to ensure the content coverage.

The responses of the Ss revealed that they did not find it difficult to understand the statements. Moreover, the responses were given by them on the paper as well as when interviewed. Even on probing they did not add any information to the aspect of evaluation. Hence, this proforma evaluation guideline was translated into Hindi and used for the evaluation of the present programme as well. (Appendix I)

Besides these, the two heads of the institutions were requested to respond to a small questionnaire about the involvement of their institution in taking up PEP, its need and importance for secondary school students and the teaching approach/strategy they prefer for PEP.

Procedure of Executing and Evaluating the Programme

(a) Research Design: The experiment was designed in such a manner so as to evaluate the gain in the knowledge and understanding of the Ss, exposed to the teaching programme. Though there are other crucial variables like age of the Ss, the birth order of Ss in their family, the size and type of family, the educational status of parents, the income of the family, etc., but they were not considered at this juncture as the main focus of the study was on the development of a population education

programme for the IX and X class students.

One group pre-test-post-test experimental design was used for the present study in order to measure the dependent variable before the independent variable is applied and there on again the dependent variable is measured (after the independent variable is applied). The extent of change that was noticed in the knowledge and understanding was taken cognizance of. In the present experimental design teaching of the content/subject-matter incorporated in the population education curriculum was considered as an independent variable and the gain in knowledge and understanding in respect of the population situation was deemed as the dependent variable.

(b) Procedure of Executing the Programme: The overall framework of the programme was developed and pilot tested in the field (refer Chapter IV). This led to the formulation of nine lesson plans indepth embracing the 4 major areas of population education, as indicated earlier. The medium of instruction used was Hindi, being the regional language , to give the teaching programme to the students. The programme was conducted separately for the boys and girls in different school set-up, with the help of the various audio-visual aids like film, film-strips, charts, etc. so as to make the teaching-learning situation more conducive. The basic content was the same for boys and girls except the fact that in relation to human reproduction and family planning areas the examples were

geared according to their role as would be mothers or fathers.

The classroom situation was not limited to the teaching process alone but due emphasis and time was spared for the question and answer sessions and the students were allowed a free discussion after every lesson. The process of interaction and also the two-way communication process in delivering the programme facilitated the students not only to clear their doubts but also to learn from each other and made the process interesting and lively.

Apart from the interaction process between the communicator and the communicatee due provision was made to get the daily lessons evaluated by the supervisor. The impression as well as the corrective measures offered by the supervisor were fed back to the programme for its improvement. This process was followed every day in both the schools which helped in the understanding of the content/subject-matter in a more comprehensive manner. Remedial measures were adopted every day before taking up the next lesson wherever the performance was not satisfactory. The satisfactory performance or otherwise was judged by examining the daily lesson evaluation proforma which were content-based.

(c) Procedure of Data Collection (Evaluating the Programme): A pre-test was conducted to find out the knowledge content and understanding of the Ss on the four

areas of population education prior to the exposure of Ss to the experimental teaching. The tools, namely, the Knowledge Inventory and the Story Situations, were used for this purpose.

A post-test was conducted after the completion of the total teaching programme with the aid of the earlier knowledge inventory used for pre-test to find out the Ss' level of knowledge after attending the teaching programme. In order to find out the level of understanding of the Ss regarding the population issues parallel situations were used for the post-test to avoid their stereotyped responses to the situations. The students were individually interviewed to find out their understanding, through story situations, regarding the population issues under study, both at the time of pre-test and post-test,whereas the knowledge inventory was administered in group, both at the time of pre-test and post-test.

The lesson evaluation proforma (content-based) were given to the Ss every day immediately after the lesson hour was completed. The open-ended questions were administered twice to the Ss in the classroom i.e. on the first day of the lesson and on the last day of the lesson to find out their reactions regarding the content and teaching method etc. as stated earlier (see page).

A copy of the overall programme evaluation guideline sheet was distributed to all the Ss after the completion of the teaching of all the lessons to evaluate the

total programme. A sub-sample of 30 Ss was randomly selected for interviewing them to ensure the complete reliability of their responses by restoring the technique of deep probing. The same guideline was used to interview the Ss.

The heads of the two institutions (the headmasters) were provided with a guideline at the end of the programme to react to the need and importance of the population education programme and the involvement of their institutions in future.

The comments given by the supervisor in terms of the content, teaching methodology and teaching aids were also considered for the purpcse of evaluating the programme along with the impressions/reactions of the investigator in respect to the overall prcgramme.

Statistical Analyses

The data collected from the respondents and the experiences recorded in the classroom situation were subjected to appropriate analyses in respect of the following:

(A) Gain in knowledge as well as the change in the understanding of the Ss in respect of vital areas of population issues under study.

(3) Evaluation of the overall programme by the Ss, the supervisor, the two heads of the institutions and the investigator.

(A) The gain in knowledge of the Ss was based on the responses on the Knowledge Inventory of both boys and girls at the pre-test and post-test. The data was tabulated under the four predecided categories for the pre-test and post-test separately in respect of correct response, incorrect response, do not know response and any other response. The percentages were tabulated for all these four categories for the total sample as well as for the boys and girls on the total knowledge inventory and the four population issues under study, separately for the pre-test and post-test.

The t-ratio was computed to find out the level of significance of difference between pre-test and post-test scores in respect of the total sample and boys and girls for the total Knowledge Inventory as well as for each of the four areas of population education under study.

In all fairness, to further judge the test-efficiency, it was considered to compute the correcting difficulty indices for chance success of gain in knowledge at the pre-test and post-test levels for the boys and girls on all the four areas of population education under study. The methodology adopted is detailed in Appendix The corrected value of the difficulty index is to be sure an approximation but it probably gives more nearly true measures than does the experimentally obtained percentage (Garrett, 1961).

Change in Understanding of the Ss

The analyses aimed ~~a~~ to determine the change in the Ss understanding of the various population issues under study. Their responses to a set of story situations presented to them at the pre-test and post-test were tape recorded and later on transcribed. The responses of the Ss were rated under the three predecided levels of understanding for the pre-test and post-test separately. The three levels of understanding were full understanding, moderate understanding and low understanding based on a priori criteria developed by the investigator whose inter-rater reliability was already established (see page). The full understanding was given the score of 3, moderate understanding as 2 and low understanding as 1 (one), in order to calculate the means for the boys and girls and the total sample at the pre-test and post-test levels for all the five situations put together as well as for each situation to find out their level of understanding.

t-ratio was computed between the pre and post test scores with respect to the total sample and both boys and girls on all the 5 situations put together to find out the level of significance of difference.

The Pearson's Product Moment Correlation (r) was calculated between the scores obtained on the knowledge inventory and scores obtained on the story situations separately for the pre-test and post-test for the total

sample as well as for boys and girls separately.

Besides these, an attempt was made to specifically draw the concepts in which there was either very low or high gain in knowledge or understanding. The responses to these concepts were qualitatively looked at to note the change in the quality of responses. This was then descriptively stated.

(B) Evaluation of the Programme: The qualitative evaluation of the programme by the Ss, the supervisor, the heads of the institutions and the investigator was attempted and descriptively stated.

The Ss evaluated the programme at two stages:

(i) During the Programme

The daily lesson evaluation proforma filled in by the Ss were scored and the percentages were calculated for their performance as a total sample as well as for boys and f girls separately. The performance of boys and girls was compared in general as well as for specific concepts to find out the differences in their knowledge and understanding.

(ii) After the Programme

The responses of the Ss on the overall programme evaluation were stated in terms of their acceptance of the fact that this education is important and is needed

for parents, teachers and children. Their acceptance in terms of the content taught, teaching methods, language, audio-visual aids used and their preference for the sex of the teacher to teach this course was also examined through their responses on the overall programme evaluation. Sex-wise comparison was made to find out the differences in their acceptance of the programme in view of above aspects.

The supervisor's comments on the daily lessons in terms of the content, teaching method, audio-visual aids used, discussions after the class were also descriptively stated.

The reactions of the two headmasters were stated descriptively towards Population Education Programme (PEP) in terms of its acceptance and need for secondary school students, teaching strategy or approach, training of teachers, the content in general for boys and girls or sex-wise differentiation w be made in the content.

The investigator's own experiences/observations throughout the process of experiment were also descriptively stated in terms of content, language, audio-visual aids used, classroom and after class activities/experiences provided, teaching style, time spent, recapitulation, rapport between teacher and student and above all the need of teaching including population education programme in the school for secondary school students.

3

The next chapter deals with in details the Development, Execution and Evaluation of a Population Education Programme for the students of IX and X classes studying in the secondary schools of Udaipur District, Rajasthan.