

## CHAPTER IV

### PILOT STUDY - DEVELOPMENT, EXECUTION AND EVALUATION OF A POPULATION EDUCATION PROGRAMME FOR SECONDARY SCHOOL STUDENTS

"Awareness after the fact impress me as the essence of all tragedy..... Awareness before the fact is what usually passes for intelligence".

- Noel David Burleson.

This chapter deals with the two phases of the present study in detail, i.e., Development of a Population Education Programme and Execution and Evaluation of a PEP.

#### PHASE I - DEVELOPMENT OF A PEP

An educational programme to be effective and meaningful, its formal contents should be based on the existing knowledge and opinions of the target group for whom it is planned, as well as on the findings of various surveys and field research studies (Viederman and Wayland, 1973 and Chandra, 1976). The present Population Education Programme was developed on the basis of:

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 study to find out the existing knowledge and understanding the the students of IX and X classes studying in the different secondary schools of Udaipur District, Rajasthan, on different areas of the population situation.

Besides the review of literature in the field, the NCERT draft syllabus on population education for the higher secondary school students (Appendix A) was used as a basis for its content and understanding it aims to promote in the students. The study of this draft syllabus revealed that:

1. the content aims at promoting knowledge and understanding of the students in four areas of population education, i.e., demography, determinants and consequences of population growth, human reproduction and family planning.
2. the various concepts under these four areas of population education are organized hierarchically from simple to complex in terms of understanding.

Thus, the review of literature on PEPs and the NCERT draft syllabus (1971) for the higher secondary students helped the investigator for formulating an hierarchically graded set of concepts for promoting the understanding in the students.

In order to make the population education programme need-oriented and knowledge-based a study was undertaken by Karnick and Dave in 1978 to find out the existing knowledge and understanding of the secondary school students

regarding the four major areas of population situation under study, i.e., demography, determinants and consequences of population growth, human reproduction and family planning.

The broad objective of the study was to find out the knowledge content and understanding of secondary school boys and girls regarding the major areas of education in order to plan a meaningful programme of population education for them.

The specific objectives of the study were:

1. To find out the knowledge and understanding of the boys and girls studying in IX and X classes of various secondary schools of Udaipur District, Rajasthan, on 4 major areas of population education.
2. To study the differences in the knowledge and understanding of boys and girls on the 4 areas of population education.
3. To find out the difference in the knowledge and understanding of boys and girls studying in the coeducational and non-coeducational secondary schools of Udaipur District, Rajasthan, regarding areas of population education under study.

4. To derive the specific issues and concepts on which greater emphasis should be given while planning and implementing a population education programme for secondary school students.

### Sample

The sample for the present study consisted of 550 students (275 boys and 275 girls) studying in classes IX and X of secondary schools of Udaipur District, Rajasthan. The students were selected randomly from different non-coeducational and coeducational secondary schools scattered throughout the whole District.

### Procedure of Sample Selection

In order to select students for this study a list of existing secondary schools (both non-coeducational and coeducational) in Udaipur District, Rajasthan, was obtained from the Office of the State Institute of Education at Udaipur. Table 9 gives the details about the total number of existing secondary schools and the schools selected for the present study.

**Table 9 : Existing Secondary Schools in Udaipur District and the Selected Schools for the study**

No. of Secondary Schools*	Existing in Udaipur District			Selected schools for the study				
	Non-coeducational Schools		Co-educational Schools	Non-coeducational Schools		Coeducational Schools		
	Boys	Girls		Boys	Girls	Total	Total	
Schools in this city**	5	5	10	4	3	3	6	4
Schools outside the city***	1	6	7	0	1	3	4	0

\* Secondary schools (both co-educational and non-coeducational).

\*\* Schools within the Municipal Limits of Udaipur city.

\*\*\* Schools outside the Municipal Limits of Udaipur City.

As shown in Table 9 a total of ten non-coeducational secondary schools and four coeducational secondary schools were selected for the present study. In the coeducational secondary schools the total strength of students in IX and X classes was much less as compared to their strength in these classes in non-coeducational schools, hence all the four coeducational schools were included for the present study.

From these schools, 275 boys and 275 girls were randomly selected. Table 10 gives the details about the number of students selected from the selected schools.

Table 10 : Number of Students Selected from the Selected Schools

Subjects	Number of students from the schools under study				Total
	Non-coeducational		Coeducational		
	From outside the city	From with- in the city	From out- side the city	From within the city	
Boys	12	238	0	25	275
Girls	50	200	0	25	275

Table 10 indicates that a total of 500 students were randomly selected from the ten non-coeducational secondary schools whereas 50 students were randomly selected from the four coeducational secondary schools in Udaipur District. The students were selected in such a way so as to have a 10 per cent representation of IX and X class students. There was equal representation of boys and girls thereby making a total of 550 students for the present purpose.

In order to study the knowledge content of the students all the 550 students were administered the knowledge inventory, whereas to find out their understanding regarding population issues a subsample of 50 students was randomly selected from the 550 students. This subsample included boys and girls from IX and X classes from both the non-coeducational as well as the coeducational secondary schools.

## Tools

The following tools were used to find out the knowledge and understanding of the students regarding 4, areas of population education under study:

### 1. Knowledge Inventory

The knowledge inventory consisted of two parts, Part 'A' and Part 'B'. Part 'A' consisted of questions to obtain background information of the students. Part 'B' consisted of 40 multiple choice questions regarding the following major areas of population study:

- (a) Demography
- (b) Determinants and Consequences of Population Growth
- (c) Human Reproduction, and
- (d) Family Planning.

### Procedure of Constructing Knowledge Inventory

In order to find out the knowledge content of the students the investigator constructed a detailed questionnaire containing questions on all the major population issues and concepts under the four areas of study after reviewing the literature available. This detailed questionnaire was then sent to five experts from four allied fields, i.e. Home Science (one expert in Child Development who is specialized in marriage and family area and the other from Home Science, E.E. who has

guided researches on Population Education), Demography, Education (has guided researches in Population Education), and Family Planning with the following objectives:

- (a) To find out the appropriateness of the content under the 4 major areas.
- (b) To find out the relevance of the concepts of secondary level students.
- (c) To find out the clarity of the questionnaire in terms of construction and language.

The experts expressed that:

1. some of the questions were duplicating the concepts under the areas of demography and determinants and consequences of population growth.
2. under the area on demography a few questions were felt to be very simple for this age whereas in the areas of human reproduction and family planning they were felt difficult or irrelevant for the secondary level.
3. the construction and language of the questions were simple to understand.

Hence, on the basis of the above comments and suggestions given by the experts the required changes were

made. This modified questionnaire had 50 questions. This was formulated into two types of questions - one open-ended and one multiple-choice statements. Each of the statements had 5 alternative choices, out of which 3 possible answers were given, one 'do-not-know' and one 'any other answer'. These multiple choice statements were given to the same experts, as mentioned earlier, to check for the appropriateness of the alternatives given. Since the experts approved of the alternatives except one in the area of family planning, which was then modified, the multiple-choice statements were finalized and translated into Hindi. This consisted of 50 statements. A small group of 5 boys and girls of IX and X classes were randomly selected based on availability and were administered both types of questionnaires, as stated above, to find out their preference by the students. It was revealed that they could not reply at all to the open-ended questions whereas preferred to answer the multiple-choice statements.

Pre-testing of the Knowledge Inventory: This knowledge inventory with 50 multiple-choice statements was again pilot tested on 10 Ss (both boys and girls of IX and X classes) with the following objectives:

1. To find out the difficulty, if any, faced by the Ss in understanding the content and language of the statements therein, and
2. To find out whether the Ss prefer to guess

the answer and tickmark the alternative answers given or admit that they 'do not know' or add 'any other response'.

The responses of these 10 Ss were examined and it was found that:

1. out of 50 statements there were 7 statements to which all could give correct response and 3 statements to which no one gave the answer - i.e. they left them blank.
2. the language of the statements was not found difficult by them to understand as none of them expressed their difficulty to understand the statements.
3. The Ss gave correct as well as incorrect answers. They did not show a tendency to tickmark 'do not know' response consistently throughout the knowledge inventory.

Thus, these 10 statements which were found either too difficult or too easy were deleted. This tool with 40 multiple-choice statements was then finalized and printed in Hindi for the purpose of data collection for the present study (Appendix F ).

## 2. Story Situations

In order to find out the understanding of the

1

students on the four major areas of population education under study, eight story situations and their probe questions (Appendix G1 ) were formulated. These served as a semi-projective technique to ascertain the level of understanding of the students.

#### Situation 1

Mr. and Mrs. Sharma live in Bombay. They belong to a middle class family. They have 3 children and all go to school. Their life at Bombay is very busy as both, Mr. and Mrs. Sharma, are also in service.

Mr. Sharma, one day, received a letter from his younger brother, Ram, who stays at their native place (Nathdwara) and looks after their farm. Ram wants to come to Bombay and take up a job there.

#### Probe Questions

(i) If you have to reply to this letter, what will you write? Why?

(ii) Like Ram, if many people come to Bombay, what will happen?

#### Procedure of Formulating the Story Situations

Different aspects of the population situation like migration, unemployment, age at marriage, unwanted pregnancy, preference for family size, being recognized

as key factors bearing influences on the quality of life, were selected/based on the literature available for building up the situations. Initially ten story situations were formulated based in the various concepts related to the population situation under study.

Certain probe questions were formulated to elicit indepth responses from the students with regard to each situation. These questions were so formulated that in responding to them the students provided an explanation for the responses that he/she gave.

These 10 story situations were given to five experts in the different fields i.e. Home Science, Demography, Education and Psychology and Social Work (who are well versed with the content and are guiding researches on population education) to find out:

- (a) whether the situations clearly bring out the selected concepts;
- (b) the clarity of the language of the story situations; and
- (c) the clarify of language and construction of the probe questions.

The basis of the comments and suggestions given by the experts were:

1. keep the surnames that are popular in your state e.g, Mr, Sharma instead of Mr.Patel (situation I)
2. formulate 2 separate situations for rich and poor to avoid confusion (situations III and IV).
3. ten situations are too many. Try to have at the most 7-8 covering all these concepts.
4. the concepts are relevant and the situations do occur in day-to-day life, so easy to comprehend.
5. the language of the story situations as well as the probe questions and their construction is appropriate.
6. formulate a definite guideline to evaluate the Ss responses objectively.

Thus, the story situations were modified and finally eight story situations and their probe questions were finalized for this study (Appendix G1 ).

These situations were then translated into Hindi with the help of a language expert.

Pretesting of the Story Situations: A pilot study was conducted on 10 students to find out:

- (a) whether students found any difficulty in understanding the situations;
- (b) whether the students in responding to the probe questions were providing explanations for their answers;
- (c) whether the language was clear to understand; and
- (d) the time required to conduct the interview with each subject.

It was found that the students had no difficulty in understanding the situations and their questions in terms of content and language. They were able to answer the questions, once they became friendly and the purpose of the study was clarified to them. Each interview took approximately 50-60 minutes. Based on these results 10 situations were reformulated into these eight story situations and their probe questions were then finalized for this study. (Appendix G1 ). A guideline for expected answers/responses was also formulated with the help of above experts in the field to evaluate the responses of the Ss on each of these eight situations (Appendix G1 ).

#### Procedure of Data Collection

The selected schools were contacted in advance and the purpose of the study was conveyed to the heads of the

107

institutions. Prior permissions and appointments were taken for administering the tools. The data was collected in the school premises during the class hours. The knowledge inventory was administered to the group in the classroom situation under the personal supervision of the two investigators. The following instructions were given to the students while filling in the knowledge inventory:

1. The students were asked to tickmark the most correct answer from the choice given to them in response to each statement.
2. An additional question on menstruation was asked to the girls under part 'A' of the knowledge inventory. The boys were instructed to delete this question.

The story situations and their questions were read out to each subject personally by the investigator one by one and they were expected to answer each question separately. The students were interviewed outside the classroom. No other individual was allowed to be present at the time of interview so that the student felt free to respond to the questions asked. The students were convinced that there was no need to feel shy about answering and they should answer whatever they felt was appropriate. Their responses were tape recorded and later on transcribed.

#### Analysis of the Data

A descriptive analysis of the background

information was done.

The responses on the knowledge inventory of the total sample (550 students) were tabulated under the four pre-decided categories i.e. correct responses, incorrect response, do not know response and any other response.

The percentages were calculated for the students in coeducational and non-coeducational schools separately on the total knowledge inventory as well as for all the four areas under study. Percentages were also calculated separately for boys and girls from these two types of schools on the total knowledge inventory as well as for the four areas under study. The responses of the students on each of the statements were also studied in order to identify the areas, issues and concepts on which greater emphasis should be given while planning and implementing a population education programme.

A descriptive analysis was made about the responses of the students to the story situations based on the various population issues. The responses of the students were categorized under the four predecided categories of level of understanding based on a priori criteria. These four categories were full explanation, partial explanation, no explanation and irrelevant explanation. The percentages were calculated for all the students (belonging to coeducational and non-coeducational schools together) as a group as well as for boys and girls separately on the total

population situation i.e. putting all the 8 story situations together.

An attempt was made to compare and find out whether those students having a high percentage of correct responses on the knowledge inventory also have a high percentage of full explanations, e.g. one subject had 60 per cent correct knowledge on the population issues (as measured by knowledge inventory) but could give full explanations for only 12 per cent of the questions related to the situations based on the population issues under study. This difference indicated a serious gap between the knowledge and understanding of the students on the various population issues under study. This was represented in a graphical form (Fig. 6 on page           ).

#### Results and Major Findings

Data obtained from part 'B' of the knowledge inventory was analysed to find out the knowledge content of the students on the population issues under study. In order to get a comparative picture of the existing knowledge of the students in the four areas of population education i.e. demography, determinants and consequences, human reproduction and family planning, percentages were calculated for boys and girls as well as for the total group of students belonging to coeducational and non-coeducational schools.

8

Table 11 gives the percentages of the responses of the boys and girls from non-coeducational schools on the four major areas of population education under study.

Table 11 : Percentages  
Population S

Sr. No.	Issues/Area	Any other responses		
		Boys	Girls	Total
1.	Demography	0.3	0.07	0.18
2.	Determinants and Consequences of Population Growth	1.7	0.56	0.63
3.	Human Reproduction	0.3	0.04	0.17
4.	Family Planning	1.8	1.40	1.6
Total		1.0	0.5	0.7

Table 11 indicates that the students belonging to the non-coeducational schools on the whole had 52.9 per cent correct knowledge on the total knowledge inventory. The sexwise comparison shows that on the whole the girls have higher knowledge than boys.

Taking the four areas into consideration the total group has higher correct knowledge in the area of family planning i.e. 56.85 per cent as compared to the area on Demography which is lowest i.e. 49.3 per cent. Comparing the knowledge of boys and girls on the four issues the girls have the highest knowledge in the area of family planning whereas the boys have the highest knowledge in the area of Determinants and Consequences i.e. 62.3 per cent and 55.1 per cent respectively. The girls have the lowest knowledge in the area of Demography i.e. 44.7 per cent whereas the boys have the lowest knowledge in the area of Human Reproduction.

Table 12 gives the percentages of the responses of the boys and girls from coeducational schools on the major areas of population education under study.

Table 12 indicates that the students belonging to the coeducational schools on the whole have 55.3 per cent correct knowledge on the total knowledge inventory. Boys have higher percentage of correct knowledge i.e. 57.4 per cent as compared to girls which is 53.2 per cent on the total knowledge inventory.

A comparison against the four areas under study indicates that the students have highest knowledge in the area of Determinants and Consequences of Population Growth i.e. 60.5 per cent and lowest knowledge in the area of Demography i.e. 51.81 per cent.

The sexwise comparison shows that both boys and girls have highest knowledge in the area of Determinants and Consequences of Population Growth i.e. 63.67 and 57.33 per cent respectively whereas the boys have lowest knowledge in the area of Human Reproduction i.e. 52.4 per cent and the girls in the area of Demography i.e. 48.73 per cent.

The comparison between the students belonging to the coeducational and non-coeducational schools indicated that:

1. The students belonging to coeducational schools have higher knowledge on the total knowledge inventory as compared to the non-coeducational schools.

2. The boys studying in the coeducational

schools have more correct knowledge in all the four areas under study as compared to the boys studying in the non-coeducational schools.

3. The girls studying in non-coeducational schools have more correct knowledge in the area of human reproduction and family planning as compared to the girls in the coeducational schools.

4. The boys belonging to both coeducational and non-coeducational schools have lowest knowledge in the area of human reproduction whereas the girls from both these two types of schools have lowest knowledge in the area of demography.

5. The students belonging to both non-coeducational and coeducational schools lack knowledge about the specific concepts under each of the four major areas of population education under study. These are listed later on at the end of the results (see page       ).

The responses of the students to the situations were categorized under the four categories as mentioned earlier. They were full explanation, partial explanation, no explanation and irrelevant explanation. Table 13 gives the percentages of the boys and girls on the four levels of explanations.

Table 13 : Percentages of the Boys and Girls (from the Two Types of Schools) on the Four Level of Explanations

	Full explanation	Partial explanation	No explanation	Irrelevant explanation
Boys	31.33	56.40	11.56	0.71
Girls	27.74	57.34	13.83	1.09
Total	29.53	56.87	12.70	0.90

From the Table 13 it is clear that the students were able to provide full explanation to only 29.53 per cent responses that they gave on the story situations. Majority of the students gave partial explanations i.e. to 56.87 per cent responses. This shows the gap in their understanding of the population situation inspite of the fact that their correct knowledge is around 50 per cent.

An attempt was made to compare and find out whether those students having a high percentage of correct knowledge also have a high percentage on full explanation. The graph shows the percentage of correct knowledge of those 50 students who were interviewed for their understanding of the population situation.

— % OF FULL LEVEL OF EXPLANATION  
 - - - % CORRECT KNOWLEDGE

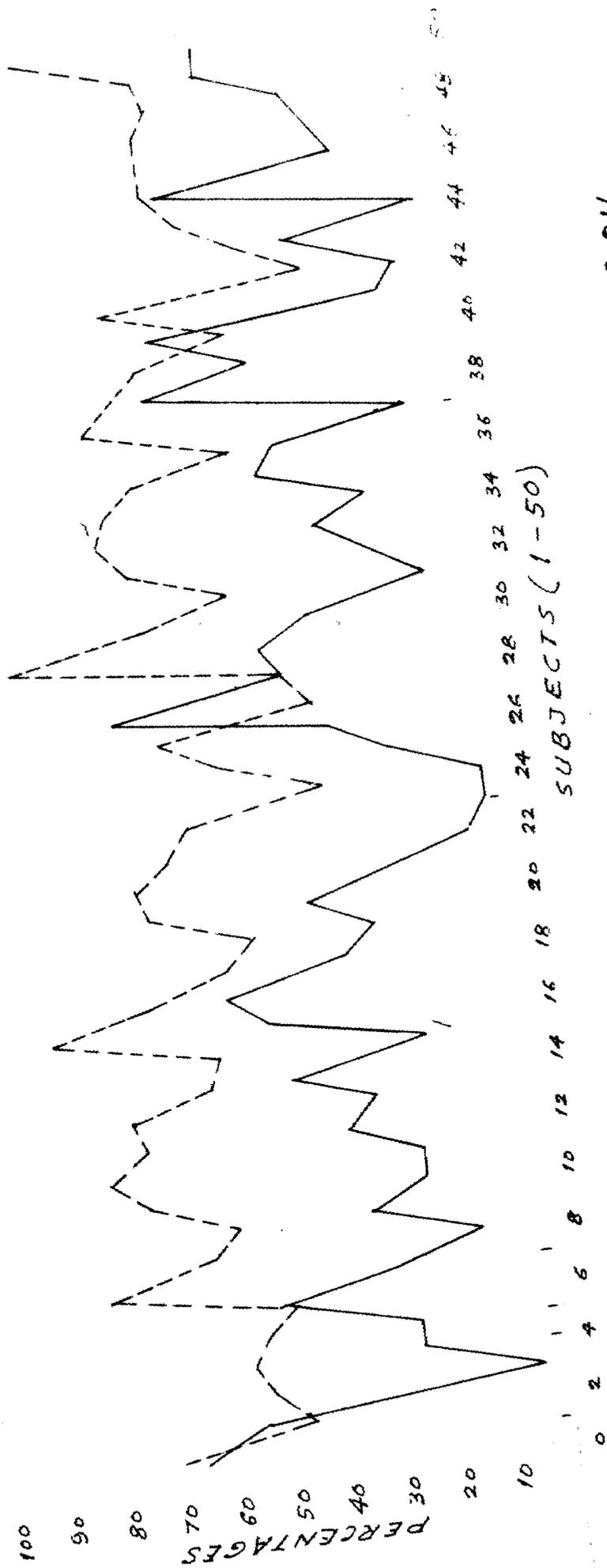


FIG. 6 PERCENTAGES OF SS ON THEIR CORRECT KNOWLEDGE ON  
KNOWLEDGE INVENTORY AND FULL LEVEL OF EXPLANATION TO  
THEIR RESPONSES ON STORY SITUATIONS

The graph (Fig. 6) clearly shows the gap between their knowledge and understanding of the population situation.

#### Major Findings

1. Viewing the total sample (both boys and girls) one finds that the students have nearly 50 per cent correct knowledge on various population issues.

2. When boys and girls are compared, it is seen that girls have more correct knowledge in the areas of human reproduction and family planning as compared to the other two areas i.e. demography and determinants and consequences of population growth.

3. The students studying in coeducational schools have slightly above 50 per cent correct knowledge on the four areas of population study as compared to those in the non-coeducational schools.

4. The boys from coeducational schools have more knowledge in all the four areas under study as compared to the boys from the non-coeducational schools.

5. The girls studying in the non-coeducational schools have more correct knowledge than the girls studying in coeducational schools in all the four areas of population study except demography.

6. The girls from both the coeducational and non-

coeducational schools have the least knowledge in the area of demography, whereas the boys from both these two types of schools have the lowest knowledge in the area of human reproduction as compared to other areas of study.

7. There is no marked difference in the understanding of boys and girls from the two types of schools regarding the total population situation.

8. The analysis on understanding of the students regarding the population situation reveals that the total group lack indepth understanding of the various issues and concepts regarding population situation.

9. A comparison between the percentages of each of the students on his/her correct knowledge and full explanation offered in relation to the story situations reveals that there is a marked disparity between these two percentages.

It is interesting to note that only one students out of 50 students had the same percentage of correct knowledge and full explanation (i.e. 37 per cent although it is very low). This indicates that there is a wide gap between the students' knowledge and understanding about the population situation.

One can, therefore, infer that the students lack knowledge and understanding about several specific concepts related to the population situation.

As derived from the data, following concepts should receive greater emphasis in a population education programme for the students studying in the secondary schools in Udaipur District.

### I. Demography

1. Knowledge of population situation and population density at the national, state and district levels.

2. Understandings regarding the relationship between the various demographic processes and population situation of a place e.g. migration and population situation.

### II. Determinants and Consequences of Population Growth

The relationship between the determinants and consequences of population growth by making them understand that:

1. the root cause of the various problems in our country is the speedy growth of population.

2. the increasing percentage of children below 14 years (child population) has a direct bearing on the future population situation of a country.

3. the population situation of a country influences the standard of living of the individuals, and

4. there is a need to develop favourable

attitudes in individuals to adopt small family norm to check the population growth of our country.

### III. Human Reproduction

There is a need to teach the basics of human physiology and

1. meaning and physiological process of menstruation,
2. child bearing age of women and its effect on the child and mother, and
3. relationship between early child bearing, unwanted pregnancy and the health of mother and child.

### IV. Family Planning

1. Meaning of family planning and methods of contraception.
2. Government policy to improve the standard of living of the individuals.
3. Various types of measures adopted by the Government to curb population.

### Conclusions

The findings of the above study indicate that:

1. population education programme must develop the knowledge and understanding of all the four major

areas of study, and that

2. greater emphasis must be given to the above mentioned concepts while planning and implementing the programme on population education for secondary school students.

Thus, besides the literature, the results of this study further helped the investigator by providing a benchmark data to formulate a PEP. Based on these a basic framework of a population education programme for secondary school students of Udaipur District was prepared. This framework of the programme consisted of the objectives, content and behavioural outcomes under the four major areas of population education. The framework of the programme is attached herewith (Table 14).

## PHASE II - EXECUTION AND EVALUATION OF A PEP

The total content of a PEP formulated was further divided into 8 lessons including the one on summary for the purpose of experimental teaching. Each lesson contained its broad objectives, specific objectives, content in detail, the teaching aids to be used and the behavioural outcome expected. Besides these, with each lesson some activities to be given to the students were also planned.

Based on the objectives, content and behavioural outcome specified in the framework of a PEP planned the specific objectives and detailed content for each lesson was prepared with the help of the literature available in the field. The eight lessons planned were:

1. Introduction to population education.
2. An overview of population situation of the world and India.
3. Determinants and Consequences of Population Growth - I.
4. Determinants and Consequences of Population Growth - II.
5. Interrelationship between population growth and quality of life.
6. Small Vs. large families.

7. Human reproduction and family planning.

8. Family welfare services to improve quality of life in India and a summary of population education programme.

The teaching materials and activities were also planned for each lesson.

#### Teaching Materials and Activities

Any school classroom is a small communications world in and of itself. Within it, teacher and pupil exchange and develop ideas and understandings of a process (Wittick and Schuller, 1962). The key person in controlling the nature and efficiency of this communication of ideas and understandings - in short, the efficiency of classroom communications - is the teacher. As long as these messages are transmitted unchanged or uninhibited by any interfering conditions, pupil-teacher communication proceeds efficiently. Population education being a newly developing area of education very few teaching materials are available that are culture-free. Even if they are available they have to be adapted to suit the target group. In order to make the teaching-learning effective the teaching/communication materials chosen have to be very carefully selected. The teacher assumes several key responsibilities when selecting and using audio-visual materials in the classroom. Among them are: (1) definition of learning goals, (2) selection of learning experiences,

21

(3) correlation of the class in using these materials in accordance with the best research and utilization principles (Wittich and Schuller, 1962).

Thus, to select the teaching side suitable to the lessons to be taught on the experimental basis to the secondary school students on population education, the teaching materials/units prepared by NCERT and International Home Economics Association, the material prepared at Tirupati University was explored. The NCERT, New Delhi and FPAI, Bombay were requested through letter to suggest/send the teaching materials they had prepared on population education. FPAI, Bombay, suggested the film prepared by them called "Down to Earth" which has its major emphasis on population growth and its consequences on different aspects of life, e.g. employment, health, safe drinking water, environmental pollution etc. They also suggested that since they have opened a population cell at Udaipur University and they also provide grant to the cell, I could request the cell to buy the film. So, accordingly the request was made to the cell director and the film was available to the investigator. FPAI, Bombay also suggested to approach National Educational Films, Bombay, for the film-strips and slides, if they have. Hence, this source was also tapped. As per the catalogue sent by them the film-strips on human reproduction, better family living area were selected (Appendix E ). The NCERT had not till then prepared the teaching aids

370

for mass production purpose. They were working on the slides and other teacher-made aids. Hence, on the basis of the objectives and content of each lesson the teaching aid was finalized either to be a projected one or teacher-made illustrations like maps, charts, tables with the help of the available literature. Besides these aids the activities for self-learning were also prepared/written with each lesson for better understanding of the content. The activities were like:

- (a) "from your own family find out from your mother about the various reasons for her preference for having a child".
- (b) "prepare the points for discussion or debate on the theme - large vs. small family".

Thus, such activities as home assignments were also planned.

A pilot study was conducted with the following objectives:

1. to expose the students with the content of the lessons to find out:
  - (a) whether the students could comprehend the content of the lessons,
  - (b) whether the teaching method and teaching aids and activities were found interesting

to the students as well as helped them  
to further understand the content,

(c) whether they were able to understand the  
language used by the investigator,

(d) whether there is any difference in the  
comprehension of IX and X class students  
and boys and girls.

2. to give practice and help <sup>to</sup> the investigator in:

(a) delivering the content without any hesita-  
tion in Hindi,

(b) using the teaching aids in terms of their  
help in effective teaching, and handling  
them in the classroom situation,

(c) knowing the time required in the comple-  
tion of each lesson including the daily  
evaluation of the lesson.

(d) knowing their reaction to the overall  
programme on population education.

Table 15 gives the marks obtained by the Ss (both  
boys and girls) from IX and X classes on the 7 lessons  
evaluated for their comprehension of the content based in  
the Section A of the daily lesson evaluation proforma  
(Lesson 8 - on Summary - was not evaluated).

Table 15 : Marks Obtained by Each Ss on the Lessons  
1 - 7\*

Girls		Lesson Number						
	Sr.No. of Ss	I	II	III	IV	V	VI	VII
IX	1	9	9½	9	8	10	10	8
	2	A	8½	8	7½	10	9	9
	3	A	A	A	8½	10	8	9
	4	A	A	10	9½	10	9	10
	5	A	A	10	10	10	10	7
X	6	A	10	8	9½	10	10	10
	7	A	7½	9½	9	6	6	8
	8	5	8½	8	6½	8	9	8
	9	9	9½	8½	8½	8	8	8
	10	8	9	9	7	8	7	8
Boys								
IX	1	9	9½	10	9½	10	10	8
	2	9	6½	8½	8	10	10	7
	3	6	5	8½	9½	10	8	9
	4	8	6	A	10	10	10	A
	5	9	7½	9	8½	8	8	9
X	6	7	8½	8½	7	8	8	8
	7	10	7½	10	10	8	8	9
	8	8	10	9	10	10	9	6
	9	7	8½	8½	9	8	8	8
	10	8	8½	9½	8½	8	6	6

\* M.M. for each lesson = 10.

It can be inferred from the marks obtained by the Ss that they did not experience difficulty in comprehending the content. Further, there was no difference in the performance of Ss from classes IX and X as well as boys and girls. The responses of the Ss on the two sections further revealed that the Ss did not find difficulty in understanding construction as well as language of the questions in the two sections of the daily lesson evaluation proforma. They did not find the teaching method and teaching aids difficult to understand, rather they preferred them as against the teaching procedure adopted in their schools. The main reason for this as expressed in the overall programme evaluation that the content on human reproduction was too much to understand in one class and hence they suggested to break that into two classes. Besides this all the content be retained as it was.

The investigator did not find it difficult to teach the lessons in Hindi without any hesitation as the key words were translated into Hindi and kept on the table in front for reference. The lessons were not translated into Hindi so as to avoid the formal teaching process and make the language as informal as possible. Each lesson was taught with the help of teaching aids which were not difficult to handle. However, the investigator felt that the chapter on Summary should be a separate one and not merged with other content/lesson. The time taken each day ranged from 1-1½ hours. For the administration of the

lesson evaluation proforma the help of the students was taken to distribute and collect the papers.

As for the activities, none of the students preferred to work on them due to the shortage of time. They did express, however, that given sufficient time, they would like to undertake those activities as they were of practical nature and would enhance their learning further.

Thus, based on the reactions/responses of the Ss and the investigator the content of the lessons was reorganized and the objectives, teaching aids and activities were also reformulated accordingly. The Table 16 gives the topics for each lesson and the teaching aids used (for other details refer Appendix E ).

Table 16 : Topics for Each Lesson and the Teaching Aids Used

<u>Sr. Lesson No.</u>	<u>Title</u>	<u>Teaching Aids</u>
1. I	Introduction to Population Education	Charts
2. II	An Overview of Population Situation of the World and India.	Charts Blackboard
3. III (a)	Determinants and Consequences of Population Growth.	Lecture
4. III (b)	Determinants and Consequences of Population Growth.	Film - Down to Earth (4 modules)
5. IV	Interrelationship between Population Growth and Quality of Life.	Poster

Sr. Lesson No. No.	Title	Teaching Aids
6. V	Small vs. Large Families.	Film-strip - A small family - Why?
7. VI	Human Reproduction	Film-strips - (a) The male reproductive system (b) The female reproductive system (c) The menstrual cycle.
8. VII	How conception take place and methods of limiting the family size.	(a) Film-strips on how conception takes place and methods of contraception.  (b) Charts.
9. VIII	Family Welfare Services to improve quality of life in India.	Charts and flip chart.
10. IX	Overall summary of the total programme on PEP	Charts

#### Procedure of Teaching Population Education

These lessons were given separately in the two selected schools, one for girls and one for boys, on different timings and days as per the convenience of the school administration and holidays. The selected students of IX and X classes of respective schools were made to sit in a separate class. The seating arrangement in the boys' school was made in the classroom itself whereas in girls' school they were made to sit in the closed verandah. A lesson diary was maintained for the supervisor to put the remarks. All the lessons except the Lesson I, were supervised by an expert in education in both the

20

schools. The basic content for boys and girls remained same except that more emphasis was given while teaching on the role of Ss as would be mothers/fathers. Additional examples were also given accordingly.

As suggested by the supervisor these lessons were not translated into Hindi and written in the daily lesson diary with the purpose:

- (a) that they were not referred at the time of teaching as only the teaching points were important. These teaching points and key words were translated into Hindi for reference.
- (b) to make the communication at the time of teaching more informal and casual since the investigator was well versed in Hindi.

Initially, each lesson was planned, in terms of its specific objectives, content summary, activities for the students and teaching aids. The lesson one and two were written in the daily lesson diary as they were. The first lesson was not supervised by her and hence, at the end of 2nd lesson, which she supervised, the suggestion was to rewrite the lessons henceforth in the format used by pupil-teachers. Hence, they were rewritten every day in the format suggested by her which had specific objectives, teaching aids, previous knowledge of the Ss,

2

introduction to the lesson, statement of each aim, its contents, its method of presentation, evaluative questions, points for blackboard summary, activities for students, evaluation of the lesson by the Ss and the supervisor's remarks (Appendix E ).

The Table 17 gives the details of the teaching schedule in the two schools.

297

Thus, IX lessons including summary were taught in the two schools during the period 25.7.80 to 8.8.80 to the students of IX and X classes. After each lesson time was given to the students to discuss and clarify their doubts.

#### Procedure of Evaluating the Programme

As mentioned in the method chapter these nine lessons which were taught to the students on experimental basis were evaluated by the Ss, the supervisor, the two headmasters and the investigator. The programme was evaluated before and after the teaching as well as during the teaching. The evaluation aimed at in terms of gain in knowledge and change in understanding of the Ss and the suitability and acceptability of population education programme for secondary school students. The next chapter deals with the detailed results of the evaluation of the PEP planned and executed on an experimental basis. The figures 7 and 8 show the entire process of the execution and evaluation of PEP and the teaching aids used (except the film-strips and the film).

Fig. 7 - Execution and Evaluation of the Programme



Discussion on the Overview of the Experimental Teaching with the Two Headmasters and Supervisor



Helping the Students to Understand the  
Need for Population Education



Discussion on Determinants and Consequences  
of Population Growth



Explanation on - How Conception Takes Place?



Recapitulation after the Lesson



Discussion after Teaching the Lesson



Supervision of Lesson in the Girls' School



Supervision of Lesson in the Boys' School



Programme Evaluation through Knowledge  
Inventory

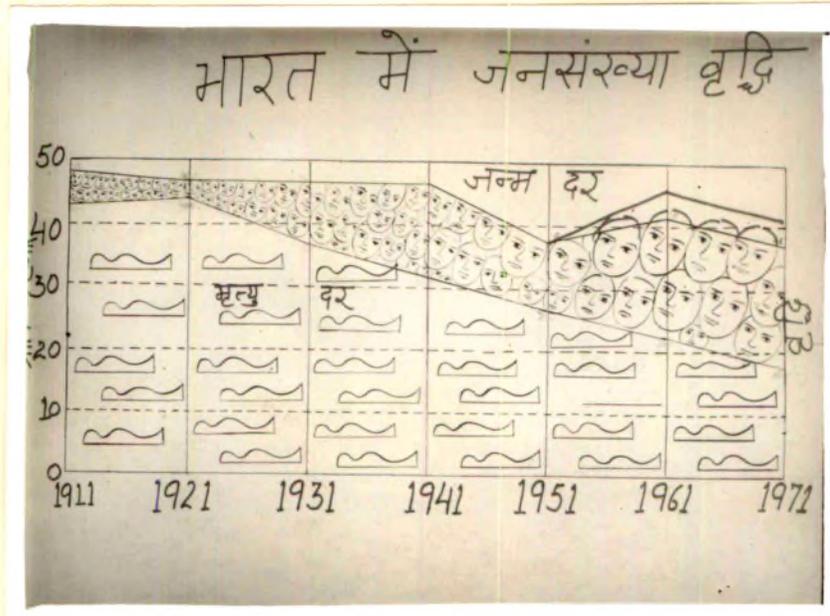


Programme Evaluation through Story  
Situations



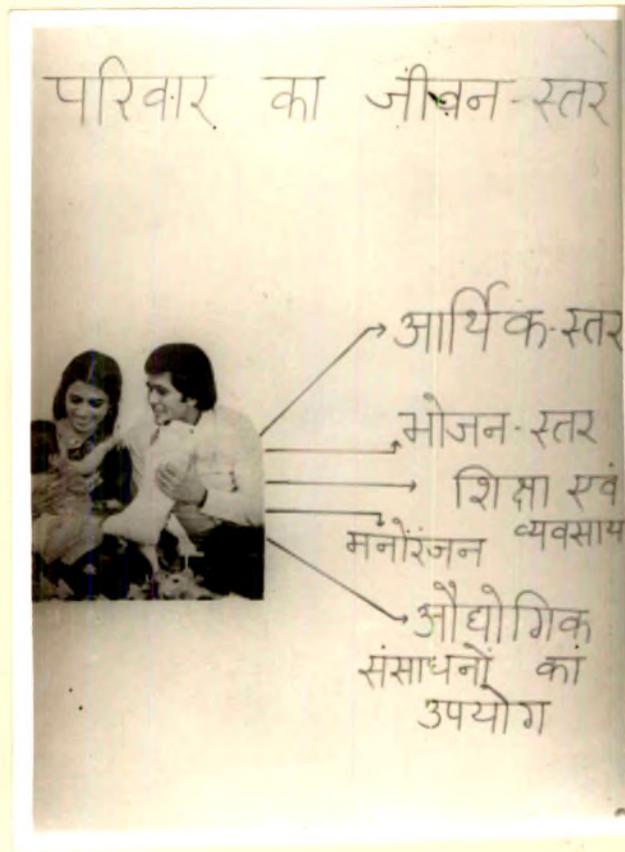


Graph on Population Growth



Poster on Increase in India's Population

Flip Chart on Guide to Responsible Decision-Making



Components of Quality of Life

Chart on Relationship Between Family Size and Quality of Life

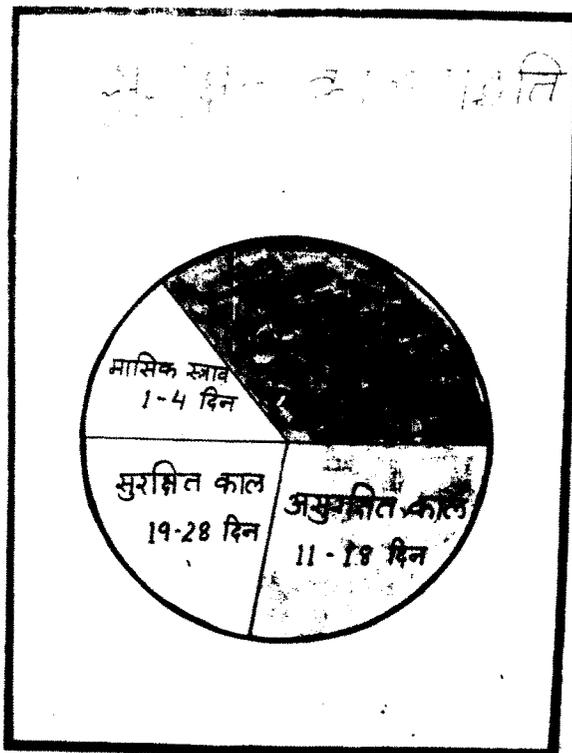
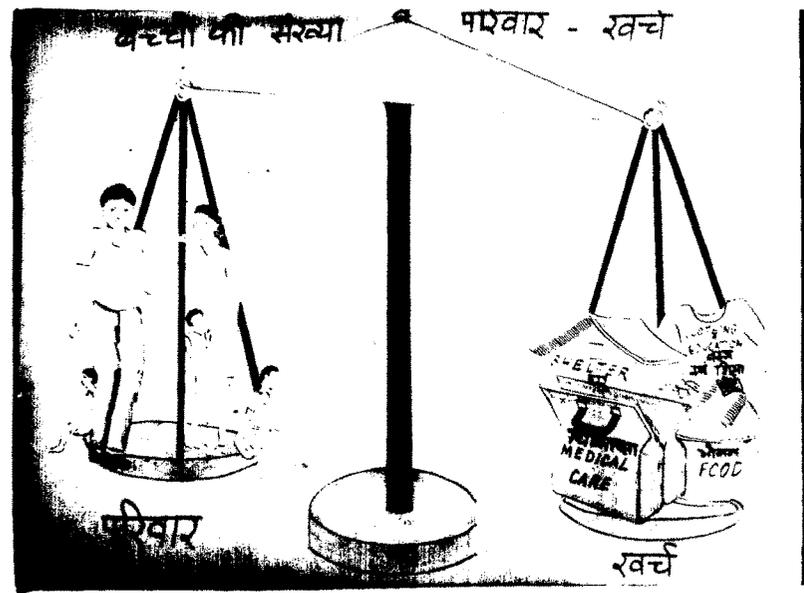


Chart on 'Safe Period Method'