Population explosion constitutes a major threat to mankind today. The population is increasing at a very rapid rate, thereby giving rise to multiple social as well as economic problems. However, it varies in content, intensity and interpretation from country to country. In a country like India where a baby is born every one and a half-second, where births out number deaths, where the per capita income is amongst the lowest in the world, and where 30 per cent of the population has to support the remaining 70 per cent resulting in famished lives, this phenomenon has naturally come to assume a rather alarming proportion. The comparison of population in census reports of India with the State of Punjab speaks volumes of the population explosion that has taken place in India.

The root cause of accelerated population growth is improvement in the conditions of life i.e., control over diseases and famine by virtue of development and advancement in the field of science and technology. But the steep rise in population growth has resulted in many problems connected with the socio-economic framework of society as well as problems related with the standard of living, transportation, shortage of housing, over-crowded, educational institutions, unemployment, limited civic amenities, environmental pollution and the deterioration of limited natural resources.
On a thorough enquiry into the problem of population pressures, it is clear that it is not a problem that could be solved by scientists. The question is not whether births and deaths will be brought into balance but when and how and at what level. It is more a social problem with cultural, economic and political implications, which has to be tackled at the human and individual level. This can be achieved only when students are caught young and educated through the proper channel to develop the right kind of attitude towards family planning. For this public service advertising T.V. plays a very powerful role. It reaches the masses and brings home the message that a small family is a happy family. Catchy slogans and jingles often have a more direct appeal than moralising or theorising. To George S. counts, "Education as a force for social regeneration must march hand in hand with the living and creative forces of the social order." Population, control should be made an issue for the whole society. Since education is regarded as a vital force for the new changes in society things should automatically improve as more and more people come within the orbit of education and view the problem of population explosion in a new light. Hence, education for population awareness or population education for all around development of man and society is imperative.

The UNESCO Regional Office, Bangkok took certain steps to help the member states to tackle this problem. The final
report of the regional workshop on population Education, Bangkok (1983), gives the following definition of Population Education:

"Population Education is an educational programme which provides for a study of the population situation in the family, community, nation and the world with the purpose of developing in the students rational and responsible attitudes and behaviour towards coping with that situation."

National Seminar on Population Education held in Bombay in 1969 defined population education in terms of its objective.

"The objective of population education should be to enable the students to understand that family size is controllable, and population limitations can facilitate the development of higher quality of life."

Usually population education is confused with 'Sex Education', 'family life Education' and 'Contraception education'. No doubt it can share some contents with these fields but in practice population education is clearly and loudly divorced from 'Sex education', 'family life education' and 'Contraception education'.

The teacher is the major factor in determining the success of any population education programme in a school or college.
It is a potent fact that any educational scheme, plan or project does not depend merely on administrators but also on the efforts of individual class teachers. It may be stressed here that until and unless the involvement of teachers is there in the process at all stages and levels the problem will remain of ornamental value.

Emergence of Problem:

No doubt the birth of a baby is a blessed event. But a count of these multiple blessings on a family and national scale gives rise to a large question mark as to what extent a country in the theories of modernization is capable of coping with them. The purpose of family planning programme is to regulate this flow of blessings. A population education cell was established in NCERT and UNESCO Regional Office, Bangkok (1970). It was found that education regarding population should be added in educational programme. It should be integral part of the educational programme.

Infact, population education is a new area and no model exists which could be adopted to suit the conditions prevailing in the country. It can be said that population education is still in its infancy and a number of exploratory studies need to be undertaken before the programme is implemented, studies are needed at different levels of school education.
Significance of the study:

It is a fact that children of today are the parents of tomorrow and it is necessary to develop among them a favourable attitude towards the concept of small family. All this is possible only if they are trained since the very beginning. Population education can be introduced in the school as a separate subject or contents of population education can be introduced in the existing syllabi of different subjects. The present study stands for Population Awareness of the higher Secondary school students of Punjab and a desirable curriculum to cover population problems.

The objectives of the study were:-

1. To assess the awareness of students, teachers and Parents regarding a continuous increase in population.

2. To know the reaction of students, teachers and Parents towards problems of population increase.

3. To develop a required curriculum in population education for Higher Secondary School students.

4. To determine the suitability of content portion in terms of knowledge, understanding and attitude of students, teachers and parents.

5. To evaluate the effectiveness of the curriculum in terms of resultant change in the knowledge, understanding and attitude of the students, teachers and Parents. Population education is only a recent innovation and not much experience has been accumulated in any part of the world.
Studies leading to the development of suitable curriculum in population education is an important area of research. Though much research has not been done yet available related literature was consulted.

HYPOTHESIS

The following hypothesis have been formulated for the present study:

1. People are not aware regarding a continuous increase in population.

2. Clarification of population education concepts are a felt need for the higher secondary school level students.

3. A desirable population curriculum enables the students to achieve self direction and contributes to the betterment of human life.

4. Population education makes the student realise the importance of population problems.

5. Knowledge of population dynamics requires a desirable attitude of the learner.
DESIGN OF THE STUDY:

The present study adopted survey cum experimental method.

<table>
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<tr>
<th>STUDENTS</th>
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<th>PARENTS</th>
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EXPERIMENTAL GROUP

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CONTROL GROUP

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SAMPLE OF THE STUDY:

The sample of the present study consisted of 900 subjects classified into following four groups:

1. The Boys student henceforth mentioned as GA (Group A) 250
2. The Girl students henceforth mentioned as GB (Group B) 250
3. The Teachers henceforth mentioned as GC (Group C) 200
4. The Parents henceforth mentioned as GD (Group D) 200
5. Experimental Group GEA & GEB 100 each
6. Control Group GFA & GFB 100 each

The students from the urban and rural areas of two districts Patiala and Ropar formed the unit of randomization.

Tools used

For the present study, an objective type awareness test, a knowledge and an attitude scale developed locally by the investigator for the students, teachers and parents has been used for the collection of data.

An objective type awareness test coded as Test-I comprised of 30 statements. It had both positive and negative statements. Each statement was followed by the response column namely: True T/ False F.

Each subject was supposed to tick mark only one response for each statement. Scoring was done by assigning numerical values as follows:

- True 2
- False 1

30 statements carried scores as

- $30 \times 2 = 60$
- $30 \times 1 = 30$
A knowledge test, called multiple choice test was coded as Test-II in the present study. It comprised of 15 statements.

It had both positive and negative statements. Each statement was followed by the response column (a) (b) (c) (d).

Scoring was done by assigning numerical values as:

<table>
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<tr>
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<tr>
<td>b = 3</td>
<td>2</td>
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<td>c = 2</td>
<td>3</td>
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<tr>
<td>d = 1</td>
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</table>

15 Statements would carry score as follows:

15 x 4 = 60
15 x 3 = 45
15 x 2 = 30
15 x 1 = 15

An attitude scale coded as Test-III consisted of 20 statements. Each statement was followed by the response column namely Agree: Undecided and Disagree. Scoring was done by assigning numerical values as:
The scores of Test-III were also used as pretest scores for the selection of experimental and control group.

VALIDITY :-

The first draft of test had 100 items. These were referred to experts for their opinions. Only those items were retained which had 100% agreement. After checking the draft was left with 65 items only. The selected items supported the content validity of the tool.

RELIABILITY :-

To find out the consistency of scores reliability was calculated by split-half method. It was .64 which showed the test was a reliable measure.
COLECTION OF DATA:-

The investigator herself visited various schools of Patiala and Ropar districts to contact students, teachers and parents for collecting data. The purpose of investigation and instruction were explained to the respondents. No time limit was fixed for the administration. Yet the subject took 20 to 25 minutes. Experimental and control groups were selected on the basis of Mean Scores. Experimental groups were taught the content portion of the developed curriculum model and then post test was administered.

The data collected has been processed statistically. Frequency polygons have been drawn for Awareness, Perception of knowledge, understanding and attitude of students, teachers and parents. Mean, median and standard deviation have been calculated. Percentages have been worked out to find out the degree of Awareness, knowledge and attitude of students, teachers and parents. t-ratios have been computed to see the difference in awareness, Perception of problem and attitude of control and experimental group as shown in Table I to XXI.

Conclusions

On the basis of the results of this study, the following conclusions have been drawn:-

1. The first hypothesis that people are unaware about a continuous increase in population proved to be true as degree of awareness assessed shows that 50% of the GA
32% of GB, 35% of GC and 28% of GD were aware whereas 50% of GA & GB 37% of GC & 48% of GD were totally unaware and 20% GA 18% GB 29% GC 25% GD of the sample population had a neutral viewpoint (Table-VI).

2. The second hypothesis that clarification of population education concepts are a felt need for the Higher Secondary School level students proved to be true as less than 50% of total sample of GA, GB GC and GD were having knowledge. Knowledge related to the basic needs of survival such as food, employment, housing and so on, and that, the problem of unemployment would increase with the rapid increase in population. (Table-VII).

3. To know the reactions of students, teachers and parents towards problems of population education and introduction of population education in the schools of Punjab at higher secondary level results of Test-III showed that GA 41% GB 18% GC 38% and GD 38% had positive attitude. (Table-VIII).

4. The mean differences between experimental groups GEA and GEB and control groups GFA and GFB, the data pertaining to the change in attitude towards population situation showed marked differences. It has been found that the mean differences between the experimental and control group in case of GA & GB is 7.35 and 10.85. It showed, there has been a favourable change in knowledge,
perception and attitude of GA, GB towards population issues which has been graphically represented by polygons. (Table XX, XXI) Fig. XI XII.

5. These findings in a way substantiate the hypothesis of desirability of inclusion of population education curriculum to help the students to achieve self direction and contribute to the betterment of human life. Thus the objective of development of curriculum for high and higher secondary school students has been achieved.

6. The statistically significant mean differences between experimental and control groups determine the suitability of content portion and evaluates the effectiveness of the curriculum in terms of resultant change in the knowledge, understanding and attitude of GA and GB which are in accordance with the objective of the study and proved the hypothesis that population problems make students realise the importance of population education.

7. The teachers and parents showed a significant difference of opinion in their attitude. The teachers had a more favourable attitude rather than parents. As such teachers especially trained should be involved in imparting formal education to make them understand the problems of population growth.
8. There has been a highly significant change in the attitude of GA and GB towards population issues after the training in population education. This shows knowledge of population dynamics requires a desirable attitude of the learner, which means topics on population education should be dealt in such a way that children may not feel that they are going to be examined which is bound to happen when population education is integrated with scholastic subjects.

CURRICULUM MODEL:

Ever since the inception of national population Education project in India, a number of activities in respect of curriculum and materials development in population education have been conducted at the national and state level with a view to facilitate effective integration. The process started with the development of population education: a draft Syllabus by national Council of Educational Research and Training in 1971. This was followed by Identification of plug points for population education contents into the on going Syllabi and text books. However, the systematic evaluation of curricular and textual materials on population education undertaken by NCERT in 1984 brought forth limitations of the material being used:- (1) Population education contents are spread very thinly in too many subjects. 2. Students therefore, are not exposed to all dimensions of population education contents in a Systematic
and comprehensive fashion. 3. Integrated population education contents either have population bias or subject content bias. 4. There has been a dilution in the population education contents rendering the textual materials not so effective.

The alternative remedial source to make the curricular and textual materials on population education more effective is to introduce population education as a separate subject. At this juncture the stipulations made in National policy on Education (1986) specifying "promotion of observance of small family norm" as one of the goals of education system, the policy document has identified ten core curricular areas half of which are concerns of population education. These are (i) equality of sexes; (ii) protection of the environment (iii) removal of social barriers (iv) observance of the small family norm; and (v) inculcation of scientific temper.

All these core areas have formed the basis for selection of minimum essential ideas and contents of population education. On the ground work of different curriculum models given by Tyler (1949), The Hilda Taba Model (1962) called Grass roots Rationale, Saylor and Alexander Model (1974), Goodlad Model 1966:- Learning opportunity, Organizing Center, Hunkins Development Model (1980), the basic components considered in developing curriculum of population education were based on Educational purposes they were;

1. To develop an understanding of the components of population growth, determinants of fertility and mortality in India.
2. To develop an understanding of biological factors and phenomenon of human reproduction and parental care which are responsible for the continuation of species.

3. To understand the impact of increase in population on natural resources and the need for conservation.

4. To develop an understanding for the need for balance in nature and the effect of rapid growth in population in disturbing the balance.

5. To develop an awareness of population policies and programme of their country and other countries. The process of identification of minimum essential ideas and contents was initiated with the selection of major themes that might help in the realisation of the objectives of population education in particular and the pronounced objectives of National Policy on Education (1986) in general.

The following major themes have been identified:

1. The population growth (Determinants and Demographic situation).
5. Factors impeding the solution of population problems.
The content Areas include Economic & Social development, Environment & Resources, family life, Health & nutrition, Demographic Implications.

The contents have been outlined in a specific format which contains conceptual structure, related core curricular areas. First of all, essential ideas of population education have been placed under the column conceptual structure and stated in the form of generalisations. The related core curricular areas identified in the national policy on Education (1986) have been specified in respect of each major idea. Suggestions have also been made to develop Supplementary reading materials and audiovisual materials followed by Evaluation after the post test.

The theme population growth covered the following Areas:

1. Basic demographic concepts processes and methodologies
   a) Static description of the population situation at micro and macro level.
   b) Population change.
   c) Determinants of population growth.

2. The consequences of Population growth
   a) Economic development and population growth.
   b) Social development and population growth.
This area was taught with the following objectives:

1. To develop an understanding of the components of population growth.

2. To develop an understanding that population increases due to birth and decreases due to death.

3. To develop an understanding that improved health measures, hygiene and new knowledge in medicine have decreased death rate.

4. To know the impact of growing population on the socio-economic structure and on agriculture and industry.

5. To understand that population growth leads to unemployment.

6. To inform the learner about the different social causes of population growth and its consequences.

The area covered the following contents:

1. Population situation in India and its impact on development which clarifies the concept. Demographic features denotes the level of development of a nation.

2. Birth, Death, Migration and the family size. Birth rate, death rate, infant mortality rate and growth rate etc., to clarify the concept that family size plays a vital role in regulating population growth.
3. Improvement in health measures and its impact on lowering of birth rate, for having a planned population, it is as important as to reduce death rate and infant mortality rate as to lower birth rate.

4. Growing population, unfavourable man-land ratio, low agricultural production, sharp increase in labour force, impact on industrial production to impinge the concept Rapidly increasing population lead to lower productivity.

5. Population growth and unemployment, problems of unemployment, low efficiency of labour and economic disparities to form a concept that growing population was largely responsible for the continuing imbalance between job seekers and available job opportunities.

6. Population growth and challenges, its impact on various sectors of national economy, effect of population growth on civic life and the community, local government and the prevailing socio-economic problems, illiteracy, status of women and the like with a concept - unplanned population growth leads to social disorders.

The Second theme - Biological Factors: Family life and Population covered the following Areas:-

2. Human reproductive system as a basis for understanding human.

3. Family life Education.
   a) Population and family size.
   b) Physiological aspects of human sexuality.
   c) The reproductive process.

4. The Pollution of water and air.

This area covered the following objectives:

1. To recognize that rapid growth of population affects quality of life.

2. To identify the environmental hazards like air-water pollution and learn the ways and means to control them.

3. To inform the learner the importance of nutrition.

4. To identify the signs and nature of malnutrition.

5. To develop an understanding of biological factors and the phenomenon of human reproduction and parental care which are responsible for the continuation of species.

6. To help the learner to gain idea of the need for planned family life.

The content portion and the concepts clarified were

1. Sanitation, Family size and clean surroundings, good
health practices and hygienic habits, balanced diet, dangers of ecological imbalance clarified the concept observance of health practices and hygienic habits leads to better life. Secondly the environmental sanitation has a vital role in improving the health of human beings.

2. Family size and status of health and nutrition of family members. Causes and nature of malnutrition to understand proper spacing in bearing the child and nutritious diet ensures good health, quality of food ensures better quality of life, undernutrition and malnutrition are major problems that challenge the survival of population.

3. The anatomical and functional aspects of male and female reproductive system to clarify the concept that reproduction is a natural phenomenon of life process. Plants and animals maintain their populations by reproduction.

4. Education and Status of Women that an educated mother is in a better position to ensure the small size of family and its well being.

5. Family planning is the means of limiting the family size to maintain balance between resources and environment.

6. Social, economic, cultural, health, educational, psychological and demographic consequences of early marriage to motivate that marriage at proper age is
crucial for the well being of family and society.

III. Population Problems:

This theme covered the following areas:

1. Meaning: its origin and importance.
4. Population problems in respect of developed and developing countries.
5. Problems of over-population.
8. Educational Problems.

This area outlined the following objectives:

1. To impart knowledge about the need of maintaining balance between the nature and human society.
2. To inform the learner about the importance of conservation of soil in the man's life cycle.
3. To help the learners be inspired of the need for the control of the over-growing population in India.
4. To help realise various problems of population growth.
5. To know that rapid population growth has adverse effect on the economy of the country.
6. To understand that increased population effect the quality of Education.

7. To inform about population Statistics, nature of growth, characteristics and its distribution.

The content portion which made the concept cleared were

1. The dependence of human society on natural environment A very special trend of human society is to win over the nature and to control it in order to utilise it, in the man's benefit.

2. The influence of Cumulative population growth on the natural environment and as a result the indiscriminate use of natural wealth and its consequences which is held responsible to a great extent for the deterioration of natural environment.

3. Man is an integral part of eco-system. Unimaginative interference of man with environment and dangers of ecological imbalance.

4. Renewable and non-renewable resources, excessive use, localisation of industries and impact on environment which conceptualise the necessity of maintaining the balance between nature and human society.

5. Comparative discussion of population of developed countries of the world like USA, UK, Australia, Japan
with those of developing countries of the world e.g. Indonesia, Phillipines, India and Bangladesh to give an idea that population of the developing countries is more in comparison to that of developed countries and its main factor is illiteracy.

6. Large barriers caused by present population situation that has stood in the way of socio-economic progress of India, that the Socio-economic progress of a country is hampered if there is an over-proportionate population with respect to area and wealth.

7. Positive values promoting emotional and material security - Traditional and Socio-cultural values which promote large family size are obstacles of social development.

8. Population size, rapid growth and its impact on share in national income and resultant problems to give an idea that Rapid increase in population is a major threat for low per capita income and inadequate supply of goods and services.

9. Qualitative improvement in education versus phenomenal growth in number i.e., status of population education and to improve the quality of education.

10. Population growth and its impact on urbanization, Migration from rural to urban areas creates Socio-economic, cultural and emotional problems.
IV. SOLUTION OF POPULATION PROBLEMS:

Areas covered were

1. Family Planning.
2. Economic Development.
3. Social system.
4. Planning to cope with the problems of urbanization and population growth.

OBJECTIVES:

1. To help the learner to gain idea of the need for a planned family.
2. To understand that size and structure of family is determinant of Natural Resources for economic development.
3. Unplanned population growth leads to social problems and disorders.
4. To inform the learner about the causes of variation, of influence, of the population, of a place.
5. To gain idea on the causes of influence of population of a place.
6. To determine the formula for population flow of place.
Suggested outline of contents and concepts:

1. Responsibilities of the parents in the welfare of family by introducing importance and methods of family planning which is a means of limiting family size, so that resources and environment could be balanced.

2. Population growth, its causes and impact on economic development to outlay increased population creates economic problems.

3. Nurturing human resources - an effort towards planned development i.e., planned population growth leads to rational utilisation of resources and improvement in quality of life which cause harmonious equation among man, resources and environment.

4. Population growth and urbanization, problems of slums, Migration and urbanization, Migration and labour force in agriculture and industrial sector.

5. Discussion on various reasons of population flow from one place to another. The needs, housing, services, business facilities for dwelling, opportunities for education. Thus the population grows in a place where facilities are available.

6. Cause of migration from villages to cities, to other countries, temporary and permanent migration.

7. Methods of determining the formula for population flow.
Where $A$ is Population Plan.

$PO \times PD$  

$A = \frac{x}{D}$  

$PO$ is population of a place.  

$PD$ is population of destination.  

$D$ is distance.

V. FACTORS IMPEDING THE SOLUTION OF POPULATION PROBLEMS:—

Area Factors effecting Solution of Population Problems

OBJECTIVES:

To understand the factor which causes hindrance in the solution of Population Problems.

The contents and concept underlying was:

1. Values as preference for male child, child as an economic asset; more children for old age security, values adversely effecting status of women, values promoting early marriage, child as a gift of God and the like i.e., Socio-economic and cultural values are the factors impeding solution of population problems.

2. Equality between daughter and son; Equal participation of male and female members in the decision-making in the family; importance of education of girls; status of women; Education, economic independence, empowerment and its impact on demographic situation to clarify the
concept that no society can achieve the goal of solving population problems unless its population has access to education.

VI. POPULATION PROGRAMME:

Area
Population Policies and programme,

OBJECTIVE:

1. Better community health services help in promoting the general health of the people.

2. The different non-governmental community organizations try to create healthful environment in the community.

Contents and concepts outlined as

Functions of

1. Different agencies of health which are responsible for maintaining community health to get knowledge of community health services like primary health care centres, health workers and doctors.

2. Population growth and pressure on civic and hospital facilities, proper utilisation of health facilities which forms a clear image of how large and growing population puts a great strain on available health facilities and services.
3. Essential measures taken by Government and other agencies to conserve and improve the environment to conceptualise that conservation, protection and development of environment is a collective responsibility.

EVALUATION:

Students understand that:

1. Population education deals with population growth as a phenomenon for taking rational decisions about family size and national population policies.

2. Population of India has been growing at a fast pace, its growth rate being about the world’s average.

3. Better health facilities have resulted in bringing down the death rate and greater expectancy of life, the birth rate continues to be almost the same.

4. The growth of population is due to the gap between the birth rate and death rate.

5. The average family size has a positive correlation with the total population of a country and its resources.

6. The importance of family, its need and role of each member.
7. Responsible parenthood through planned families provides maximum well being for every member of the family.

8. Population explosion has hindered the growth of literacy and overall quality of education.

9. Lack of proper and adequate training facilities in relation to population size have a tendency to lower the efficiency or productivity of manpower.

10. Rapid growth of population adversely affects the economy of a developing country.

11. Over population has a tendency to lower the economic productivity and social efficiency through unemployment and underemployment.

12. For solving population problems a world wide effort is needed.

13. India is one of the few countries to launch officially a vigorous family planning programme.

14. Teachers are important agents in bringing about awareness of population problems, in bringing about social change, development of social attitude among children and community towards this social and biological phenomenon i.e., to make them understand the consequences of over-population resulting in unemployment and underemployment, effects on food supply, clothing, housing and education etc.
15. Equal participation of women and men in the decision making process at various levels and providing women with opportunities for education and economic independence will ensure qualitative improvement of society.

16. Unplanned urbanization as a result of continuous exodus of rural people to urban centres puts strain on infrastructural facilities and creates slums which lead to social evils.

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