India has had its own civilization built on preexisting folk and regional cultures, showing a fine continuum. The basis of this continuum are hierarchy and transcendence. In the struggle for survival, certain patterns of behaviour and outlook emerge. In course of time, they become customs and traditions. Structural changes in the educational system may be necessary in order to match it with development and employment opportunities. It is paradoxical that there should be serious unemployment among the educated side by side with acute shortage of trained manpower in several sectors which leads to youth unrest and social tensions. Both qualitative and quantitative aspects of the educational system are important.

Education is the important means of personal enrichment as well as social and economic advancement. From the national angle it produces informed and educated citizens who contribute to the effective working of those institutions which bring economic and social development of the country. It inculcates appropriate attitudes, skills and personality traits among the people. It supplies a requisite number and quality of persons needed for production. Thus education plays a crucial role in economic development and social modernisation. But it has to be planned so as to relate it to the life's needs and aspirations of the nation.

The real problem is to accept population problem as an unavoidable reality and to plan for it. The vital need for this
is for everyone to realize that the great issues confronting them are population growth, environmental pollution, urban blight, mass illiteracy, hunger, malnutrition, diseases, social unrest, drug abuse, unemployment, poor housing and transportation. The existing problem is of such dimension that it would be almost impossible for the government to cope with it in a short span of time, even if the population were to be held constant for another decade. A Ford Foundation study sums it up as a herculean task. Unless efficient and effective steps are initiated soon to augment the various physical resources - expansion of education to include population education will receive a serious set back. According to Bernold Berelson's (1974) among the great problems on the world agenda is the population problem. This problem is most urgent in the developing countries where rapid population growth retards social and economic development and there is a time penalty on the problem in the sense that other things remaining equal, anything not done sooner may be harder to do later, due to increased numbers, and accordingly everything that can properly be done to lower population growth rates should be done now. Population explosion is a critical stage reached in the rapid growth of population. The school which is an epitome of society, cannot afford to ignore this crisis in human history. The ultimate aim of population education in school is to make children aware of the situation with regard to the existing population and its fast rate of growth, to make them realize that many of our present day difficulties are the results of an unchecked growth of population and to develop in them
willingness to do their best, when they grow up, with regard to population situation in the country so that every human being born here can have a better opportunity to enjoy a better quality of life. Thus population education is an investment in ideas, time, energy and money with a hope for a better future. The children who are receiving population education today will be judged by their behaviour only after 10 to 15 years.

Although to a great extent, some concepts of population education are integrated in school subjects like geography, economics, civics, languages and sciences, yet this integration has been only at the cognitive level. Through the study of these subjects, children are made aware of the problems created by the steep rise in population in this country. It is a well known fact that cognitive information does not always lead to the desired change at the affective level leading to modified behaviour. The integration in population education has to be beyond the verbal cognitive level, at the level of feelings an individual, not only becomes aware of a problem but also gets anxious and becomes committed to do something to solve it. This brings an important question should population education be dealt in isolation or to develop an integrated outlook in teachers and students to study into the root cause of social problems, including that of rapid population growth, and try to solve them in realistic manner.

The ultimate object of population education is to create in children a sense of social awareness and social responsibility with respect to the population situation in the
country. Without awareness they may remain totally cut off from this problem in their environment, and remain without a sense of responsibility. It is not possible to create awareness about a single problem in isolation in an area where all problems are interrelated. The problem of increasing population is a serious one and students should certainly be made aware of it. But it can not be viewed in isolation. The problem of population growth is directly linked with the economic and educational level of people, Status of woman, system of social security in the society, the environmental situation, level of productivity and the value system.

There are three aspects of human personality related to the areas of doing, knowing and feeling. Integrating concepts of population education with scholastic subjects is not enough as it takes care only of the domain of knowing. The area of feelings, the affective domain, remains totally neglected in educational programmes. And yet, it is this domain that has to be touched if population education programme is to be really made effective.

DEFINITION OF THE PROBLEM:-

The present study aims to assess the awareness of students, teachers and parents towards introduction of population education in schools and to develop a desirable curriculum to cover population problems. Specifically speaking, the study is named as "population awareness of the higher secondary school students in Punjab and a desirable curriculum to cover population problems."
The main objective of a population education course for any educational system would be to give the students an awareness and a broad vision about the relationships between population and development. This could be developed at the microlevel that is the family level and at national level or even international level.

OBJECTIVES OF THE STUDY:-

The following objectives have been formulated for the present study.

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

2. To know the reactions of students, teachers and parents towards the problem of population increase.

3. To develop a required curriculum in population education for Higher secondary school students.

4. To determine the suitability of the content portion of the developed curriculum 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.
HYPOTHESIS OF THE STUDY

The following hypothesis have been formulated for the present study.

1. People are not aware of the continuous increase in population.

2. Clarification of population education concepts and a felt need for the Higher Secondary school level students.

3. A desirable population education curriculum enables the students to achieve self direction and contribute 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:

Realising the nature, need and importance of the data, the present study was designed as such to bring data which must enable the researcher to find out the awareness and degree of awareness of the students, teachers and parents towards the introduction of population education in High and Higher secondary school students of Punjab and the effectiveness and desirability of the curriculum which was developed keeping in view the problems of the increasing population.
The present study is based on survey-cum-experimental method and proceeds as follows:-

SAMPLE:-

A sample is a smaller group which represents all the characteristics of the population. The basic purpose of research is to make observation of the selected sample, the results of which may be applicable to the population.

In the present study incidental-cum-purposive sampling method has been used as it happens to be most convenient. The state of Pun'jab has 13 districts out of which only two districts, Patiala and Ropar were selected. This was done because in Patiala and Ropar districts literacy level is high as per census (1981) as compared to other districts. Secondly, the investigator being employee of the Patiala district and the School Board office situated in Ropar district and having cordial relations in collecting the data.

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

1. The Boys students 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
   TOTAL 900

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5. Experimental Group GEA and GEB 100
6. Control Group GFA and GFB 100

The schools from the urban and rural areas of two districts of Punjab formed the unit of randomization. The list of these schools is attached (Appendix :).

THE STUDENTS:–

Group A consisting of 250 boys and group B consisting of 250 girls which were drawn from Government Boys and Co-education schools representing the rural and urban areas of Patiala and Ropar districts of Punjab. The technique for selecting the rural and urban school students was random sampling drawn by lots. Twenty students (twenty boys and twenty girls) were selected from each school. They are coded as GA (Group A) and GB (Group B) in this study.

THE TEACHERS:–

The third Group C consisting of 200 teachers of the institutions i.e., high and higher secondary schools. This group is coded as GC in this study.

For selecting this group, the cluster sampling technique was employed to select one out of the two senior teachers' group teaching humanities, science and maths. This made a draw of 200 school experts, 100 from village schools and 100 from city schools.
THE PARENTS: -

Group D consisting of 200 parents. This group is coded as GD in this study. These subjects represented the population of rural and urban areas of Patiala and Ropar districts of Punjab. Though, it was decided in the beginning that parents of all the students would be taken as subjects but at the time of the study parents of only 200 students could be contacted: (1) due to their non-availability at the time of the study. (2) some of them also expressed their inability to spare time for this study on account of other commitments and (3) some of the subjects of GD were literate and expressed their helplessness to respond.

In addition, it may be pointed out that these groups are believed to give their opinions based on their different experiences and background.

THE EXPERIMENTAL GROUP: -

Group E and Group F consisting of 100 subjects of GA and GB respectively. This group coded as GE and GF in the present study.

For selecting this group, the Attitude test (Pretest) was given to all the subjects. One hundred boys and one hundred girls were assigned to the experimental group, GEA and GEB.
THE CONTROL GROUP:-

Group F and F consisting of 100 subjects of GA and GB respectively. This group coded as GF and GF in the present study.

The subjects were selected on the basis of pretest (Test III) scores. One hundred boys and one hundred girls were assigned to the control group as GF and GF.

<table>
<thead>
<tr>
<th></th>
<th>CONTROL GROUP</th>
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<tbody>
<tr>
<td></td>
<td>GEA</td>
<td>GFB</td>
</tr>
<tr>
<td></td>
<td>GEB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Above Mean Below</td>
<td>38</td>
</tr>
<tr>
<td>24</td>
<td>Mean mean</td>
<td>24</td>
</tr>
<tr>
<td>38</td>
<td>Above Mean Below</td>
<td>23</td>
</tr>
<tr>
<td>23</td>
<td>Mean mean</td>
<td>23</td>
</tr>
<tr>
<td>54</td>
<td>Above Mean Below</td>
<td>54</td>
</tr>
<tr>
<td>23</td>
<td>Mean mean</td>
<td>23</td>
</tr>
</tbody>
</table>

Consequently, it is assumed that the students belonging to these different regions in the two districts will have differential awareness, knowledge and opinion towards population problems, population education and sex education and more so in relevance with their socio-cultural milieu and developmental levels. Again one, would expect that within each region, because of socio-cultural differences, the social psychological make up of the students, differential socialisation patterns within the family and outside, differential treatment of parents towards boys and girls within the family and openness shown by teachers towards the students.
in discussing the population and sex problems will influence their attitude towards population problems and population education.

TOOLS USED:-

For collecting new and unknown data required for the study of any problem, one may use various devices. The instruments thus employed as means are called tools. Best (1975) defines tools as 'like the tools in carpenter's box, each research tool is appropriate in a given situation to accomplish a particular purpose.' Under the normative survey method a variety of tools are used i.e., Interview, Inventory and Questionnaire etc.

After a careful review of available literature, for the present study, an objective type awareness test, a knowledge and an attitude scale were developed locally by the investigator herself for students, teachers and parents. It comprises of:

TEST-I

True and false type Awareness test coded as Test-I. In order to ensure a proper understanding of all the questions and to gain a proper insight into the awareness of the respondent some suitable literature on the subject was consulted. Test-I comprised of 30 statements. They were developed to cover all the aspects of population. The schedule for students had questions related to their perception of the population problem in Punjab, India and World in general, aims of population
education to promote quality of life and develop a responsible parenthood among the students. The schedule for teachers and parents had questions pertaining to the population situation, population problems, sex education, and population education. It has both positive and negative statements. Each statement has been followed by the response column namely True/False abbreviated as T/F.

Each statement represented a specific aspect for or against new pattern of education. There were positive and negative statements, each statement stands for a single unit. Each subject was supposed to tick mark only one response for each statement.

Scoring was done by assigning numerical values as follows:-

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>2</td>
</tr>
<tr>
<td>False</td>
<td>1</td>
</tr>
</tbody>
</table>

30 statements would carry scores as follows:

\[
\begin{align*}
30 \times 2 &= 60 \\
30 \times 1 &= 30
\end{align*}
\]

**TEST-II**

A knowledge test, called multiple choice test coded as Test-II in the present study. It comprised of 15 statements.

The schedule was, statements related to basic needs of survival such as food, employment, housing, poverty, perception of increased population as a serious problem i.e., knowledge of
They were framed to cover almost all the aspects of population education. It has both positive and negative statements. Each statement has been followed by the response column (a) (b) (c) (d).

Best (1975) says, 'The actual likert scaling technique assigns each position a scale value starting with a point of view all statements favouring this position would be scored:

<table>
<thead>
<tr>
<th>POSITIVE STATEMENT</th>
<th>NEGATIVE STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>a = 4</td>
<td>1</td>
</tr>
<tr>
<td>b = 3</td>
<td>2</td>
</tr>
<tr>
<td>c = 2</td>
<td>3</td>
</tr>
<tr>
<td>d = 1</td>
<td>4</td>
</tr>
</tbody>
</table>

15 statements would carry scores as follows:

- $15 \times 4 = 60$
- $15 \times 3 = 45$
- $15 \times 2 = 30$
- $15 \times 1 = 15$

**TEST-III**

Attitude scale coded as Test III consisted of 20 statements. The schedule was to find out the degree of intensity with which the respondent holds his/her views relating to population problems. The items in the test were either fact based or reason based. It, therefore, seeks to measure the memory as well as the discriminating ability of the
respondent based on reasoning.

Apart, this, there are number of statements based on the theory of overt responses which clearly reflect the respondents beliefs and concerns towards population problems.

CONSTRUCTION OF ATTITUDE SCALE:-

Thurstone and Likert gave important criteria for the construction of an attitude scale. Thurstone's method is complicated, time consuming and lengthy. According to this we have to go through the procedure of getting the judgement of many judges on 11 point scale for the selection of items statistically. Comparatively Likert Scale is less time consuming more simple and easier to apply in the development of opinionnaire than in the method given by Thurstone. Likert's approach is more empirical because it deals directly with respondent's scores rather than through the media of judges. Thurstone Scale requires much labour and time for its construction so the investigator employed Likert technique. Each statement has been followed by the response column namely: Agree, Undecided and Disagree. For the convenience of the respondents, responses were abbreviated as A/U/D and were written accordingly in a systematic order. Scoring was done by assigning numerical values as:

<table>
<thead>
<tr>
<th>POSITIVE STATEMENT</th>
<th>NEGATIVE STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = 3</td>
<td>1</td>
</tr>
<tr>
<td>U = 2</td>
<td>2</td>
</tr>
<tr>
<td>D = 1</td>
<td>3</td>
</tr>
</tbody>
</table>
20 statements would carry scores as follows:

20 x 3 = 60
20 x 2 = 40
20 x 1 = 20

If the score was more than the mean score the attitude was counted as positive and if it was found less it was negative and a score equal to mean represented a neutral viewpoint.

Covering page of the questionnaire included mainly the instructions and aims of the present study. The questionnaire was written in two parts. The first part included department of the investigator. The second part covered the bio-data of the respondent as Name, Age, Gender, Name of the Institution, Professional Experience, Number of Children if married, Marital Status and Orientation towards population education.

In all it consisted of 65 statements.

VALIDITY:

Items selected and included in the test are from the broad spectrum of population education. These cover the meaning, objectives, scope and various dimensions of population education. As such there are items and statements on demographic facts and processes, health and hygiene, determinants and consequences, manpower and productivity, traditional and modern role of a woman.
The first draft of the 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.

COLLECTION OF DATA:

The investigator visited various schools to contact students, teachers and visited homes to contact parents. Each subject was supplied one copy of each test. 900 copies of test were distributed among GA, GB, GC and GD.

All the respondents were told the purpose of the study and were requested to give responses. The instructions related with the procedure of giving the responses to the statements written on the first page of questionnaire were explained as they were requested to go through the latter thoroughly before answering any statement given in the questionnaire. The subjects were further requested not to leave any statement unanswered. They were given assurance that the information sought will be kept strictly confidential and will be used only for the purpose of the study.
It took nearly 20 to 25 minutes to fill a single schedule, sometimes even more in case of parents and teachers when they started discussing various issues.

Most of the times, the students and the teachers were busy with their classes and could make themselves available only in their free hours. The parents of the students could be contacted in the evenings only.

On the whole, the students were keen in answering some questions more eagerly than the others. However, a few of the students were not able to give exact information of the socio-economic background of their parents. However, there is nothing to suggest that the information given by the respondents was not to the best of their knowledge.

STATISTICAL TECHNIQUES USED:

The following statistical techniques have been used to process the collected data.

Frequency distribution was worked out for the overall scores on Test I, Test II, and Test III of GA, GB, GC, and GD.

GRAPHICAL REPRESENTATION OF THE DATA:

Frequency polygons were prepared to represent the data in a graphical form.
MEASURES OF CENTRAL TENDENCY:

like Mean, median were worked out of the total scores and also of the variables.

MEAN:

Formula for mean:

\[ \text{A.M.} + \left( \frac{-\text{Efx'}}{N} \right) \times 1 \]

MEDIAN:

Formula for median:

\[ L + \left( \frac{\text{N}(\text{---} - \text{cF})}{2} \right) \frac{1}{\text{f}} \]

MEASURES OF VARIABILITY:

Standard deviation is the most stable index of variability and usually employed in experimental work and research studies. (SD) is less effected by employing errors.

Formula for SD

\[ \frac{\sqrt{\frac{\text{I} / \text{Efx'}}{\text{N}} - \left( \frac{\text{Efx'}}{\text{N}} \right)^2}}{2} \]

SKEWNESS:

Skewness has been worked out in order to analyse the shape of the frequency polygons.

Formula for Skewness

\[ = \frac{3 \text{ (mean-median)}}{\text{SD}} \]
PERCENTAGES:-

The percentages have been worked out to know the overall view of GA to GD i.e. the degree of awareness for the development of model of a desirable curriculum of population education and to find out the effectiveness of a desirable curriculum.

SIGNIFICANCE OF THE DIFFERENCES BETWEEN MEANS:-

To assess the level of difference of awareness, knowledge, opinion and effectiveness of a desirable curriculum, t-ratio was employed. The difference between means of GA and GB, GA and GC, GA and GD, GB and GC, GB and GD, GC and GD, GE and GF, GE and GF was worked out.

\[
\begin{align*}
\text{SED}_m &= \frac{1}{2} \left( \frac{\text{SEM}_1}{\text{SED}_m} + \frac{\text{SEM}_2}{\text{SED}_m} \right) \\
\text{CR} &= \frac{\text{M}_1 - \text{M}_2}{\text{SED}_m} \\
\text{df} &= \text{Degree of freedom.}
\end{align*}
\]

Difference is significant when CR exceeds 1.96. It will be significant at .05 level of confidence when CR lies in between 1.96 and 2.58. It is significant at .01 level when it is equal to or more than 2.58.

\[
\text{Formula for Df} = N - 1.
\]