POPULATION EDUCATION:
AN INNOVATIVE CURRICULUM PROJECT

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Science in Health Science

by

Chander Kanta Mann

August, 1974
The thesis of Chander Kanta Mann is approved:

Committee Chairman

July, 1974

California State University, Northridge
Dedicated

to the ever loving memory

of

my dear Mother, whose presence

I always felt around me
ACKNOWLEDGEMENTS

The author expresses heartfelt gratitude to the members of her thesis committee and all those who provided physical and moral support and assistance for successfully completing this endeavor.

The author is particularly indebted to Dr. John T. Fodor, thesis chairman and Dr. Wilfred C. Sutton, for their consistent inspiration, encouragement and guidance. She considers herself fortunate in having the invaluable assistance of both of them.

Sincere thanks are acknowledged to Dr. V. Ramakrishana, Assistant Director, World Health Organization, Regional Office for Southeast Asia Region for his invaluable guidance, and Dr. B. S. Sehgal, Health Education Advisor, World Health Organization, Regional Office, Africa, for inspiration to take up this course.

The author wishes to extend her acknowledgement to Dr. S. K. Sandhu, Director, Central Health Education Bureau.

Last but not least, special acknowledgement is expressed to her husband and children, for their continued inspiration; mental, emotional and physical support and
sacrifice; and her father and brother who always prayed for her success and safe return.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>ix</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>x</td>
</tr>
</tbody>
</table>

## CHAPTER

### I. INTRODUCTION.  
1. Nature and Dimensions of the Population Problems  
2. Population Projections  
3. Present Population Control Measures  
4. Future Plans  
5. Purpose of the Project

### II. REVIEW OF LITERATURE.  
1. Need for Population Education  
2. Overview of Population Education Programs  
3. Population Education Program in India  
4. Review of Guides

### III. CONSIDERATIONS FOR THE INCLUSION OF POPULATION EDUCATION IN THE SCHOOL SYSTEM.  
1. National Policy  
2. Educational Goals  
3. Individual and Community Need
IV. NEED FOR INNOVATIVE CURRICULUM PROJECT

Justification for Primary/Elementary Level
Scope of the Innovative Curriculum Project
Planning and Implementation Mechanism
Recommended Innovative Curriculum
Evaluation
Revision and Recommendations

APPENDICES.

A. Evaluation Instrument for Population Education Project: Teacher's Knowledge and Attitudes.

B. Evaluation Instrument for Population Education Project: Student's Knowledge and Attitudes.

C. Evaluation Instrument for Students on Teaching About Population

D. Evaluation Instrument for Teachers on Teaching About Population

E. Yarn Game

BIBLIOGRAPHY.
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Estimated Birth Rates of Different Countries for the Year 1960</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Population Problems in 70 Under-developed Countries</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>India: Demographic Data</td>
<td>9</td>
</tr>
<tr>
<td>4.</td>
<td>Rise in Student Enrollment in India by Age Groups</td>
<td>64</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Distribution of World Population in 1970</td>
<td>12</td>
</tr>
<tr>
<td>2.</td>
<td>Projected Distribution of World Population in 2100</td>
<td>12</td>
</tr>
<tr>
<td>3.</td>
<td>India: Age Distribution Projections, Year 2000</td>
<td>13-14</td>
</tr>
<tr>
<td>4.</td>
<td>Four Projections of India's Population Growth</td>
<td>17</td>
</tr>
<tr>
<td>5.</td>
<td>Planning and Implementation Mechanism</td>
<td>79</td>
</tr>
</tbody>
</table>
ABSTRACT

POPULATION EDUCATION: AN INNOVATIVE CURRICULUM PROJECT

by

Chander Kanta Mann

Master of Science in Health Science

July, 1974

The accelerated growth of human population all over the world is causing great concern and anxiety because it accounts for innumerable interrelated problems. The gravity of these problems is more in developing countries, particularly like India. An attempt, therefore, has been made to develop an "Innovative Curriculum Project in Population Education" for the terminal primary/elementary graders, to be tried out in the existing school system of India.

The aim of the recommended curriculum is to provide the knowledge base and to test the effectiveness and applicability of the project on an urgent basis not demanding much preparation and time. Efforts have been made to put the innovative curriculum in a neat package containing concepts, measurable objectives, specified content

X
outlines, innovative learning opportunities, suggestive evaluation procedures and references on source materials.

The planning and implementation of the package is based upon the well defined steps as follows: (1) Interest and needs of learners; (2) Distinctive features of the body of knowledge; (3) Desired outcomes; (4) Instructional techniques; (5) Social values; (6) Development of the innovative package; (7) Administrative and community approval; (8) Formation of project committee; (9) Field trial; (10) In-service training of teachers; (11) Application of package; (12) Evaluation and (13) Revision and recommendations.
CHAPTER I

INTRODUCTION

One of the most formidable problems facing the world today is overpopulation, or population explosion as many experts would call it. The population problem may be viewed as an ever-growing number of human beings. This accelerated growth of people accounts for numerous interrelated problems. Such problems might include: malnutrition, unemployment, low standards of living, inadequate and sub-standard housing and poor health. As a matter of fact, the growing number of human beings, when compared to the resources required for their effective subsistence, becomes the fundamental cause of all other allied problems; consequently resulting in a vicious cycle. In order to understand the whole gamut of population problems, it is imperative to understand their nature and dimensions.

NATURE AND DIMENSIONS OF THE POPULATION PROBLEMS

To come to the grips with the problem of overpopulation, a first requirement would be to gain an understanding of the nature and dimensions of the problem on
the global level. Philip Hauser, the noted demographer, tried to trace the emergence of this problem. "To begin with, let me remind you that man or some very close relative, has been on the face of this earth for about two million years. Although the first census of mankind is yet to be taken" (28:4). He further says that:

By extrapolation it has been estimated that at the beginning of Christian Era, world population could have been around 200 to 300 million. At the beginning of modern era, about the year 1650, it was about 500 million and today it has grown up to 3.3 billion. This indicates that the rate of population growth has increased from 2 percent per millennium to 2 percent per year at the present time (28:4).

It has been repeatedly pointed out by demographers that, if unchecked, this crucial problem will acquire spurious magnitude in the coming times. This alarming current rate of population growth has acquired global dimensions and concerns. As a result, it has attracted the attention of many national and international agencies. According to the United Nations estimates, world population will increase by 2.4 percent during the period 1970 to 1975 compared with 1.98 percent in the interval between 1965 to 1970 (46:2). This shows world population is increasing and will continue to increase.

The severity of the problem is extremely significant
for the less developed countries, in that 71 percent of the world population lives in these countries, while only 29 percent lives in developed countries. An important factor which accentuates the problem is the composition of the population by age. The high percentage of the population in the younger age groups is highly conducive to increased fertility. The fertility rate is two to three times more than the level needed for replacement in the developing countries. By contrast, in the economically advanced countries fertility is about 20 percent above replacement level and even below replacement level in a few countries; and the age structure is characterized by a smaller proportion of persons in the major childbearing years (46:3). It has also been estimated by the United Nations in their future projections that some 85 percent of the world's population growth will occur in the less developed countries, despite the fact that they are least able to absorb it (36:18).

The major factor for the growing population as pointed out by various demographers, however, is the more rapid reduction in mortality rates than in fertility rates. There is a potential for further reduction in the death rates, and hence still higher growth rates, because life expectancy in the less developed countries of the world is
estimated at 52.4 years, compared with 71.2 years in the more developed countries (for both sexes combined for the period 1970-1975) (46:2). The population division of the United Nations did undertake the monumental task of estimating birth rates for many countries for the year 1960 and these figures are given in Table 1.

**TABLE 1**

ESTIMATED BIRTH RATES OF DIFFERENT COUNTRIES FOR THE YEAR 1960

<table>
<thead>
<tr>
<th></th>
<th>Crude Birth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>35-36</td>
</tr>
<tr>
<td>DEVELOPING REGIONS</td>
<td>41-42</td>
</tr>
<tr>
<td>Africa</td>
<td>48</td>
</tr>
<tr>
<td>Asia (excluding U.S.S.R.)</td>
<td>40-41</td>
</tr>
<tr>
<td>Latin America</td>
<td>41</td>
</tr>
<tr>
<td>MORE DEVELOPED REGIONS</td>
<td>22</td>
</tr>
<tr>
<td>North America</td>
<td>24</td>
</tr>
<tr>
<td>Europe</td>
<td>19</td>
</tr>
<tr>
<td>Oceania</td>
<td>24</td>
</tr>
<tr>
<td>U.S.S.R.</td>
<td>25</td>
</tr>
<tr>
<td>Japan</td>
<td>17 (36:18)</td>
</tr>
</tbody>
</table>

The real potential for growth, however, lies more in the present age-structure, which is the main determinant of fertility level. Differences in age-structure of developed and developing countries are highly marked. Developing countries have a high proportion of child-age population because of high fertility, whereas mortality
has little effect on the proportion of people under age 15, compared with the effects of fertility. According to United Nations Model when fertility is high, the proportion of children to the total population is 41.3 percent; if mortality is high child-population is 47.3 percent; when fertility is low the proportion of children is 25 to 29 percent, regardless of whether mortality is high or low (46:25).

In order to gain a clear insight into the population problem, it would be important to understand the implications and effects of overpopulation. This would include pressures of population on available resources and resultant lowering of standards of living. Raising of standard of living is dependent on economic development of any country; which in turn is dependent upon capital investment. Sufficient capital sources can only come from broad savings (by each citizen) from earning over and beyond what is needed for immediate consumption. In the case of tremendous population growth, these possible savings, instead of going into capital formation, are utilized for immediate consumption by another child, who is usually dependent and non-productive for many years. Thus the income level remains static, spread thinly over more non-productive children, which decreases per capita
income. As a result of lower per capita income, the buying power of people is limited, hence demands for goods are restricted which eventually creates unemployment. "No country can progress, unless per capita income rises much faster than the population growth rate" (45:13). Table 2 highlights some of the important problems stemming from overpopulation, as shown in the development plans of 70 underdeveloped countries (Africa region 26 countries, Asia 21 countries, and Latin America 23 countries).

**TABLE 2**

**POPULATION PROBLEMS IN 70 UNDERDEVELOPED COUNTRIES**

<table>
<thead>
<tr>
<th>TYPES OF POPULATION PROBLEMS</th>
<th>NUMBER OF COUNTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Economic growth reduced by population growth</td>
<td>19</td>
</tr>
<tr>
<td>2. High rate of population growth</td>
<td>18</td>
</tr>
<tr>
<td>3. Unemployment</td>
<td>18</td>
</tr>
<tr>
<td>4. Increasing school-age population</td>
<td>16</td>
</tr>
<tr>
<td>5. High dependency ratio</td>
<td>16</td>
</tr>
<tr>
<td>6. Population pressures on health services</td>
<td>15</td>
</tr>
<tr>
<td>7. Population pressures on social services</td>
<td>12</td>
</tr>
<tr>
<td>8. Population pressures on housing</td>
<td>12</td>
</tr>
<tr>
<td>9. Population pressures on agriculture system</td>
<td>5</td>
</tr>
<tr>
<td>10. Decrease in individual standard of living</td>
<td>4</td>
</tr>
<tr>
<td>11. Population density</td>
<td>3 (65:14)</td>
</tr>
</tbody>
</table>
The two basic ways in which high rates of population growth affect the development process are the high and growing proportion of child population and the rapid expansion of the labor force. As far as the first is concerned, regardless of whether the immediate objective is improved social welfare or industrialization, the present food needs of the children of the developing countries are as important as their educational and vocational needs. The growing number of children of a particular country calls for additional numbers of schools and teachers, which may not be coped with due to limited resources, and the result is likely to be an increase of illiterates. As for the labor force, if the capital resources of the country do not grow simultaneously, matching the growth rate of population, unemployment and underemployment will increase (45:6). Thus, the additional hands mean additional drain on resources and not the increased production.

The Food and Agriculture Organization's World Food Survey of 1963 found that at least 60 percent of the people in the less developed areas are undernourished and that half of the world suffers hunger and malnutrition both. There are more mouths to feed but fewer hands proportionately to produce. If high rates of fertility in less developed areas are not curbed, the crushing extra burden will continue in the next century (47:29).
The population problem is both a global and national issue. Globally, the central concern is survival and involves the equation between physical space, supply of food and other resources, and density of population. At the national level, developed and developing countries face different issues. In developing nations, the raising of living standards depends greatly on optimal growth and size of population. In the developed nations, it is the quality of life. However, anxiety about overpopulation is worldwide (43:519).

Among the developing countries, population problems of India can be quoted as an example. According to United Nations assessment, the world population grows by 60 million every year, of which nearly 15 million occur in India, which means one-fourth of the total growth (4:195). These high rates are the outcome of a number of factors including economic and social backwardness, religious influences, illiteracy, matrimonial customs and poverty. The per capita income of India with a population of 562 million is less than 100 U. S. dollars. Table 3 highlights demographic variables of India and reflects the intensity of population problems.

It has been estimated that population of India is growing by 15 million people every year. "This means if sustained India's population will reach one billion by 1990 or 1995. A country with one-third of the land of United States, packs double the number of people of the United
### TABLE 3

**INDIA: DEMOGRAPHIC DATA**

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972 population estimates</td>
<td>562 million</td>
</tr>
<tr>
<td>1985 population projection</td>
<td>808 million</td>
</tr>
</tbody>
</table>

**Rate per 1,000 population (1971)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>37-39</td>
</tr>
<tr>
<td>Death</td>
<td>15-17</td>
</tr>
<tr>
<td>Natural increase</td>
<td>22 million</td>
</tr>
</tbody>
</table>

**Percentage distribution of population by age**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages (1972)</td>
<td>100</td>
</tr>
<tr>
<td>Under 15 years</td>
<td>41</td>
</tr>
<tr>
<td>15 to 65 years</td>
<td>56</td>
</tr>
<tr>
<td>65 and over</td>
<td>3</td>
</tr>
</tbody>
</table>

**Dependency ratio**

| Ratio         | 79         |

**Density (1972 population per square kilometer)**

| Density | 171 |

**Percent literate (1971)**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Literacy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>39</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
</tr>
<tr>
<td>Age group</td>
<td>+15</td>
</tr>
</tbody>
</table>

**Percent of eligible age group in schools**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Primary school-age group)</td>
<td>(6 to 12 years)</td>
<td>72</td>
<td>40</td>
</tr>
<tr>
<td>(Secondary school-age group)</td>
<td>(13 to 17 years)</td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td>Year</td>
<td>1967 (46:25)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
States, resulting in a density 14 times that of the United States" (28:11). With these alarming rates of population growth and resultant overpopulation, India's problems assume much higher magnitude. According to Lewis:

The urgency that nevertheless attaches to population restraint in India stems in part from the fact that the country is indeed poor. Because it is poor and because of its developmental stage it has reached, its longer term growth prospects as well as the quality and hopefulness of life, meanwhile, will be profoundly affected by the pace at which GNP per-capita moves in the next 10-15 years (38:14).

These estimations and observations should not dishearten those responsible for the future planning of India. In the words of Young, "India too is potentially a nation of greater power than either the United States or Russia. When she finally solves her population problems and gathers enough momentum to change her economic life, the second place in the world powers should be hers" (85:179).

**POPULATION PROJECTIONS**

If the present trend in population growth continues, the world population at the end of this century would be more than double, that is about 7.5 billion persons. The United Nations population projections recently published as 'provisional' have three variants: (1) a high variant producing a population of 6.8 billion; (2) a low variant
producing a population of 5.2 billion; and (3) an inter-
mediate variant producing a population of 6 billion.
These projections are based on the assumptions that the
birth rate in the developing regions will diminish during
the thirty-five years that remain in this century (28:6).
Figures 1 and 2 show the world population by major areas,
actual in 1970 and projected in 2100, if the present trend
in birth rate and death rate continues, and not taking into
account any possible major migratory movements (22:91-93).
Continuing high fertility in India is causing
widespread concern about its possibly higher future levels.
Even if Indian parents were able to alter
drastically their family patterns, so that
by 1985, they were producing enough children
to replace themselves, such is the momentum
of population growth, that the ultimate
population of India would still exceed a
billion. On the other hand if present trends
in fertility and mortality were to continue,
the estimates indicate that the population
of India at the century's end would reach
the staggering level of 1.5 billion (31:2).
The age pyramid of India, Figure 3, shows clearly
that India's population cannot stop growing within this
century, unless there is some natural calamity. Each
year the number of young people who will mature and
become parents is much larger than the number of parents
who will move out of the reproductive years, and larger
than the number of people who will die. It might be
Figure 1
Distribution of World Population in 1970

- East Asia: 25.8%
- South Asia: 29.1%
- Europe: 13.9%
- Africa: 9.2%
- U.S.S.R.: 7.6%
- Latin America: 7.4%
- Oceania: 0.5%
- North America: 0.6%

Figure 2
Projected Distribution of World Population in 2100

- East Asia: 23.2%
- South Asia: 41.2%
- Europe: 6.2%
- Africa: 11.8%
- U.S.S.R.: 3.5%
- Latin America: 10.3%
- Oceania: 0.4%
- North America: 3.3%
Figure 3

INDIA: AGE DISTRIBUTION PROJECTIONS, YEAR 2000

Projected age distribution in the year 2000 if fertility declined to replacement by 1985
Figure 3 (Continued)

INDIA: AGE DISTRIBUTION PROJECTIONS, YEAR 2000

Projected age distribution in the year 2000 if present birth and death rates continue
assumed that population growth would stop if parents have no more than enough children to replace themselves. But here the momentum of past fertility patterns come into play, because of the great bulge of the population now coming into reproductive age (39:22).

The International Demographic Statistics Center of the United States Bureau of the Census has developed a number of computer analyses of Indian population, using several different sets of assumptions, in an effort to see what India's demographic future might look like (31:2). The four assumptions and resulting projections are given below. All four have been developed on the assumption that the migration will be nil. However, life expectancy is presumed to increase by 19 years between 1965 and 2000 for all the four projections, from 49 to 68 years for the males and from 48 to 67 years for the females, and increase very slowly thereafter. The first three series assume that a net reproduction rate of one percent will be reached by 1985, 1995 and 2005 respectively; implying that when these years will be reached, fertility level will be declined to replacement level and will remain there. And the population will become stationary after 65 to 70 years. But the fourth projection assumes that fertility will continue at 1965 level.
**PROJECTION A**: This is most optimistic, indicating that India's birth rate will drop enough to level off by 1985. Indian parents will have only 2.5 children to replace themselves. In order to achieve this, the crude birth rate will have to be brought down to the level of 21.7 per annum. As a result of these assumptions, estimations are that by 1985, India's population will be 724 million; by year 2000 it will be 888 million and by 2040, it will be one billion.

**PROJECTION B**: This projection assumed that replacement level fertility will be reached by India in the year 1995, by having 2.3 children by each family, bringing down the crude birth rate to 20.3. These conditions would result in a population of 790 million in the year 1995; 982 million in the year 2000 and 1.25 billion by the year 2050.

**PROJECTION C**: This indicates that in order to cut down crude birth rate to 18.9 in year 2005, the Indian women should have 2.2 children each for replacement, which would mean 819 million population in 1985; 1.1 billion in year 2000; in 2060 the population will stop growing at somewhere near 1.5 billion.

**PROJECTION D**: According to this projection, the fertility is assumed to remain at the level of 1965, crude birth
FIGURE 4. FOUR PROJECTIONS OF INDIA'S POPULATION GROWTH

A = Replacement level fertility reached by 1985
B = Replacement level fertility reached by 1995
C = Replacement level fertility reached by 2005
D = Fertility constant of 1965 level
rate will also remain at 40-45 range, and Indian women will have an average of 6.1 children each. The projections of the present trend would result in a population of 899 million in the year 1985, and a population of 1.5 billion in year 2000. Beyond this, the projections indicate doubling of population every 25-30 years, leading soon to astronomical figures (31:7).

It is clear from the above projections that if the present trend is allowed to continue without exercising effective control over the fertility level, the population situation will be appalling and chaotic. The multiplicity of problems already confronting India would be accentuated further. Dr. Coale traces the impact of population factors on per capita income by dampening the rate of population increase and reducing the burden of child dependency without major effect on the size of labor force and by the reduction in the growth rate of labor force and lower population density. Reduced birth rate could increase income per consumer by over 40 percent in 30 years, by 86 percent in 50 years and more than 100 percent in 60 years. "After one hundred and fifty years the low fertility," concluded Coale, "would have an income per consumer six times as high as the faster growing population with unchanged fertility" (70:3).
PRESENT POPULATION CONTROL MEASURES

Concern with overpopulation has grown markedly throughout the world in recent years, though it is not the same everywhere. Recognition of the population problem has led several countries to adopt policies or programs aimed at lowering the birth rate. India, Pakistan and Korea were the first three countries in the world to adopt official population control programs in 1952, 1960 and 1961 respectively (45:9). Since then a number of other countries facing the problem of overpopulation also have adopted policies of population control with varying objectives. Based on available information as of mid-1971, 26 nations had family planning policies or programs, 22 other nations provided support, but did not have specific policies, and 57 countries did not have either support or policies (5:2). By population policies, Bernard Berelson implied the governmental actions that are designed to alter population events or that actually do alter them. According to him, this definition contains the three principal features: (1) it refers to actions by government whether statement of position, laws, decrees or administrative programs; (2) it refers to population events; (3) it refers to both intentions and consequences. Clearly some
policies intended to have population effects do not do so and some policies adopted for other purposes do affect population, which may be considered hidden policies (6:173).

Of the 26 countries which have specific population policies or programs, 18 have goals or targets that call for specific declines in the crude birth rate, the population growth rate, or a set of specified number of family planning program acceptors or contraceptive users as targets. Eight others have more general population/family planning goals (1:19). Developing countries with family planning programs have adopted them largely as an instrument of population control policies designed to facilitate social and economic modernization.

The list of countries where family planning programs have proven to be successful is very small. Out of 26 countries with family planning policies, only five countries can be considered to have reached any sizable proportion of the target population. These countries are Korea, Taiwan, Hong Kong, Singapore and Mauritius. The countries reaching 10 to 20 percent of the population are Pakistan, Tunisia, Iran, Malaysia, India, Thailand, Ceylon and possibly Egypt; clearly below 10 percent are Costa Rica, the Dominican Republic, Turkey, Kenya, Nepal,
Morocco, Indonesia and Ghana (45:13). Most of these countries are in the Asian continent. Population policies of Asian countries place the principal emphasis upon efforts to control high birth rates. The net results of these programs have not been substantial. These countries have not neglected the population policies, but what matters more is the overall efficacy of these programs (4:197).

As stated before, government of India's population control efforts began in 1952. It was the first country in the world to adopt positive birth rate restraint as a formal national policy goal. But it was only in 1955 that the program embarked upon the radically more ambitious course (37:15). In 1966-67, the program was made time-bound and target oriented. The program aims at reducing the annual birth rate from 39 (1968) to 25 by 1980-81 (30:102). To implement this policy, a separate department of family planning was established in the Ministry of Health, known as Ministry of Health and Family Planning, in 1966. Under guidelines and appropriations set by this central authority, the states operate autonomous projects. Male sterilization is the major method. A strategy, developed in 1971 to provide mass vasectomy campaigns throughout the country, produced 2.18 million vasectomies
in fiscal 1971-72; the highest ever recorded. In addition to providing services, a program for mass education and motivation has also been undertaken (46:37). However, despite this massive and intensified approach, only 14 percent of the eligible couples in the reproductive age group were covered by 1973 (71:1).

One obvious problem is the difficulty in reaching enormous numbers of people spread over thousands of villages.

Even with optimal planned expansion, the Indian delivery system can cover no more than one-third of the 100 million Indian couples of reproductive ages by the end of present five year plan, i.e., 1974 (37:21).

Suggestions have been made to treble the whole financial, manpower and administrative scale of efforts. To implement the recommendations suggested by the United Nations' team would call for the additional financial resources. Then the question arises, would it be possible for India to make more budgetary allocations for the program of family planning, in the wake of inflation and other important problems calling for urgent solutions. According to a report of Demographic Express (71:1), the government of India in 1973 made a drastic slash in the budget of family planning by allocating only 55 million
as against the demand of 100 million, by the Ministry of Health and Family Planning. It has been raised to 75 million on the protests made both at home and abroad.

FUTURE PLANS

There is no dispute that planning should take into account the consequences of population growth. It is essential in effective planning to prepare for changes in the fertility, age structure, distribution, and rate and growth of population. These demographic changes exert immense impact on the demands for housing, education, employment, health and social services. National and international organizations have shown great interest in the measures to control population growth. The publications of United Nations, Food and Agriculture Organization (F.A.O.) and World Health Organization (W.H.O.) emphasize the increasing numbers and their resultant problems. The activities of Economic Commission of Asia and Far East make the problems of the region apparent at all levels. The Asian population conference of December 1963 was indicative of the increasing concerns of the governments of this region (70:34). Ehrlich noted:

World population will continue to grow as long as birth exceeds the death rate. When it stops growing or starts to shrink, it
will mean that either the birth rate has gone down, or death rate has gone up, or a combination of two. Basically, there are two solutions to this problem. One is a 'birth rate solution', in which we find ways to lower the birth rate. The other is 'death rate solution' in which ways to raise the death rate — war, famine, pestilence — find us. The problem could have been avoided by population control, in which mankind, consciously adjusted the birth rate, so that a death rate solution did not have to occur (18:12).

Until recently, family planning programs (the only population control measures) have been directed towards the eligible couples of reproductive ages. And the number of countries where family planning programs have made a dent is very small. Norman is of the view that "the unsatisfactory results of a program stem more from narrow concepts and self-imposed arbitrary restraints" (45:11). It appears that the observed reluctance of couples in underdeveloped countries to limit their family size is not due primarily to ignorance or to their indifference to hunger, sickness and sufferings, but it indicates that their whole system of social organizations, traditionally geared to unrestricted procreation, needs to develop newer and broader concepts, catering to the demands of the present. Birth rates are still considered to be high in almost all the developing countries with population policies (with the exception of Taiwan, Hong Kong (13:339).
India and Pakistan, the two large countries with the longest programs, have not been able to do much. This has provoked criticism in many quarters that voluntary family planning programs cannot have significant demographic impact and that economic and social changes must occur to bring about overall population changes (45:10).

There is a new realization that the solution to population problems requires measures beyond family planning, for which the health system would not be an exclusively effective channel. A basic problem inherent in family planning programs is the ultimate estimates of the impact of a program of contraception. "Contraception affects fertility by delaying the next conception, thereby shortening the residual reproductive period, when additional pregnancies and births are a possibility. Protected when the woman is fecundable, contraception is useful only to the extent that it is reducing her monthly risk of conception" (59:173). New thinking is being stimulated to find out alternative ways of controlling the population effectively. In an article titled "Beyond Family Planning," Berelson, President of the Population Council, catalogued the range of possibilities. His list included measures like establishment of involuntary fertility
control (compulsion factor), intensified educational cam­
paigns, both in primary and secondary school programs, use
of a national satellite television system for direct dis­
semination of the information, incentive programs, tax and
welfare benefits and penalties, shifts in the roles of
social and economic institutions — such as raising
minimum age at marriage and increased participation of
women in labor force (54:1).

Although the above are an impressive range of
choices, they depend upon public acceptance and support.
The educational approach is an attempt which sounds
realistic as this can be channeled through the already
existing school system and hence does not call upon the
changes in the social system. Secondly, to bring about
any desired changes in any social or economic institutions
in a given society, the educational approach is an ef­
fective medium. Another important factor which goes in
favor of the educational approach is that 40-45 percent of
child population which is neglected by the family planning
programs in the developing countries would be covered by
population education in the school system. An increasing
number of policy planners and educators also have
realized the importance of population education and hence
emphasized the need for an educational approach.
Population education has not been considered as an alternative to a family planning program, but to supplement it on the assumption that the early childhood age is most adaptive to inculcate favorable attitudes towards population control. Burleson stated, "Population education is a promising means of diffusing information about population problems, more pervasively than through the channels ordinarily available to family planning programs. But it is also desirable to produce desired changes in attitudes, behaviors and values in the next generation which is almost here" (8:1).

During the last few years much thinking has been going on as to the nature and content of population education. It has been logically assumed that the schools of a nation can play a vital role in communicating the grave concern of population explosion to the youth in whose hands lie the destiny of the future. The Commission on Population Growth and the American Future recommends the inclusion of development of educational program on family planning, family life, sexuality and population dynamics (32:402). Family planning and population education are not mutually exclusive. Population education may prove to be a useful supplement to family planning efforts. It is hardly an adequate substitute (23:1). The importance and
need for population education is being realized all over the world. Yet very little has been done to actually institutionalize it in the existing school systems.

PURPOSE OF THE PROJECT

Based upon the extensive population problems and their pressure on the individual and society and the potential value of population education as one means of solution to these problems, efforts have been directed toward the development of an innovative curriculum on population education. It is anticipated that this curriculum will be utilized with the primary grade level pupils in India.

It is assumed that the population education course would be most effective if used from grade kindergarten through twelve. However, in the absence of a prerequisite research base in terms of content and materials and evidence of their effective applicability, the magnitude of the development of the total curriculum in a short period of time does not make it feasible to attempt such a task.

Because of the urgency of the problem, educators have expressed the need for brief innovative units to be developed and tried out through application within the existing curriculum. This would help to demonstrate the
impact of population education on the pupils in a short period of time and with less elaborate preparations. In addition, it is assumed that these units also would help in the demonstration of efficacy and applicability of selected content and instructional materials with the idea of their wider application later on by others.

After an extensive review of the available literature, an attempt has been made to develop an "Innovative Curriculum Project on Population Education," for V graders in one of the schools in India as a trial demonstration. The whole project has been divided into four chapters. Chapter I reviews the nature and dimension of population problems globally with special reference to India, including future projections and the present control measures. It is hoped that this will provide broader insight into the whole gamut of problems, their implications and the need of population education in the formal educational system of the country. Chapter II dwells on the worldwide review of existing literature on population education. In addition, this chapter also includes an overview of development and current status of population education programs throughout the world but particularly in India. Chapter III deals with the considerations of population education in the school system from the point
of view of its consistency and conformity with the national policies of India, the educational goals and the individual's and community's needs. The actual package developed in Chapter IV elaborates on the need for the "Innovative Curriculum Project," justification for selecting primary or elementary grade pupils as target group, the scope of the project, implementation plans and evaluation procedures.
NEED FOR POPULATION EDUCATION

After World War II, awareness of growing problems of overpopulation, due to unplanned and uncontrolled population policies, was realized by many countries. But there were no concerted international efforts by governments towards finding a solution of these problems. However, a few countries acted individually to determine their population policies. Most of the countries that adopted these population policies had developed them on a narrow base of family planning programs, limited in scope and coverage, confined to a reproductively active population and aimed at checking reproductive behavior. Still the terms used for these family planning programs give the idea of the scope and dimensions, such as "population control" and "population planning." According to Davis:

Technically they would mean deliberate influence over all attributes of a population, including its age structure, geographical distribution, racial composition, genetic quality and total size. No government attempts such full control (17:731)
Moreover, it is not under the purview of family planning programs to exercise such an influence as it involves consequently a drastic attitude change among the people, either by coercive means used by the government or by deliberately planned evolutionary measures. But the first one is non-democratic and the second one is time consuming. What is needed is a positive approach, one which would bring about desired changes in the basic value orientation of the people. One way of doing this is to generate strong motivation among the masses through education programs. Many eminent planners and educators have voiced their support for the inclusion of population education programs through the formal school system. The purpose of this chapter is to review such literature.

The importance of formal education in the realm of population control has been strongly advocated by various national and international agencies. But so far very little has been done in this direction. Chamberlain stated:

A country's educational system is essential to its technological potential. It is the chief means by which knowledge is communicated to the young including those who will subsequently become its inventors and innovators. It is also the chief means by which habits are disciplined and inquiries are instilled. It is a major method of training people and
inculcating skills. Changes in a country's population both in numbers and locations have their impact on its educational system and through it to its technology (10:73).

This holds very true as demonstrated by the industrialized nations of the west. On the other hand, the educational system has potential to determine the size and structure of the population by influencing behavior patterns of people. It is because of the inherent values of the educational system that people all over the world have great faith in the formal education. Wayland has reiterated the importance of education in one of his articles, by noting that the formal education system has been used as an instrument for bringing about social changes (78:353). It is evident that the education of an individual changes his life styles. He further stated that education systems are more effective in transmitting information and developing specific skills; the transmission of information and the development of skills involve attitude formation as a latent consequence, but some changes may be achieved earlier when deliberately planned. In another article, Wayland reviewed the impact of family planning on the younger generation as a means of building a case for population education in the school curriculum. He observed that priorities in existing programs have been
given to sectors of the population in the reproductive age levels only. In addition, the younger generation has shown little concern about family planning as they are occupied more by other immediate interests. Knowledge related to family planning may cause confrontation with basic social values and the clinical orientation of family planning programs (81:3). Consequently, children and young people have been reached only as unintended by-products of diffuse efforts and in particular by exposure to mass media addressed to adult audiences. In view of the need to reach the young people and the factors which have in the past restricted attention to this age group, an educational program carried out through the formal education system as an approach seems to hold particular promise. Wayland further dwelt on the subject and presented the following four important functions of population education through the educational system:

(1) Future oriented.

(2) Develop skills, competencies and attitudes which other institutions in a society need but cannot themselves afford to assume the responsibility of developing as a first priority.
(3) Prepare the immature and inexperienced for adult roles, which are beyond their chronological age or experience.

(4) Offer educational solutions to problems which are not relevant to clinical approach (81:4).

Dr. Cool of the United States Agency for International Development in India developed the following overview of population education:

We are embarked upon an effort to educate the next generation to understand the implications of uncontrolled breeding for the whole of human society. More narrowly in population education our concern is to communicate to all young people in their formative years an understanding of the nature of this earth, of man, and of the values, social institutions and the knowledge through which man has extended his control over the earth (15:4).

Speaking at the inaugural address of the seminar on "Population Education for the Younger Generation," the vice-chancellor of Bombay University (ex-chief justice of India) Dr. Gajendragadkar pointed out that population education is a significant factor in a comprehensive progressive scheme of educating the public in a sense of values. But he emphasized that such a program should not be scholastic in nature. Rather such a program should be
developed on a rational and practical basis — one that is diplomatic and persuasive (23:7).

Ozzie made a review of the field of population education and pointed out that the success of family planning programs will depend upon the ultimate changes in the traditional value systems. To bring about these changes, there is likelihood of social confrontation. Educational programs, therefore, should not be developed in a manner that would be directly in conflict with society's basic value orientations. He further added, "Whatever approaches may be employed in an educational program, knowledge of basic values and cultural patterns of the recipient population will be essential to determine the content of the educational component" (50:3). Chauls stressed:

Population education no longer needs an introduction; what it is, why it should exist, what its potential benefits are; these and other introductory questions have already been investigated. It is now time to discuss, analyze and evaluate the narrower specifics of how population education should be introduced into schools, and what its content and methodologies should be (12:29).

In addition to the above mentioned educators and planners, various national and international agencies also have joined in expressing the need for the introduction of population education in school systems. Such agencies
include United Nations, United Nation Education, Scientific and Cultural Organization (UNESCO), F.A.O., W.H.O., and International Planned Parenthood Federation and its regional branches. Besides these organizations, many voluntary and official local organizations of different countries also have raised their concern. A number of eminent doctors of the United Kingdom headed by Dr. Anderson urged their government to admit that a population problem exists in their country and pressed for the extension of family planning services including population education.

Finally — and this is of vital importance — we should be in vanguard of a campaign of population education. In such a campaign the mass media of communication would play an integral role and one of its major aims would be introduction of instruction in population and related themes into the curricula of schools, colleges and universities throughout the length and the breadth of the land (2:89).

The President of the Indian Family Planning Association has expressed many times the need for a population education program in the school curriculum.

The population under age 15 years represents a very high potential fertility. If essential knowledge is withheld from the young only because it is new and unconventional, it will mean that almost half the population will remain unprepared to face the overwhelming challenge of population growth. It is all the more incumbent that they should be exposed to new ideas and concepts as early as possible,
in forms which are suitable and appropriate to their age groups and degree of understanding. Otherwise, there is very little hope of revitalizing social institutions in a positive and creative way to meet the needs of time (77:15).

The National Council for Social Studies devoted one of its entire issues (75) to population education. This is indicative of the realization by this organization of the need and importance of population education in present times. In its editorial reflections, the guest editor, Veiderman, pointed out that this special issue of social education was not intended to provide an introduction to the content of population education, rather it was an attempt to offer some background information on ways of teaching about population, which is considered very important and about which very little is known (75:324).

The Commission appointed on the Population Growth and American Future, submitted its final report to the Government of the United States in March 1972, stating:

The amount of accuracy of information currently held by Americans on the subject of population leaves much to be desired. Approximately 6 out of 10 questioned in our 1971 poll either did not know or could not guess the size of the United States population. Their answer was within 50 million persons (actual 205 million in 1970).... only 16 percent know or can guess the size of world population (53:83).
Some recent studies indicated that students were genuinely concerned about population problems but were not very knowledgeable about them. A 1971 survey of 1,600 high school students in urban and suburban New York and New Jersey, revealed that 29 percent thought that the United States population was less than 10 million, while another 15 percent thought in terms of 500 million; only some 25 percent knew the true world population, whereas another 25 percent thought it exceeded 50 billion. Another study at Indiana University concluded that students do not know facts, trends or relationships in population matters, most particularly not as regards causes or results of, or contributors to, other social problems (76:2).

A study in India was conducted to determine knowledge and attitudes towards contraception and population growth among high school students. It showed high awareness of population increase and a low reproductive goal in comparison to older generations. Teen-age attitudes towards family planning were found to be more positive. According to the author of this study, the prospects for reduction of birth rate in the next generation by these young people, with reinforcements by population education, appears to be encouraging (67:69). The evident wide gap
between the expressed concern and lack of knowledge is a vital factor in support of the introduction of population education in the educational system.

In another study, also undertaken in India, where population education was introduced in a school system, the findings indicated highly significant knowledge gains by the experimental group over the control group. This study brought out another important point that a short course in population dynamics has proved to be better than no course in terms of pure information gain. In the attitude gain area, there were immensely significant changes in the group which was provided informal instructions (19:51-52).

The population education project carried out in an Ithaca, New York junior high school in 1971, most importantly demonstrated that the students' knowledge can be effected in a relatively short period, although attitude change seems to require a longer term effect (75:378). As may be seen from these studies, the younger generations have an explicit concern for the growing population problems and have also shown a keen desire to take effective part in their solutions. Hence, it is the most opportune time to introduce the subject in the educational system.
OVERVIEW OF POPULATION EDUCATION PROGRAMS

The foregoing review of the different types of literature reveals that there has been a gradual evolution from a single narrow objective of mere birth control through contraceptive techniques to a multiple broad understanding of population as a problem of a socioeconomic nature, through an educational approach. Educators of some of the countries with or without assistance of national and international organizations have started applying their minds to population activities and studies on a planned and systematic way. Many of the components of population education are touched upon lightly in the existing teaching programs of various countries, but the way they are treated does not get significant attention and, therefore, does not become meaningful and relevant to the student. Disciplines connected with population education, such as biology, social sciences, ecology, geography and history correlated with population education lack the interrelatedness that would provide a picture of man within the framework of family, community and society (20:148). A similar observation was made by Anderson:

A recent criticism of social studies curriculum is that the subject content is descriptive rather than interpretive, resulting in instructional techniques which
encourage the accumulation of absolute facts rather than relative concepts (3:27).

What has been done so far in the field of population education? "The answer is next to nothing" (19:44). The first meeting of educators concerning population education was held in Bombay in 1969. Since then a series of seminars were held in Chile, Colombia, the Philippines, Indonesia and Bangkok. These seminars in themselves indicate the realization of the importance of population education in the history of education (80:1). Veiderman, in reviewing the field, found only 20 nations interested in population education, but most of these 20 countries are not yet into a serious planning stage of development. Not one local or state or national school system has adequately incorporated population education in its curriculum (19:44). A major concern is the time lag between social interest and curriculum implementation. The first national seminar in India came after 15 years of national policy of population control. However, the highest priority accorded by the United Nations to population education activities is the indication of a significant concern about the recognition and appreciation of its worth. Wayland categorized the countries which have adopted national population policies into three types: (1) Where a program of
population education has been instituted by Ministry of Education or Health, or one of its official organizations. In this group are India, Indonesia, the Philippines, Chile and Nepal; (2) Countries in which initial steps have been taken with the involvement of the Ministry of Education or other official organization. This group includes South Korea, Taiwan, Tunisia, Colombia, Egypt and United States; and (3) Countries in which plans for official activities have been drawn to initiate activities in 1971. They include Malaysia, Thailand, Iran and Ceylon. Pakistan and Turkey are not included in any category. Certain other countries like Central and South America, Sweden and Denmark have programs of sex education but not population education (80:3).

Among the international organizations particularly concerned with the population education are the United Nations and its offshoot UNESCO. The development of large scale United Nations' programs in population education in 1972, emphasized the need for greater attention to program planning. It has declared 1974 as the World Population Year (WPY) and is being coordinated by the United Nations Funds for population activities, which supports family planning, population education and research activities in developing countries (72:554). UNESCO is playing a
prominent role in the development of population education activities. It has appointed special staff in its regional offices to give directions. Its regional office in Asia organized the first seminar on "Population and Family Education" in Bangkok in 1970 and another one in Santiago during the fall of 1970 (80:3). The current work plan includes rendering of advisory services to other international governmental or non-governmental organizations in their work concerning population education. Further assistance is provided to member countries on their request, in the form of either cash, or expert services, or of equipment supplies in the development of teaching materials, curricula or teacher training. UNESCO's department of school and higher education has developed an educational prototype project to be applied in schools and universities with adaptability to local needs and conditions of a given country. UNESCO is making negotiations to implement these projects in member countries. Tunisia has been the first to place such a request for assistance (51:151-52).

Other international organizations supporting the population education programs are F.A.O. and W.H.O. The Home Economics section of F.A.O. and School Health section of W.H.O., lend support to population education activities.
United Nations International Children's Emergency Fund (UNICEF) is another international organization active especially in Taiwan (80:9). The International Planned Parenthood Federation held a work conference in the fall of 1969 to consider its role in school education. In the last few years its attention has been switched over to population education from sex education, by the secretariat as well as regional units, particularly in Asia. The Indian Family Planning Association has assumed a pioneering role in India for the introduction of population education in school curricula. In 1968, it presented a memorandum to the government of Maharashtra state, urging immediate inclusion of population education into the educational system of Maharashtra state (57:3). In 1969, it organized the first seminar in the world on "Population Education for Younger Generation." In February 1971, the National Conference of the Indian Family Planning Association was entirely devoted to population education.

The initiative and the work of the Population Council has been remarkable. It appointed special professional staff in 1969, whose primary responsibility has been the extension of population education activities all over the world. A grant from the Population Council
made it possible for the population education program of the Laboratory of Educational Development of Indiana University to begin what will eventually lead to a population unit for potential use in American Secondary schools. It also organized a summer Institute at Cornell University during 1971 and provided training to 30 teachers from schools and junior colleges in the United States. In October 1971, Veiderman, director of the population education program of the Council, submitted a report on population education in the elementary and the secondary schools of the United States to the Commission on Population Growth and American Future (68:35-37). In 1972, the Council supported a workshop in population education program development for the specialists at the East-West Communication Institute, Honolulu, involving teams of educators from Indonesia, Maylasia, the Philippines and Thailand (69:47). In addition, it is the chief clearing house of information through a series of publications which include Population/Family Planning Studies, country profiles, and occasional papers and books.

The Pathfinder Fund had from time to time supported population education activities in Colombia, India, Indonesia and the Philippines. The Ford Foundation, though it does not have formal population education programs, has
provided support to India and Chile. The U.S.A.I.D. has authorized use of its funds for population programs for work in population education (80:5).

In the United States, a number of initial activities have been undertaken since 1962. The important ones include appointment of the State Advisory Committee on Population Education in New York state in 1971. The United States government appointed a Commission on the Population Growth and American Future that submitted its report in March 1972. The following recommendations were made:

In view of the important role that education can play in developing and understanding of the causes and consequences of population growth and distribution, the Commission recommends enactment of Population Education Act to assist school systems in establishing well planned population education programs, so that present and future generations will be better prepared to meet the challenges arising from population change.

To implement such a program, the Commission recommends that federal funds be appropriated for teacher training, for curriculum development and materials preparation, for research and evaluation, for the support of model programs and for assisting state departments of education to develop competence and leadership in population education (62:2).

POPULATION EDUCATION PROGRAM IN INDIA

As mentioned earlier, India was the first country to initiate activities related to population education
programs. It was realized that the educational preparation of a younger generation which is on the threshold of reproductive span is of tremendous significance in the history of deliberate social change. It is of equal importance in this history of educational development. It is commendable that not only the government of India but some important voluntary organizations have been taking keen interest and active roles in this direction. In preliminary planning for the Fourth Five-Year Plan which was in process in 1968, the Central Health Education Bureau laid out proposals for an extensive population education program (16:354). As mentioned before, the first initiative was taken by non-governmental organization, the Family Planning Association of India, by taking an active interest in the subject at their Sixth All-India Conference late in 1968 and devoting one whole session to population education. Among other senior officials, this was attended by the Prime Minister of India. This was followed by the first seminar on Population Education for the Younger Generation in March 1969, marking the beginning of population education activities. The main purpose of this seminar was to discuss the scope and importance of population education for school-going population. A series of other workshops organized by Ministries of Health and Education
followed. The National Seminar on Population Education conducted in Bombay on August 2-3, 1969 was another milestone towards this direction. Through this seminar, acceptance of population education programs for all levels of education was achieved. This was followed by another workshop organized by the Central Health Education Bureau on December 1 to 6, 1969. The focus of this workshop was on planning and introducing health and population education through all levels of education including teacher training, University, secondary, middle and elementary schools. The workshop proceedings recommended highest priorities to teacher training, development of instructional material, further research requirements, coordination of different agencies perpetuating the task of population education, financial provisions and possible assistance from national and international agencies (9:56-59).

A national organization known as Population Council of India has been set up in Delhi, with the aim to mobilize non-governmental efforts on a nationwide scale to promote the cause of population control, research and studies. Ministry of Health organized another workshop in 1971 in collaboration with W.H.O. on Health and Population Education. The workshop reviewed the development of health and population education in the country and noted that work on
population education has been undertaken recently by a few states and by Central Health Education Bureau, The National Council of Educational Research and Training (NCERT) and the National Institute of Family Planning at the center. Haryana and Delhi states have made efforts to introduce elements of population education in their school curricula. In addition, some states have introduced in their teacher training programs some elements of population education. W.H.O. has also provided technical and financial assistance for the training of teachers. With this assistance, seven workshops for teacher training have been conducted in the states of Haryana, Punjab, Uttar Pradesh, Tamil Nadu, Kerala, Maharashtra and Gujarat.

The World Confederation of Organizations of The Teaching Profession, through its Indian office and with the support of Population Council, prepared a handbook entitled 'Population Education for Secondary Teacher's Colleges in India.' Originally prepared in English, the handbook has been translated into Hindi and is being used in a number of teacher training colleges in the state of Madya Pradesh.

With the progress of initial work, there emerged the need for role clarification among the various organizations which were engaged in this pursuit. Finally, it was
decided that the Ministry of Education should play a more active role in this field. As a result, NCERT was authorized to create a Population Education cell. This was sanctioned in 1970. Under sponsorship of NCERT in 1970, a workshop was convened to agree upon objectives and define specific activities and phases of the work. Subsequently in 1971, a draft syllabus was prepared and distributed to states. Yet not much actual teaching has taken place (16:355-57).

**REVIEW OF GUIDES**

The concerted efforts undertaken by various international and national organizations have resulted in the production of certain instructional materials. Three population education guides, one produced by an international organization, one by a developed country, and one by a developing country, have been chosen to be reviewed.

The "Population and Family Education" Report (60) includes an instructional guide in its Phase II, developed by UNESCO in 1971, which is an exemplary work. It is a comprehensive piece of work by various experts from different countries of the world. The guide indicates broad content areas to be correlated with the subjects of social sciences, natural sciences, and biological sciences. No
uniform physical format has been used for the instructional materials. It includes broad bases indicating the need for population education in the school system which is too general. The content analysis is done at three levels, namely, primary, lower secondary and higher secondary. It also provides flexibility for adaptability to local needs and problems. It is a good exemplary tool to develop curriculum guides at the national and local levels. It also includes broad objectives for different content outlines but does not indicate learning opportunities and evaluation procedures. What it lacks is the integrated approach.

The second guide is "Population Education Guide Book for Secondary School Teachers" (55) produced by the government of India. It contains three parts. The first part consists of background information for the orientation of teachers. The second part includes population education content and suggested correlation with other school subjects like economics, social studies, biology, general science and home science. Each area includes introduction, general objectives, concepts, and areas of integration with other subjects. The guide shows the flexibility of curriculum for adaptation to local needs and problems.
However, it is restricted to the secondary school level, whereas the utmost need is in the elementary level, as a large majority of Indian students do not attend schools beyond elementary level. There is no doubt that high school students are at the threshold of reproductive period and the need for population education for them is urgent, but the majority of students who do not attend secondary school level will be deprived of population education.

The third guide is "Options — A Study Guide to Population and the American Future" (49). This guide has been developed by the Population Reference Bureau, Inc. "Options" is a guide for exploring population trends and their possible effect on the future. It is developed upon the official report of the Commission on Population Growth and The American Future, established by the government of the United States in 1970. It attempts to fill in the gap between the concern about population problems expressed by the students and their lack of knowledge. It includes sufficient materials on a population education course. The framework on which this guide is developed is entirely different than the other two guides reviewed. It is based upon an informal approach. It includes a variety of activities providing opportunities for student participation rather than the formal lesson plans. Though the
discussion section does provide possible lecture guidelines, the basic educational objectives accomplishment required individual involvement. The activities included are offered to be utilized at three distinct levels: junior high school, high school, and adult. This too offers flexibility for local adaptations. However, this also does not cover the elementary level.
CHAPTER III

CONSIDERATIONS FOR THE INCLUSION OF POPULATION EDUCATION IN THE SCHOOL SYSTEM

The school as the basic institution for education has a primary duty to equip its pupils with those skills and tools of learning that will enable them to live productive, useful and happy lives as an individual, contributing to the country's development and prosperity.

The Education Commission of India has stressed that:

Education is a powerful instrument of national development, if properly related to the lives and the needs of the people, it can help build essential attitudes and values, to enable the nation to meet its challenges and realize its aspirations (77:15).

The main aim of any educational system is to help improve the national quality of life and hence the national functions and development of that country. It is an obvious fact that India today is confronted by a number of interrelated problems, which are hampering its national development and progress. The chief cause of these problems is overpopulation. In this chapter, therefore, an attempt is made to examine the place of population
education in the existing educational system of the country. To introduce any innovative practice, it is extremely essential to see whether it conforms with the existing national policies and goals. If this is in confrontation, the chances of creating additional problems are greater than the likelihood of solving the existing ones.

NATIONAL POLICY

India is a democratic country pursuing a policy of social welfare. "A welfare state is one which must take all steps; whatever it considers necessary to provide maximum well being to every citizen" (25:70). This can be achieved by removing poverty, mass unemployment and insecurity. Hence, the obligations a welfare state has to take to fulfill its objectives will include provision of economic stability and security, housing, education and health services. However, the overgrowth of population swallows all the gains accrued from national development. Population education, therefore, would aim at creating among the younger generation an awareness and understanding of this phenomenon of nullifying the achievement of national goals by rapid population growth. From the viewpoint of national development, population education could be treated as a kind of investment which is likely to
yield high economic returns for the country. More important to national economic growth than capital expenditure is the creation of new attitudes towards family size and its impact on the national development. It is assumed that when people weigh the pros and cons of a particular family size more rationally, then they would want to restrict the number of children. Population control is the first imperative step leading towards a desired improvement in the welfare of the children and eventually of the nation.

The President of the World Bank, McNamara observed that:

Two-thirds of mankind suffer from hunger, malnutrition, illiteracy, inadequate education and corrosive poverty. The gap between the rich and the poor nations is a chasm, the rich nations enjoy a per capita income of $3000 while the poor nations of Asia struggle along with per capita incomes of less than $100. This gap is compounded by a population growth unprecedented in history, making population control an inseparable part of national development, and the greatest single obstacle to the economic and social advancement of the majority of the people in underdeveloped countries (14:6).

The population increase especially below 15 years makes it necessary for the government to constantly invest more in education and health. This implies additional taxes on the public with limited services.
Since India is still in its infancy stage after its independence, it has to have sound national population policy in order to accelerate its developmental efforts to make the country a welfare state in the realistic and practical terms. Besides, India has as a democratic country an obligation to keep the people informed of all of the events taking place. Undoubtedly, population increase is one of the foremost events. This contention has been supported by Professor Lulla:

Again it is a matter of fundamental rights for children to be continuously informed of the conditions and obligations under which they will have to live and survive so that they may be prepared to contribute their best to the welfare of mankind (38:38).

In tune with the above expression, Thompson wrote in Teachers College Record:

In regard to education, I assume, that the purpose of formal education in a democratic society is to prepare our youth to cope more effectively with the increasing complex problems of modern society in matters that come within the competence of the mass of citizens to decide. This can probably best be done by giving the student the facts needed to provide him with a basis for intelligent considerations of social policies intimately and directly affecting him and his family (74:416).

The national policy of India is to reduce the crude birth rate from 39 (1968) to 25 by 1980-81. To achieve
this target, the educational system of the country has a
definite role to play. The educational system has always
been a strong instrument for achieving the national goals.
This could be done through the introduction of a population
education component in the existing school system. Popula-
tion education must be one part of a national effort to
control population growth. In contrast to family planning
and birth control, its role is long range and diffuse, and
its approach should be multi-level and inter-disciplinary
(56:2).

Population education, therefore, must be geared
towards improving the status of people in conformity with
national policies. Thus, this should become a part of the
comprehensive and dynamic process of education. It would
be seen that India has adopted a national policy of
population control. To achieve this, recent legislations
in family planning and abortion laws have been enacted.
Clem said that more effective contraceptives and abortions
do not, in themselves, predict a decline in the birth rate.
Future lower birth rates will depend upon the motivations
of the people contributing the bulk of the children
(14:15). It may be that what is needed is to have some
sort of legislative act to make the population education
a compulsory element of India's general education in accordance with national goals and policies.

EDUCATIONAL GOALS

Today, India is passing through various stages of transition. Numerous changes occurring in this transformation are shaking the foundations of many established institutions. The phenomenon of quick changes, which is desirable and required for its progress, is of a recent origin. At this point of rapid changes, the institution of education has a vital role to play in directing these changes in a positive and fruitful way. The eminent Indian educationist, Saiyidan, expressed his views by saying that in the periods of crisis like the present, when the old order of the society is fading away and a new one is emerging, education has a definite and desirable role to play (73:58). The goal of education is to make citizens by raising children to full functioning healthy childhood. "Education, however, also connotes all that goes on between individuals, among groups, within single persons as they interact with the various environments that constitute a society and its culture" (35:1). The world of today is different than the world of previous generations. If the educational system is considered responsible for
preparing persons to live in the world of the future, characteristics of that world should determine the goals of education. If the present is any indication of what is visualized in the future, it is apparent that we will live in a society demanding rapid changes. Consequently, these changes demand continuous learning and adaptations. As Rogers said:

In the world which is already upon us, the aim of education must be to develop individuals who are open to change. Only such persons can meet the perplexities of the world in which problems spawn much faster than their answers. The aim of education must be to develop a society in which people can live more comfortably with change than with rigidity (61:304).

We live in a society that is future oriented and we are supposed to orient our students to that future. The aim of the education should be to prepare the individual for realistic goals based upon a clear perception of his limitations and capabilities and the reality of the situation (84:9). Schools have always supported change indirectly by providing men with the knowledge and skills with which to enlarge their thinking and actions for bringing about these changes. Weiss stressed that the purpose of education is:

To help students in the process of becoming, thinking, reasoning, free human persons who can make up their own minds and assume
responsibility for their own actions, who can come to understand their cultural traditions and their cultural conditioning and who can live purposefully and compassionately with others (83:19).

What is now required in the context of present day need is the new philosophy of education. Jennings expressed this by saying that today's goal is not merely equal educational opportunities; it is equality of educational results (34:34). What he meant was probably the equality of educational attainment, resulting in equality of social and economic competencies in the social system.

If the educational goals are concluded to be the preparation of youth of today as a competent citizen of tomorrow, capable of discharging social functions and roles in an improved way, capable of making right decisions regarding matters of personal and social concerns, adjusting and adapting to the needs of changing social system, the need of population education in this context is well justified. In order to accomplish the maximum from the process of education, educational goals must be weighed against the need and goals of all the people of the country. And the present day need of India and its people is the active and effective participation of its youth in the solution of population problems. Keeping this
in view, there is a need to devise ways of systematically tailoring education to the needs of our society. Thompson concluded in his article on "Population Explosion," by stating:

Finally, it seems to me that an educational system that considers its most important function to be the preparation of youth for more effective participation in the life of the community must be forever asking, 'what important social changes are taking place, about which youngsters must have instructions in order to be better citizens' (74:417).

Hauser, a demographer, was the first person to call the attention of educators to the inclusion of population education in the school system. As far back as 1962, he commented, "The ignoring of demography in the school curriculum is particularly astonishing in view of the fact that the schools themselves have been hard hit by rapid population change" (27:425). The cost of education is affected by the number of students, in terms of numbers of teachers and school buildings and other resources required. According to official figures, the percent of enrolled students in standards (classes) six through eight and nine through eleven, when compared with total school population, expected for these standards has increased significantly in the past years. Table 4 clearly shows the rise in the enrollment of student population over the years (30:63).
Table 4 shows the increase in percentage of school-age children and youth enrollment in schools in India. When compared with a rapid increase in population in these age groups, there are serious implications for the educational system. They are of vital concern to school administrators, yet they have been almost ignored in the school curriculum. Hauser further said, "It is about time for twentieth century school curricula to incorporate twentieth century demographic findings in the context of their twentieth century implications" (7:2). In early 1970, the then President of Population Reference Bureau, the late
William Moran, Jr., wrote in an editorial comment, "Next to the avoidance of nuclear war, the foremost challenge to man is the 70's world wide reduction in the rates of the population growth" (58:1). In line with this observation, Miles wrote: "Our educational establishment from elementary school through the post graduate college years, can perform no more useful service in 1970's than to illuminate the principles of human survival" (58:31).

A careful look into existing school syllabus reveals that some of the subject courses do include population data. But the treatment of it is cursory. Wayland reviewed these courses in a number of countries including India and commented:

Basic population data are included in all school curricula but these data are limited in scope and do not deal systematically with the consequences of population dynamics, for the social and natural environment. There is no organized academic discipline which synthesizes this body of knowledge; there is no text book to which one can refer and so population education is not a refinement of an existing school subject (79:42).

There is a great variation in the current teaching of population in general and with respect to policy. This suggests that there is a great need for definite population education policy and well specified stages in developing a strategy (74:417). A study was undertaken to determine
which factors associated with economic development are most strongly related to decline in fertility. The focus was on three factors considered to be strongly associated with economic development and likely to affect fertility: urbanization, female employment away from home and education. Of the three variables studied, education emerges as the most important factor affecting fertility attitudes and behaviors. Education has been observed to have strong inverse relationship to desired number of children, age at marriage and contraceptive usage (64:333). This observation has been supported by another study undertaken in Sub-Saharan region of Africa to survey the desired family size. The findings show that educational expansion influences significantly the attitudes towards family size, knowledge of contraception and practice of it (26:218).

INDIVIDUAL AND COMMUNITY NEED

There is adequate evidence in the literature about the implications of growing population on the individual and the community. Population education is essential to develop proper understanding and appreciation for the programs of population control. Education is essentially a process of change in behavior. It helps the individual to gain an insight into his problems resulting from large
family size, assists him in taking right actions, and makes him self-reliant in thinking, reasoning and decision-making. Stegner expressed his views on the need of population education for the individual and the community:

We are thinking of population education not merely as training to bring about a decline in the population growth but rather as the central theme of the entire educational enterprise, encompassing the need and behavior of the man, his population and his environment (66:1).

Population growth influences the individual and family in terms of income level, health, level of standard of living and job opportunities for himself, his family members and education of children. The economic instability of the family which stems from the core problem of overpopulation, has been seen to be the main cause of family disintegration and deterioration. For stability of the individual and family, it is highly desirable to adopt the small family norm. Education in aspects of human reproduction and functioning and in interpersonal relationships would have relevance at this point and would assist in building attitudes of responsibility and mutual help (77:16). The inclusion of population education in the formal school system is justified on the grounds that the characteristics of population growth and its
implications affect the lives of all of us. Overcrowding, which is the outcome of overpopulation, is making community life unpleasant because of a number of other related problems. Thus, the aim of population education would be to help the individual to acquire an understanding of the complexities of life and the various problems created by excessive population increase, and comprehension of the individual's role for family and community stability and prosperity.
CHAPTER IV

NEED FOR INNOVATIVE CURRICULUM PROJECT

As may be seen from the preceding chapters, the need for and importance of population education in the present day context has been well established throughout the world. India has been the first country to initiate steps for the development of population education programs. Though educators, planners and administrators show a high degree of concern and interest about the introduction of population education in the school system and a beginning has also been made by undertaking some ground work, yet much still has to be done to develop a unified policy. Obviously, the task is tremendous, keeping in view the number of schools, the number of teachers to be trained, the development of needed instructional materials and text books, and the required finances for all these. In addition, the complexities of the division of responsibilities between center and states make the task difficult. This, however, does not mean that one should be pessimistic about it.
Introducing any innovation requires considerable amount of time for mobilizing the public opinion, conducting diligent and careful planning, pooling the required resources, developing a well thought-out mechanism for operation and so on. Burleson rightly observed that the preparation of physical science curriculum studies took ten years for its development, when the developers knew exactly what they were trying to do. In population education, we still do not have such clearly delimited parameters, though the ultimate goals are clear (8:6).

It is true that for development and implementation of any new program or policy, there are a number of problems that come in the way. But they are perhaps more pronounced in the field of population education, as there is not much research in this area to serve as a basis for a comprehensive program. Veiderman pointed out:

Much more research is needed before fully fleshed out programs can be presented, and we need to pay particular attention to developing the knowledge base which must underlie education programs. For example, we know very little about the relationship of family size to family well being; or precisely how population size and distribution affects an individual and his family; or when people begin to think in terms of their own desired or ideal family size; or how values and attitudes towards population matters are formed; or the true depth of the feeling about childbearing, family size or women's role (75:3).
The National Commission on Population and the American Future experienced several difficulties in making assessment of the status of the field on account of limitations in the knowledge base. Hence, the Commission urged the development of research programs which would provide a much more substantial knowledge base with attention to both national and family levels (79:44). Then there are other controversial issues like what are the objectives, what are the content areas and how should it be taught. Until we are able to decide these issues, new problems might emerge with newer magnitudes and severity, and thus planning may be outdated. Another difficulty stems from the fact that most of the studies conducted so far were directed towards adults, particularly those of child-bearing age. Hence, there is limited data on young people's knowledge and attitudes (82:7). Though some recent inquiries have been made into the attitudes and values of young people, the data are quite inadequate to draw generalizations. Besides, many aspects of the knowledge base for educational programs in a particular country will be specific to that country, and only limited use might be made in other countries. For example, the knowledge base found in the United States will not be applicable to the young people of India because of vast
differences in their socio-cultural background. Another important factor which supports the conduct of research projects for the development of a knowledge base is the expected value change. This has been supported by Wayland:

Any curriculum area which touches on basic values poses a special problem for educators. Values surrounding reproduction, family size and growth in size in the collectivities with which people are identified make population studies an area with high effect. The values of teacher are involved with those of student. With this as basic characteristic of the field, it is particularly important that the knowledge base be as carefully developed as possible (79:44).

This implicitly suggests that there is need to take up small projects on an urgent basis.

Keeping in view the above facts, an attempt has been made to develop a limited package of innovative curriculum project for terminal primary graders (V grade) to be tested later in one of the schools in India as a trial project.

**JUSTIFICATION FOR PRIMARY OR ELEMENTARY LEVEL**

Although this project has been designed for the primary grade pupils, the intention is neither to support nor refute the favor expressed by many educators either for primary level or for secondary level, nor is this area of dispute considered to fall within the purview of this
paper. It is high time to introduce population education simultaneously in all of the levels. In view of the enormous ground work needed to introduce it into the whole of the educational system of the country and also the need for research work as a knowledge base, it was decided to concentrate on fifth graders. Fifth grade is considered an educationally relevant and significant population on the basis of a rationale developed after careful review of literature and points of view of several educators given below:

1. The number of students enrolled at primary grades in India is much more than at the secondary levels (see Table 1). In order to reach the maximum number of children through the educational system, it is important to start at a point that captivates highest numbers.

2. Because of the high rates of dropouts, the number of pupils joining secondary schools is just a fraction of the total school-going population (30:63). The postponement of population education to secondary level will not cover many students.

3. The elementary or the primary school curriculum usually provides a great deal of flexibility, which can be beneficially utilized for trying out innovative projects.
4. The low pressure of qualifying examinations at the primary level provides opportunity for experimentation.

5. It has been seen that primary school graduates tend to remain in the villages, while the secondary school graduates leave the villages for higher schooling in the towns or cities, in which case they do not provide "village leadership" which could be mobilized to exert influence on others.

6. The primary schools in India play an important role in the lives and values of the village in which they are located. They are the only educational contact of the village, and about 80 percent of the Indian population live in the villages.

7. Although secondary students are closer to their reproductive years than are the primary students, the difference is not great as most of the students are enrolled at a late age and some of them repeat the grades. In addition, it is customary for the village youngster to marry at an earlier age than his urban counterpart who pursued further education. Usually the girls marry after one or two years of school.

8. Attitudes towards small family size and family responsibilities seem to develop early in life (66:4).
9. Attitudes which produce high fertility behavior are established during childhood, even in the absence of any instructions on the techniques of producing babies (63:22).

10. Patterns of adult sexual behaviors are established during childhood and any position the school takes within the spectrum of sexual morality has an impact on ultimate behaviors (63:22).

11. It has been seen that the children of well to do families generally pursue higher education. These children are already exposed to mass media (newspaper, radio and even television wherever available) because of the ability of their parents to afford them.

12. Because of limited literacy standards, out-of-school youth (primary) may not get adequate information about population matters from the mass media which is usually directed towards adult population.

13. Even in the big cities, all the children do not go to the secondary schools. The children from the slum areas, the children from the lower socioeconomic strata, and the children of the parents who have a strong rural background often terminate their education after primary school graduation.
In the light of the above factors, the fifth grade which is terminal primary level, has been considered ideal for trying out this project. It is assumed that this grade level will be representative of the bulk of the school-going population and hence the results can be demonstrated for wider application later on. It is also assumed that the knowledge base developed for this grade level would serve as a basis for developing population education programs for higher grade levels.

**SCOPE OF THE INNOVATIVE CURRICULUM PROJECT**

Curriculum innovation is the important means by which schools respond to matters of social concern. "A curriculum that would assist young people in an examination of their basic assumptions about society and its improvement must deal with values and social policies" (41:147). The school that succeeds best is the one which incorporates the values of home in its curriculum as the school is the vehicle which serves to fulfill the aspirations of parents for their children (11:13). Considering these statements, this "Innovative Curriculum Project" has been developed with a view to meet the changing needs of the society and the individual in such a way that the values of the individual students, the homes and the society are considered
in order to avert any conflict. Before delineating its scope, an explanation of its innovativeness may be helpful. Miles defined innovation as a deliberate, novel and specific change, considered efficacious to achieve the goals of a system. He further said that it seems helpful to consider innovation as being willed, planned for, rather than occurring on its own and haphazardly. Its worthiness is determined on the basis of its anticipated consequences for the accomplishment of the goals of that system (42:18-20).

In the light of the above, this project which aims at specific novel changes deliberately planned to achieve set goals as a consequence of interrelated experiences in an educational system can be called an innovative curriculum. According to Naditch and Stycos innovative programs should be feasible within the existing educational objectives (44:373).

The scope of the project would be limited to the broad concept that adequate and planned knowledge of population matters would assist the students in gaining an understanding of basic issues involved in population problems and in developing favorable attitudes and skills required for making rational decisions as an individual,
as a member of the family and the nation. Therefore, the general objective of the project would be focused on the extent to which students show change in their knowledge of population matters and problems and indications of attitudes concerning population control measures. In addition to it, the project would aim at testing the effectiveness of different teaching techniques and contents in helping students achieve objectives.

PLANNING AND IMPLEMENTATION MECHANISM

It is intended to apply this innovative curriculum package in one of the schools in India at a later date. This project has been developed on the basis of review of available literature and experiences of some of the pioneers in the field of population education and other expert educators and planners. Mead suggested:

In the case of curriculum, however, the direction of change up or down — is not enough. There is a need for responsible participation by many outside the schools; the scholar, the researcher, the behavior scientist and the public as well. They are needed to discover better and more lasting knowledge; they must assist in its development and the packaging for easier learning, and to help determine the effectiveness of it all (40:18).

The whole planning and implementation of the package is depicted in Figure 5. This illustration has been
FIGURE 5

PLANNING AND IMPLEMENTATION MECHANISM

Interests and Needs of Learners
Distinctive Features of Body of Knowledge
Desired Outcome
Instructional Techniques
Social Values

Innovative Package

Administrative and Community Approval
Formation of Project Committee
Field Trial
In-Service Training

Application of Package

Evaluation
Revision and Recommendation
developed on the basis of recommendations made by Wayland (80:11) and a workshop report on the Management of Innovation in Education" (48:21). As may be seen from the chart, the planning component has five elements. Each one of them is interpreted below:

**INTERESTS AND NEEDS OF LEARNERS**

The selection of learner for this project is made on the basis of justification given for primary or elementary grade level. The package is developed on the basis of needs and interest of learners, which have been shown by a number of studies.

**DISTINCTIVE FEATURES OF BODY OF KNOWLEDGE**

Taking into consideration the various concepts and content areas considered essential as a knowledge base for the study of population matters, the following distinctive features have been identified and incorporated in the package for this grade level:

1. the population situation (size, growth, migration, distribution and trends,)

2. the relationships between population and the quality of life now and in the future (food, health, education, employment, environment,
socioeconomic development and family life) at micro and macro levels,

3. factors that contribute to the solution of population problems including the national goals and policies,

4. role of the individual as a member of the family and the society and the nation.

**DESIRED OUTCOMES**

As has been mentioned earlier, the outcomes desired at the end of this project are: (1) to have an increase in the knowledge of pupils regarding population matters and their implications both at macro level and micro level; and (2) as a result of these increases in knowledge to have favorable changes in their attitudes towards small family norm, higher age at marriage, utilization of services offered for family limitations, appreciation for national goals and policies, and their role as individual citizens and family members.

**INSTRUCTIONAL TECHNIQUES**

If real learning is to result, planners and teachers must be fully cognizant of materials and techniques that work in the classroom. "Too often teachers tend to
be mere dispensers of information" (66:7). This is true in the case of Indian educational system. Present day education should be ultimately dedicated to the optimal growth and development of each individual. In the case of population education, the aim is not only the all round growth but internalization of the educational input with a view to developing deeper and clearer understanding of population matters and their implications, but also to develop and enhance mental faculties so as to be able to make right decisions and choices. The activities and experiences that would assist in the realization of educational objectives would be the methods of instruction. It is planned to select and use those instructional techniques which will seek student's involvement in the use of mental processes and assist him in gaining new knowledge and developing those skills which will enable him to find the solution of problems. It is assumed that this could be done by encouraging inquiry, learning by discovery and problem solving approaches.

In a study conducted to obtain information about what is going on in the field of population education, an attempt was made to ascertain from teachers what they have done, how they have done it and with what results, and
what kind of additional materials and assistance they feel they needed. The study revealed that teachers considered audio-visual materials very useful, written materials including textbooks as second in order of preference and techniques like simulation games, inquiry lessons, lab sessions, group discussion, etc. as next (29:3-6). It is, therefore, planned to include some of the films, charts, graphs, simulation games, group discussions, community surveys and problem solving techniques. All of the learning opportunities included in this package will be translated into "Hindi," the local language, before the implementation of the project.

SOCIAL VALUES

Efforts have been made to avoid the inclusion of controversial areas, such as human reproduction and methods of contraception in the content areas. Only those topics which are in conformity with the social values have been incorporated. Even some of the eminent educators who have done pioneering work in this field, are of the opinion that population education need not include these areas. The main emphasis should be on understanding issues involved in population growth and problems and development of favorable attitudes and skills for their solution.
Putting all of the above elements into a package, the innovative curriculum has been developed. It is intended to apply it on the V graders of one of the schools in Delhi. For comparison and demonstration of the results, it is planned to use one class of children as an experimental group, with another section of the same class (or another V grade class of some other school located in the same or adjoining area, drawing children from similar background) as a control group. Before the final application of the package, the following steps are planned to be undertaken for effective implementation:

**ADMINISTRATIVE AND COMMUNITY APPROVAL**

Though every effort has been made to avoid controversial areas of content matter, still it is deemed desirable and essential to seek the approval of administrators and the community for its operation. As stated before, it is planned to implement it in one of the primary schools in Delhi. All the primary schools in Delhi are governed by an education department of the Delhi Municipal Corporation. The chief of the education department is the Education Officer, under whom are various zonal education officers for different zones. The plan will be discussed first of all with the Education Officer to solicit his approval and
consent. Thereafter, it will be discussed with the Zonal Education Officer of that zone, which would be selected in consultation with the Education Officer. On their advice, the final selection of the school for implementing the project would be made, keeping in mind one fundamental factor that the pupils of selected school shall be representative of that grade level population in the country. As far as possible, efforts shall be made to select the school either in one of the slum areas or in one of the rural areas, depending upon other facilities available for implementation.

After making the final selection of the school, approval and support from the community will be solicited. This would be done by holding a joint meeting of the Zonal Education Officer, the school principal (headmaster), the area councillor (who is elected representative of the people of that zone for Delhi Municipal Corporation), some of the influential people of the area and some of the interested parents of the students involved in the project. In this meeting, the whole project would be placed before the participants with any explanation of its purpose and scope. It would be explicitly made clear to them why their support and approval have been considered essential.
FORMATION OF PROJECT COMMITTEE

It is planned to construct a "Project Committee," consisting of the Zonal Education Officer, one of the school inspectors, principal or headmaster, teachers of social studies, general science and mathematics, area councillor, and three or four parents. The main purpose of this committee would be to provide assistance in terms of support, required facilities, resources, follow-up, consultations and evaluation. The committee would also be responsible for making decisions regarding the subject or subjects of correlation, teacher selection, selection of pupils for experimental and control groups, duration of the project implementation, and the dates for its operation. The teacher selection will, however, be made using the following criteria:

1. teaching experience and skills
2. subject currently being taught
3. interest in population education
4. interest in experimentation

Details of the whole project also would be discussed with the committee to seek their views for approval and also for any modifications they might want to make.
FIELD TRIAL

Before its final operation, the course will undergo a field test on five teachers of one of the other schools to find out whether and how the course will work. Some data about the teachers will also be collected. The experiences and observations of this field trial would be placed before the project committee. In consultation with the members, desired modifications will be made.

TRAINING WORKSHOP FOR THE TEACHERS

A two-day workshop would be organized for the selected teachers who would operate the project. It is planned to provide training to standbys also, who can substitute in case of any unforeseen emergency. If the Project Committee decides its infusion should be through one subject and one teacher, then there will be two stand-by substitutes for training. Their selection will be made on the criteria mentioned before. The content of the workshop will include, the broad content areas of the package, the learning opportunities as planned, and the evaluation techniques to be used. Teachers themselves will go through the whole process before implementing it. Any doubts, clarifications or additional information they need for effective and efficient teaching could be provided to
them during the workshop. A pre- and post-test on the teachers' knowledge and attitudes would be administered, to determine their knowledge and interest in the program.

APPLICATION OF THE PACKAGE

The actual duration and schedule of the project application would be determined in consultation with the Project Committee. However, tentatively it is proposed to spread it over a period of four weeks. The package contains concepts, specific objectives to achieve those concepts, the outlines of content-areas, the learning opportunities, evaluation procedures and the reference materials both for the teachers and the students.

A pre- and post-test would be administered to the students of both the experimental and the control groups, to assess their base-line knowledge and attitudes, and also the increase in them as a result of educational inputs.
RECOMMENDED

INNOVATIVE CURRICULUM
CONCEPT: Understanding of the population situation of one's country is important for the effective future role of the individual in population control.

OBJECTIVE I: The student will be able to trace the growth of population in India since the beginning of this century.

CONTENT OUTLINE: (1) Population growth since 1900 (2) Present population of the country (3) Present population of the city, the town or the village of the students

LEARNING OPPORTUNITIES:

(1) With the aid of transparency, trace the growth of population since 1900 in a graphic way.

(2) Obtain census figures for the last six decades and compare the rise in population for the country and the city, town or the village of the students.

EVALUATION: Administer objective type questions

SUGGESTED REFERENCES:

(1) Census Reports of India, Office of Census Commission of India, Government of India Publication.


OBJECTIVE II: The student can describe the effect of selected demographic factors on population growth.

CONTENT OUTLINE: (1) Population density
(2) Rural-urban distribution
(3) Age and sex composition
(4) Higher ratio of young dependents
(5) Low rate of life expectancy

LEARNING OPPORTUNITIES:
(1) Have the students trace their family tree from their grandparents, and count males, females, old, children dependents, and the total number of working people.
(2) Have the pupils count the number of people living in each of their houses.
(3) Let them select two blocks and count the total number of houses in each block, and draw a map of it.
(4) Let them go to each house and count the total number of the people living in each one of them. Indicate numbers on the map.
(5) Compare the distribution of the people of one block with the other and discuss the density of each block.

EVALUATION: Administer objective test questions

SUGGESTED REFERENCES:


CONCEPT: Birth rate, death rate and migration are the determinants of population growth.

OBJECTIVE I: The student is able to define birth rate, death rate and migration.

CONTENT OUTLINE: (1) Crude birth rate  
(2) Crude death rate  
(3) In migration  
(4) Out migration  
(5) Emigration  
(6) Birth rate, death rate and net growth rate of India

LEARNING OPPORTUNITIES:

(1) With the use of blackboard and chalk, explain the terms crude birth rate, crude death rate and types of migrations.

(2) Taking examples from the history of India, discuss the types of migration and their impact.

(3) Cite examples of current migration from village to city, from one city to the other.

(4) Have the students study migration of children in their class. How many are in this class since kindergarten (nursery), how many have left and how many new have joined?

(5) Ask the students to find out from the newspapers, books and periodicals about death, birth and growth rate of India.

EVALUATION:

(1) Have students complete objective type questions with reference to a given story.

(2) Have students identify different types of migration.
SUGGESTED REFERENCES:


OBJECTIVE II: The student is able to describe how birth rate, death rate and migration affect population growth.

CONTENT OUTLINE: (1) Gap between low death rate and high birth rate leads to population growth.
(2) In-migration increases population while out-migration decreases.
(3) Stable populations have high birth rate and high death rate, or low birth rate and low death rate, or low death rate and high birth rate with high migration.
(4) Higher percentage of population in child-bearing age increases birth rate.

LEARNING OPPORTUNITIES:

(1) Divide the class into two groups. Ask each group to survey two blocks, one each, to find out the total births, total deaths, and in and out migration for the previous year.

(2) Have both groups analyze their data to find out the death rate, birth rate, migrations and net increase in the population.

(3) Compare the results of both of the groups. Have the students discuss the differences.

EVALUATION: Given the comparable data of two cities, find out:
   a. birth rate
   b. death rate
   c. net increase in population
   d. reasons for differences

SUGGESTED REFERENCES:


CONCEPT: Unchecked population growth has adverse effects on income, standard of living, education, health and welfare of a family and a nation.

OBJECTIVE: The student can identify factors associated with the population increase which have adverse effects on health and welfare of the family and the nation.

CONTENT OUTLINE: (1) Disparity between income and size of family results in no savings and indebtedness. (2) Disparity between size of family and income results in inability to afford education for children, inability to fulfill aspirations of life and results in lower standard of living. (3) Lower nutritional standards result in various kinds of nutritional deficiencies and disorders. (4) Low levels of health result in decreased productivity. (5) Ill-health, lack of education, unemployment of the family members give rise to family conflicts and disputes.

LEARNING OPPORTUNITIES: (1) Given the data of one small and one large family, having same income, compare their standard of living, their savings, education of the children, nutritional intake and general health status of the family members. (2) Have students identify the problems of the large family. (3) Discussions on the measures which could be taken to solve these problems.

EVALUATION: (1) Give objective type questions relating the adverse effects of large families to health, education, standard of living and welfare of the family.
(2) Correlate with arithmetic: Each child needs 8 ounces of milk every day. How much milk would a big family of six children need? How much milk is needed by a family of two children? What is the difference in cost?

SUGGESTED REFERENCES:


CONCEPT: Population problems have serious short and long-range implications for mankind.

OBJECTIVE: The student will be able to discuss the implications of growing population on current and future situations.

CONTENT OUTLINE: (1) Doubling time of population will be short.
(2) Gap between national resources and demands.
(3) Inadequate food production will lead to hunger and starvation.
(4) Diseases and epidemics are likely to increase.
(5) Inadequate educational facilities likely to result in illiteracy and lack of technical know how.
(6) Unemployment and under employment would lead to lower per capita income and no capital investment — mass poverty.
(7) All of these will result in weakening the nation.

LEARNING OPPORTUNITIES:

(1) Riddle: Suppose you own a pond which gets filled up with water in 30 days. Each day you double the amount of water, on what day will the pond be half filled?

At first some students may guess that the pond will be filled up in 15 days and others on the 29th day. It may be surprising for the students to learn that the pond will be half filled on the 29th day and only one day later it will be completely filled. This example will be taken up for making comparisons for doubling time of population (49:31).

(2) Show the film, "The Mounting Millions," depicting India's growing population and her need for economic and agriculture development and social change. (This may be substituted by some other similar film in local language).

(3) Guided discussion followed by film show.
EVALUATION:

(1) Given the example of a small country with more natural resources and India with its more people and limited resources, students may be asked to write answers to short questions.

SUGGESTED REFERENCES:

(1) Film — "The Mounting Millions," 60 minutes, 16 m.m. black and white, Indiana University, Audio-Visual Center, Bloomington, 1969.


CONCEPT: Population Control is essential for the progress of individual, family and nation.

OBJECTIVE: The student will be able to list the advantages of population control for the individual, the family and the nation.

CONTENT OUTLINE:

For Individual:
(1) Less responsibilities in limited family.
(2) Can afford to pursue higher education.
(3) Better prospects for job opportunities.
(4) Enjoys higher standard of living.
(5) Can afford good balanced nutrition and, therefore, can enjoy better health.
(6) Life more comfortable.
(7) Mental stability and good interpersonal relationships.

For Family:
(1) Economic benefits include more savings and eliminates indebtedness.
(2) Increased purchasing power, hence higher standard of living.
(3) Able to afford higher education and advanced training.
(4) Better prospects for job opportunities.
(5) Better nutrition and good health.
(6) Family stability and happiness.

For Nation:
(1) More resources.
(2) More opportunities and facilities.
(3) Adequate food and better health.
(4) Adequate facilities for education and technical training.
(5) More job opportunities.
(6) Higher per capita income.
(7) More savings and higher capital investments.
(8) Industrialization and technology.
(9) Scope for progress and welfare.
LEARNING OPPORTUNITIES:

(1) Invite a specialist to discuss advantages of population control.

(2) Encourage students to ask maximum questions to stimulate interest and get clarifications, if needed.

(3) Show the film, "The Population Problem! Japan, Answer in the Orient." Have the class discuss main features of the film.

(4) Home assignment — to prepare a list of advantages of small family, for individual family and nation.

SUGGESTED REFERENCES:

(1) Film — "The Population Problem! Japan, Answer in the Orient," 60 minutes, 16 m.m., color, Indiana University, Audio-visual Center, Bloomington, 1966.


CONCEPT: Population control depends upon individual and collective action of each one of us.

OBJECTIVE: The student will be able to explain the role of individuals singularly and collectively in the control of population.

CONTENT OUTLINE: (1) As an individual to control family size. 
(2) As a member of the family to educate others about the benefits of a small family. 
(3) As a member of the society to propagate a small family norm; to educate about disadvantages of outdated customs, traditions and practices. 
(4) As a member of the society to educate others about existing population control legislations and the need for more legislative acts. 
(5) As a member of the nation to develop an appreciation and understanding of national goals, policies of bringing down the birth rate, and the concept of welfare state.

LEARNING OPPORTUNITIES:
(1) Divide the class into four groups. Let each group have brainstorming on the role of the individual as (1) individual, (2) member of the family, (3) member of the society, (4) citizen of the nation.
(2) At the end each group presents the salient points by writing at the blackboard.
(3) Stimulate class discussion on the points presented.
(4) Summarize at the end.

EVALUATION:
(1) Give objective type questions.
(2) Have the students write short notes on good and bad customs for population control measures prevalent in the society.
SUGGESTED REFERENCES:


CONCEPT: For welfare and prosperity of the nation, and the family, it is essential to make rational decisions for vital events of one's life.

OBJECTIVE: The student can list the vital events of life as related to population control and indicate rational decisions for those events.

CONTENT OUTLINE:  
(1) Age at marriage.  
(2) Time for having first child.  
(3) Gap between two children.  
(4) Number of total children a family should have.

LEARNING OPPORTUNITIES:  
(1) Administer a questionnaire to each student to enlist their views about the above items.  
(2) Grouping of the views on the blackboard.  
(3) Invite suggestions and discussion of the expressed views by others.  
(4) At the end summarize information on the most appropriate decisions.

EVALUATION:  
(1) Give objective type questions.

SUGGESTED REFERENCES:  


(3) Pohlman, Edward, Rao, S.K., Seshagiri and Bhatnagar, K.M. "Children, Teachers and Parents View Birth
CONCEPT: Limiting the family size to two children will help in the solution of population problems.

OBJECTIVE: The student will be able to illustrate how two children families will stabilize population growth and hence would solve many related problems.

CONTENT OUTLINE: (1) Two children families will maintain population balance between death and birth rates. 
(2) Small families will be able to afford better opportunities and facilities. 
(3) There will be more resources than the number of people. 
(4) Enhance and strengthen family love and ties because of less problems.

LEARNING OPPORTUNITIES:
(1) Yarn Game may be played by children to demonstrate difference in future population growth, resulting from an average size of two children and one of three children families (see Appendix E).
(2) Have class discussion using the chart showing future projection of two versus three children.
(3) Have the students write a short paragraph on "What can the children of today do to make family life more comfortable, when they grow up and become parents?"

EVALUATION:
(1). Give objective type questions.

SUGGESTED REFERENCES:

EVALUATION

Evaluation is considered to be an essential component of this project. "Evaluation should be thought of as an integral part of the instructional program rather than a terminal activity or an end in itself" (21:102). It is planned to start evaluation from the beginning of the project. As stated before, the project will include a field trial to assess the applicability and effectiveness of the population education program. Necessary improvements as may be deemed important will be made after the field trial.

The aim of this project is not only to bring about changes in the knowledge and attitudes of students but teachers as well. A tentative evaluation instrument has been prepared to administer to the teachers prior to the training workshop to assess their knowledge and attitudes towards the population problem (see Appendix A). The same instrument would be applied at the end of the workshop to assess gain in knowledge and change in attitudes. This would also be used to find out the teachers' reactions and interest concerning the subject of population education in the school system.

Another tentative instrument (see Appendix B) has been developed for the students. This will be given to
both experimental and control groups to determine their base-line knowledge and attitudes. The same instrument would be given again at the end of the course to assess increase in knowledge and change in attitudes. These instruments would also be utilized to determine the differences in the knowledge and attitudes between experimental and control groups. These differences will provide evidence regarding the effectiveness of the project.

In addition, it is also planned to assess the effectiveness of the content areas, learning opportunities and various source materials to be used. These assessments will be made on the basis of observations of interest and participation of students and teachers, and also through evaluation instruments (see Appendices C and D).

REVISION AND RECOMMENDATIONS

On the basis of feedback received from the students and the faculty, the whole project would be modified as needed. It is then proposed to publish the report of the project to make it available to individuals interested in the field.
APPENDICES
APPENDIX A

EVALUATION INSTRUMENT FOR POPULATION EDUCATION PROJECT
TEACHER'S KNOWLEDGE AND ATTITUDES

Name_________________ Subject___________________

Sex_________________ Grade Level___________________

Age_________________ Teaching Experience_____________

A. Multiple-choice Items: Mark an X in the space preceding the best answer for each of the following:

1. India's population is:
   _____a. 350 million
   _____b. 560 million
   _____c. 617 million
   _____d. 800 million

2. The world's population is:
   _____a. 2.5 billion
   _____b. 3 billion
   _____c. 5 billion
   _____d. 7 billion

3. The country with the most people is:
   _____a. United States
   _____b. India
   _____c. China
   _____d. Russia

4. The most densely populated country in the world is:
   _____a. United States
   _____b. Japan
   _____c. India
   _____d. China
5. If unchecked India's population will double in the next:

   ___a. 10 years
   ___b. 26 years
   ___c. 50 years
   ___d. 100 years

6. India's population increase is due primarily to:

   ___a. high birth rate
   ___b. low death rate
   ___c. increased migration from other countries
   ___d. increased life expectancy

7. India's most serious problem at present is:

   ___a. unemployment
   ___b. food shortage
   ___c. housing shortage
   ___d. overpopulation

8. Of the following problems, one is the basic problem and its solution will help relieve the other problems:

   ___a. inflation
   ___b. overpopulation
   ___c. epidemics
   ___d. unemployment

9. India's annual population growth rate is:

   ___a. 1.0%
   ___b. 2.5%
   ___c. 3.0%
   ___d. 3.5%

10. Rising prices in all of the spheres of life are due to:

     ___a. people do not want to work and there is less production
     ___b. people have more money
     ___c. government is increasing the prices
     ___d. disparity between demand and supply on account of overpopulation
11. The population problem is found:
   ____a. only in big cities
   ____b. in all the cities
   ____c. in villages
   ____d. throughout the country

12. India's population problem can best be controlled if:
   ____a. government uses coercive means
   ____b. people willingly plan their families
   ____c. people are forced to leave the country
   ____d. modern death control measures are reduced

B. True-False Items. Cross out the T if the statement is true or the F if the statement is false:

T F 13. Because 80 percent of India's population live in villages, where the main occupation is agriculture, large families are needed in order to have more hands to work.

T F 14. Families must have sons for family prosperity and name.

T F 15. Small families provide more love, affection and security to their members.

T F 16. To make our nation stronger, we need to have more people to protect it.

T F 17. Excessive population growth is nullifying efforts directed towards the development of our country.

T F 18. For the progress and prosperity of our nation, it is extremely important to have small families.

T F 19. The aim of the National Family Planning Program is to reduce the birth rate from 40 per thousand to 25 per thousand population.
T F 20. We still do not have a liberalized abortion law in India.

T F 21. To control our population, we need population education through schools in addition to family planning.

T F 22. Introduction of population education in the school system will generate social opposition.

T F 23. Human reproduction and methods of birth control are essential components of population education.

T F 24. Population education should be included in the school curriculum.

T F 25. The teaching of population education will change the attitude of youngsters when they will enter their reproductive period.

C. Answer "yes" or "no", or fill in words to complete statement:

26. Would you like to teach population education?_____

27. Can you teach population education without additional training?_____

28. The average age at marriage for the present generation should be_____.

29. The ideal number of children per family should be_____.

30. How much time should be allowed between births of children?_____

31. At what age should a couple complete family formation?_____
APPENDIX B

EVALUATION INSTRUMENT FOR POPULATION EDUCATION PROJECT
STUDENT'S KNOWLEDGE AND ATTITUDES

Name________________________ Grade Level________________
Age________________________ Subject____________________
Sex__________________________

A. Multiple-Choice Items: Mark an X in the space preceding the best answer for each of the following:

1. India's population is:
   ___ a. 350 million
   ___ b. 560 million
   ___ c. 617 million
   ___ d. 800 million

2. The country with the highest number of people is:
   ___ a. United States
   ___ b. India
   ___ c. China
   ___ d. Russia

3. India's annual population growth rate is:
   ___ a. 1.0%
   ___ b. 2.5%
   ___ c. 3.0%
   ___ d. 3.5%

4. If unchecked, India's population will double in the next:
   ___ a. 10 years
   ___ b. 26 years
   ___ c. 50 years
   ___ d. 100 years
5. In India, population increase is due primarily to:
   _____ a. high birth rate
   _____ b. low death rate
   _____ c. increased migration of people from other countries
   _____ d. increased life expectancy

6. The percentage of people in India who live in cities is:
   _____ a. 80%
   _____ b. 50%
   _____ c. 20%
   _____ d. 10%

7. The rise in prices and non-availability of goods is caused by:
   _____ a. people do not work and there is less production
   _____ b. there are more people than the production
   _____ c. people have more money to pay for high prices
   _____ d. businessmen want to earn more profit

8. India's most serious problem at present is:
   _____ a. overpopulation
   _____ b. unemployment
   _____ c. rising prices
   _____ d. threat of invasion from other countries

9. Of the following problems, one is the basic problem and its solution will help relieve the other problems:
   _____ a. rising prices
   _____ b. overpopulation
   _____ c. food shortage
   _____ d. unemployment
B. True-False Items. Cross out the T if the statement is true or the F if the statement is false:

T F 10. We need more people to have more hands to work.

T F 11. The more children, the happier the family.

T F 12. In a large family there is more for each member to eat and enjoy.

T F 13. To build a nation strong, we need more people.

T F 14. The increase in number of children in schools and the increase in number of schools has resulted only because of our progress in education.

T F 15. India's population problem is serious.

T F 16. India's progress is nullified by over-population.

T F 17. By having small families most of our problems will be reduced.

T F 18. Women should work outside the home after marriage.

T F 19. If a couple has the number of children they want, but all are of one sex, they should keep trying for a baby of the other sex.

T F 20. It is important to have a son.

C. Short Answer or Fill-in Items:

21. Every child has a dream to marry when he or she grows. At what age do you plan to marry?

22. Because it is natural to desire to have children, after how many years of your marriage would you like to have your first child?
23. How many children would you like to have?

24. How many years of gap would you prefer to have between two children?

25. At what age do you plan to complete your family size?
APPENDIX C

EVALUATION INSTRUMENT FOR STUDENTS ON TEACHING ABOUT POPULATION

Name____________________ Subject____________________

Sex____________________ Grade Level____________________

Age____________________

1. Did you find this course interesting?
   Very interesting?___ Interesting?___ Not interesting?___

2. Do you feel this course will be helpful to you?
   Very helpful?_____ Helpful?_____ Not helpful?_____

3. Were you able to understand the content areas?
   a. Understanding of population situation for future role. Yes___ No___
   b. Determinants of population growth. Yes___ No___
   c. Unchecked population growth adversely affects health and welfare. Yes___ No___
   d. Population problems have serious implications. Yes___ No___
   e. Population control is essential for progress. Yes___ No___
   f. Population control depends upon individual and collective action. Yes___ No___
   g. One must take rational decisions about vital events of one's life. Yes___ No___
   h. Two children families will help in the solution of population problems. Yes___ No___
4. Did you like the teaching methods?      Yes___ No___

Please specify, why or why not?__________________________

__________________________

5. Of all the methods, which one did you like the most?

Give reasons__________________________

__________________________

6. A number of different source materials were used for teaching. List those which you liked most and which you liked least.

<table>
<thead>
<tr>
<th>Liked most</th>
<th>Liked least</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Would you like to have more courses on population education?    Yes_____ No_____ 

If no, give reasons__________________________________

__________________________________
APPENDIX D

EVALUATION INSTRUMENT FOR TEACHERS ON TEACHING ABOUT POPULATION

Name_________________ Grade Level_________________

Age_________________ Teaching Experience__________

Sex_________________

1. Do you think this course was suitable for this grade level?
Very suitable?____ Suitable?____ Not suitable?____

2. Would it have been suitable for:
   A higher level?___ A lower level?___ Not at all?____

3. Was student's interest:
   Higher than usual?___ Usual?___ Lower than usual?____

4. Were the teaching methods:
   Very helpful?____ Helpful?____ Not helpful?____

5. Which of the teaching methods did you find to be particularly helpful?
   _____________________________________________
   _____________________________________________
   _____________________________________________

6. Was the student's participation:
   High?____ Average?____ Low?_________________
7. Do the materials used encourage students to analyze and inquire? Yes No. Please specify any weakness or strength in this area.

8. Which part of the project in your opinion needs improvements?

What type of improvements?

Concepts

Objectives

Content areas

Learning Opportunities

Evaluation Procedures

Source Materials

9. Would you like some other topics to be included in this course? Yes No. Please specify
10. Would you like to teach more such courses? Yes___No___
   If no, please give reasons__________________________
   __________________________
   __________________________

11. Do you think the training workshop was helpful?
   Yes___ No____. Please specify its strength and
   weaknesses__________________________
   __________________________
   __________________________

12. Do you now feel confident to teach population educa-
   tion? Yes___ No___

13. Do you feel such courses should be introduced in all
   the schools? Yes___ No____ Please give reasons
   __________________________
   __________________________
   __________________________
YARN GAME

Select two students to be a "mother and father." This couple is given three pieces of yarn to indicate that they will have three children. They select three more students to represent their three children. Each of these is then given three pieces of yarn and selected three more students to represent his or her children. Again, the new parent is connected with the yarn to the children. At the end, the students should diagram the activity on the blackboard.

The activity may be repeated again with two children, for three generations. Then the second chart should be drawn at the blackboard. Have the students analyze the data in the charts making comparisons between them (49:32).
BIBLIOGRAPHY
BIBLIOGRAPHY


14. Clem, Zarembi N. "Population Control Myth or Fact as a National Goal." Arizona State University, April, 1971. (microfilm)


