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ABSTRACT

Focusing on the interaction between population growth and the quality of man's environment, suggestions are made for an interdisciplinary approach to teaching concepts and appropriate analytic tools and attitudes for solving related problems. An outline of a kindergarten through twelfth grade plan for teaching nutrition is given as an example. Suggestions are made for teacher preparation, instructional materials, and teaching processes. [Not available in hardcopy due to marginal legibility of original document.] (EB)

Population Studies: A Multidisciplinary Concern

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As man entered the decade of the 70's he offered many appraisals of the earlier two-thirds of the century and countless predictions for the remaining third. In both cases, the summarization of past events and hypothesizing about the years to come, statements marked by diversity and commonality have been received with high levels of interest. Of the many concerns expressed in statements of foresight and hindsight one seemed to grow in intensity. That is the interaction between the ever increasing numbers of people and the quality of man's environment. Modes used in expressing this concern varied as did perceptions of causes, descriptions of the human condition and anticipated consequences. Attitudes too are distributed over a spectrum ranging from fatalistic to enthusiastic optimism. Included, of course, is the posture of indifference or unwillingness to recognize the existence of a problem.

The earth's population increase is a recognized accepted fact. Birth rates, death rates, growth rates, distributions and areal densities while increasingly accurate are calculated estimates. These and other demographic factors can be traced historically, however, the degree of precision in population enumeration varies erratically

geographically. Demographic information about two-thirds of the population and land area is based upon less than sophisticated estimates. Knowledge of how these estimates are derived, a significant factor in itself, is often undisclosed or unknown to the unquestioning consumer of population data.

The second component of the interaction, environmental quality, is subject to similar difficulties. "Quality," a value-laden term has its varied cultural connotations. Environment encompasses the litho, hydro, bio and atmosphere. Each sphere is a complex challenging man's comprehension. Interacting, interdependent and constantly changing the task of knowing about man's habitat is overwhelming. Systematized approaches and knowledge classifications have been developed to facilitate man's ability to perceive the world in which he lives more clearly.

An issue confronting curriculum developers and teachers is the extent to which attention is given to the study of man and his interaction with a quality environment. The need is readily apparent for organized studies that are directly addressed to the human issues involved with an increasing population living in a finite world. Aspects of the problem have been and are currently being treated. The need is one of developing a framework with adequate depth and breadth to provide the learner with an articulated program of studies having man, as a human, as the central theme.

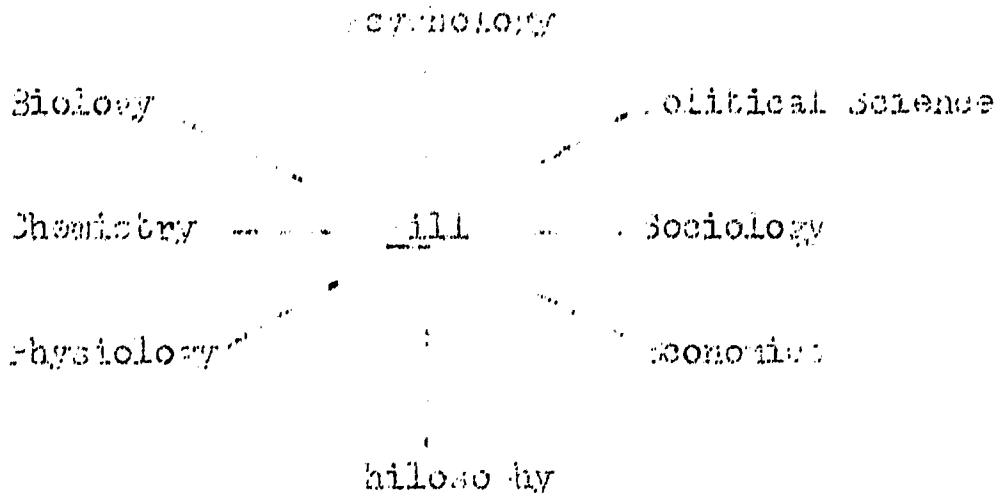
The body of knowledge, tools or skills of inquiry and attitudes involved are beyond the scope of singular curriculum areas. Neither the social studies nor science curriculum is sufficient in itself to adequately assist the learners. The dangers associated with over-simplification through the study of single causes and consequences or superficial descriptions in this complex issue can be perilous as well as grossly misleading.

The search for simple solutions to complex issues has led to frustration and dissatisfaction. Searching for solutions needs to continue, however, recognition must be given to indirect but important relationships as well as immediate dimensions. Failure to attend to subtle or seemingly remote interactions has contributed to ecological imbalances to many. Contemporary issues need to be objectively described with supportive data; causes noted including the nature of relationships; and, the impact of proposed courses of actions or solutions systematically studied. It is exceedingly difficult if not impossible to select a current issue confronting man that can be characterized in terms of singular description, cause, action and consequence.

Each day an individual is confronted with new and persistent human issues to which he must react. He may support, oppose or respond with indifference to the pill, cyclamates, new highway construction, anti-pollutants, waste disposal, food substitutes, alcohol, tobacco or drugs. The list will continue to grow. That these are issues concerning us today

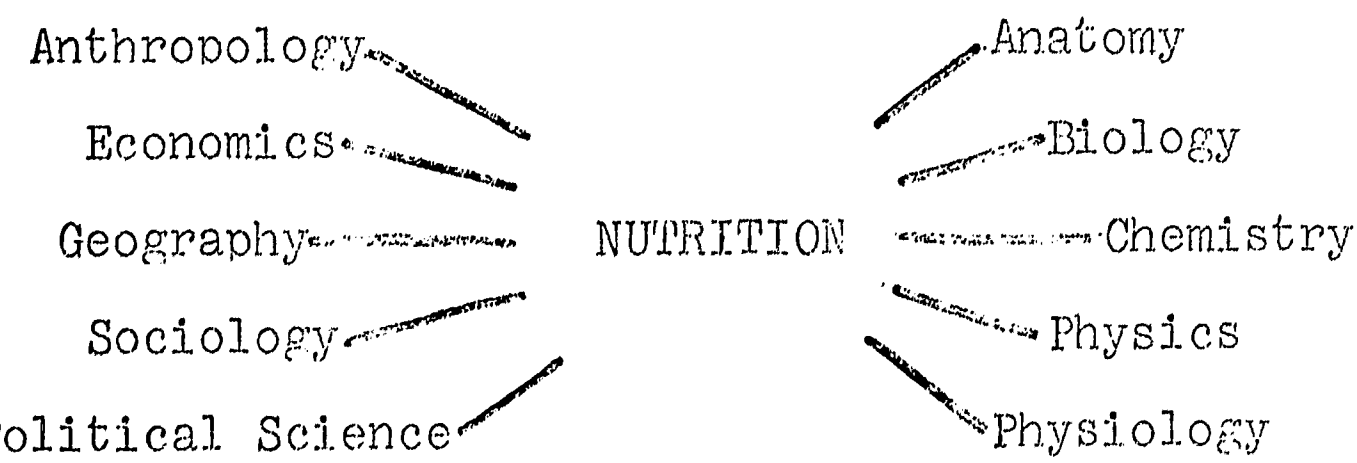
is readily accepted. That each issue can be studied using concepts and methods of a social science is accepted. That each issue can be studied using concepts and methods of a natural science is also accepted. Our learners (and teachers) need the opportunity to engage in the study of issues using social and natural sciences to see how analyses and perspectives vary as particular concepts and methods of inquiry are employed.

The interactions illustrated in the diagram are examples only. Other fields of curriculum or study could be added. The central issue or core is one of many that could be inserted.



Man is complex as is his habitat. When the interaction is studied the resultant becomes increasingly difficult for the learner as well as the teacher.

The following concept is cited as an example of the curriculum complexities associated with the study of population issues:


Anthropology
Economics
Geography
Sociology
Political Science
NUTRITION
Anatomy
Biology
Chemistry
Physics
Physiology

Within the social studies curriculum treatment of the concept, nutrition, in a K - 12 program of studies attending to selective social science dimensions may be developed in the following pattern:

Kindergarten - 4	5 - 8	9 - 12
Geography		
Plants and animals need sun and water	Land and climate influence distribution of plant and animal life	Global variations of biosphere may be shown by plotting biotic distributions on a map
Anthropology		
Eating habits or patterns vary from individual to individual and from group to group	Religion and tradition influence individual behavior	Cultural forces involved in dietary practices are influenced by and in turn influence social, economic and geographic factors
Economics		
All people are consumers of food and are dependent upon food producers	Food products may be handled by many people including producers, processors and distributors	The availability of products is a function of several economic factors including supply and demand
Political Science		
State and local governments regulate some food products to protect the consumer	Governmental agencies involved in inspection and regulatory activities influence production and distribution practices	The nature of legislation affecting producers and consumers often reflects the pressures each group exerts on lawmakers

Problems of Curriculum Change

Our schools today are confronted with a most formidable task of providing an educational environment that will enable the learners, K - 12, to develop an increased understanding of related concepts, appropriate analytic tools, and perhaps most significantly attitudes or a dynamic concern about man and the quality of his environment. This challenge is one among many. Problems of over-crowded curriculums, availability of qualified teachers, limited funds, demands for change and demands for remaining stable are among those facing students, teachers and parents. To meet the task several components may be readily identified for further elaboration. Three of these components, teacher preparation, instructional materials and teaching processes, will be briefly discussed.

Teacher Preparation

Differentiation between pre- and in-service education will not be made here. The urgency of the issue dictates efforts be conducted simultaneously. The multiplicity of factors previously mentioned offer evidence supportive of an inter-discipline background preparation. The merits of organizing a program leading to specialization in biology, geography, economics or international relations is not questioned. However, for the topic at hand a single discipline approach is inadequate. The teacher engaged in acquiring an increased understanding of selected concepts as they are related to several disciplines should be

capable of perceiving more of the problems' complexities and functioning more effectively across discipline or curriculum boundaries. It is unreasonable to expect a teacher to direct the learner's study of this multi-discipline complex issue with a background confined to one area or a survey knowledge of several.

Acquisition of this multi-faceted background is a continuous process. Interdisciplinary offerings at institutions of higher education need to be increased and included in schedules as part of on-going programs. Special topics treatment while provocative and stimulating to temporal interests are not likely to have the required sustaining qualities.

Instructional Materials

One could suggest that "man" and "his environment" are available for study in all classrooms providing an inexhaustible array of materials. However, selective sampling is required subject to the limitations of time, space and energy. Neither the teacher nor learner can engage in the study of 3.5 billion people and the totality of the litho, hydro, bio and atmospheres. The opening statement of this paragraph is not made facetiously. Materials selected for instruction should treat the interactions directly and systematically as a major curriculum thrust. Source books, professional and popular periodicals, films and transparencies are becoming available in increasing quantities and with improved quality.

While an expository nature continues to be dominant in these materials more discovery or inquiry-oriented materials are making inroads in the educational market-place.

Teaching Processes

Teaching human population issues has a three-fold goal:

1. To increase the learner's understanding of the complexities involved -- cognitive domain

2. To improve the learner's skills and his use of inquiry tools to further his knowledge -- cognitive domain

3. To develop attitudes regarding relationships between man (population growth) and environmental quality -- affective domain

To accomplish these goals the learner needs to be an active rather than passive participant in the teaching-learning processes. Laboratory-oriented programs, experimental and exploratory in nature, characteristic of today's quality science and social studies curriculums need to be extended into other fields giving particular attention to a laboratory or inquiry approach in the field of social studies, an area that has been somewhat reluctant to move away from an expository teacher, text-book approach.

An approach using concepts from several disciplines as tools of inquiry for the acquisition of additional knowledge would provide for the learner's immediate rather than peripheral involvement in the study of human surpluses and environmental deficiencies. Population counts, appraisal of

local environmental conditions, analyses of changes and quantifications of available resources are commended to you as appropriate activities suitable and challenging for most levels of instruction in our school curriculums. Moving beyond analyses of local conditions to the study of other cultural and regional treatments of environmental issues enables the learner to compare the impact of diverse value systems. A program confined to vicarious experiences, reading or teacher presentations regarding the human population crisis as an academic exercise will have but little influence on our prospective citizens.