This is to certify that the

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A CONSTRUCTION OF ILLUSTRATIVE PERFORMANCE BASED OBJECTIVES IN GLOBAL EDUCATION, K-12

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By

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ABSTRACT

A CONSTRUCTION OF ILLUSTRATIVE
PERFORMANCE BASED OBJECTIVES IN
GLOBAL EDUCATION, K-12

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Purpose

The phrase "a shrinking world" is a common saying that describes the decreasing distances between societies throughout the world. The world is not physically shrinking though; the land mass and volume of water and air are still fairly close to the actual physical shape of the world hundreds of thousands of years in the past. What has "shrunk" in the world is the distance between social groups. Because there are more of us today and because of our sophisticated and complex tools, the distance between homo sapiens has been greatly diminished. Children in schools today bridge the distance between social groups within the world by studying about peoples and their problems in "distant" lands, by talking with visitors from "distant" lands, and by actually travelling to "distant" lands. This study was an examination of these global linkages to determine themes for global education, and secondly to construct performance objectives. A subsidiary purpose was to construct evaluation measures.

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Methodology

The primary research question was to identify themes for global education. From the review of literature the five themes identified are Interdependence, Systems Theory, Worldmindedness, Finite Resources, and A New Economic Order. The themes were presented to teachers from four areas in Michigan. The participants were asked to rate each theme according to a five point scale. A percentage was used to indicate the degree of agreement the participants had with each theme. In addition mean rankings were given.

The second research question was to construct performance objectives. The curriculum for a K-12 school was divided into two general areas, elementary and secondary. One of the methodological features was the use of matrices in organizing the curriculum. The identified themes for global education were placed on the left side of each matrix, and representative subject areas in the elementary and secondary curriculum were placed at the top of the matrix. A second methodological feature was the use of Bloom's Taxonomy of Educational Objectives. Each of the six levels in the cognitive domain and each of the five levels in the affective domain were used.

A related research question was to construct assessment items. Journals in representative subject areas were reviewed and excerpts from articles were identified

as being illustrative of global education. These short selections were used in the construction of assessment items in order to give contextual clues and in a broad manner represent instructional activity. Also, the corresponding assessment items in Bloom's Taxonomy were used.

Conclusions

The following briefly relates some major conclusions and recommendations:

1. The five themes--interdependence, systems theory, worldmindedness, finite resources, a new economic order--while not all inclusive of global education themes were necessary for this study.
2. The use of representative subject areas indicates that global education is at least multidisciplinary and perhaps can include most disciplines.
3. The matrix is helpful in systematically arranging a curriculum.
4. Performance objectives can be constructed by fusing themes with representative subject areas.
5. Assessment items can be constructed for the performance objectives by using Bloom's Taxonomy.

Recommendations

1. A history of international education should be probed.
2. Researchers should study the area of definition of global education.
3. Related courses, instructional activities, and learning experiences should be developed.
4. Discussion of results of studies about global education should be started at professional meetings.

5. Groups who have varying opinions about the place of global education in the curriculum should meet to attempt to reach consensus.

6. A clearing house for global education research and activities ought to be established.

7. A needs assessment ought to be conducted.

Dedication

This work is dedicated in memory

of my mother,

who would have been

proud to have read it and

pleased to have discussed it.

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CHAPTER I

Introduction

The phrase "a shrinking world" is a common saying that describes the decreasing distances between societies throughout the world. The world is not physically shrinking though; the land mass and volume of water and air are still fairly close to the actual physical shape of the world hundreds of thousands of years in the past. What has "shrunk" in the world is the distance between social groups. Because there are more of us today and because of our sophisticated and complex tools, the distance between homo sapiens has been greatly diminished. Children in schools today bridge the distance between social groups within the world by studying about peoples and their problems in "distant" lands, by talking with visitors fron "distant" lands, and by actually travelling to "distant" lands. This study is an examination of these global linkages, and specifically to identifying themes from these linkages, and to construct performance objectives based on global themes, and finally to construct evaluation measures based on performance objectives.

Every society provides education for its members, and the functions of education, while numerous and varied, can

be considered as the general preparation of people for lives they will lead. John Dewey comments on the changing nature of the curriculum by saying, "The scheme of a curriculum must take account of the adaptation of studies to the needs of the existing community life; it must select with the intention of improving the life we live in common so that the future shall be better than the past," and also on the concern for social groups, "a curriculum which acknowledges the social responsibilities of education must present situations where problems are relevant to the problems of living together, and where observation and information are calculated to develop social insight and interest ". (Dewey, 1964: 371-372) Given this wide scope for education, if society is becoming more globalized then the content of education will become more global as society evolves.

The world-wide communications satellite network, the world-wide business community, the world-wide agricultural market, the world-wide monetary market, the world-wide exchange of scholars, artists, athletes, and students are all pieces of evidence as to how societies in the world have changed. Since society is in a continual state of flux, educational content and process will also be in a continual state of flux. Jerome Bruner speaks about this educational change, "I shall take it as self evident that each generation must define afresh the nature, direction, and aims of education to assure such freedom and rationality as can be

attained for a future generation. For there are changes both in circumstances and in knowledge that impose constraints on and give opportunities to the teacher in each succeeding generation" . (Bruner, 1966: 22) The world is "shrinking" and the distance between social groups is lessening, and it is education for the future generation which will be most difficult. It is not as hard to think of education for our children as it is for our grandchildren, yet just as we have been assisted and shaped in our growth, so too will we lay the foundation for future generations and their growth.

Education then has a responsibility for recognizing evolving social linkages and to prepare students to recognize social problems inherent in them. This is a difficult challenge and in the past education has had a spotty record. In a recent autobiography, historian Bruce Catton chastizes education and the academy he attended for its lack of preparation of students for global linkages. Catton writes of his boyhood education in Benzonia, northwestern Michigan:

> A new era was beginning, and if the academy had not prepared us to understand it the same can be said of every other school on earth. No one was prepared anywhere, and the deeper we get in this era the more baffling it becomes. All that seems clear is that the mind of man now is obligated to adjust itself (without loss of time, and under penalty of death) to the greatest revolution in human history; a revolution, not in the relations of class with class and society with society, but in the nature of man's idea of the universe and of his place in it. We have won a fight that we ought to have

> lost; which is to say that we pretty largely control the world we live in, and its levers are in our hands even though we have no idea what to do with them. We can go anywhere and do anything and because the fabulous machine we have created can neither be reversed, put in neutral or turned aside, we have to go and do the utmost limit, which is as likely or not to be our own destruction. Not since he came down out of the trees and lost his tail has man been compelled to make such an adjustment in his ways of thinking. The Renaissance was a false dawn in comparison. He is headed now, infallibly, for the infinite. . .in either direction. (Catton, 1972 :250-251)

This passage sharply focuses on the responsibility of education to society, and of the tremendously intricate nature of our present world, and on the world-wide difficulties and complexities in our contemporary world scene.

The complexities in our present global situation are inherent in a world which is no longer composed of separate entities as in the past, but is presently in fact a woven mosaic composed of all humanity. The complex issue of national and international loyalties is not resolved by noting or saying that nationalism is self centered and is dangerous, or by recognizing the historical trend of social groups in the direction of a unified world. Instead, when internationalism is proposed, is there a negation of love for one's own country, or an ignorance of the patriotism for the native homeland? If a person is nationalistic and patriotic and shows enthusiasm, a natural enthusiam, for the society and culture of his upbringing, how are diminishing world resources to be traded, allocated or distributed? If education is to prepare students for the future,

the question must be asked, what will the future in a global society be? Will the bountiful harvest of our present high technological society be available in reasonable terms for all of humanity, or will it even continue at its present growth? What attitudes ought to be set for students, in preparation of a future global society, towards the individual, members of the family, members of the community, members of the nation? A final question should be asked, what sets of knowledge should students have, in preparation for living in a global society, towards themselves, their family, their neighbors, their country ? (Rugg, 1962: 505)

The answer to these questions and others will not be found easily or simplistically, yet it is critical that some attempts be made to find means and ends which are harmonious. Dewey puts forth the challenge of curriculum and society:

> The subject matter of education consists primarily of the meanings which supply content to existing social life. The continuity of social life means that many of these meanings are contributed to present activity by past collective experience. As social life grows more complex, these factors increase in number and importance. There is need of special selection, formulation, and organization in order that they may be adequately transmitted to the new generation . (Dewey, 1964 : 372)

This study is an attempt to construct sets of knowledge of a global society, drawing from the collective social life of past generations for the preparation of a future generation.

Purpose of the Study

The broad purpose of this study is to determine appropriate themes in the social studies at the secondary level and appropriate themes in subject areas at the elementary level for a K-12 global education program.

Further purposes of this study were (a) to construct performance objectives at the secondary and elementary levels for a global education program, and (b) to construct evaluation instruments for the performance objectives.

Statement of Research Questions

The following research questions were used to accomplish the purposes of the study.

1. What are appropriate themes (such as interdependency) for a global education program?
2. What are appropriate performance objectives (such as an analysis of the impact of energy prices within the local community) for these global education themes?
3. What are appropriate evaluation measures for these performance objectives?

Need for the Study

A perusal of related research shows that little has been done in the area of global education and that there is a need for research to develop concepts and materials. In order for global education to be infused into traditional subject matter or studied as a separate area, curriculum designs need to be constructed.

Related literature points to this need for research in global education. Scholars outside the field of education

call for an increasing emphasis on the study of global linkages. A report entitled Reconstituting the Human Community addresses the issues of global linkages. The scholars involved began their investigation of reconstituting societies in the world by attempting to improve educational and cultural exchanges. They were not only interested in judging current assumptions for exchanges, but were mainly concerned about the construction of different approaches, of creative new concepts and perspectives for building fresh educational and cultural exchanges. In order to accomplish this, aspects of contemporary culture were re-evaluated as to their implications for cultural relations. Four aspects were reviewed: the first was the interdependency of people throughout the world, the second was the changing view of man caused by new developments in science, religion, the arts and philosophy, the third aspect was rapid technological change and the resulting cultural problems, the fourth was the urban problem, the population problem, the ecological problem and others. These problematic concerns coupled with a desire for a fresh evaluation and new ideas help to bolster the need for studies in global education . (Reconstituting the Human Community, 1972 : 9)

The argument for studying the impact of seemingly local or national issues - poverty, population, food, energy - on a global level of interdependence is also expressed by

Lall. He points to the energy crisis and the resulting economic problems of world-wide inflation, a decline in output, a world-wide decline in employment, and major difficulties in balance-of-payments internationally as evidence of the interdependence and globalness of nations. The successful resolution of these difficulties will not be solved unilaterally, but instead on a global basis with international cooperation. Issues such as mass poverty, population, food, energy, military expenditures and the world monetary system confound the problem of solving the energy crisis in isolation. Instead, Lall argues for global solutions. (Lall, 1975 : 36-37)

Ward and Dubos call for global education studies, and in particular the study of the impact of primary issues on all economies. Their passage also points to the study of the whole world in place of area studies:

> Nor do problems and difficulties vary completely from region to region. Air pollution can be as great a problem in Seoul as in Chicago. Unmanageable wastes can pile up in Bangkok as well as in Manchester. Moreover, existing areas of very high industrial concentration, pollution, and difficulty may simply be demonstrating in chilling fashion the ultimate fate of all the world's peoples as they enter more fully into the industrial order. There would seem therefore to be a strong argument for treating the planetary economy as a continuum and studying the impact of pollution, of urbanization, of resource uses and shortages on all economies, irrespective of their condition - pretechnological, newly industrial, or moving on to degrees of urban and industrial concentration which presage wholly new complexities of pressure and congestion. (Ward and Dubos, 1972 : 46-47)

Scholars within the field of education also see a need for global education and emphasize the study of global linkages. In some respects the need for global studies is not a new phenomenon in education. More than 30 years ago Alexander Meiklejohn stressed a need for students in America to be aware of the international community. He warns the democracies of the world not to fall into localisms and provincialisms. He says that it is insufficient to have students learn their proper life role in their local community, and that it is insufficient to learn national loyalties. He says that schools must serve the purpose of inculcating reasonableness in a world-state. (Meiklejohn, 1962 : 117)

Harold Shane, writing more recently, calls attention for a curriculum change concerned with interdependence. He says there is a reluctance for curriculum change, specifically, "a cliff-hanging complex, a tendency to avoid curriculum change until absolutely necessary. For an example of this wait-and-see attitude he says that almost no schools are directly meeting the need of a curricula change dealing with the increasing interdependency of the earth's peoples on a resource poor planet". (Shane, 1975 : 106) In the same book Harold Lasswell speaks of interdependence and what it means for global inhabitants. There is virtually no doubt, he says, of one future projection: an increasing interdependency in acquiring values. This will happen because of more travel, more trade, and more investment among the world's population. Lasswell further says that even if these linkages are limited, the essence of

interdependency will intensify because humanity's technological tools will make it necessary to take interdependence into account in making policy . (Laswell, 1975 : 2)

Increasing interdependence leads to the question of citizenship, but since teaching is an activity of the government as Pedro Orata says, the question is which government - city, state, nation, or world - should have charge of citizenship? Each of these levels has its own cultural pattern and each level can lay claim to its portion of citizenship education. Also, students would need to be prepared to live at all levels excluding none. Yet Orata argues that "education belongs to the world-state" because the world-state does not exclude the other levels of government in criticism and debate. If everyone were taught that he is an individual of the world first, then all other experiences would be derived from the first . (Orata, 1962 : 116)

The need for global education is not limited to public schools alone. Maurice Harari writes that there is sufficient reason for globalizing higher education. He argues that a transnational framework for research, development, and training will at least help to promote international understanding. But in other ways a knowledge of different cultures and of the interdependence of mankind should help greatly in noting world problems and in marshalling global support for solutions of crucial global issues. Additionally, Harari recognizes that an understanding of the background of

another culture helps in understanding one's own culture. Finally, there is a moral dimension in global education which finds repugnant the starvation and sickness of those in relative misfortune. Harari chastizes education for ignoring the major problems of humanity and for not providing solutions to these problems.(Harari, 1972: 9)

The need for global education studies in schools is also expressed by Lee Anderson. He says that in the past the school has been an agent of the community, but that the nature of the community has changed, or will change, to include more transnational interactions. He argues, therefore, that schools must view themselves as agents of a global society . (Anderson, 1968 :85-86)

In Michigan, the need for global education has been expressed by John Porter, Superintendent of Public Instruction. He calls for a change in curriculum because, as he says:

> Since our awareness of the need for global education is relatively recent, the curriculum has not had time to take this into account. . .Our youth are constantly confronted by world problems and difficulties through television and newspaper reporting. Yet, we have generally failed to provide any framework or support for students to help them come to terms with the reality of what they now see and hear . (Porter, 1975 : 9-10)

Finally, the school as an institution is charged with the task of citizenship training. Citizenship, in the future, will be more global in nature. The school, then, is an excellent institution for the development of global education. King gives the following rationale for the inclusion of

global studies in the curriculum:

> It is evident that social forces in contemporary living are propelling the individual into a world culture. It is the task of the educational enterprise more so than any other institution in American culture to develop this world perspective with the children of today, so they will be able to function in the global community of tomorrow. (King, 1971 X1)

Significance of the Problem

Global education is a response to a changing world structure, a change that Robert Heilbroner calls "convulsive." Multi-national corporations, finite resources, population explosion - how are they to be viewed in order to be solved? How are they to be studied in order to be known? Global education is a response to these questions; it is a response that views the world holistically and dependent upon its diverse parts for continuity.

The rationale for international understanding in the field of education has changed in the past three decades since World War II. The rationale during the 1940's was based on a nationalistic and pragmatic approach, whereby national security and power would be enhanced if the citizen knew about world events, problems, and politics. In the 1950's and 1960's the rationale for international understanding was based on providing for world peace and human understanding, whereby citizens would recognize their cultural biases and become empathetic, tolerant, and open-minded of different values. In the 1970's and indeed the last quarter of the 20th century, the rationale for

international understanding will have to be derived from an approach of viewing problems on a world order and sensing a loyalty to the human race as a whole while recognizing its unique parts. (McKeown, 1973)

This global view can be described as worldmindedness. Worldmindedness is defined by Sampson and Smith to be a "value orientation or frame of reference. . .We identify as highly worldminded the individual who favors a world view of the problems of humanity, whose primary reference group is mankind rather than American, English, Chinese, etc." (Sampson and Smith, 1957 : 99)

Global education can be considered as inculcating the attitude of worldmindedness; it can be considered as the teaching of the world and its workings; it can be considered as developing the behavior of a world citizen.

Global education also addresses the significant question of whether there are, or aren't, enough resources available in the world to meet the demands and needs of humanity. Ward and Dubos speak to this complex question by mentioning the difficulty in calculating costs which reflect scarcity or abundance in both market economies and planned economies. The process of computing present reserves, materials, rising consumer consumption, rising population, and energy resources begs the question if indeed any rational projections can be made of these aspects. The difficulty in answering this question is due to the interdependence of these factors; the variables, unfortu-

nately, affect each other making forecasting very risky . (Ward and Dubos, 1972 : 115)

The significance of this interdependence is also noted by scientist Barry Commoner. He says that while modern technology has been successful in providing certain parts of humanity with an abundant supply of food, huge industrial plants, high-speed transportation, and powerful military weapons, these also interconnect to threaten humanity's survival. The monumental material base of society, built by technology, threatens the survival of humanity unless serious economic, social, and political problems are resolved. He says the paradox of technological advance is due to the success of industry in "plundering" natural resources. The debt incurred in destroying and depleting natural resources is even greater today because the resources involved are not just lumber and minerals but the basic necessities of life - air, water, and soil . (Commoner, 1966 : 126-127)

"World eater" is the term given by famous anthropologist Loren Eisely to apply to this type of consumption. He ably describes the significance of the present global situation:

> We live in an epoch of localized affluence, asserts Thomas Lovering, and expert on mineral resources. A few shifts and subterfuges may, with increasing effort and expense, prolong this affluence, but no feat of scientific leger demain can prevent the eventual exhaustion of the world's mineral resources at a time

> not very distant. It is thus apparent that to apply to Western industrial man the term 'world eater' is to do so neither in derision nor contempt. We are facing, instead, a simple reality to which, up until recently, the only response has been flight - the flight outward from what appears unsolvable and which threatens, in the end, to leave an impoverished human remnant clinging to an equally impoverished globe. (Eisley, 1970 : 64-65)

Commoner again aptly describes the present global situation as a time in which there is both tremendous technical power and almost desparate human need. The evidence of technical power is in the megatonnage of nuclear bombs and the megawattage of power plants. The evidence of human need is in the enormous numbers of people and their deteriorating habitat. Unfortunately the gap between technical power and human need continues to grow and the global situation worsens. (Commoner, 1971 : 294)

The population explosion is also a major concern of Georg Borgstrom. He says the post-war surge in human numbers is a phenonmenon which is without doubt the most ominous aspect of humanity. In this century the world population will double twice, an act which is unprecedented in the history of humanity, yet few people realize the impact of this dimension and the true nature of this event. (Borgstrom, 1973 :15)

Robert Heilbroner paints a very pessimistic view of the present global predicament. Nature, he says, will intervene to force changes:

> Therefore, the outlook is for what we may call 'convulsive change' - change forced upon us by external events rather than by conscious choice, by catastrophe rather than by calculation. As with Malthus's much derided but all too prescient forecasts, nature will provide the checks, if foresight and morality do not. One such check could be the outbreak of wars arising from the explosive tensions of the coming period, which might reduce the growth rates of the surviving nation-states and thereby defer the changes of industrial asphyxiation for a period. Alternatively, nature may rescue us from ourselves by what John Platt has called a "storm of crisis problems.' As we breach now this, now that edge of environmental tolerance, local disasters - large-scale fatal urban temperature inversions, massive crop failures, resource shortages - may also slow down economic growth and give a necessary impetus to the piecemeal construction of an ecologically and socially viable social system . (Heilbroner, 1974 : 132-133)

There is a passage in the book Mankind at the Turning Point which describes how problems are at a global level and illustrates the interdependence of nations. In Eastern Europe during the winter of 1971-72 there were very low temperatures and high winds which demolished one-third of the Russian winter wheat crop. The government bureaucracy had a crisis on its hands which required dependency as a solution. The United States government and the Soviet Union made an agreement for a grain purchase of 750 million dollars, a figure which underestimated the actual cost. The grain purchase affected the market in North America by decreasing supply and raising prices. More importantly, during the same year the crops on the Indian subcontinent were heavily damaged by a late monsoon. Unfortunately, the world's surplus of wheat had been sold, and there was no wheat on the world market for Asia, or for China which faced a drought or for Africa which also had drought and

famine. In years previous, surplus wheat could have been shipped to Africa, but none could be found to meet the needs, Hundreds of thousands of Africans faced starvation because of misfortunate events at a global level. (Mesarovic and Pestel, 1974 : 19)

The authors of Reconstituting the Human Community, who don't subscribe to all of the conclusions of the Club of Rome report, nonetheless recognize the problems presented in the report from which there is no escape. Pollution, population pressures, and the raw materials crisis threaten the destruction of man's life-support system. The authors also recognize that the present world system is likely to be changed, and consider it most likely that the change will be violent. The gap between the rich and poor countries will increase. There is still a political incapacity to come to grips with these problems, and whatever restructuring would require a fundamental restructuring of the present world system. (Reconstituting the Human Community, 1972 : 10)

This restructuring of political systems is also emphasized by Ward and Dubos who call for more than local or national decision making:

> It is no use one nation checking its energy use to keep the ice caps in place if no other government joins in. It is no use the developed nations suggesting lower energy use just at the moment when the developing nations see increased use as their only exit from the trap of poverty. The global interdependence of man's airs and climates is such that local decisions are simply inadequate. Even the sum of all local separate decisions. wisely made, may not be sufficient safeguard and

> it would take a bold optimist to assume such general wisdom. Man's global interdependence begins to require, in these fields, a new capacity for global decision-making and global care. It requires coordinating powers for monitoring and research. It means new conventions to draw up ground rules to control emissions from aircraft and to assess supersonic experiments. It requires a new commitment to global responsibilities. (Ward and Dubos, 1972 : 195)

The significance of this study is that it relates the pressing problems of humanity to the educational system. The problems are not minor and cannot be solved by local units acting independently. There are global issues which affect the qualtiy of life for every person. These problems will not diminish in their complexity but instead, they will intensify in the years to come.

Limitations

This study will have certain limitations because of the complexity of the issues. Although this research will identify themes for global education, the themes identified should not be considered as inclusive. Other researchers may select themes other than the ones identified in this study for use in global education.

Another limitation is that the performance objectives will be, by necessity, broad in scope. Some specificity will be lost due to the scope of the performance objectives. Other researchers may want to work further in this area in an attempt to refine performance objectives in global education.

A third limitation is in the appropriateness of the performance objectives for the grade levels involved. In order to gain specificity, two matrices will be used to

coordinate the performance objectives according to grade level. The matrices are for the elementary grades and secondary grades, yet even with this breakdown there is a wide range of grade levels. The elementary grades cover a range of seven grade levels, K-6, and the secondary grades cover a range of six grade levels, 7-12. Within these ranges there is room for more specificity according to grades or age groups of a two to three year span. Further research can help to clarify this area.

A fourth limitation is that this study will not construct performance objectives for all subject areas, but instead a diagonal is used to limit the number of performance objectives covered. This is due to the scope of the problems involved. Further research could help to construct performance objectives for all subject areas.

Definition of Terms

Certain terms are defined in order to clarify the concepts represented by the terms as they are used in this study.

International Education -- This term refers to the broad area of education of countries and cultures outside of a particular country; also the study of educational, social, political, and economic forces in international relations, and the study of international affairs for human understanding.

Global Education -- This term refers to the continual development of knowledge and involvement and awareness in viewing the people in the world as interdependent, in understanding that many of the world's resources are in a condition of scarcity and that the locus of power in the international economic order will shift and change. Global education calls for the study of problems as part of larger world systems, and finally, global education will allow for the development of a sense of world community.*

Performance Objectives -- This term refers to an educational objective using in most instances an action verb such as recall, translate, analyze, etc., to describe an instructional objective. A sub-class of instructional objectives which describes the actions of the learner that demonstrate the intended outcome.

Organization of the Study

Chapter I contains the introduction to the problem, the statement of the questions to be researched in the dissertation and the purpose of the study. The limitations of the study are presented.

Chapter II is the review of pertinent literature and research.

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*Of the various definitions of global education in the literature, this definition is close to that of the Michigan Department of Education.

Chapter III is the design of the study. It is a delineation of the matrices and themes for global education and the specific procedures used in this study for the development of performance objectives and evaluation examples.

Chapter IV contains the performance objectives developed and evaluation examples.

Chapter V concludes the study. In it the summary, conclusions, and recommendations for further study are made.

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CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose of this study is to identify themes for global education programs, K-12, and secondly to construct appropriate performance objectives and assessment items. This was accomplished by reviewing the literature and determining what themes have been identified by experts in education and in other fields.

Given these three purposes, the review of literature has been divided in three general sections: (1) theories and paradigms concerning global themes; (2) a brief overview of international education; (3) current activities in global education.

Theories and Paradigms for Global Themes

There are a variety of theoretical and empirical viewpoints from which global education can claim a knowledge base. The themes in this section are interdependence, global systems, worldmindedness, finite resources, and a new economic order.

Interdependence

Barbara Ward and Rene Dubos show how, in one sense, the inhabitants of this world are interdependent on one another via the use of oceans, lakes, rivers, and estuarine waters. Mankind, however, uses these waterways not so much for their aesthetic qualities but as a sewer for human wastes and a dumping ground for industrial pollution. They say that because there is a heavy concentration of people living near waterways, the waterways become a logical place for refuse. Futhermore, industry adds its share of metals, inorganic materials, and radioactive wastes. In both of these incidents the consequences of localized acts do not remain in the local area, but are parts of the world. (Ward and Dubos, 1972: 198-199)

Another sense of this interdependence is discussed by R. Buckminster Fuller, who shows how, in a short time span, we are interdependent via industry. He asserts:

> With steel shipmaking came a whole new world of alloy steels with unique capabilities. This brought about further scientific exploration of the earth for rare alloys. It also brought about total world inter-

> dependence. For instance, as is visible today the steelmaking constituent manganese, found plentifully in Ghana, is useless to Ghanaians, who have neither coal nor iron with which to make steel. Ghanaian manganese must be transported overseas to make the steel, which will be exported back to Ghana and many other countries as tools, machinery, and structural components. Industry is inherently of world magnitude, and only works as a world system. The newly emerging nations around earth will soon have to learn that their political independence depends upon the degree to which they comprehend and voluntarily participate in the interdependence of world industrialization. (Fuller, 1969: 274-275)

Ward and Dubos again reinforce the sense of interdependency via the impact by humanity on ecological structures. They say because of humanity's recent, enormous accelerations in population, in consumption of energy and raw materials, in urbanization, and in the resulting pollution, technological man has set a pattern which might make a permanent change for the worse on the natural ecological systems upon which biological survival is derived. The impact on ecology is readily apparent. Volatile chemicals which contaminate a river catch fire with the result of rivers burning their bridges. The Baltic and Mediterranean seas are polluted with wastes which certain bacteria and algae feed on, causing a loss of oxygen in the water; the final result is that fish cannot live in such waters. The atmosphere is contaminated with dust and particles from the burning of fossil fuels, raising the possibility of changing the earth's temperature in unforseeable ways. The oceans were long thought of as a vast portion of the earth that due to their shear immensity could never be

altered. The seas were never changing. But poisons, insecticides, fertilizers, injected into the oceans have demonstrated that the oceans are not changeless giants, but instead fragile friends who are being mistreated. The other parts of our ecological system - the foliage, the hydrosphere, the geosphere - also demonstrate the concept of interdependency, of humanity with nature. (Ward and Dubos, 1972: 11)

But humanity is also interdependent with one another. Actions taken by groups of people may very well have more than a local impact. Herman Kahn and B. Bruce-Briggs, who are scholars studying possible future events, identified eleven turning points which would result in a revolutionary change in the international system. Each of these turning points displays the interdependecy of humanity. One was nuclear warfare which certainly is not a local event, another was nuclear proliferation which at the least would impact regional areas of the world, a third was a basic change in the strategic balance of the super powers which at the least would create a ripple effect throughout the world. Two other turning points were either a collapse in Western or Communist morale, another was a revival of an intense Cold War which would bring into conflict the super powers and their allies on a world wide basis. A pivotal point could also be the reversal of alliances, or the introduction of a dynamic new ideology. Certainly a

worldwide catastrophic food shortage, or a worldwide depression would be turning points. Finally, a major revolution in one of the super powers would change the prognosis. All of these possible turning points exemplify the interdependence of humanity, and many decisions and actions have consequences beyond the local impact. (Kahn and Bruce-Briggs, 1972: 149)

Finally, Ward and Dubos show how again in ecological systems, no nations or localisms are recognized. They report:

> There is, in short, no escape from the underlying unity and interconnection of man's ocean world. Seas and oceans, like the airs above, mingle with each other, pass on each other's burdens, cleanse or poison each other, move in steady currents and unpredictable tempests to weave a seamless watery web. Their rains fall on the just and unjust. Their tides sweep every human shore. Sovereign governments may proclaim their sovereign national control over their own territories. But the airs bring in the acid rain. The oceans roll in the toxic substances. Pollution moves from continent to continent. And what is territorial water off Peru today becomes territorial water off Polynesia a few weeks hence. It is, above all, at the edge of the sea that the pretensions of sovereignty close and the fact of a shared biosphere begins, more strongly with each passing decade, to assert its inescapable reality. (Ward and Dubos, 1972: 202-203)

These phrases demonstrate an interdependence of humanity.

Systems Theory

The concept of systems theory can readily be seen as a framework for global education. Barry Commoner uses systems theory to show how nature is interconnected. By using this theory his conclusion is that humanity has

reached a turning point in the habitation of this planet. The environment is a complicated, finely tuned, balanced system, and because the environment is an integrated whole it collects the impact of the individual consequences of pollution. In the history of the environment the biosphere has never been inflicted with such an array of diverse pollution. Commoner believes that the cumulative effects of this pollution could be fatal to the complicated systems in the biosphere. He warns that the continued pollution of the biosphere will not only be fatal to it but to humanity as well. (Commoner, 1966: 122)

Fuller talks about general systems theory and warns that in searching out variables, the larger ones are frequently neglected. He explains:

> One of the modern tools of high intellectual advantage is the development of what is called general systems theory. Employing it we begin to think of the largest and most comprehensive systems, and try to do so scientifically. We start by inventorying all the important, known variables that are operative in the problem. But if we don't really know how big 'big' is, we may not start big enough, and are thus likely to leave unknown, but critical, variables outside the system which will continue to plague us. Interaction of the unknown variables inside and outside the arbitrarily chosen limits of the system are probably going to generate misleading or outrightly wrong answers. If we are to be effective, we are going to have to think in both the biggest and most minutely - incisive ways permitted by intellect and the information thus far won through experience. (Fuller, 1969: 60)

Commoner also uses general systems theory in viewing the complexity of issues created by the environmental crisis. When the connections between the different parts of the problem are mapped, it is then possible to perceive new methods of solving the whole problem. He gives as an example of systems theory the problems of developing countries and their need for productive activities and the problems of industrialized countries and their need for productive ecological activites. When the connections between these two seemingly different problems are recognized at a global systems level, ways of solving both become apparent. A shift of resources could help to balance global systems. (Commoner, 1971: 298-299)

Fuller again talks of systems and networks and interconnectedness. This quote shows how the world operates as a system:

> Take away the energy distributing networks and the industrial machinery from America, Russia, and all the world's industrialized countries and within six months over two billion swiftly and painfully deteriorating people will starve to death.
>
> Take away the politicians, all the ideologies and their professional protagonists from those same countries and leave them their present energy networks, industrial machinery, routine production and distribution personnel and no more humans will starve nor be afflicted in health than at present. (Fuller, 1969: 270)

Worldmindedness

The concept of worldmindedness is a relatively recent

phenomenon in the history of world events. Ward and Dubos speak of worldmindedness as a counter to "tunnel vision." They say that because of the population explosion, inflation, increasing technology and human aspirations, there is but a short time span to make environmental decisions, yet people in the developed world see the world with tunnel vision. The people in the developed world constitute one-third of the human race yet have difficulty thinking of the other two-thirds of humanity. (Ward and Dubos, 1972: 144-145)

Fuller also speaks of worldmindedness and how humanity has changed its perspective of the world. He says that humans have been on the earth for at least two million years and have been living on the planet Earth without knowing that the land was part of a planet in space. Humanity is now emerging from this ignorance and is beginning to become broadly aware of the biosphere. Humanity is quickly coming to understand that they should consciously operate this planet in space with cooperation, competence, and integrity. (Fuller, 1973: 100-101)

Kenneth Boulding, an economist, also talks of worldmindedness and how the image of man and the image of the environment have changed. He says that humanity is in the middle of a transitional process. Primitive man and early

civilizations thought of themselves as living on a flat plane, but a plane from which there was always someplace beyond, always some new frontier. When life became difficult because of a breakdown in the environment or the social structure, there was always somewhere else to move too. Humanity has for a very long time made decisions within the framework of an available frontier. However, historically over time, humanity has been developing the idea of a spherical earth and of limited sphere of human activity. It was only with the voyages of discovery when evidence of the earth was a sphere was established, and it was not until World War II that the global nature of the earth and the ending of the frontier mentality became part of the common mind. (Boulding, 1968: 275)

Thoughout history, says Fuller, 99.9 percent of humanity lived on only 10 percent of the total earth surface, living in those places where life could be supported. The land which was most conducive for living was not in one geographical location, but was instead a number of relatively small pieces spread widely over the surface of the earth. Humanity, isolated in small groups, was almost entirely oblivious of the existence of a social collective. The isolated pockets of humanity were, throughout the world, ignorant of the array of various environments and patterns of living. Fuller

goes on to say that the first "world men" were those who, through trial and error, built fishing vessels and then sailing vessels, first for excursions within the shoreline, then for distance sailing around the world. (Fuller, 1969: 15-16)

Finite Resources

The notion of diminishing resources is a critical element in global education. The impact of fewer resources can create political turmoil, economic despair, and social chaos. Borgstrom writes of an incident in Bolivia in which students demolished the Chilean Embassy. The cause of this violence was not political; it was instead a diminishing supply of water. A river, which originated in Chile but flowed through Bolivia, was the target of a hydroelectric project. The result of the project was a scarcity of water. (Borgstrom, 1969: 206)

The manner by which economic problems are analyzed is changing due to the world resources crisis. Prior to the energy crisis, economists held to the idea that demand was the key to economic growth. It was assumed that the supply side of economic equations was large enough, but that demand was never sufficient for economic growth. Because of the energy crisis, a scarcity of supply has taken the place of scarcity of demand as a barrier to economic growth. The situation has shifted. (Helburn, 1976: 53)

The questions of real cost, which are seldom addressed by governments or businesses, are what it will cost to carry on life when we deplete oil reserves and coal reserves, and if there is no fresh water and fresh air. Fuller sees fossil fuel and atomic fuel as a savings account which was developed through the ages. We now have to invest in other forms of energy instead of drawing on a diminishing "savings account". (Fuller, 1969: 278)

In our industrial society there has been an illusion of unlimited power, and this illusion has answered the problems of economic production. Schumacher, an economist, shows that capital assets are really a part of nature. He gives an analogy to explain this comparison. "A businessman would not consider a firm to have solved its problems of production . . . if he saw that it was rapidly consuming its capital. How, then, could we overlook this vital fact when it comes to that very big firm, the economy of Spaceship Earth. . .". (Schumacher, 1973: 14)

A material surplus has been the hallmark of the years since World War II. In these 25 years the major economic issue has been the availability of the consumer markets by the producers. But events in the last few years demonstrate the emergence of a more critical issue, that is, the availability of resource markets. The access to resources such as minerals, grains, lumber, fish, soybeans and energy will be the central issue. The change in the commodity markets from the purchasers who traditionally were in control to

the producers who will be in control, will have a profound effect. (Helburn, 1976: 84)

Fuller also talks of scarce resources and how we must take account of this in planning future developments. He says:

> In organizing our grand strategy we must first discover where we are now; that is, what our present navigational position in the universal scheme of evolution is. To begin our position fixing aboard our Spaceship Earth we must first acknowledge that the abundance of immediately consumable, obviously desirable or utterly essential resources have been sufficient until now to allow us to carry on despite our ignorance. Being eventually exhaustible and spoilable, they have been adequate only up to this critical moment. This cushion-for-error of humanity's survival and growth up to now was apparently provided just as a bird inside of the egg is provided with liquid nutriment to develop it to a certain point. (Fuller, 1969: 57-58)

Schumacher again says that the shifts in the years since World War II, both quantitatively and qualitatively, have created an entirely new predicament -- a predicament caused not by failures but instead from successes. This predicament has developed so suddenly that humanity has failed to take note of an important capital asset, the margin of error that nature has provided. (Schumacher, 1973: 18-19)

A New Economic Order

The idea of a new world order is one which is based on the dynamic of change. If the present relationships will lead to disaster, then it becomes incumbent for new relationships

to develop. Borgstrom says that "a radically new way of thinking is demanded." This type of thinking, he explains, will result in a change of the present system based on more equitable economic relationships. As an example he offers a nutritional council spanning the entire world, and adds that it would make a far more positive step toward peace in the world than any hopeless disagreements over disarmament. The poor of the world, in their destitute condition, are losing patience. A more rational contribution to the world, rather than a military expenditures race, would be to channel resources and efforts towards improving the condition of humanity. (Borgstrom, 1969: 247)

The evidence of huge amounts of wealth in the world, and a growing feeling that the "establishment, the government, the system" is accountable for social injustice, could cause social justice cries to become elevated into a world consciousness. The intense feelings over issues, both those at home and abroad, could increase and develop into a situation where the lone person or small group feels compelled toward using terroristic devices. There is the distinct possibility of a major gap forming between those who are satisfied with the way things are, and those who are not satisfied and feel things ought to be different. (Kahn and Briggs, 1972: 142)

Monetary imbalances, increasing unemployment, and rising inflation in the industrialized nations and inflation and poverty in the Third World nations have led to

an interest in a new international economic order. This economic upheaval has made economists and others question the basic premises of the world economic system which has not closed the gap between the wealthy and the impoverished. One contention is that the free market system is not really free, but is structured in favor of the developed nations. Therefore, one reason for a structural change would be to provide equity in economic relationships. A second reason for a new world order is that there exists major, common problems for all of humanity. The impairment of the earth's life support systems has resulted in urban decay, population growth, pollution, scarce natural resources, and rising military expenditures. This mixture of problems which affect the world at large is seen as only solvable by the development of new international structures. (Rio Report, 1976: 1-2)

Borgstrom talks of the wealth in the developed countries which he feels is at the expense of the underdeveloped countries. He says:

> This exuberant abundance has led most Americans to believe in the long standing Western notion, shared by Western Europe, that the world constitutes an over flowing cornicopia. In particular the tropics have been regarded as a rich fountain from which comes a seemingly endless stream of 'goodies' such as bananas, coffee, cacao, sugar, tropical fruits, oilseeds, and oil seed cakes. Yet the image is fading fast, heralding completely new patterns in both world economy and world trade. The countries of the hungry world desperately need the lands rendering these riches in order to feed themselves. So far we have exhibited little awareness of what is

> happening, yet the unmistakable signs are there - - all the elements of a new world order. (Borgstrom, 1973: 63)

Fuller also talks about the wealth of humanity, not all of humanity, but that 40 per cent found in developed countries. He says:

> I have seen humanity transformed from a condition of less than 1 per cent to 40 per cent of the now doubled world population which is enjoying economic success and living standards superior to any pre-twentieth-century monarch's. Simultaneously the life span of that successful 40 per cent has been doubled. Though large, that 40 per cent is, as yet, a minority of all humanity.

We have now just entered into the Earth's most critical moment, that of imminent technically feasible economic success for all humanity. This, however, is frustrated by the large and prosperous minority's fearful procrastination at the entrance into the unknown, epochal changes, obviously essential to realization of comprehensive human success and total planetary freedoms and enjoyment. (Fuller, 1973: 75)

The economic units in the global economy are more interdependent than ever before in history. It is difficult to predict whether in the last quarter of this century there will be a reasonable theory and a proper method for planning economic growth. In the developed countries many experts say that the solution to the poverty in the world must wait until there is a world population stabilization. The notion is that when planners can accurately estimate the total number of people who must be provided for, then a

planned program using the earth's resources can begin. On the other hand many experts in the less developed countries argue against population control as a solution for poverty. Instead they argue for a redistribution of the world's wealth. (Helburn, 1976: 179)

The idea of a new economic order was developed in considerable part by Saul Mendlovitz and his associates in their World Order Models Project. The project initially centered around the development of models for the prevention and elimination of war. But the scholars involved felt that two other related problems - economic well being and social justice - must also be included in any model for world peace. Mendlovitz cites two reasons for including these problems. The first is that empirically, the problems of poverty and social injustice are interconnected with the prevention of war. The second reason is that individuals in the Third World felt that economic well being and social justice should receive priority over the prevention of war as social problems to be solved. (Menlovitz, 1975: X)

Boulding also talks of how interest in the order of things in a community has changed to an interest in the order of things in the world arena. He says we are at a middle level of a world order in which the industrialized countries generally agree to some sort of responsibility for the development of the poorer countries. Boulding's idea of a changing world economic order would be that "a world grants system organized on a world interest would

be likely to involve a much larger volume of grants than now obtains from the rich countries to the poor." (Boulding, 1966: 508)

An Overview of International Education:

International education as part of a curriculum for public schools is a relative newcomer in education when compared with the trivium or quadrivium. Indeed, the impetus for international education has been felt by curriculum planners mainly since 1946, the ending of World War II. There are a number of reasons for this. Even though World War I brought the United States into a large military engagement on the European continent, and minor skirmishes elsewhere, the concept of isolation dominated national thought with little regard for anything that was internationalist including the League of Nations. This inward looking security was shattered by the coming of World War II, and the citizens of the United States as well as citizens of other nations found themselves engaged in mortal combat, fighting alongside persons who spoke a different language, who were of a different race, who practiced different customs, and fighting against persons who had the same cultural mix of language, skin color, and custom. Not only were the participants on both sides of varying international characteristics, but also the battlefields and naval wars were located around the world. It was difficult to find a neutral country, and even when

one existed it was still affected by the war. A technological innovation, the atomic bomb, added a psychological feature to post World War II, for by its use more than one country would be affected, and today, if two nations in dispute resort to nuclear weapons, the rest of the world knows that death and destruction will fall upon them as well. Another reason for the initiation of international education, and most important because it is institutional in its nature, is the establishment of the United Nations. The establishment of the United Nations charter gave, for the first time, the opportunity for teachers to take an active part in promoting peace in the world. The UNESCO phrase, "since war begins in the minds of men, it is in the minds of men that the defenses of peace must be constructed," was taken as a mandate for educators to promote peace through education. Finally, World War II was a great equalizer of people and nations. The enormous scope of the war transcended national boundaries and created an international desire for peace.

International education was one vehicle for attaining peace. This type of education promotes mutual understanding. The rationale was that since we are ignorant of customs and viewpoints of other people, this ignorance causes suspicion and mistrust which would lead to war. In order to overcome this ignorance and develop mutual respect, a positive approach was instituted whereby students would

gain a genuine appreciation of different peoples, their history, their culture, their philosophies, and their contributions to the world.

Scanlon says that international education will greatly expand in the near future, and that international activities are developing at a rapid rate. He criticizes, however, the assumptions for international education at that time as being idealistic, sentimental, and politically unrealistic. Instead, he calls for creative research in the social sciences which would give intelligent and politically feasible programs. (Scanlon, 1960: 31-32)

Kenworthy says that while educators who are engaged in international education may be criticized as visionaries and idealists, the effort for international education involves people who are realistic. Since the world is interdependent, the view toward isolationism is unrealistic. The survival of the world calls for the ability to live in a world community. This ability must be developed in children for prejudices are learned at an early age, and the ability to live in a world community must be developed in a variety of subject fields. Kenworthy goes further to say that students should learn the extent of worldwide cooperation, as in efforts to eradicate smallpox throughout the world, and students should learn that war is not always the end result of conflict, but that peace is attainable. Students must also see different points of view in the world

and understand them, they must be challenged by the different views of the world and be helpful citizens for improvement. (Kenworthy, 1956: X, 14, 147)

Kenworthy gives a general outline for international education which consists of ten major points. He says students should learn that this planet is the home for all living lives, that there are similarities and differences between cultures, that there are many different ways of living, that the world is beautiful, that the world is interdependent, that there are divisions in the world, that people in other parts of the world need a better standard of living, that American students need to be effective democratic citizens, that respect for various religions and value beliefs is needed, that developing cooperation is required. Kenworthy advises teachers to not depend solely on current events as a method of teaching international education because it lacks the depth for making a solid judgment and also because the student may lack the necessary background. (Kenworthy, 1956: 10-14)

Kenworthy talks of methods for including international education in the secondary curriculum. He says that while the needs and interests of the students should be taken into account in developing a program, the program needs to use an interdisciplinary approach. He goes further to say that teachers in international education should help their students to develop a system of values which would include the

notion of the worth of all individuals in making the world a better place to live. One activity is to read biographies of individuals who have taken action based upon a philosophy of the worth of individuals. Also students should learn about world organizations. (Kenworthy, 1952: 100)

Adams and Garraty also reflect the theme of interdependence. Their studies of scholars abroad show how education was becoming internationalized at the post-secondary level. They say:

> It is natural that American students should make a conspicuous contribution to these educational migrations, for we have always been a nation of travelers. But nowadays we are surely the most peripatetic members of the whole human race. American businessmen fly to every part of the globe. Great ocean liners disgorge ever-larger cargoes of American tourists in Europe, South America and even in Africa. Members of our armed forces are stationed in dozens of remote camps and in busy metropolitan centers the world over. And our students, over twelve thousand of them each year, can be found on every continent and in nearly every major country in the world. (Garraty and Adams, 1959: 1)

Butts advocates that teachers in school systems, teacher training colleges, and in various organizations and institutions should be more versed in international affairs. He says that international affairs should be improved for teachers of history, social studies, world literature and foreign languages. He criticizes an education which inadequately prepares students for foreign affairs. He says:

> All students and staff members of schools of education need to know much more than they now do about the essential characteristics of the ways of life of other peoples of the world. They need to know more about the basic elements of foreign policy of our own government and of other governments. They need to know more about the agencies of international cooperation and control that now exist and might exist in the fields of economic, political, scientific and cultural affairs. They need to develop a greater sense of individual responsibility and concern for understanding the critical issues of international relations. (Butts, 1963: 6-7)

The Glen Falls experiment in curriculum development is an example of integrating international affairs with the established disciplines. One result of the project was the construction of teaching units which included instruction in value systems and ways of life of people in other lands, the causes of war and the means for peace, international organizations and the United States in a world setting. Other avenues for instruction focused on comparative art and business and literature and music, mathematics as a way of communicating throughout the world, and physical education from other countries. The rationale for all of this, as expressed by Long and King, was that, "American citizens must become sensitive to other cultures, conscious of the complexities of intercultural relations, humane in their outlook." (Long and King, 1964: 2-5)

Harold Taylor outlines, in broad terms, a curriculum for international education. The curriculum would include an exploration of the world's geography to learn of peoples

in the world, an exploration through science to learn the physical characteristics and basis of nature, an exploration through language to learn the arts, and of philosophy to learn of the nature of humanity, in short to learn to understand the nature and character of contemporary life and to offer useful actions. He adds:

> In order to be truly educated, each must have a full sense of the nature of modern man and of the world he lives in, and I do not see how that sense can be achieved by the kind of education now being provided by most of the schools, colleges, universities, and educational systems of the world. They have fallen behind the reality of world society and are presenting conceptions of man and his world comparable to the pre-Copernican system of ideas in the post-Copernican period. (Taylor, 1969: 3)

In an earlier book Taylor criticizes as too narrow those international education efforts that only focus on bilateral studies or exchange studies. Instead he advocates world education, using the world as a unit of analysis and viewing problems as common to all or many social systems. The objective of learning about the world system is to gain insight into the shared heritage of humanity, and to find ways to promote peace and cooperation. (Taylor, 1967: 7)

The world system is also mentioned by Anderson. He says that the concept of a world system involves two assertions concerning world affairs. The first assertion is that there is a growing world system, a global social system

which is an object of educational studies and research. The second assertion is that the growth of this system is the cutting edge of a deep innovation for the condition of humanity. This profound change, while still little understood, will expand humanity's conscious image. (Anderson, 1968: 78)

International non-governmental organizations and business organizations should be a topic of more study according to Alger. Social organization outside of governmental institutions and agencies should be under more scrutiny because of linkages provided for a viable government. He adds, "In the absence of such a political process, in which non-governmental groups are crucial, even the most perfect governmental institutions may not be able to perform a vital role in society." (Alger, 1968: 76)

The term international, used to describe activities between nations, is subject to cultural lag, according to Becker and Mehlinger. The authors argue that enormous and important changes are taking place, changes in the essence of relations among individuals and nations in the world. The use of the word international to describe exchanges throughout the world is outmoded because the reality the word describes has changed vastly. The authors argue for either a new word to describe the transactions between nations and cultures, or a change in the meaning of the word international to accomodate a changing reality. The

authors furthermore claim that if there is a conceptual lag in the definition of the word international then there may well be implications for changing the way in which social studies are taught. It is important therefore that social studies teachers adopt alternative perspectives to narrow the gap. (Becker and Mehlinger, 1968: 2-11)

Mehlinger writes of avoiding stereotypes and models for any culture, and cites the emergence of two perspectives of contemporary life, one is traditional and the other is global. He says:

> Perhaps one of the most important contributions American history teachers can make to helping students understand the nature of the contemporary world is by avoiding the temptation to overstress the uniformity in contemporary American culture. The fact is that there is not one American life style today, if there ever was. Some Americans today live truly an international existence. (Mehlinger, 1968: 683)

Along with this new international existence there is a changing perspective of using the nation-state as a dominant unit of analysis in international relations. Kelman says that while the nation-state as a unit of analysis is justified under many assumptions, what happens if the assumptions do not hold and conditions change? The conceptualization using the nation-state as a unit of analysis in certain circumstances, would be faulty. (Kelman, 1968: 665)

To counter this Scanlon and Shields point to renewed attention placed in revising textbooks and of enlarging

the curriculum of provide studies of African and Asian cultures as well. They say that an encouraging development is the effort to globalize the liberal arts program at the university. (Scanlon and Shields, 1968: XVI)

Hess and Torney point to the school as a powerful socializing agent in the area of citizenship training and political behavior. They point particularly to the elementary school as a place where much of the basic socialization of political orientations occur in the years before high school. (Hess and Torney, 1967: 114)

Morris and King have developed four cornerstones for bringing a global perspective into the elementary classroom. They are as follows:

1) To develop both a capacity for empathetic recognition of commonalities in human beings as they respond to basic needs, and a sense of involvement in the sensitivity to the reality of the human condition with reference to those needs.

2) To develop an awareness of the natural ethnocentric bias in the way people perceive each other.

3) To develop the capacity to cope emotionally and intellectually with change, complexity, and ambiguity as they appear on the international scene.

4) To develop the capacity to experience multiple loyalties and identifications. (Morris and King, 1968: 676-679)

Kelman talks of national symbols and subsystem roles for socializing young children into the nation-state. He

talks also of a process he calls "entanglement." This is where a child's loyalty to the nation-state is done through primary groups such as the family and the church. The state draws on these groups to provide an emotional attachment for the child in order to create a sentimental commitment to the political system. (Kelman, 1968: 664)

Instead of focusing on institutions, Alger argues for a focus more on problems for international education. He says that the present trend to teach how institutions operate, such as community government, national government, and the United Nations, should be replaced by a curriculum organized around problems. These problems may reflect the institution's inability to provide solutions, and it may also show problems where no institution exists. By using the problem solving approach students may recognize solutions which go beyond present institutional capacity. (Alger, 1968: 660)

Harper talks of two distinct cultures in existence today: the traditionally locally based culture, and the new world wide interconnected system. This new system uses resources from the entire earth and is becoming a different culture. (Harper, 1968: 656)

Anderson asserts that efforts to develop variety and productivity in national resources will depend on the extent to which the present generation learns the essentials of global problems. Crosscultural experiences will help to

organize the national effort to solve global problems. (Anderson, 1969: 67-68)

Becker says that schools do not really respond well to change, especially changes which may involve political issues. He says that the response of schools is a difficult organizational enterprise because the school is such a complex organization. Changes in curriculum are made in small increments and are disjointed. (Becker, 1969: 10)

Anderson has developed four dimensions for international understanding. They are as follows:

1) The curriculum should develop students' world-mindedness.

2) The curriculum should develop the capacity of the students to consume discriminately and process critically information about their world environment.

3) The curriculum should develop the capacity of students intellectually and emotionally to cope with continuous change and marked diversity in their world environment.

4) The curriculum should develop the capacity of students to accept and constructively cope with 'The realities of the human condition'. (Anderson, 1968: 641)

Current Thought and Activities in Global Education

Mohr and East write of how there has been an increase in international linkages between the United States and other countries since the end of World War II. These linkages include the arms race, multi-national corporations, technological and scientific exchange, ecology, and scarce resources. However,

the authors point to the lack of attention given international studies in the curriculum. One project they mention is the Center for Teaching International Relations at the University of Denver. The Center organized a survey study to determine materials and topics used in international studies. (Mohr and East, 1971: 3)

The world culture and worldmindedness are concepts King thinks ought to be stressed in schools. In particular the elementary level is an appropriate place to begin. She says:

> Theory and research have clearly indicated the impact of early socialization, the strength of values and attitudes internalized in the first ten years of life . . . Beyond developing within the child's general ability to perceive the world as a multi-nation whole, we must also develop what might be called "world-mindedness," or a sense of global responsibility. Children now need to become sensitive to the needs of others. They must understand the human conditions not only intellectually, but emotionally as well. Children can be made to understand and appreciate the cultural diversities and the likenesses of the world of people that surround them. (King, 1971: XI)

King also offers a method for the teaching of worldmindedness. She states that young children can, study other cultures on the condition that they are able to span their own social processes within their own society to that of other societies. By perceiving the differences between groups of people as a variation of a common behavior required for a basic need, children will enlarge their ideas of social structure and complex cultural configurations. (King, 1971: 34)

Becker says that the use of current events, the study of other nations, or international relations courses, or world

problems units, or area studies are favorable activities for cross-cultural awareness. He focuses on the area studies approach and says that while it is an improvement over traditional chronological approaches, it is only partly successful in giving insights into the way by which cultural heritages grow and develop. He adds that the area approach does not provide a context to consider certain facts such as increased human mobility, communication, and change. Other disadvantages to the area studies approach are that it gives the impressions of the "world as separate patches" and that it decreases the opportunity for the student to see the world as increasingly interdependent. Two advantages to area studies are that is goes beyond foreign policy statements and that non-Western cultures are also studied equally with Western cultures. (Becker, 1972: 7-8)

Becker offers a set of criteria so that teachers can make decisions as to which topics or issues fall within the boundaries of global education. These criteria include the interest and importance of the topic to both the student and the modern world; the opportunity for the student to examine his/her own personal values; the opportunity for the student to develop concepts; the opportunity to develop attitudes; encouraging information processes or information management skills which include the ability level and maturity of the student; relating the global topic to other topics in the curriculum. (Becker, 1972: 10)

Becker also gives four cornerstones for any international or global education program. The four are:

1) The need to break down sharp distinctions between the study of American society and the study of other societies.

2) The need to integrate the collection of traditionally separate disciplines and concerns associated with international relations at the high school as well as the college and university level.

3) The need to highlight the wholeness and interdependence of the modern world, while at the same time recognizing its great diversity and acknowledging the individual's attachment to separate groups and cultures.

4) The need to integrate a concern with the earth as a planet and mankind as a species of life with a study of the international system as such. (Becker, 1972: 2)

The authors at the Management Institute for National Development identified nine objectives for studies in global education. These objectives include clarifying values about global interdependence showing the inequity of resource distribution, sensing the explicit links between the student's community and the world, appreciating the complexities of development cooperation. The objectives also call for an appreciation of the roles of transnational elites, the role of science, the nature of the transnational economic system, the nature of informal global institutions, and understanding traditional cultures in the nation-state. (Management Institute for National Development, 1973: 9-15)

Wood argues that the idea of interdependence should be included in all courses, and argues that knowledge of this theme is needed at both the affective and cognitive levels in order to develop a global consciousness. She adds that behavioral objectives, appropriate for a given course, are needed to reflect the concept of interdependence. (Wood, 1974: 665)

Hanvey explains that the world as a system is not well understood because the interactions have not yet been charted or analyzed. But corporations and policy planners are beginning to study world system dynamics. The cause and effect relationship, applicable in so many practical situations, is beginning to be used at a global level. Hanvey warns that some knowledge of systems theory is too technical, but certain concepts and principles can be used in the classroom. He further adds that not only should system interactions be learned but that also cultural expectations within systems. Hanvey holds that this type of learning must be done through formal education for two reasons. The first is that the knowledge involved in systems theory is technical, and the second is that common beliefs may be challenged and justification and clarification would be required. (Hanvey, 1975: 13-14)

Hanvey talks of the benefits of systems theory analysis when viewing linkages. He says:

> The emergent global cognition contrasts sharply with the pre-global. Long term consequences begin to be considered. Linkages between events are seen in the more complex light of systems theory. Social goals and values are made explicit and vulnerable to challenge. And nations begin to note that their interests and activities are not separable from the interests and activities of others. Further, systematic attention is given to problems that transcend the national, regional, or coalitional. (Hanvey, 1975: 25)

Remy and others have identified six factors which lead to a growing sense of interdependence and unity throughout the world. The first is that there is an increasing volume of trade usually instituted by multinational corporations. The second factor is that there has been an increase of transnational organizations as exemplified by scientific and educational associations. The third factor is that domestic politics are increasingly crossing over to foreign affairs. The fourth factor is the globalizing of social problems. Problems such as ecology and finite resources most likely will not be solved solely in the domestic arena. The fifth factor is the increasing similarity throughout the world in humanity's culture and social institutions which is due to a mass society. The sixth factor is the emergence of alliances and economic unions which provide avenues for further bringing together parts of the world. There are regional groupings forming which override national decision making. (Remy et. al., 1975: 51-52)

Remy and others have identified three different frameworks for the study of international relations and global political activity. The most common framework is to consider the world made up of nation-states and to study their interactions. The second framework is to consider the world as the first stage bringing people into linkages of world-wide interdependency. The third framework includes an idea of norms of moral unity as "the underlying structure of our international political life." (Remy et. al., 1975: 45)

At a Wingspread conference in 1976 the participants developed a typology which included four different types of student abilities. The student abilities are:

1) Perspective . . . It implies a general orientation or a set of basic assumptions. A certain background of knowledge is required for the full development of a global perspective. For example, one cannot be aware of the impact of the global distribution of sources of raw materials upon one's life without some basic knowledge of geography.

2) Motivation . . . This emphasizes the active approach to learning about global issues and participation in activity related to them. Too many listings of educational objectives pay insufficient attention to the energizing and directing functions of motivation. Knowledge, perspective, and attitude without the motivation to put them into practice are of little value.

3) Skills of analysis and judgment . . . This dimension includes skills of synthesis in the analysis of political communication and the ability to analyze the global implications of policy decisions. Skills in processing information from a

> wide variety of sources is one of the most important aspects of an individual's competence in dealing with global issues. A certain background of knowledge is also required since analysis must take place within the framework of existing knowledge.
>
> 4) Attitudes . . . In some respect it bears a close relationship to motivation. However, value dilemmas may be raised when one attempts to distinguish between 'good' and 'bad' attitudes. (Wingspread Workshop, 1976: 9-10)

The Michigan Department of Education has developed a series of guidelines for global education. These guidelines include a sequential study of world geography, a foreign language, basic concepts in the social sciences. The guidelines also advocate a study of social, political, economic systems, international labor and business networks, causes and effects of pollution, uses and abuses of energy, the global implications of natural disasters, artistic expressions of other cultural groups, scientific studies from a global perspective, and an awareness of human rights. The guidelines also add a study of different religions, world hunger, world health problems, international conflicts, different cultural activities, exchange programs, contact with other countries, and participation in community programs with a global orientation. (Guidelines for Global Education, p. 3)

Anderson and others argue that the development of competencies for the learner is a difficult but not an impossi-

ble task. They say that competencies are based on "certain capacities, and that these capacities are in turn made up of cognitive, emotional, perceptual, and social traits which can be taught. These traits can be taught and also reinforced in a K-12 curriculum involving many subjects." (Anderson et. al., 1978: 19)

Kinghorn and others have developed four themes for global education. The first is the value of diversity, an educational goal promoted by identifying alternative beliefs and understanding that there are different life-styles in existence. The second theme is to view the world as an interdependent system. This is accomplished by the perception of finite resources and identifying international linkages which already exist in the community. The third theme is to develop an effective working relationship with others. This specifically means the ability to engage in transnational communications. The fourth theme is an understanding of world conditions, and an understanding of emerging trends. (Kinghorn et. al., 1978: 10-11)

Finally, the Michigan Department of Education gives this definition of global education and focuses on inter-dependency, systems, and the world community. They write:

> Global education is the lifelong growth in understanding, through study and participation, of the world community and the interdependency of its people and systems -- social, cultural, racial, economic, linguistic, technological, and ecological. Global education requires an understanding of the values and priorities of the many cultures of the world as well as the acquisition of basic concepts

and principles related to the world community. Global Education leads to implementation and application of the global perspective in striving for just and peaceful solutions to world problems. (Guidelines for Global Education, p. 3)

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Chapter III

Methodology

Introduction

The purpose of this study is to identify themes for global education, and secondarily to construct performance objectives based on these global education themes. A related but peripheral purpose finally is to construct assessment items for the performance objectives. Therefore, the study is designed to be developmental in its approach in order to answer the research questions posed in Chapter I.

Procedure

Step One

The first research question is to identify themes for a global education program. In order to accomplish this a thorough review of the literature was made to identify significant topics in global studies. From the review five themes were identified. The five themes are as follows:

1. Interdependence
2. Systems Theory
3. Worldmindedness
4. Finite Resources
5. A New Economic Order

These five themes were presented via a pilot study to twenty teachers in the Menominee school district. These teachers were chosen because they are one of four selected school districts participating with the Michigan Department of

Education in implementing an innovative program in global education. A questionnaire was used in the pilot study and the participants were asked to rate the five global education themes identified on a five point scale. Each of the five identified themes included a description. The results of the pilot study demonstrated that the themes included the salient features of global education, and the study also demonstrated that the themes were sufficiently defined.

In order to gain validity the five global education themes were presented to 138 teachers from four areas in Michigan. These areas include Lansing, Benton Harbor, Saginaw, and Battle Creek. These teachers are candidates in a graduate program entitled Master of Arts in Classroom Teaching. These teachers were chosen as the sample group because of their experience in the classroom. As in the pilot study, the participants were asked to rate each global education theme according to a five point scale. When the data were collected the responses were tabulated and a percentage was used to indicate the degree of agreement the participants had with each theme.

Step Two

The second research question was to construct performance objectives for global education. The performance objectives are based on global education themes. The performance objectives

do not include the conditions of learning nor the criteria of learning.

In order to construct these performance objectives the curriculum for a K-12 school was divided into two general areas, elementary and secondary. This was done because some objectives may be appropriate at the secondary level but not at the elementary level. In addition, the curriculum at the secondary level was divided into typical subjects -- economics, geography, government, history, sociology, and world problems. And the curriculum at the elementary level was divided into typical subjects -- art, language arts, math, reading, science and social science.

One of the features in step two is the use of a matrix in the construction of performance objectives for both the elementary and secondary areas. The identified themes for global education were placed on the left side of each matrix, and the subject areas commonly found in the elementary and secondary curriculum were placed at the top of the matrix. The matrices were used because they aid in systematically constructing performance objectives for global education. In addition, in order to gain a measure of objectivity the subject areas were positioned alphabetically across the top of the matrices.

This type of organization allows for the systematic construction of a curriculum by using coordinates or cells. When a global education theme intersects with a subject in the

curriculum, the area where they intersect is called a cell or a coordinate. In the instance when the global education theme interdependence intersects with a subject in the curriculum such as language arts, or history or economics at the secondary level, a performance objective can be systematically constructed by fusing or combining a theme with a subject in the curriculum. Within Chapter four figures 1 and 2 graphically depict this type of curriculum organization. In addition, for the purposes of this study, to construct exemplarary global education performance objectives, only the diagonals of the matrices were used. Theoretically, performance objectives could be constructed for any cell or coordinate, either horizontally or vertically, in either matrix.

A second feature in step two is the use of Bloom's Taxonomy of Educational Objectives in constructing the performance objectives. The taxonomy consists of two general domains, cognitive learning and affective learning. In the domain of cognitive learning there are six levels -- recall, comprehension, application, analysis, synthesis, and evaluation. Each of these levels was used in the development of performance objectives. In the domain of affective learning there are five levels -- receiving, responding, valuing, organization, and characterization by a value or value complex. Again, each level was used in the development of performance objectives. The levels of Bloom's Taxonomy used in this study can be

graphically seen in Figures 1 and 2. For each coordinate or cell along the diagonal of each matrix one level of both the cognitive and affective domains was used in this study. Theoretically, all six levels in the cognitive domain and all five levels in the affective domain could be used in constructing performance objectives for any coordinate or cell.

Step Three

The third research question was to construct assessment items for performance objectives in global education. In order to accomplish this journals in subject areas were reviewed. The journals reviewed correspond with the subject area under investigation, that is to say that journals in history, geography, business, etc., were reviewed. Excerpts from journal articles were identified as being illustrative of global education. These short selections were used in the construction of assessment items in order to give contextual clues.

The construction of assessment items presupposes that some instruction has taken place in the classroom. After the instruction has taken place the teacher would want to determine the extent of learning which has occurred. The use of assessment items provides concrete, verified evidence for making this determination. The evidence gained from using assessment items can tell the teacher how much the student has learned.

For the purposes of this study the excerpts are to give contextual meaning, and in a broad manner represent instructional

activity. In some of the assessment items excerpts are not provided. In these situations some instructional activity is presupposed. Also, when excerpts are provided they may be criticized on two accounts. First, the concepts in the selections may be too advanced for secondary students, and also the terminology used may be incomprehensible. However, it may be argued that the purpose of instructional activity is to explain terminology and interpret concepts. A final note, the corresponding assessment items in Bloom's Taxonomy were used as examples from which global education assessment items were constructed. They provided a model for obtaining evidence for the extent of learning in the classroom.

Summary

This type of curriculum development study has three dimensions. The first dimension is the division of a K-12 curriculum into secondary and elementary areas. This means that global education performance objectives and assessment items were constructed to reflect the level of cognitive and affective learning at these two levels. The second dimension is the fusion of global education themes with traditional subjects. This means that performance objectives for global education are multidisciplinary, that they can be constructed in a wide range of disciplines. The third dimension is the use of Bloom's Taxonomy of Educational Objectives. This means that the type of structure or schematic or design in Bloom's Taxonomy was used as a model from which global education

objectives and assessment items were constructed.

As has been mentioned in step two a matrix was used to systematically construct performance objectives, and specifically in this study the diagonal along the matrix. This was done to limit the number of objectives constructed in this study. It is theoretically possible to construct in each cell of the matrix six cognitive performance objectives and five affective performance objectives from Bloom's Taxonomy. Furthermore there are thirty cells at the secondary level and thirty cells at the elementary level. The sixty cells in both matrices could theoretically generate 660 performance objectives. The enormity of this task is beyond the scope of this study.

Also, the use of performance objectives may in some instances be misleading. There are certain words which describe an educational outcome which may be found at more than one level in the Taxonomy. This overlap may at times cause confusion. The performance objectives in this study are meant to communicate a certain educational activity. The words translate, analyze, recall and others found in the performance objectives are used to communicate a certain instructional outcome. Although a concerted effort was made to express all instructional objectives in performance terms it is not always possible to write concise statements that clearly describe the educational activities of the learner.

CHAPTER IV

Analysis Of Information

Introduction

This study is designed to provide information, based on research and development, on global education. The information in this study identifies themes for global education, and then using the themes as a cornerstone, constructs performance objectives and assessment items.

This study was executed in three steps. The first step was to identify themes for global education by carefully reviewing the literature, give these themes a definition, and then submit the themes to a group of teachers in order to gain validation. The second step was to construct performance objectives by fusing themes for global education with typical subject areas in a K-12 curriculum; this step involved the use of Bloom's Taxonomy Of Educational Objectives. The third step was to construct assessment items for each performance objective; again, Bloom's Taxonomy Of Educational Objectives was used as a model.

This chapter reports the information obtained in each of the three steps. Tabulations for the global education questionnaire are presented in Table I. Table II reports the results of step two, the construction of performance

objectives. Table III reports the results of step three, the construction of assessment items. In addition, the use of Bloom's Taxonomy Of Educational Objectives is discussed.

The remainder of this chapter discusses the results of the questionnaire, the presentation of performance objectives, and assessment items, and the use of Bloom's Taxonomy Of Educational Objectives.

Analysis

Global Education Themes

Introduction. From the results of the questionnaire (Table I), it is apparent that teachers from the sample used in this study, agree that the themes they were asked to rate illustrate the salient features for global education objectives. In reading Table I it should be noted that the participants rated each theme on a five point scale.

The main purpose of the questionnaire was to establish themes for global education from which a curriculum could be constructed. The results warrant attention along two lines: first, the percentage of agreement according to the five possible responses for each theme, and secondly, the mean rating for each theme. The mean rating provides a convenient rating for the identification of the most important themes, and the percentage tabulation for the five

possible responses gives a better indication of the degree of consensus among the participants about the importance of each theme.

The remainder of this section briefly discusses each possible response for the five global education themes.

As reported in Table I, the theme interdependence was rated the highest of all five themes. The mean for interdependence was 4.78. This response from the participants indicates that interdependence is a major concern for global education. Also, when the scale is collapsed between responses 4 and 5, a total of 98% of the participants at least somewhat agree that interdependence is a salient feature of global education.

The theme systems theory was rated the fourth highest of the five themes. The mean for systems theory was 4.18. This response from the participants, while not as strong as for other themes, indicates that systems theory is an integral feature for global education. The low rating, however, may be due to the participants' lack of knowledge about systems theory, Even though the mean is the fourth lowest of all themes, when the scale is collapsed between responses 4 and 5, a total of 83% of the participants at least somewhat agree that system theory is a salient feature of global education.

The theme worldmindedness was rated the second highest

of the five themes. The mean for worldmindedness was 4.69. This response from the participants indicates that worldmindedness is a key component for global education. Again, when the scale is collapsed between responses 4 and 5, a total of 95% of the participants at least somewhat agree that worldmindedness is a salient feature of global education.

The theme finite resources was rated the third highest of the five themes. The mean for finite resources was 4.54. This response from the participants indicates that finite resources, is a major ingredient for global education. Again, when the scale is collapsed between responses 4 and 5, a total of 90% of the participants at least somewhat agree that finite resources is a salient feature of global education

Finally, the theme a new economic order was rated the fifth highest of the five themes. The mean for a new economic order was 3.79. This response from the participants, while not as strong as the other four themes, indicates that a new economic order ought to be considered in the development of global education. This low rating, however, may be due also to a lack of knowledge about the international economic order. Even though the mean is the lowest of the five themes, again when the scale is collapsed between responses 4 and 5, a total of 68% of the participants at least somewhat agree that a new economic order is a salient feature of global education.

Other data reported in the questionnaire are as follows.

In the participant group there were more females than males. The percentages of females is 67% while for males it is 33%.

The participants were an experienced group of teachers. The largest group were those who had taught eight years or more, the next were those with two to four years of experience, the third was five to eight years, and the last was zero to one years. The corresponding percentages are 55%, 22%, 19%, and 4%.

A slight majority of teachers were at the elementary level, many were at the secondary level, and a few were in the category entitled other which would include support personnel such as special education. The corresponding percentages are 53%, 41%, and 6%.

There was a fairly even breakdown of geographical locations of the participants from urban, surburban, and rural settings. The corresponding percentages are 36%, 32%, and 32%.

Only a small fraction of the participants have either traveled or worked overseas. The corresponding percentages are 23% and 10%.

Two questions were added which give some interesting data. Of the participant group 80% reported that global education is an important or very important perspective for students to acquire. The second question reports that 23% of the participants ranked global education as equal or more important than basic skills, 27% rated global education as equivalent to career education, etc., 49% ranked global education as a strong feature of the social studies, and only 1% reported that little emphasis should be given to global education.

TABLE I

Themes For Judgments About Global Education

Questionnaire, Step One

1. Interdependence - peoples of the world ought to know that they are dependent on each other through the use of natural resources, through industry and commerce, and through ecological structures.

2. Systems Theory - people can seek solutions to complex problems by viewing the immediate problem as connected with and part of a larger network or system which has interrelated parts.

3. Worldmindedness - people ought to be aware that they are a part of a global society and they ought to have knowledge of some significant aspects of that society.

4. Finite Resources - the world's resources are exhaustible, limited, and in a condition of scarcity.

5. A New Economic Order - the economic structure, throughout the world, will shift and due to the dynamics of change new patterns will form such as the wealthy countries of the Middle East.

	D	SD	N	SA	A	Mean Rating
1. Interdependence	0%	2%	0%	17%	81%	$\bar{X}$ = 4.78
2. Systems Theory	1%	6%	10%	41%	42%	$\bar{X}$ = 4.18
3. Worldmindedness	1%	0%	4%	21%	74%	X = 4.69
4. Finite Resources	1%	2%	7%	23%	67%	$\bar{X}$ = 4.54
5. A New Economic Order	2%	7%	23%	45%	23%	$\bar{X}$ = 3.79

N = 138

1. Sex 67% F 33% M

2. Years of teaching experience

4% 0-1 22% 2-4 19% 5-8 55% 8 or more

3. Grade level and subjects:

Elementary 55% Secondary 41% Other 6%

4. Type of school:

36% Urban 32% Suburban 32% Rural

5. Would you indicate any overseas experience:

Travel 23% Work 10%

6. How important do you feel it is for students at your school to acquire a global education perspective?

Not Important 1% Somewhat Important 14% Neutral 5% Important 51%

Very Important 29%

7. How much emphasis should global education have within the total curriculum?

6% As important as basic skills.

17% Ranks second to basic skills.

27% Equivalent to career education, health education, etc.

49% A strong feature of the social studies.

1% Little emphasis should be given.

Step Two

Introduction. The second stage for this study was based on the first stage and contains the five global education themes. The themes were arranged on the left hand side of a matrix and typical subject areas were placed at the top of the matrix (See figures 1 and 2). In addition, the subject areas were divided into the secondary and elementary levels.

The matrix provides coordinates or cells. This type of organization aids in systematically developing a curriculum. Whenever a theme, on the left side of the matrix, intersects with a subject area, on the top of the matrix, a performance objective or objectives could be constructed. Figures 1 and 2 display the coordinates or cells.

It is theoretically possible, by using a matrix, to develop performance objectives for all of the cells or coordinates in the matrix. In the instance of interdependence it would be possible to fuse this theme with economics, geography, government, history, sociology, and world problems at the secondary level, and also to combine interdependence with art, language arts, math, reading, science, and social studies at the elementary level. For the purpose of providing examples of performance objectives, only the diagonal of the matrix was used in this study.

FIGURE 1: A MATRIX SHOWING SUBJECT AREAS, GLOBAL THEMES, COGNITIVE AND AFFECTIVE DOMAINS AT THE SECONDARY LEVEL USED IN CONSTRUCTING PERFORMANCE OBJECTIVES

Global Themes ↓ Subject →	Economics	Geography	Government	History	Sociology	World Problems
Interdependence	*Knowledge **Receiving					* Evaluation
Systems Theory		*Comprehension **Responding				
Worldmindedness			*Application **Valuing			
Finite Resources				*Analysis **Organiza.		
A New Economic Order					* **Synthesis Character-zation	

See Table II for examples of the corresponding performance objectives
*Cognitive Domain
**Affective Domain

FIGURE 2: A MATRIX SHOWING SUBJECT AREAS, GLOBAL THEMES, COGNITIVE AND AFFECTIVE DOMAINS AT THE ELEMENTARY LEVEL USED IN CONSTRUCTING PERFORMANCE OBJECTIVES

Global Themes ↓ Subjects →	Art	Language Arts	Math	Reading	Science	Social Science
Interdependence	*Knowledge **Receiving					* Evaluation
Systems Theory	* **	Comprehension Responding				
Worldmindedness			* Application ** Valuing			
Finite Resources			*	Analysis ** Organiza.		
A New Economic Order				*	Synthesis ** Character.	

See Table II for examples of the corresponding performance objectives

*Cognitive Domain
**Affective Domain

The performance objectives for global education are reported in Table II. The performance objectives cover both the cognitive domain and affective domain according to the levels in Bloom's Taxonomy.

It is theoretically possible to construct a performance objective for each of the six levels in the cognitive domain and for each of the five levels in the affective domain. For the purpose of providing examples of performance objectives, only one level in each domain was used.

In addition to reporting the performance objectives, the analysis of step two reports briefly on the cognitive and affective domains of Bloom's Taxonomy, and also on the levels of educational objectives.

Performance Objectives. The performance objectives were constructed by fusing or combining a theme with a typical subject area. In constructing these objectives, careful attention was given to the definition of the theme so that the characteristics of the definition would be evident in the performance objective. And also, careful attention was given to the definition of subject areas, again, so that the characteristics would be evident in the performance objective. In the instance where interdependence was fused with economics, at the secondary level in the cognitive domain at the level of knowledge, a performance objective was constructed which reads, "The student will recall the definition of economic terms in a statement about

multi-national corporations." This performance objective focuses on how people are dependent on each other, and also on the characteristics of economics. In constructing the other performance objectives, careful consideration was used in combining the characteristics of the theme with the characteristics of a particular subject area.

Furthermore, in constructing performance objectives certain issues or problem areas were used to give the objective a concrete base. In the example in the above paragraph the issue was multi-national corporations. This issue was selected because it is certainly not a local or parochial problem. Multi-national corporations by definition are involved in operations throughout the world. They affect more than one country and have a tremendous impact on the lives of people world-wide. These same criteria were used to select other issues or problems and they were used to help construct global education performance objectives. In the objectives, reported in Table II, issues such as regional geography, human rights, military growth, technology, the distribution of wealth, energy resources and population growth were used in the construction. Other issues of concern in the global community were not used in this study but may be of great value. Issues and problems like the use of the oceans, international terrorism, satellite communications, and others may be appropriate problems for

global education.

Finally, the performance objectives in Table II were modeled on educational objectives in Bloom's Taxonomy. In each cell or coordinate of the matrix, one level in both the cognitive and affective domains was used. The performance objectives in Table II attempt to accurately portray levels of educational objectives.

Bloom's Taxonomy

Introduction. The taxonomy was an effort by Bloom and others to develop a classification, or a taxonomy, for curriculum construction and evaluation. The authors reported that in developing the taxonomy there were some difficulties. First, the distinctions or differences in student behavior may be blurred, which would result in a lack of precision when using the levels in the taxonomy. For example, in the situation where two students are working on the same science problem, one student may solve it from memory while another student may solve it by analysis. The factor determining this outcome is the experiential background of the student. If one student were to experience the problem previously, he or she would approach the problem in a different manner than another student. Another difficulty Bloom had was that complex behaviors are built on simple behaviors, and that the learning experiences which will change a behavior from simple to complex will usually include the former. This may be criticized from a Gestalt viewpoint on the

grounds that complex behavior is more than the sum of simple parts. But the authors counter that in either respect the components of complex behaviors are simple behaviors. (Bloom: 1956:16)

One feature of the taxonomy is that it allows for describing test items and placing in some order evaluation instruments. By classifying objectives in this manner there can be an easier exchange of test items. Also, the taxonomy would allow for the comparison of educational programs. If two educational programs used the same classification scheme, the objectives and evaluation items could be easily compared. In addition, when objectives are written in similar terms it would allow for exact inferences about the type of student outcome. (Bloom: 1964, 5)

The domains used in this study were the cognitive and affective domains, the psychomotor domain was not used. The cognitive domain, which has the larger number of objectives, relies on memory as well as intellectual tasks. These tasks may involve an analysis or even ways of combining items in a new pattern. The affective domain is defined as that which expresses an interest or an attitude or an appreciation. These tasks involve values and an emotional state of mind.

There is some overlap of objectives, i.e., some objectives may fall into one or more domains. Bloom says:

> It was evident in our work that, although one could place an objective readily in one of the three major domains or classes, no objective in one class was entirely devoid of some components of the other two classes. The domains evidently represent emphases and perhaps even biases in the statement of objectives. We hesitated to adopt this threefold division except on the practical grounds that objectives are so stated that they fall rather easily into one of the three divisions. (Bloom: 1964, 8)

The authors also report that the affective domain may be weak for grading purposes. The first argument for this is that there are not enough evaluative items to make a decent appraisal. Secondly, students may be able to detect clues from an evaluative item and answer according to the perceived wishes of the teacher. A third reason is that while cognitive achievement is publically acknowledge, a person's beliefs and attitudes are a private matter which ought not be tested. Also, Bloom states that indoctrination in a democratic society is not held with deep concern, and often items of an affective nature may be seen as an attempt to understate individual decisions. Finally, the results of affective outcomes may not be as immediate as cognitive outcomes. (Bloom: 1964, 18)

In both domains there is a continuum, an ordering of the parts. This quotation ably demonstrates the linking of components :

> The more we carefully studied the components, however, the clearer it became that a continuum might be derived by appropriately ordering them. Thus the continuum progressed from a level at which the individual is

> merely aware of a phenomenon, being able to perceive it. At the next level he is willing to attend to phenomena. At the next level he responds to the phenomena with a positive feeling. Eventually he may feel strongly enough to go out of his way to respond. At some point in the process he conceptualizes his behavior and feelings and organizes these conceptualizations into a structure. This structure grows in complexity as it becomes his life outlook. (Bloom: 1964, 2)

Another relationship between the cognitive and affective domains is that one domain may be a prerequisite for another domain. Bloom and others demonstrate this connection and state that knowledge in the cognitive domain may initiate learning in the affective domain, and that the reverse may be true. They say, "we give the student information intended to change his attitude. In other instances we use an affective goal as a means to achieve a cognitive one; e.g., we develop an interest in material so the student will learn to use it." (Bloom: 1964, 54)

Finally, Bloom et. al. admits that the taxonomy is not as precise as hoped for. There are examples of words used to describe an educational objective in another level. An interpretation of this is that the particular category gives meaning to the word and the definition of the category. (Bloom: 1964, 67)

TABLE II

Examples of Performance Based Objectives

Following The Matrices In Figures 1 and 2

SECONDARY - COGNITIVE AND AFFECTIVE DOMAINS

1. Interdependence fused with economics

Knowledge - Cognitive domain

The student will recall the definition of economic terms in a policy statement about multi-national corporations.

Receiving - Affective domain

The student will be aware of the growth of multi-national corporations in countries throughout the world.

2. Systems Theory fused with geography

Comprehension - Cognitive domain

The student will translate a regional geographical problem, using systems theory, into concrete or more common terms.

Responding - Affective domain

The student will contribute to a group discussion which attempts to solve, by using systems theory, an ecological problem in a geographical area of the world.

3. Worldmindedness fused with government

Application - Cognitive domain

The student will apply an understanding of some human rights in the study of a country with a different system of government.

Valuing - Affective domain

The student will display a sense of responsibility in learning about the negative consequences of military growth in continents of the world.

4. Finite Resources fused with history

Analysis - Cognitive domain

The student will recognize the causal relations in an historical document describing a lack of energy resources.

Organization - Affective domain

The student will clarify his own ethical standards after reading a biography in an historical time period describing scarce resources.

5. A New Economic Order fused with sociology

Synthesis - Cognitive domain

The student will write a creative story describing the changing distribution of wealth among different groups of people in another country.

Characterization - Affective domain

The student will change his or her opinion about the changing distribution of wealth among groups of people.

6. Interdependence fused with world problems

Evaluation - Cognitive

The student will evaluate the solution to a world problem in terms of interdependence.

ELEMENTARY - COGNITIVE AND AFFECTIVE DOMAINS

1. Interdependence fused with art

Knowledge - Cognitive domain

The student will recall that art is a way people communicate in cultures throughout the world.

Receiving - Affective domain

The student will be conscious of different colors, forms, and designs in art objects from other countries.

2. Systems theory fused with language arts

Comprehension - Cognitive domain

The student will translate a lengthy document describing the parts of another culture into a shorter version.

Responding - Affective domain

The student will enjoy participating in a play about another culture.

3. Worldmindedness fused with math

Application - Cognitive domain

The student will apply principles of geometric progression to population growth.

Valuing - Affective domain

The student will assume an active role in discussing the interpretation of a map which shows population growth figures for different regions in the world.

4. Finite resources fused with reading

Analysis - Cognitive domain

The student will read a story about a child in another country which describes daily life, and recognize items which are scarce resources.

Organization - Affective domain

The student will read a story about another culture and attempt to identify the characteristics used to conserve scarce resources.

5. A New Economic Order fused with science

Synthesis - Cognitive domain

The student will outline a project showing how middle level technology can improve human living conditions.

6. Interdependence fused with social studies

Evaluation - Cognitive domain

The student will evaluate the values of cooperation involved in a solution to a world problem.

Step Three

Introduction. The third stage of this study was based on the second stage and contains the performance objectives for global education. The performance objectives were used as a guide for the construction of assessment items.

The assessment items in Table III were modeled on the assessment items in Bloom's Taxonomy. The evaluation items in the Taxonomy were chosen from examinations in use and from collections of test items. Many of the test items were drawn from examinations developed during the Eight-Year Study of the Progressive Education Association.

In Table III the performance objective in each domain is presented. In many of the assessment items an excerpt from a professional journal is given as an example of some instructional activity. The reading level may be criticized as too high for secondary students, but it is presented to give the reader a context from which the assessment item was constructed. In other assessment items no excerpts are given. It should be presumed, in this situation, that instruction for the performance objective has occurred and the assessement item follows. The assessment items for global education performance objectives are in Table III.

TABLE III

Examples of Performance Based Objectives

and Illustrative Assessment Items

SECONDARY LEVEL

1. Interdependence fused with economics

Knowledge - Cognitive domain

The student will recall the definition of economic terms in a policy statement about multi-national corporations.

Example: Read the following paragraph and note the underlined words.

Consider the automobile industry. Several decades ago, a developing country had few choices if it was to assemble cars locally. Companies such as General Motors were able to set their own terms. Complete company ownership was the norm. Today, the industry has changed. As competition has increased, Renault, Fiat, and the Japanese companies are willing to offer much more attractive deals to their hosts. Joint ventures and simple licensing arrangements are no longer unusual. Countries with old arrangements now press hard for benefits in line with the terms offered by the new investors. (Wells: 1977, 74)

Write one of the underlined words in the appropriate space.

_____ A group of persons organized for the purpose of carrying on some commercial or industrial activity.

_____ The condition that exists in a market when there are an indeterminate number of traders all dealing in the same product and when no one trader can demand or offer a quantity sufficiently large materially to affect the market price.

_____ Capital invested in a new business, where the chances of success are uncertain.

_____ A right to engage in certain activities for which permission is necessary.

Receiving - Affective domain

The student will be aware of the growth of multi-national corporations in countries throughout the world.

Example: The purpose of this exercise is to discover what you really think about the reading you do in your leisure time. After reading the paragraph mark the questions with a y for yes, u for uncertain, n for no.

Was it inevitable -- inevitable that cities, too, would go global? First there were the multi-national corporations intent on extending their reach over the world. Then came the network of service organizations, consisting of banks, advertising agencies, management consultants, computer software bureaus, and others eager to multi-nationalize. Later other organizations, ranging from labor unions to philanthropic agencies, became convinced that for them, multi-nationalization was a must. (Heenan: 1977, 79)

1. Would you like to know much more about the history and development of international labor unions?

2. Are you interested in knowing more about the international work of advertising agencies?

3. Is there any "global city" about which you would like to read more?

2. Systems theory fused with geography

Comprehension - Cognitive domain

The student will translate a regional geographical problem, using systems theory, into concrete or more common terms.

Example: From numerous case studies and from the vast amount of information available on Asian revolutionary movements, their leaders and doctrine, it is possible to identify a number of specific themes that have a predictive value. Stated simply, politically motivated revolution or violence at a national scale

must rely on basic geographical patterns of population, terrain, organization, and the various elements of force. (McColl: 1975, 301)

Direction: Write one paragraph and in your own words explain the parts of revolutionary violence in Asia.

Reponding - Affective domain

The student will contribute to a group discussion which attempts to solve, by using systems theory, an ecological problem in a geographical area of the world.

Example: The water demands of Osaka, the second largest city and economic center of Japan, have increased steadily since World War II. The rise of daily per capita water use from 69 gallons in 1958 to 127 gallons in 1970 reflects several phenomena: increased iron and steel production, chemical manufacturing, and other high volume water consumers; modern, air conditioned buildings constructed in war-damaged areas; increased use of sewers and flush toilets; adoption of such household appliances as the automatic washing machine; and more than a million commuters who use water at their places of employment in the city. (Robertson: 1975, 311)

Direction: After reading the questions below circle the letter A if it represents an activity in which you would participate either occasionally or frequently, or circle the letter D if it represents something you rarely or never do.

1. Attending a public discussion on water conservation
   A D

2. Attending special classes on water problems in Asia
   A D

3. Organizing some friends to discuss the solution of an ecological problem A D

3. Worldmindedness fused with government

Application - Cognitive domain

The student will apply an understanding of human rights in the study of a country with a different system of government.

Example: Other governments, in Africa and elsewhere, rule by terror and reward opposition by death; Equatorial Guinea and Cambodia would belong on any list, and there are more. But the scale of official murder in Uganda, its ferocious brutality, and its terrible capriciousness all place Uganda in a category of its own in which the nearest analogues may be Hitler's Germany or Stalin's Russia. Just as South Africa is unique -- an entire system of political and social repression resting on racial distinctions -- so Uganda is also. Each, for different reasons, deserves international condemnation. (Ullman: 1978, 529-530)

Directions: What prediction, if any, can be made concerning the condition of Uganda, or any of the other countries mentioned, after a period of several years? If you believe a definite prediction can be made, make it and then give your reasons. If you are unable to make a prediction for any reason, indicate why you are unable to make a prediction.

Valuing - Affective domain

The student will display a sense of responsibility in learning about the negative consequences of military growth in continents of the world.

Example: Twenty years of the most intensive technological development the world has ever seen, at a cost of more than half a trillion dollars, has made the difference. To control the products of this effort cannot be simple, elegant, or easy; at best it will be complex, messy, and unbearably difficult. But in a world in which the two super powers are just learning to control their competitive impulses while their nuclear arsenals continue to grow, and the number of independent fingers on

nuclear triggers threatens soon to increase beyond manageable bounds, the alternative to nuclear arms control is simply unacceptable. (Doty, et. al.: 1976, 132)

Direction: The statements below are opinions about nuclear weapons. There are no right or wrong answers so please answer honestly. If you agree circle the letter A, if you are uncertain circle the letter U, if you disagree circle the letter D.

1. The possibility of nuclear warfare is increasing A U D

2. Any nation should have the right to develop nuclear arms if it desires to do so. A U D

3. International accords should curb nuclear arms. A U D

4. Finite resources fused with history

Analysis - Cognitive domain

The student will recognize the causal relations in an historical document describing a lack of energy resources.

Example: Nothing is new: the fuel crisis from which we are now suffering, with its rapid price increases, shortages and pressure to change old habits has occurred before. Between about 1500 and 1660 Britain's basic fuel suppy, wood, began to fail, and after much re-adjustment over a prolonged crisis was replaced by coal. The reasons for this growing shortage of wood fuel increased as population grew and industry burnt more, while the supply seems to have dwindled as woodland of great antiquity was cleared to provide more cultivated land. (Dyer: 1976, 598)

Directions: Circle the letter below which was not a cause of an energy shortage in 16th century Britain.

A. Population increase
B. Industrial increase
C. A change of government

Organization - Affective domain

The student will clarify his own ethical standards after reading a biography in an historical time period describing finite resources.

Example: Read the quotation by Theodore Roosevelt. "We have become rich because of the lavish use of our natural resources and we have just reason to be proud of our growth. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soil has been further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing only to the next generation. It is time for us now as a nation to exercise the same reasonable foresight in dealing with our great natural resources that would be shown by any prudent man in conserving and wisely using the property which contains the assurance of well-being for himself and his children." (Roosevelt: 1908 , 295)

Directions: Read each statement carefully. Then write the A if the statement does apply to your feelings, U if you are uncertain as to whether the statement applies to you in your feelings, D if the statement does not apply to your feelings.

1. Other people share certain ideas and beliefs that you have.

2. You are encouraged that other people have similar problems and difficulties.

3. You can find ideas which are part of your own philosophy of life.

5. <u>A New Economic Order fused with sociology</u>

Synthesis - Cognitive domain

The student will formulate an expository statement describing the changing distribution of wealth among different groups of people in another country.

Example: "Most developing countries sustained relatively rapid economic growth during the 1960's. Notwithstanding this remarkable effort, unemployment in most countries has been rising, and income distribution has become more unequal. In most developing countries, only a relatively small segment of the population participates actively in the development process, and this segment reaps most of the benefits. Because of this inequity, emphasis on human resources development has begun to complement an earlier concentration on physical capitol investment." (Zschock: 1977, 68)

Directions: Write a three page essay in which you choose a developing country in Asia, Africa, or Latin America. In your paper describe the distribution of wealth, that is which groups of people receive the most or the least money. Discuss unemployment and also the inequities for groups of people.

Characterization - Affective domain

The student will change his or her opinion about the changing distribution of wealth among groups of people.

Example: "Two-thirds of the world's people consume only about 15 percent of the world's total commercial energy consumption. The United States alone, with only six percent of the world's population, consumes twice as much energy as the entire developing world. Viewing energy use as central to economic growth -- the process by which human energy is matched with higher ratios of tools and techniques to mobilize and convert resources for man's use -- the developing countries are concerned that the world's readily accessible, and hence relatively inexpensive, fuel supplies will have been squandered before they are in a position to utilize these supplies fully." (Low: 1975, 19)

Directions: Your social group is going to make an effort to give a contribution to an organization in a third world country, but a friend of yours doesn't want to participate. What would you do?

A. Discuss the matter with your friend.
B. Get other members of the club to participate.
C. Ask your friend to leave the club.

6. Interdependence fused with world problems

Evaluation - Cognitive domain

The student will evaluate the solution to a world problem in terms of interdependence.

Example: One can imagine a global resource organization playing an important role in future resource development, but it might be a somewhat less monolithic endeavor than is implied by the word "control". As a start, such an organization could serve as a clearing house for exchanges of technical information, or it could engage in cooperative research. It could monitor world trends and indicate where supply problems are likely to occur. It could foster agreements on nondiscriminatory trading and help to stabilize the conditions under which exchanges occur. It could seek wider agreement on the terms of foreign investments within resource industries. But it would leave individual nations, groups of nations, and private firms free to devise their own programs of supply and to operate in markets according to the agreed rules." (Brubaker: 1975, 41)

Directions: Read the conclusions below and decide which is justified.

1. Because the world has become more interdependent, a global resource organization should be formed.
2. Even though the world has become more interdependent it is not necessary that a global resource organization should be formed.
3. More information is needed.

ELEMENTARY LEVEL

1. Interdependence fused with art

Knowledge - Cognitive domain

The student will recall that art is a way people communicate throughout the world.

Example: Circle the letter which you think is incorrect.

A. In Asian art we can see happiness.
B. In Brazilian art we can see joy.
C. In African art we can see no feelings.

Receiving - Affective domain

The student will be conscious of different colors, forms, and designs in art objects from other countries.

Example: When the teacher holds up a picture write down the name of the culture you think it is from.

A. (Africa)
B. (Asia)
C. (Brazil)

2. Systems theory fused with language arts

Comprehension - Cognitive domain

The student will translate a lengthy document describing the parts of another culture into a shorter version.

Example: "Mamma gave Banji three copper pennies -- three great copper pennies with a little round hole in the middle of each.

"Listen well," Mamma said. "Go to the salt seller who sits under the big tree by the bus stop. Buy one small measure of salt."

Banji's ears listened, but his toes pushed impatiently at the ground. The pennies in his hand made Banji's legs want to run.

Mamma hardly ever gave him a chance to go

alone through the streets. Banji's family lived in a large and lively West African town, full of exciting sights and sounds. But Banji was usually kept near home. If Mamma needed something from a far-off part of town, she usually sent one of the older children -- and their compound had other children aplenty!

All of Banji's family lived in the compound -- his father and mother and brothers and sisters and grandma and grandpa and uncles and aunts and more than a dozen cousins. They lived together and helped each other. All of the grown-ups were called "father" or "mother", and all of the children were "sisters" and "brothers"." (Schatz: 1975, 7-9)

Directions: In a shorter version write about the parts of the culture in Banji's life.

Responding - Affective domain

The student will enjoy participating in a play about another culture.

Example: After participating in the play <u>The Breaking Branch</u> by Anderson Chibule, answer the following questions.

1. Have you participated in a play before?

2. How much do you enjoy participating in a play?

3. Do you like plays just for the story?

3. <u>Worldmindedness fused with math</u>

Application - Cognitive domain

The student will apply principles of geometric progression to population growth.

Example: "As the earth's population increases, so does the need for the food. In 1798, in his <u>Essay on the Priniciple of Population,</u> the English economist Thomas Malthus claimed that the number of people in the world increases in a geometric sequence while the amount of available food increases in an arithmetric sequence. He assumed that

the population when unchecked, doubles every 25 years, and said:

"Supposing the present population equal to a thousand millions, the human species would increase as the numbers, 1, 2, 4, 8, 16, 32, 64, 128, 256, and subsistence as 1, 2, 3, 4, 5, 6, 7, 8, 9. In two centuries the population would be to the means of subsistence as 256 to 9."

Malthus goes on to give the number relationship for three centuries ahead. What numbers did he give? (Jacobs: 1970, 80)

Valuing - Affective domain

The student will assume an active role in discussing the interpretation of a map which shows population growth figures for different regions in the world.

Example: Mark the following questions with a Y if the answer is yes, a U if your answer if uncertain, a N if your answer is no.

1. Do you ever try to explain how a map, showing population growth, might have been improved.

2. Is it unusual for you to compare two or more maps and come to a decision about the relative merits of each?

3. Is it unusual for you to compare your opinion of a map with that of someone else?

4. <u>Finite resources fused with reading</u>

Analysis - Cognitive domain

The student will read a story about a child in another country which describes daily life, and recognize items which are scarce resources.

Example: After reading the story check the items below which you found in your reading.

____	oil	____	minerals
____	gasoline	____	water
____	wood	____	other items
____	coal		

Organization - Affective domain

The student will read a story about another culture and attempt to identify the characteristics used to conserve scarce resources.

Example: After reading a story arrange the four possible answers or attitudes for the given situation. Arrange your answers according to your own feelings by writing the numbers 4, 3, 2, or 1. If you like an answer best write the number 4, the next answer you like best write a 3, the next a 2, and the last a 1.

1. In your opinion, a person who can save scarce resources in the best way will:

_____ use as much as he or she can use
_____ use as much as is available
_____ use as little as is available
_____ use as little as is needed

5. A New Economic Order fused with science

Synthesis - Cognitive domain

The student will outline a project showing how middle level technology can improve human living conditions.

Example: Either by yourself or with a group devise an idea of how technology can help people in poorer countries live a better life. The technology can be used in water resources, food resources, energy resources, resources having to do with the sea, land resources, or other types of resources which can improve life through technology. Your outline or project will be judged on originality, the appropriateness of the technology to the problem, and the degree to which your project might succeed.

Characterization - Affective domain

The student will revise his or her judgment about the types of technology which can improve the condition of humanity.

Example: After listening to a student debate on the topic of "Can Nuclear Energy Improve the Condition of Life", one of your friends has a different viewpoint than you do. What would you do?

1. Do not talk with your friend anymore.

2. Leave your friend and make new friendships.

3. Talk with your friend about the things said in the debate.

6. Interdependence fused with social science

Evaluation - Cognitive domain

The student will recognize the values of cooperation involved in a solution to a world problem.

Example: After the students have proposed a solution to the world problem of ownership and control of the world's oceans they would evaluate the solution according to the values of cooperation, such as trust, mutual respect, mutual benefit and common effort.

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Chapter V

Summary

Introduction

A desire to reform the curriculum to meet the present reality or even a changing reality seemingly needs little defense. But the first step in revising a curriculum is to construct a different idea of what it may look like. This difficult process requires considerable conceptualizing and a demanding thinking through of what the aims of education should be. The conceptualization is on at least two levels. The first level revolves around some basic statements of the purpose of life and the nature of humanity. Are we by nature selfish and greedy, or are we by nature charitable and compassionate? The second level revolves around ethical statements of how we ought to act in our relationships with our fellow human beings. Do we disregard the pitiful conditions of much of humanity, or is sacrifice beyond us? This type of conceptualizing is at moments full of anguish and despair and at other times rewarding and hopeful.

Yet this type of thinking must take place if we are to seriously face the complex issues in the world today, and the schools as institutions must be involved in addressing the issues. Despite the controversy which often accompanies difficult problems, systematic construction of curriculum programs is becoming increasingly important and useful.

Curriculum construction within international affairs appears to have entered a period of readjustment and reassessment. There are major forces which have an impact upon international affairs -- arms control, food shortages, economic imbalances. These shape, and in many instances determine how our lives will be. They require a review of priorities in the curriculum. In addition, the ecological systems globally must be closely examined to prevent their collapse. And finally, a general concern has been growing over how well our educational institutions have actually been serving the needs of individuals and the needs of our nation.

Curriculum revision is necessary for other reasons as well. Knowledge continues to expand unabated and at an exponential rate, and the modes of transmitting and using knowledge are accelerating without a break in pace. Given the rate of change in our world and in our environment, regular curriculum reform in international affairs and global problems is necessary to resist obsolescence and irrelevance.

Curriculum reform in global problems has a concommitant benefit. As new ideas are brought out and as new practices are tested, then those in curriculum development will take into account different ideas and this will provide a healthy condition for development.

Global education as a part of the curriculum in schools faces many of the current critical questions put to all curriculum development. These questions are what is important and why is it important. It is out of these considerations concerning global education that this study was developed.

The remainder of this chapter is divided into three sections. The first will be devoted to a review of the organization and procedures of the study. Secondly, the author will present observations and conclusions. And finally, recommendations will be offered for consideration.

Overview of Study

The objective of this investigation was to determine appropriate themes for global education. A secondary purpose was to construct performance objectives based on the themes. A third related, but subsidiary, purpose of this study was to construct assessment items for the performance objectives.

In the first chapter basic assumptions, procedures, and definitions for the remainder of the study are presented. Before proceeding, basic assumptions need to be stated, even though the attempt to identify them may be time consuming. If this task is neglected it may lead to further problems.

There are two underlying assumptions which this in-

vestigation was based on: first that curriculum reform must take into consideration societal changes, and secondly that among these societal changes are those that give rise to the need for global education. Evidence for these assumptions is given in Chapter II.

Chapter II has been divided into three general sections, theories and paradigms, an overview, and finally current activities in global education. Examination of the literature left little doubt about the proportions that international studies has reached. As a means of examining all facets of the problems in the international arena, global education can serve as a focus point in the curriculum and instruction process.

Chapter III details the methods and procedures followed during this study. The focus of the investigation was first to identify themes for global education and, secondly to construct performance objectives, and a related purpose was to construct assessment items. The research design included a questionnaire in which the participants were asked to rate each theme, the use of a matrix for organizing a curriculum, and the use of Bloom's Taxonomy.

An analysis of significant data generated in this study is contained in the fourth chapter. Information from the participants is tabulated, described and examined. The percentage of agreement and a mean rating for each theme is reported and examined. As the study progressed effort in the

construction of performance objectives and assessment items became more complex. Tables II and III report these items in Chapter IV. The fifth and final chapter summarizes the study, offers some conclusions, and suggests recommendations for consideration.

Conclusions

It is a difficult process to make distinctions between subjective conclusions which one has gained as a result of a study of this type and objective conclusions which are supported by evidence. Stating objective conclusions becomes a problem as one goes through the feelings gained through reading the literature, through the ratings of themes by the participants, and from constructing performance objectives and assessment items. In the attempt to make the distinction between feelings and facts, the conclusions offered should be viewed from three perspectives, first conclusions made from evidence in the questionnaire, secondly conclusions drawn through research of the literature, and thirdly conclusions arrived at by the author as a result of conducting the study.

Methodology

The published research is useful to identify a problem. The first step in any investigation is to undertake a review of the related literature. The research available on international education can be divided into three broad categories: general theories and paradigms covering many

areas of international education; past practices in international education; current thought and practices in global education. In the process of reviewing the literature, it is well to differentiate between a study which gives evidence of its findings with data from a survey; a study which is developmental; and one which reports anecdotal records.

The matrix is helpful as a means of systematically arranging a curriculum. By listing themes along one side and subjects at the top, all the typical areas of a curriculum and all the themes were accounted for. This type of organization guarantees that all aspects of the curriculum were included, and provides a check against which one can determine that nothing has been omitted.

The use of a matrix which includes all subject areas presupposes that global education is at least multidisciplinary and perhaps can include most disciplines. At the elementary level this proved to be the case. All typical subject areas at the elementary level were used. At the secondary level, however, the subject areas used in the matrix were those typically found in the social studies. This was done in this study because of a lack of knowledge in subject areas at the secondary level outside of the social studies, and also in part because it may be too difficult or impossible to fuse global studies with subjects like geometry or chemistry.

Bloom's Taxonomy was useful. In a developmental study

such as this some classification was needed to construct performance objectives and assessment items. Bloom's Taxonomy was chosen for this task. Other means could have been used such as convergent and divergent thinking, but the taxonomy has been widely used and cited in educational endeavors and is established as a way of organizing a curriculum. Even though there is some overlap among the levels in the taxonomy, that is to say the way a performance objective and assessment item is phrased at one level may be stated in similar terms in a different level, the taxonomy was useful in classifying educational objectives and assessment items.

Global Education Themes

While not all inclusive the five themes used in this study, interdependence, systems theory, worldmindedness, finite resources, a new economic order, were derived from a careful review of the literature. The literature review was divided into three sections: theories and paradigms concerning global studies, an overview of international education, and current activities in global education.

The first theme, interdependence, was widely mentioned throughout the literature. Interdependence was frequently referred to as being dependent on other people in the world for natural resources, from the promotion of industry and commerce, and for existence through sharing ecological

structures. This theme seems to dominate the thinking and writing in global studies and from this theme others can be identified.

Systems theory is a means of solving problems in a way which first assumes that separate parts are connected to a larger system. Systems theory is not as widely known as interdependence and has only recently been given emphasis as a way of viewing phenomena.

Worldmindedness is the notion that everybody is part of a larger social collective. Since the frontiers have disappeared and the land mass is known, and because of interdependence the concept of isolation no longer holds. Worldmindedness is the idea that people ought to be aware that they are part of a larger social collective. Worldmindedness is also a dominant theme and seems to be established as a key feature of global education.

Finite resources describes the condition of many of the world's commodities. This condition is one of scarcity, limitation, and the knowledge that resources are exhaustible. For the first time in history humanity has come to recognize that many of the assests of nature are in a condition of depletion. Finite resources are also considered as a major ingredient in global education.

A new economic order defines the recent changes in the international economic structures. This changing inter-

national structure defines a shift that has occurred in the past few years in which the dynamics of change bring about new patterns of wealth and of poverty. This definition may be imprecise and perhaps not understood by the participants. The notion of this theme is that the international economic structure, while constantly evolving, is currently experiencing especially significant changes in the locus of power and in the control and distribution of global resources. This theme was least understood by the participants.

These five themes seem necessary for a global education program and were essential in constructing performance objectives and assessment items. Yet they may not be sufficient for a complete program in global studies, that is to say there may be other themes which characterize a study of global problems which were not included in this study. Additionally, the definitions given to these themes may not be as precise as other definitions, and precise definitions are very much a key for curriculum development.

Global Education Performance Objectives

The performance objectives constructed in this study were first of all, a combining of global education themes with typical subject areas, and secondly the use of Bloom's Taxonomy as a classification for developing objectives. The development of objectives was divided into two general areas:

the secondary level and the elementary level.

From this study it can be concluded that performance objectives can be constructed by fusing themes with subject areas. The combining of themes with subject areas was a difficult process for it required a knowledge of the content of a particular theme involved and also the content of a particular subject area. The characteristics of finite resources, for example, were required according to the matrix to be combined with reading. In order to accomplish this task one has to couple the definition of finite resources with some aspect of reading at the elementary level. Obviously a person in curriculum development would need to have some familiarity with both elements in the combination, and in each situation some ability to envision a bringing together of some peculiarities of each element. This is a creative process for the result is a performance objective which was constructed by bringing together two elements each with its own characteristics and perculiarities.

For those interested in curriculum development the construction of performance objectives adds a needed specificity for outlining a curriculum. It is one thing for an educator to advocate that students should learn about global issues, and an entirely different matter to give those global issues specific performance objectives. Oftentimes the performance objectives for a curriculum are

written in terms which are broad, vague, and ambiguous, but by writing specific objectives the item gains clarity. There is a growing concern for systematic development of global education performance objectives. A characteristic way of writing performance objectives has developed early on in curriculum building, a mode of writing which was unsystematic and imprecise. More recently, however, many agencies, organizations and institutions have been overcoming these obstacles and are writing clearer objectives.

Curriculum developers and researchers ought to review the connections between subject areas or disciplines, the purpose of a program, and the resulting program assessment. The research from this study indicates that global education performance objectives must be designed by using many disciplines. It doesn't seem to be the situation that one discipline can be the domain of global education.

The history of international education has been charted by progress and the lack of it. This push and pull has been due to complex readjustments. In the years ahead adjustments, different arrangements, and new alignments will be required, and because the complexity in global studies is becoming greater there is little value in relaxing and allowing developments to proceed slowly.

Global Education Assessment Items

The assessment items constructed in this study were

based on the instructional activity stated in a particular performance objective, and also follow Bloom's Taxonomy for classifying assessment items. The development of assessment items was divided into two general areas: the secondary level and the elementary level.

This study indicates that global education as an area of study in a K-12 curriculum is viable and can be defended. One of the assumptions of this study is that global education is considered an area of study and therefore lends itself to assessment. Global education as an area of a K-12 curriculum is beginning to reach meaningful proportions in the development of competencies, performance objectives, and the requisite assessment items. Despite whatever doubts are voiced from the educational establishment, global education is viable and can be defended, although it will require sufficient expenditures and the necessary difficult effort.

A major concern in writing assessment items for global education is that the purpose of a program must be made clear. There have been many investigations into course descriptions and the content of a program in international studies which mirror this concern. As the information from this study suggests many authorities would argue that a major concern is that there ought to be a clear purpose, goals, and objectives in international and global studies.

For many in curriculum development, the construction of

a curriculum has numerous facets and implications. Obviously, the assessment of a program in global education ought to be sensitive to the range and diversity of issues in global studies. Within this framework, detailed assessment items for evaluating global education are difficult to determine. The information derived from this study suggests that assessment items must be responsive to the diverse objectives of global studies. Perhaps there is a difference in the importance of performance objectives, and if this is so, there would also be a difference in the importance of assessment items.

The tables of performance objectives and assessment items constructed in this study are useful to indicate an outline for programs in global education. But aside from this, a particular program in a school system would develop greater specificity than here. The present study does not claim to include all aspects of themes, performance objectives, and assessment items for global education, but it provides a brief outline.

Recommendations

Global education is a recent phenomenon in American education and has developed as a response to changes in society. As a result of this investigation into global education, certain recommendations are made for the improvement of future studies in this new curriculum area.

The history of international education should be probed for at least two reasons. The first is to make distinctions. between international education, or the study of other countries or cultures, and global education as they relate to the themes or conceptual basis for this part of the curriculum. It may be argued that the themes finite resources and a new economic order would not be found in the curriculum of international studies in at least the time period of 1930 to 1945 and perhaps even later. A researcher may also not find evidence of systems theory in this time period. The second distinction that ought to be sought in a historical study is the difference between issues in international education and the issues in global education. There could very well be differences which a historical study could establish.

A primary question for researchers is the area of definition for global education. The themes used in this study are not all inclusive and there may be ideas or concepts which further outline this domain. There are at least three areas which have received attention in the curriculum -- studies of the future, career and environmental education -- which may add themes and concepts to global education. Additionally, other phenomena may arise which will have an impact on society and therefore on the curriculum. Finally, research into outlining the domain of global education will give precision to the definition of global education.

After definitions of global education have been provided

the components of a program need to be investigated. Performance objectives need to be developed and refined. Instructional activities need to be devised. A subsidiary part of this study was the construction of assessment items. The examples in this study are presented as illustrated items for evaluation of global education, but they are not complete nor are they as polished as possible. Through research, assessment items can be improved and made more precise for evaluation purposes in global education. The specificity gained from this type of investigation would aid in explaining to faculty, students and the community the student outcomes for global education.

Diverse groups, such as faculty members at institutions of higher learning and faculty at K-12 schools, students, professional organizations, and State Departments of Education might have comparable or contrasting opinions about the nature and particular aspects of global education. A consensus of views both across groups and within groups should be determined.

The discussion of results of studies in global education by groups of experts in the field would be useful. A special group might be gathered to discuss the results, or activities like this might be initiated at scheduled professional or association meetings.

One recommendation which is beyond the intent of this study is to establish a clearing house for the dissemination of information about research and curriculum development in global education conducted by K-12 schools within the intermediate district or State Department of Education. Such a service would be a valuable resource for teachers and those in curriculum development.

Finally a needs assessment ought to be conducted to determine the level of knowledge and feeling about global education in K-12 school district. One manner of accomplishing this would be to select a grade level in a school district or intermediate district and examine these students according to assessment items for global education.

APPENDICES

APPENDIX A

COVER LETTER

MICHIGAN STATE UNIVERSITY EAST LANSING • MICHIGAN 48823

COLLEGE OF EDUCATION • ERICKSON HALL

APPENDIX A

December 15, 1978

Dear MACT Coordinators:

I am currently involved in constructing global education themes, performance objectives, and assessment items for my doctoral dissertation. At this point in my study I would like some sort of validation of global education themes. This reality check should not prove to be time consuming at all. There are five themes, each to be rated on a five point scale.

The MACT students are a vehicle for this study, and are not part of the study itself. An information sheet will be included with items such as level of teaching, years of experience, etc. Other teachers, administrators, and support personnel in a school system are welcome to participate.

If you would indicate your willingness to participate in this study, and also note the approximate number of questionnaires needed, I can mail them to you in January. Thank you for your help.

Sincerely,

Jeff Case

cc: Dr. Slocum
Dr. Moon
Dr. Cragun
Dr. Scrivens
Dr. Demarte

js

APPENDIX B

QUESTIONNAIRE

APPENDIX B

The Michigan Department of Education has defined global education as follows:

> Global education is the lifelong growth in understanding, through study and participation, of the world community and the interdependency of its peoples and systems -- ecological, social, economic and technological. Global education requires an understanding of the values and priorities of the many cultures of the world as well as the acquisition of basic concepts and principles related to the world community. Global education leads to implementation and application of the global perspective in striving for just and peaceful solutions to world problems.

A QUESTIONNAIRE TO RATE GLOBAL EDUCATION THEMES AND OBJECTIVES

The following five themes for Global Education, K-12, were derived from a review of the literature. After reading the brief definition given for each theme would you please give it a rating on the five point scale provided. The rating will demonstrate the extent to which you agree that the theme illustrates the salient features for global education objectives.

1. Interdependence - peoples of the world ought to know that they are dependent on each other through the use of natural resources, through industry and commerce, and through ecological structures.

Please circle:	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
	1	2	3	4	5

2. Systems Theory - people can seek solutions to complex problems by viewing the immediate problem as connected with and part of a larger network or system which has interrelated parts.

Please circle:	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
	1	2	3	4	5

3. Worldmindedness - people ought to be aware that they are a part of the total group of people living throughout the world, people ought to be knowledgeable that they are part of a larger social collective.

Please circle:	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
	1	2	3	4	5

4. Finite Resources - the world's resources are exhaustible, limited, and in a condition of scarcity.

Please circle:	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
	1	2	3	4	5

5. A New Economic Order - the economic structure, throughout the world, will shift and due to the dynamics of change new patterns will form such as the wealthy countries of the Middle East.

Please circle:	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
	1	2	3	4	5

APPENDIX B

1. Sex ___F ___M

2. Years of teaching experience

___0-1 ___2-4 ___5-8 ___8 or more

3. Grade level and subjects:

Elementary	Secondary	Other
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Type of school:

___Urban ___Suburban ___Rural

5. Would you indicate any overseas experiences:

Travel	Work
_____	_____Length of time
_____	_____

6. How important do you feel it is for students at your school to acquire a global education perspective?

Not Important__ Somewhat Important__ Neutral__ Important__ Very Important__

7. How much emphasis should global education have within the total curriculum?

__As important as basic skills.

__Ranks second to basic skills.

__Equivalent to career education, health education, etc.

__A strong feature of the social studies.

__Little emphasis should be given.

APPENDIX C

TAXONOMY OF EDUCATIONAL OBJECTIVES IN THE AFFECTIVE DOMAIN

APPENDIX C

A Condensed Version of the Affective Domain of the Taxonomy of Educational Objectives*

1.0 RECEIVING (ATTENDING)

At this level we are concerned that the learner be sensitized to the existence of certain phenomena and stimuli; that is, that he be willing to receive or to attend to them. This is clearly the first and crucial step if the learner is to be properly oriented to learn what the teacher intends that he will. To indicate that this is the bottom rung of the ladder, however, is not at all to imply that the teacher is starting de novo. Because of previous experience (formal or informal), the student brings to each situation a point of view or set which may facilitate or hinder his recognition of the phenomena to which the teacher is trying to sensitize him.

The category of Receiving has been divided into three subcategories to indicate three different levels of attending to phenomena. While the division points between the subcategories are arbitrary, the subcategories do represent a continuum. From an extremely passive position or role on the part of the learner, where the sole responsibility for the evocation of the behavior rests with the teacher -- that is, the responsibility rests with him for "capturing" the student's attention -- the continuum extends to a point to which the learner directs his attention,

*Taken from Taxonomy of Educational Objectives

at least at a semiconscious level, toward the preferred stimuli.

2.0 RESPONDING

At this level we are concerned with responses which go beyond merely attending to the phenomenon. The student is sufficiently motivated that he is not just 1.2 Willing to attend, but perhaps it is correct to say that he is actively attending. As a first stage in a "learning by doing" process the student is committing himself in some small measure to the phenomena involved. This is a very low level of commitment, and we would not say at this level that this was "a value of his" or that he had "such and such an attitude." These terms belong to the next higher level that we describe. But we could say that he is doing something with or about the phenomena beside merely perceiving it, as would be true at the next level below this of 1.3 Controlled or selected attention.

This is the category that many teachers will find best describes their "interest" objectives. Most commonly we use the term to indicate the desire that a child become sufficiently involved in or committed to a subject, phenomenon, or activity that he will seek it out and gain satisfaction from working with it or engaging in it.

3.0 VALUING

This is the only category headed by a term which is in common use in the expression of objectives by teachers.

Further, it is employed in its usual sense: that a thing, phenomenon, or behavior has worth. This abstract concept of worth is in part a result of the individual's own valuing or assessment, but it is much more a social product that has been slowly internalized or accepted and has come to be used by the student as his own criterion of worth.

Behavior categorized at this level is sufficiently consistent and stable to have taken on the characteristics of a belief or an attitude. The learner displays this behavior with sufficient consistency in appropriate situations that he comes to be perceived as holding a value. At this level we are not concerned with the relationships among values but rather with the internalization of a set of specified, ideal, values. Viewed from another standpoint, the objectives classified here are the prime stuff from which the conscience of the individual is developed into active control of behavior.

This category will be found appropriate for many objectives that use the term "attitude" (as well as, of course, "value").

An important element of behavior characterized by Valuing is that it is motivated, not by the desire to comply or obey, but by the individual's commitment to the underlying value guiding the behavior.

4.0 ORGANIZATION

As the learner successively internalizes values, he encounters situations for which more than one value is

relevant. Thus necessity arises for (a) the organizaion of the values into a system, (b) the determination of the interrelationships among them, and (c) the establishment of the dominant and pervasive ones. Such a system is built gradually, subject to change as new values are incorporated. This category is intended as the proper classification for objectives which describe the beginnings of the building of a value system. It is subdivided into two levels, since a prerequisite to interrelating is the conceptualization of the value in a form which permits organization. Conceptualization forms the first subdivision in the organization process, Organization of a value system the second.

While the order of the two subcategories seems appropriate enough with reference to one another, it is not so certain that 4.1 Conceptualization of a value is properly placed as the next level about 3.3 Commitment. Conceptualization undoubtedly begins at an earlier level for some objectives. Like 2.3 Satisfaction in response, it is doubtful that a single completely satisfactory location for this category can be found. Positioning it before 4.2 Organization of a value system appropriately indicates a prerequisite of such a system. It also calls attention to a component of affective growth that occurs at least by this point on the continuum but may begin earlier.

5.0 CHARACTERIZATION BY A VALUE OR VALUE COMPLEX

At this level of internalization the values already have a place in the individual's value hierarchy, are organized into some kind of internally consistent system, have controlled the behavior of the indivdual for a sufficient time that he has adapted to behaving this way; and an evocation of the behavior no longer arouses emotion or affect except when the individual is threatened or challenged.

The individual acts consistently in accordance with the values he has internalized at this level, and our concern is to indicate two things: (a) the generalization of this control to so much of the individual's behavior that he is described and characterized as a person by these pervasive controlling tendencies, and (b) the integration of these beliefs, ideas, and attitudes into a total philosophy or world view. These two aspects constitute the subcategories.

APPENDIX D

TAXONOMY OF EDUCATIONAL OBJECTIVES

IN THE COGNITIVE DOMAIN

APPENDIX D

A Condensed Version of the Cognitive Domain of the Taxonomy of Educational Objectives*

1.00 KNOWLEDGE

Knowledge, as defined here, involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting. For measurement purposes, the recall situation involves little more than bringing to mind the appropriate material. Although some alteration of the material may be required, this is a relatively minor part of the task. The knowledge objectives emphasize most the psychological processes of remembering. The process of relating is also involved in that a knowledge test situation requires the organization and reorganization of a problem such that it will furnish the appropriate signals and cues for the information and knowledge the individual posses. To use an analogy, if one thinks of the mind as a file, the problem in a knowledge test situation is that of finding in the problem or task the appropriate signals, cues, and clues which will most effectively bring out whatever knowledge is filed or stored.

2.0 COMPREHENSION

This represents the lowest level of understanding. It refers to a type of understanding or apprehension such that the individual knows what is being communicated and

*Taken from Taxonomy of Educational Objectives

can make use of the material being communicated without necessarily relating it to other material or seeing its fullest implication.

3.00 APPLICATION

The use of abstractions in particular and concrete situations. The abstractions may be in the form of general ideas, rules of procedures, or generalized methods. The abstractions may also be technical principles, ideas, and theories which must be remembered and applied.

4.00 ANALYSIS

The breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. Such analyses are intended to clarify the communication, to indicate how the communication is organized, and the way in which it manages to convey its effects, as well as its basis and arrangement.

5.00 SYNTHESIS

The putting together of elements and parts so as to form a whole. This involves the process of working with pieces, parts, elements, etc., and arranging and combining them in such a way as to constitute a pattern of structure not clearly there before.

6.00 EVALUATION

Judgments about the value of material and methods for given purposes. Quantitative and qualitative judgments about the extent to which material and methods satisfy

criteria. Use of a standard of appraisal. The criteria may be those determined by the student or those which are given to him.

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