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ABSTRACT

The purpose of this paper is to provide an intrcduction to the field of educational futures. It describes a framework for educational futures that moves from the understanding of global futures data to action planning for dealing with the understanding those data have for education. The paper discusses the future of government, life styles, and energy and food production. It also describes two possible scenarios for the future of education in the United States, one pessimistic and one optimistic. Concluding chapters offer impliqations and forecasts for schools and recommendations for an educational futures agenda. (Author/LD)

An Introduction To Educational Futures

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Fall, 1979

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An Introduction to Educational Futures

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Foreword

The Educational Futures Study Group at St. Bonaventure University evolved from work done in a graduate course entitled "Futurism: Implications for Education." The group met over a period of four months during the Fall of 1979 and undertook to prepare a paper which would provide a comprehensive introduction to the field of educational futures. Using a framework developed by James Beane and presented previously at a seminar sponsored by the American Association of School Administrators, the group followed through a logical process proceeding from global to educational futures and using several devices characteristic of the futures field. In the spirit of the paper's title, no attempt was made to exhaust any particular area, but rather efforts were made to "touch base" with a variety of issues and ideas. The paper which follows, then, is the result of this work.

An Introduction To Educational Futures

I

A Conceptual Framework

During the past decade increasing attention by scholars in many fields has been given to the study of futures. With the publication of Toffler's Future Shock (1970), the emergence of the World Future Society and the establishment of numerous task forces and think tanks, a growing number of forecasts, scenarios and other kinds of projections have been suggested on national and global issues. Within the general futures field, the specific branch of educational futures has also arisen. The purpose of this paper is to provide an introduction to the field of educational futures.

Defining Futures

A number of terms have been used to describe ongoing work in the futures field. These include futuristics, futurology, futurism, future studies and others. In general, futuring is a term applied to various kinds of attempts to suggest what lies ahead for humankind in the near or long-range future. Such attempts typically follow one or the other of two kinds of procedures. The first, predicting, involves the specification of some event in a particular time frame; for example, "the world will end on November 6, 1990." This procedure is mainly used by seers, prophets and the like, while the second procedure, forecasting, is more characteristic of the futures field. Forecasting involves suggestion or speculation about future possibilities or probabilities and typically attempts to connect various areas of consideration;

for example, "long range fuel shortages suggest the possibility of resource wars among energy-producing and energy-dependent nations unless steps are taken to identify usable alternative energy sources.". Forecasting, then, is different from predicting in that it attempts to identify possible or probable interconnected eventualities rather than specific isolated events. One should note, however, that even forecasting is not without risks as evidenced by the skepticism in the early part of this century regarding use of automobiles, travel to the moon and widespread use of television.

Education futures generally involves the procedure described above as forecasting. Further, educational forecasts tend to be of two types. The first is extrapolating; that is, the development of future forecasts by analysis of present trends. The second is more visionary in that it involves an attempt to describe what the future of education ought to be like regardless of present trends. Of course there is an essential difference between the two approaches since the first assumes a future over which we have little control, while the second assumes that we can identify and pursue desirable futures. This represents more than a semantic difference since, as will be seen throughout the remainder of the paper, educators need to decide whether they will allow other forces to shape their future or whether they will assume leadership in pursuing their own vision of educational potential.

A Framework for Educational Futures

Serious attempts at educational futures should not, and probably cannot, be made without some kind of conceptual framework. Figure 1 presents

Figure 1

GETTING AT EDUCATIONAL FUTURES

GLOBAL FUTURES	→ EDUCATIONAL FUTURES	→ FORECASTING	→ PLANNING
1. In areas such as: population environment energy food transportation communications human development lifestyles values	1. For schools as institutions: population age the profession communications lifestyles energy financing values	1. Creating "visions"	1. Creating new agendas
2. Using techniques such as: extrapolating trends scenarios gaming delphi procedures	2. For education/learning: human development communications population characteristics knowledge lifestyles biophysics, chemistry values	2. Developing: institutional scenarios learning	2. Making future-oriented decisions 3. developing futures awareness

one such framework which serves here not only to suggest a systematic process, but as a guide for the remainder of the paper. Following is an explication of the framework.

Those concerned with educational futures ought first to develop an awareness of data generated at the global futures level. The latter is typically concerned with forecasts in areas such as those noted as well as their interrelationships. Global futures data is generated and processed through various kinds of techniques which can also be applied to educational futuring. These include extrapolation of present trends through devices like growth curves, development of scenarios by extrapolation or visionary processes, the use of simulation gaming, delphi procedures involving consensus among "experts" on impact matrices and others. Both the content and processes relative to global futures may then act as a base from which to consider educational futures.

The future of education should really be analyzed in two categories as noted in Figure 1. One involves the future of the school as an institution and the other involves speculation about what lies ahead in the general field of education and learning. An illustration of the need for this distinction can be drawn from the area of population trends. At the global level one can consistently find agreement that, while national population growth continues, there is decline in the childhood age-group. Basically such trends indicate that the mean population age is shifting as the "baby boom" group approaches middle age and longevity increases. For schools as institutions this situation poses the problem of declining enrollment with its attendant difficulties of school-closings, teacher excesses and the like. On the other

hand, for education in general this population age-shift represents a new challenge to meet the educative needs of an adult population which has increased leisure time, career obsolescence problems and which is exhibiting a desire for further learning. Thus while the shifting population age is a problem for schools, it presents a positive challenge to our educational imagination.

Analysis of these kinds of educational futures issues serves as a data base for educational forecasting. Following the population illustration above, one might here begin to consider the possibility of a new knowledge-seeking adult population. In addition one might consider what, if any, role the school might play in working with adults. Finally, our forecasts may begin to suggest some present planning to meet problems and prospects for the future of education. Such planning may consider steps toward bringing adults and schools together, what initial steps can be taken and how, if desirable, some present teachers might develop skills to become adult educators.

In summary, the framework for educational futures presented here moves from the understanding of global futures data to action planning for dealing with the implications those data have for education. The remainder of this paper uses that framework. In the following section an overview of global futures data will be described. Subsequently, implications and forecasts for schools and education will be suggested. Finally, recommendations will be made for an educational futures agenda.

II

Global Futures: An Overview

This section of the paper provides an overview of some selected global futures areas. As such, each sub-section contains samples of some of the typical forecasts found in futures literature and no suggestion is made that any is exhaustive. The areas explored include population, prolongevity, work, government, energy, food, communications technology and lifestyles.

Population

Population and its expansion were first recognized as a future problem by Thomas Robert Malthus, (1766-1834). Malthus, in 1798, put forth his Essay on the Principle of Population which stated two postulates:

1-First, that food is necessary for man's survival.
2-Secondly, that man's sex drive is necessary and will remain relatively unchanged in the future.

He then went on to state that population, when unchecked, will increase in a geometric ratio. Subsistence, however, increases in only an arithmatical ratio. In order to make these two very unequal powers equal, he points out that a powerful and consistent check on population is necessary.

From his first essay through the several later editions he wrote, there had been much controversy. In fact, for continuing decades afterwards, the pro and con Malthusian theorists have each tried to put their own doctrine into focus above the other.

To what degree the Malthusian Theory is accurate is not the issue, but rather that this individual proved to be a futurist over 150 years ago. Ages ago, even just centuries ago, population increase was looked at with

little consequence. Resources seemed boundless since knowledge did not even know the other diameter of the pie let alone how many servings it would make. Suddenly all this is changing at a dramatic rate. The continuing population problem is so vast that it will not be handled effectively until there are cooperative global efforts to provide for the wants and needs of all.

Following are some facts and issues outlining some of the complexities involved in global population problems.

World Demographic Situation (Ravenholt)

	1965	1974
World population total	3.2 billion	3.88 billion
Average world birth rate	34 per 1000	28.1 per 1000
Average world death rate	14 per 1000	11.8 per 1000
Annual population growth rate	2%	1.63%
Annual increment in population	66 million	63 million

According to this study, the following points of information were found:

1- birth rate declined 5.9 points from 34 to 28.1 live births per 1000 population - - - a decline of 19%

2- death rate fell 2.2 points from 14 to 11.8 deaths per 1000 population - - - a decline of 16%

3- decrease in the world population growth from 2% in 1965 to 1.63% in 1974 - - - reverses the historical trend toward increasing population growth rates and sets the stage for even more rapid decrease during the decade ahead

4- annual increment in world population (the product of the world population X its growth rate) was approximately 66 million in 1965 and 63 million in 1974 - - - peak annual population increment was in 1973 (about 70 million that year); now there is an accelerated downward trend

This information points out that some major far-reaching changes have occurred in the world population situation during the last fifteen years. Although annual increment is on an increasingly downward shift, world population continues to grow and does so in different population density areas. The world's population is not evenly divided over the surface of the earth. Approximately two-thirds of the people on the earth live on about 7% of the land area. There are four areas of great population concentration: Eastern Asia, South Central Asia, Europe and the Northeastern United States.

Differences in rates of population growth change the distribution of the world's population by regions.

Continent	(% of World's Population) 1650	1950	2000
Asia	61	54	62
Africa	18	8	10
Europe	18	23	15
North America	less than 3%	14	4
Latin America	--	--	9

Differential growth rates during the remainder of this century, showing the demographic transition in the less developed areas, will reverse the pattern of change set before in population distribution by world regions. The economically underdeveloped continents (Asia, Africa and Latin America) will increase from less than two-thirds in 1900 to about four-fifths by the year 2000. The proportion of the world's total population contained in the more economically developed continents will have declined from 36% of the world's total in 1900 to 21% in the year 2000.

World population growth is starting to dwindle. Needless to say, control-

ling human fertility may well be the single most important challenge faced by mankind in the future. Many plans for population control have been put forth. Let's consider one of these to see what our condition would be like at the beginning of the twenty-first century if we, as a global community, would act now.

Lester R. Brown, in his book In The Human Interest, suggests that all the more developed countries should strive for population stability not later than 1985. He further suggests that less developed countries reduce their crude birth rates to 25/thousand by 1985. Despite continuing efforts, there would be little further decline from 1985 to year 2000. Populations in the more developed countries would already be stabilized while the large groups resulting from the number of births during the 1960-75 period in the less developed countries would be in the prime reproductive years.

The author goes on to suggest the second phase of the push toward stabilization would come during the decade from 2005 to 2015, when the sharply reduced group born after 1985 would be entering the prime reproductive years. This would lead to a stabilized world population of just under 6 billion by 2015. Even with these extraordinary efforts, the 1970 world population would have been increased by nearly two-thirds.

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Prolongevity: The Extension of the Human Life Span

Medical Technology.

It is generally felt that medical technology will take care of nearly everything that is medically wrong with human beings. This is a very large topic in itself and is being dealt with here only because it makes such a great contribution to the possibility of prolonging the lifespan.

There are four medically-related items that are important to this overall topic. The first one that comes to mind is preventive medicine. This is the most obvious step on the road to prolongevity.

The second one is gerontology or the study of the process of aging and the problems of aged people. Doctors often practice geriatrics now.

The third item is diet. There are different dietary problems all over the world. One that is becoming worldwide is the "affluent diet." This is a diet which contains high levels of animal fats, sugar, salt, and

cholesterol and causes the "diseases of civilization," most commonly diabetes, hypertension, heart disease, and cancer. (See The Futurist, February, 1977.)

Finally, there is POMR, or Problem-Oriented Medical Record. This is a new system of keeping medical records with the help of computers that was developed by Dr. Lawrence L. Weed of the University of Vermont Medical School. Information in the patients' records is arranged, not according to where it came from (doctor's notes, nurses' entries, lab technicians, X-ray technicians, etc.), but according to how it relates to the patients' problems. (See The Futurist, June 1979.)

Genetic Counseling.

The major goal of genetic counseling is to convey an understanding of birth defects and genetic mechanisms to affected families and to enable prospective parents to make informed decisions about childbearing. Some defects are environmental to one fetus, e.g., the mother contracted rubella or took drugs. Other defects are hereditary and can happen again and again. Trained counselors should be consulted for genetic counseling.

Moral and Ethical Concerns.

Some issues here are DNA experimentation, experiments in one area which cause problems in another, in vitro fertilization, and sex-change operations.

Global Issues and Problems.

At the present time, the fear of our becoming unproductive persons and losing our abilities to care for ourselves frightens many people away from any interest or desire to have research done on the possibility of drastically

expanding the human life span. Many who have the financial means or scientific abilities for research do not realize that the hope is that lives will be good and productive ones even into the centenarian years.

If people continue to be young, the population-control problem might be a very real one. A woman would be able to take hormones to rejuvenate her reproductive system and continue to bear children. This fact could lead to licensing for childbearing. Also in the subject of population control is the fact that, as the newborns arrive, the older people will not be dying. Another problem is that of deciding how long a person should be allowed to live, especially if he is socially productive.

The benefits of prolongevity would have to be shared. The people who hold the jobs would not want to give them up to the younger people. This could result in a world of unfulfilled and useless people.

If the secret of long life is found, predictably by the year 2025, the availability of the drug, or whatever is necessary to prolong life, should be available for all. At the present, most gerontologists agree that we have a "clock of aging." This "clock" determines genetically when we age and die. The substance for prolonging life could easily get into the hands of a power-hungry person or group of persons, the analogy being another Hitler.

The character of the health professions would have to change. The emphasis would be more on preventive medicine and public health. The use of computers could help young doctors learn faster without having to memorize everything.

Global planning in the areas of population, pollution, and natural resources would be necessary.

The character of marriage and family life would most likely change drastically. If "life begins at 140," people might have several homes and families during their lives.

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Work

The worker of the future will be different from his 20th Century counterpart. A shorter work week, increased fringe benefits, earlier retirement, advances in technology, and a greater emphasis on leisure time are forecast by various Futurists. All of these trends may very well lead to an erosion of the Puritan work ethics.

Herman Kahn makes a projection for a leisure oriented society in which one would spend 40% of his time on the job, 40% on vacation and 20% just relaxing, or 147 days working and 218 days off per year. He goes on to say that a person could also maintain a comfortable life style under such an arrangement. The meaning of work, considering this forecast, may indeed face dramatic change in the years to come.

What type of occupations may one expect to enter in the future? The Bureau of Labor Statistics addresses itself to this question, making projections into the mid-1980's. These projections are based upon the following assumptions; there will be no war, no long lasting energy shortages, that unemployment will not rise above 4%, and that our government system will remain the same. Their 1985 projections are as follows:

PROFESSIONAL AND TECHNICAL	50%
CLERICAL	40%
MANAGERS AND OFFICIALS	30%
SERVICE	22%
SALES	20%
CRAFTSMEN	20%
SEMI-SKILLED	13%
LABORERS	minimal growth
FARM	48%

Another question to ask is, what characteristics should the worker of the future possess? To get a better idea, Futurist Hank Kahn says,

"Tomorrow's workers will have to work smarter, not harder, and their skill and training will have only a five year life span. After that their knowledge will be obsolete." It seems that tomorrow's worker will need specific skills as well as the ability to adapt to a changing society.

As jobs are constantly changing and evolving in the future so will the attitudes that the workers hold. As the worker's role becomes more technological and indirect, as work-time becomes less and as "unemployment" becomes "non-employment," it is likely that the work ethic, so long a tradition, might become passe. In addition, people might well begin to view their real work as the pursuit of knowledge, interests or avocations outside the occupation-specific area.

In any event, the chance that our present system of careers, occupations and the like will continue in the long-range future is very unlikely.

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International Futures in Government

Government on the international scene during the last twenty years of the 20th century will have to solve, or at least come to grips with, several threats to the stability of the world.

(1) The arms race will continue with proliferation of nuclear weapons to all parts of the world. As the proliferation continues, defenses will get top priority; hence, a self-dampening effect will set in and slow the arms race.

(2) International anarchy in the world will continue. Koreas, Vietnams, Irans, Cambodias and Ugandas, to mention a few, will all continue to plague the world. No international organization will emerge to solve these problems, but subtle peace organizations will continue to function effectively in this area. Religious institutions, the International Red Cross and U.N.I.C.E.F. are only a few examples of this best hope of the world.

(3) Human aggression is the most difficult problem of all to deal with effectively. It would be naive to think that this problem can be eliminated, but we should be concerned with solving problems which are indirectly effected by human aggression such as arms races and limited wars. Any of these factors combined with human aggression could lead to armageddon.

(4) Economic Disparities in the world will continue to plague the globe. Confrontations between the "have" powers of the world will be relegated to the history books. The underdeveloped third world countries will be the most difficult problem. A form of neocolonialism will be implemented by the "have" countries to placate the third world nations. This system will see investment capital being parceled out as peace offerings by the rich countries of the world. The 21st century may certainly see a change in this situation..

The following changes will probably take place on the international scene by the year 2000.

(1) More citizen participation in government will take place, but democracy will not necessarily develop.

(2) Regional reorganization of political units will become a reality with bloc or condominium systems developing.

(3) The super powers will lose their position of autonomous dominance in the world.

(4) Economic differences will become less significant in the world.

(5) Low-level violence or limited war will become more and more accepted in the world.

(6) Joint conquest of space will continue which could radically change some of these predictions.

Futures for Government in the United States

The United States in the last quarter of the 20th century will have to make some major readjustments in its political systems to survive in the 21st century.. A major reorganization of government will take place at all levels. At the local levels we will find a decrease in the number of governmental units which will bring more efficiency to local governments. We will see a major reduction in the number of states. The concept of regional government will become a reality. The Federal Constitution will be abandoned for parlimentarian government. Many of the functions of the central government will be turned over to the regional state governments.

At every level of government citizen participation in the government will be reemphasized. Planning for the future will become a reality with the computer being used at every level of government. The failure to make at least some of these changes might make more and more Americans look with less trepidation on the man on horse back; that is to say if the complexities of global and national issues increase and feelings of powerlessness by citizens follow, the chance that a dictatorship, perhaps benevolent, might be acceptable seems also to increase.

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Energy

Research in the field of energy has indicated that the following developments may be anticipated in the production, transmission, and transportation of energy.

1. Oil will continue to be the major source of energy for the world until around the year 2000. Despite the fact that nearly all possible land sites have been explored (except areas of delicate ecosystems and areas with poor transportation) oil will be found through new recovery techniques and off-shore sites to supply the world into the 21st century.

One oil source thought to offer an answer, especially to the United

States, is oil shale. But this source by techniques known today has many serious problems: 1) 1.2 tons of waste for each barrel of oil produced, 2) air pollution resulting from firing the shale to drive off the oil, 3) large quantities of water needed for processing, 4) high salinity of the waste water. Improvements in techniques in this area may make it a viable short term alternative.

2. Natural Gas will also be one of the major fuel sources into the 21st century. The use of natural gas and gas from coal will continue to grow until the year 2000 as transportation through cryogenics and storage problems are solved. Also gas from coal will increase in popularity as techniques improve and costs become feasible.

3. Recent shortages in petroleum have made coal a major source of interest for energy in the U.S. However, greatly increasing coal use and production may cause more problems than it solves, such as land reclamation, air pollution, cancer, climactic disruption, transportation problems and possible agricultural impairments. But with more automation and better techniques these problems may be solved. If they are, coal could be used as a major energy source well into the 21st century.

4. Hydroelectric power will not grow as an energy source because there are very few good areas left to develop. Geothermal sources will be used in areas in which they are found but sources are rare. Electrochemical energy in the form of fuel cells is being developed now to supply small communities (up to 20,000 people) with energy. Fuel cells are very efficient and cause no air, noise or water pollution. The main drawback right now is the high cost of materials. Biomass conversion also offers another partial solution.

5. Another little-used source of energy is tidal power which has a potential about seven times larger than the world's hydroelectric output. This may help solve energy problems in some areas.

Solar energy has been touted as a solution to the energy problem. But large scale use is at least 50 years away and will probably involve the use of satellites and microwave relays from space.

6. Perhaps the most controversial source of energy is nuclear. At present nuclear fission is being used to produce energy. Its use is increasing greatly despite the many recent problems (waste disposal, radiation, cost, thermal pollution). Increasing the number of fission reactors will increase these problems and make uranium a rare metal. Breeder reactors will solve the problem of supply of fissionable material. It is possible that the ultimate source of energy is nuclear fusion. The basic difference between fusion and fission is: fusion is the uniting of four hydrogen atoms to form an inert atom of Helium (nonradioactive) releasing massive amounts of energy, while fission is the splitting of uranium into other elements that are radioactive and will be for thousands of years. This would give the world an unlimited supply of energy from hydrogen without the dangers of fission.

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Food

In studying the problems of world food production and distribution, one must consider the social, economic and political structure that currently governs the state of affairs. All current research leads to the inescapable conclusion that current world trends in population growth, food production

and food consumption cannot continue indefinitely. Population growth must be controlled if massive famines are to be avoided in the future. In controlling population, one has to consider the moral, ethical, and religious implications which must be overcome when considering this premise. Food production cannot be separated from the challenges of population growth and the efficient organization of food production system.

Most food experts believe that the most serious aspect of the world food problem could be resolved in the next decade by certain socioeconomic changes in the hungry nations of the world. In order for this to be accomplished poor nations must place more emphasis on agriculture and less on industrialization; self-reliance is their only hope. Without this shift in priorities on the part of poor nations, there is little that the industrialized nations can do to improve long-term food conditions. Current trends indicate that the poor nations are becoming increasingly dependent upon imports of food staples and that their food production and consumption - growth rates are failing to keep up with the aspirations of their citizens.

In considering future food production, and the ability to feed an ever-increasing population the following items are considered throughout most of the literature dealing with this subject:

1. There are currently many new areas in the field of technology which will increase current crop (Green Revolution) and meat production,

a. Plant Genetics - two specific possibilities are particularly important. One is the development of grain varities that produce considerably higher yields on non-irrigated land. Another important genetic improvement would be the development of nitrogen-fixing grains which would produce higher

yields with less fertilizer.

b. Irrigation - new technology in irrigation systems will increase food production.

c. Food Storage - A Delphi panel estimates that 25% of current grain production is lost to spoilage or eaten by pests. These losses could be reduced by stepping up construction of onsite storage facilities and developing efficient small-scale solar drying and processing equipment.

d. More Efficient Meat Production - In the Third World and Eastern Europe, improvements in meat production are expected to come primarily from more effective disease control programs and the development of specialized livestock production systems. In wealthy regions, more efficient meat production will come from new developments in breeding, improvements in marginal land grazing, and the development of hybrids.

e. Synthetic Foods and Animal Feeds - While it is unlikely that widespread consumption of synthetic foods by humans will become reality within the next 20 years, there is currently a movement toward the development of unconventional animal feed from a variety of sources - plant cellulose, animal wastes, petroleum derivatives, etc. Through these important developments it would reduce the overall amount of grain consumed in affluent nations by replacing feed grains in livestock feeding.

f. Energy - Rising energy prices will have different food-related effects on the affluent and poor nations. Despite the relatively small amount of the national energy budget (2.5%) devoted to agriculture, energy price increases will have many impacts on agricultural production. Land-use patterns and cultivation techniques will change as less energy-intensive crops and methods are substituted for those which require more fossil fuel.

Post-harvest processing will also adjust to reflect higher energy cost. Thus the net result of energy price rises will be higher food costs for the average household. High energy prices will also accelerate the shift toward labor-intensive modes of production and away from energy-and-capital intensive methods.

2. Environmental Changes - Dependence upon the amount and timing of rainfall is an example of the great vulnerability of agricultural production to changes in local and global environments. A period of greater variability in traditional weather patterns would place greater importance on food reserves and ultimately lead to a decrease in the use of marginal land. The only response to an adverse longterm weather cycle would be to place greater emphasis on productivity increases and on the expansion of farmland in areas with more favorable climactic conditions. If the worsened weather patterns lead to reductions in rainfall, the construction of wells, reservoirs, and irrigation systems, as well as the development of more drought resistant crops, become important options.

Food production is physically manageable over the next twenty years, however the nations of the world must decide that providing an adequate supply of food deserves the highest social and economic priority. Affluent countries must either help poor nations with their food problems or be prepared to live in a world where millions of people grow hungrier and more desperate everyday. Poor nations must realize that if they do not produce more food, famine will ensure that they have fewer mouths to feed. With or without the help of affluent nations, poor countries must become self-reliant in food in the next twenty years or face disastrous consequences.

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Communications Technology

Life today would no doubt seem a wonder to citizens of the world only fifty years ago. For us the television, telephone and radio seem so commonplace that living without them is barely imaginable. Yet even we may be seeing only the beginning of applications of modern communications technology.

Communications in the past depended mostly on either face-to-face meetings or written messages. Today there are myriad ways in which we may instantly communicate without either means. Our generation was the first to experience a foreign war, Vietnam, on a first-hand basis through the medium of television. Personal news may be communicated by telephone, cassette or video-tape. We may expect through eventual access to personal television channels through sophisticated laser/micro-wave technology that such communications may be carried out over the home television.

The home financier who often labored long hours over the family budget already finds the hand-held calculator cutting that time considerably. Within the next decade the home computer will probably reduce the time even more in addition to storing information for use in income tax preparation

and other financial matters.

Computers in general have probably reached, or at least neared, their maximum technological limits. However, we can expect to see increased application of computer technology. Traffic control, construction, business management, quality control, medical technology and many other areas are expected to be virtually controlled by computers. Further it is entirely likely that future workers will be able to carry out most tasks at home and thus have no need to travel to offices and the like.

In sum, communications technology will undoubtedly play a larger role in the lives of virtually all citizens in terms of storing, retrieving and communicating information, reducing travel and creating larger networks of personal messaging. From a person's own home, one will be able to vote, work, interact with others, retrieve information stored elsewhere, order goods, pay bills, "attend" important events or, in other words, conduct virtually all of the affairs which only a few decades ago consumed much of the human lifespan.

Lifestyles

Technology is the single greatest factor in changing lifestyles. As a result of advancements in technology, we are affected by and adapt to changes in economic systems, governmental powers, human relations, and social affairs.

A growing desire for a higher quality of life characterizes those societies whose citizens have achieved an adequate standard of living.

Some of the trends towards new growth directions are to be observed in affluent societies today:

1. Concern about the quality of the physical and social environment

2. A decline in materialism as a major concern

3. A shift in value from things to people (human development)

4. A deterioration of the puritan work ethic

There is an apparent shift, or redirection, towards the pursuit of life styles and goals which enhance personal growth. This has given rise to a strange amalgam of selfishness, hedonism, and anti-materialism which has come to be called "Me-ism".

It is presumed that the basic needs of the world's poorest people will be met in the next twenty or thirty years. For the more affluent, the redirection and diversification of growth itself is already a major issue.

New technology has changed the basic conditions of human life by enabling us to do things that heretofore were difficult or impossible. Birth control technology, for instance, has probably played a major role in the relaxation of society's traditional opposition to sexual activity, as evidenced in the following trends:

1. More open sexuality

2. Greater acceptance of homosexuality

3. Emergence of a sex ethic

The life style of unmarried people has changed considerably in recent years. There has been a decline in traditional dating practices and, according to the latest United States Census Bureau reports, an almost incredible increase in the number of people living alone.

Marriage and divorce statistics have been of major concern recently. The following seem to be current trends:

1. A change in the purpose of getting married (personal happiness)
2. A great percentage of divorcees remarrying
3. More runaway spouses
4. Divorce without marriage
5. Increase in numbers of battered husbands and battered wives

Society has traditionally given the family the task of producing and rearing children. Recent trends suggest that the family is failing at rearing:

1. More teenage pregnancies
2. More working mothers
3. Child-snatching becoming a problem
4. Children are unwanted by both parents
5. Child abuse incidents increasing
6. Single-parent adoption becoming prevalent
7. Fewer children being born
8. More teenage suicides

Couples dissatisfied with traditional marriage seem to be experimenting increasingly with a wide variety of alternatives:

1. Open marriage
2. Cohabitation
3. Swinging
4. Cooperative living arrangements
5. Group marriage
6. Intentional families
7. Intimate networks (corporate family)

The challenge in the future is to create the necessary sets of socio-economic roles and institutional and political arrangements through which we

may use our technology to pursue new growth directions---and to turn such a pursuit into a major social purpose.

One such purpose may be the move toward a person-centered society unlike the present industrial-technological society. Such a trend would be characterized by movement from dependence on institutions to more self reliance, from affluent consumption to satisfaction with less materialism, from centralized to participatory decision-making, and from unchecked growth to planned improvement. Implicit in such movement is the shift in priority from technology to people. At present, these two forces are engaged in a struggle characterized by the gap between industrial survival and lifestyle changes. It is highly improbable that one or the other side will eliminate the other, unlikely that lifestyles will be subsumed to technology and, in the end, perhaps most likely that a person-centered society will emerge in which only that technology is developed and accepted which supports rather than detracts from lifestyle alternatives.

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III

Educational Futures: Issues and Forecasts

This section of the paper will focus directly on educational futures. First some present and near-future data will be described. Following that several forecasts will be discussed which involve futures for education.

At present, as in the past, much of what goes on in schools can be characterized as knowledge dissemination. As noted in the previous global futures section, however, enormous advances in information and communications technology may change many aspects of our lives including the knowledge role of schools. In the first place, we already receive a tremendous amount of knowledge from television and other media. Instant coverage and analysis of current events, rock and symphonic concerts, college courses, classical and contemporary novels and plays, travel to foreign countries and topical discussions are constantly available through home television. Radio Shack and other outlets offer home computer systems at relatively low costs which will probably decrease as rapidly as those of hand-held calculators did.

Citizens band radios can bring us in touch immediately with other people as we travel or stay at home. Mego Corporation has marketed an interactive robot (Freeman and Mulkowsky, 1978) which can provide instruction, testing and information in many skill and content areas. Through the use of "holography" (Kotler, 1978) three-dimensional images can project objects and persons to any location. Professors at the University of Wisconson are experimenting with instant learning of bodies of knowledge by transmission of electrical charges to the nervous system (Kotler, 1978). These and other techniques may offer far more effective and efficient ways of disseminating knowledge than the schools. In light of this educators must begin to rethink their roles away from pure subject matter.

Practically all educators are aware of the present decline in school enrollment. From 1970-79 the 5-13 age population decreased 12%. Since this age-group represents school age persons, the enrollment decline is easily understood. At the same time, however, the age 25-34 population increased 32% and the over 65 population increased 18%. In other words, our society is presently experiencing a shift in its mean population age toward adulthood. It is expected that the pattern will continue, particularly as more women enter careers and as the cost of child-rearing increases. In search of a new clientele to populate classrooms, many schools have found a growing number of adults who desire some form of education. Community colleges, for example, have experienced a quadrupling of non-credit adult education enrollment in just ten years. Further, the new awareness of elders as still-growing, dynamic human beings has brought many older persons to living/learning elderhostel programs on higher education campuses. Society as a whole is recognizing that adults need not only career retraining, but

education in parenting and other human skills as well. That we are a learning society is beyond question. How the schools will participate is not, especially since many states have laws which prohibit day-time attendance by adults and evening attendance by youth. As our society lives longer and works less, educators will need to rethink their historic function of working only with youth and in isolation from other age-groups.

One of the most widely discussed issues in education today concerns the role of the school as a social service. Many educators and citizens feel that the school has taken on far more than it can or should in providing education beyond skill and subject areas. Nevertheless, we live in a time when changing lifestyles have meant increased confusion about values and more reliance upon institutions for assistance in human services. For example, extrapolating present divorce and single-parent trends suggests that approximately 45% of children born today will live in single parent homes for some period before age 18. The teacher in any given classroom can expect that no less than 30% of the children in the group are from single-parent homes. Further nearly half of the married women in the U.S. now work, a dramatic shift from previous generations. These family patterns, along with media and other activities, mean that many children do not receive the amount of adult guidance and supervision they might require. Adolescence, always a period of turmoil, is now marked by serious signs of confusion. For example the peak age for committing violent crime is 14, 43% of all serious crimes are commited by persons between the ages of 10 and 15, and alcoholism is a problem confronting as many as 20% of early adolescents. Against this backdrop, economic, political and social trends which affect our daily lives are rooted in forces so vast and complex that many persons feel powerless to deal with anything

beyond their own personal lives, and sometimes not even those. As a response the decade of the '70's has seen a dramatic turn away from social issues to self-growth and improvement. The search for self has led many persons to therapy sessions, self-help programs, religious cults and the like. Thus at a time when many educators are pulling back from the notion of the school as a social service the society-at-large may well be seeking a larger role for the school. In the case of youth services, of course, the school may be one of the last sources of help.

In attempting to see beyond knowledge into an educational future which includes schools, educators need somehow to rethink the substance of schools as institutions. As knowledge dissemination decentralizes and as potential students seek more personal and social growth, the institutional features of the school may be seen as undesirable. For example, most schools tend to be custodial, placing premium on autocratic procedures, maintenance of order and impersonalness, as well as stressing credits, competition and conformity. In addition, the school has long been the center of the "melting pot" concept in American society, contributing its share to the attempt to build a homogeneous population. Finally, the school is an age-isolated institution in which youth are purposely separated from other age groups in the human life-span. At a time when our society is searching for flexibility in lifestyles, when ethnic diversity is emerging through cultural pluralism and when artificial age-barriers are breaking down in occupational and social domains, the school verges on anachronism. The degree to which such issues are dealt with may well determine whether the schools as institutions become a part of educational futures.

Two Scenarios to 2010

Schooling to 2010: A Pessimistic View

This scenario pursues a calendar year progression of pessimistic events from 1982 to 2010. It assumes that many present trends will extrapolate and that outside catastrophies will not intervene. To show illustrative effects, the scenario uses a sample school district.

The sample district, Metrotown, is located in a community of 1,200,000 persons. Light industry is the economic base of the community, and it is surrounded by suburbs from which many workers commute. The secondary schools have an enrollment in 1980 of 130,000 with 6,300 teachers, 650 administrators and 1500 para-professionals. The scenario follows.

1982:

The State Court of Appeals rules in favor of full state funding. Metrotown, however, is forced to curtail many services as declining enrollment and inflation force costs upward.

Metrotown also confronts the problem of competency testing for high school graduation. 35% of its seniors have not passed competency tests. Of a potential graduating class of 21,600 only 14,000 receive diplomas.

1983:

The teacher's union and the school board are at impasse for the entire school year over contract negotiations. Budget cuts are again imperative.

1984:

Budget cuts continue as does the impasse over contract.

1985:

Enrollment in Metrotown's secondary schools has declined to 119,600 due to the loss of people to suburbs and the loss of some industry. 10,500 diplomas are awarded to graduates, a decline of 25% since 1983.

1986:

The state legislature under increased pressure from teacher's unions, school boards, and senior citizens adds an option for local additions to the statewide funding allocation.

1987:

With competency test achievement declining, the state education department announces plans to standardize instruction throughout the state with competency exams at each level.

1988:

Secondary enrollment in Metrotown has dropped to 110,000 and 1,050 teachers are replaced by aids while 215 administrators are eliminated.

1989:

The option for adding local funds to the state education allocation is waived to undertake a public works project in Metrotown. With inflation, school expenditures suffer a net decline.

1990:

Secondary enrollment in Metrotown drops to 104,000 as a major industry in the community leaves due to its inability to pay energy costs. Graduation diplomas are awarded to 7,350 seniors.

1991:

Local boards of education are voted out of existence by statewide referendum. Control of education is given to regional school boards. Metrotown thus has only minor representation on a school board which also governs suburban districts.

1992:

A governor's task force made up of representatives from regional school boards recommends that all students with special needs be sent to one of three residential centers in the state. This plan is approved by the state legislature.

1993:

Secondary enrollment in Metrotown drops to 87,000 and 2000 teachers are eliminated. They are replaced by aids and volunteers.

1994:

Due to the decrease in professional staffs, the state installs a media and information retrieval system unparalleled anywhere else in the country. However, local state allocation of funds is cut 20%.

1995-2000:

Metrotown's secondary enrollment has dropped to 83,000. 5,000 seniors receive diplomas. Teacher's unions now negotiate directly with the state legislator since the latter essentially funds local education. Only one half of the instructional staff is certified while the remainder consists of aids and para-professionals. Curriculum is standardized and teachers do virtually no local planning.

2000-2005:

Enrollment is now 60,000 and only 3,000 seniors receive diplomas. Increasing energy costs have severely curtailed transportation and buildings are seriously deteriorated as funds are not allocated for their maintenance. Regional school boards have asked the state to increase the compulsory attendance age to 25 in a desperate attempt to build a student population.

2005-2010:

Due to high fuel costs and taxpayer protests, the state legislature abolishes school transportation programs and subsidies.

Congress adopts a system of national competency tests at the request of the federal Department of Education. To decrease costs virtually all administrative functions have been centralized at the state and federal level, and a standardized national curriculum is nearing completion. Those students passing national competency tests are eligible for higher education, while those receiving attendance certificates are eligible for trade or vocational schools.

2010: The scene in Metrotown

Secondary enrollment - 25,000

Diplomas granted - 2,000

Number of teachers - 2,500

Number of para-professionals and aids - 4,000

Schooling to 2010: An Optimistic View

This scenario pursues a progression of optimistic events from 1985 to 2010. It assumes a change in thinking about the nature of education.

1985:

California Adopts the Voucher System

Voters in this state overwhelmingly approved a new system that allows great freedom of choice in meeting educational needs. Each family with school age children will receive an education allowance provided by the state government. A particular school is selected for that child to attend and the voucher received from the government pays for education expense of that child.

Due to this voucher system, a new type of progressive humanistic school is established and begins to grow tremendously in popularity. These schools "play down" the total academic stress of the "traditional" school in order to place a great deal of emphasis on the person, values, and the many systems that surround these areas of the educational process.

Other-Interest Schools are Established

Along with the progressive humanistic schools, other interest schools are established to meet the needs of yet other individuals. Schools emphasizing military life or Christian Academies are but a couple in this less popular but still necessary category.

Competency Tests Lose Favor

Finally, there is a growing mood across the country to de-emphasize the rigidity that had been created around the competency tests. People are growing skeptical of the importance that had been attached to the tests.

1990:

Three other states adopt the voucher system: New York State Board of Regents unanimously votes to adopt the voucher system allowing individuals to send

their children to any accredited school in the state. Wisconsin's legislature passes the voucher system by a 2/3 vote. Maine adopts the voucher system by a 4 to 1 margin.

Progressive humanistic schools are growing in popularity: A Gallup Poll survey reports that 7 out of 10 students attend progressive schools.

Competency tests no longer exist: The New York State Board of Regents repeals the use of competency tests as part of the requirements for graduation. The movement spreads across the country, and all competency tests, in public schools, are repealed.

Population (nationally) stabilizes: The United States Census reports zero population growth.

Four day work week for the majority: On the long-running national TV show 60 Minutes Mike Wallace reports that eight out of ten workers only work a four-day work week.

Emphasis on leisure-time, i.e., learning activities: The Bureau of Labor statistics reports that the fastest growing occupational group is recreation. The nation's beaches, parks, golf courses, ski centers, and general recreational areas are, in general, overcrowded.

Leisure Learning Tax Credits given by Federal government: Income tax breaks on leisure learning cause "moonlighting" to disappear from the American scene. People content to work a four-day week and attend school on days off.

More parental and/or adult supervision with children observed, in stark contrast to the late'70's: Negligent parents are social outcasts.

1995:

A majority of states adopt the voucher system. Almost immediately California-type progressive/humanistic schools appear in great numbers in those states. Some are appearing in remaining states but requiring tuition.

California and New York simultaneously remove age restrictions for attending schools during all hours. Other states follow suit.

Industrial leaders announce that they prefer graduates from progressive/humanistic schools in all levels of employment because of their ability to "think and to get along with others."

School enrollments in progressive/humanistic schools increase dramatically; many traditional public schools close.

Liberal arts colleges join forces with new progressive schools and eliminate entrance requirements. Community colleges have begun to accept younger people who seek specific occupational skills. Building industries align themselves with community colleges to develop work/study programs.

National curriculum guides are developed which emphasize interdisciplinary team teaching methods and skills for human development, such as interpersonal relations, values and valuing, problem solving, decision-making, communications, parenting, and use of leisure time.

Knowledge dispersal is assumed by technology and media at home centers. Major networks devote majority of hours of programming to shows of educational and cultural enrichment. Video-cassettes replace subject-matter teachers.

2000:

Compulsary education legislation is eliminated because most citizens are involved in continuous life-long learning.

School becomes a vehicle for community change because the school is the center of society.

2010:

A people-oriented society emerges with all activities of society oriented for the betterment of humanity.

People demand only that technology which benefits mankind because society is people oriented.

Finally, the Unites States has a free, public educational system which is universal, continual, lifelong, and truly democratic.

Processing Critical Issues For School Futures

Simply knowing about possible futures issues is not enough. Something must be done with them for purposes of planning action to be taken. The study group which developed this paper generally felt that there are eight major futures issues facing the school. These issues are:

1. The Numbers Game - declining enrollment, teacher and building excesses, etc.
2. Changing Social Values - cultural pluralism, unconventional homes, new lifestyles, changing work ethics.
3. Return to Normalcy - back-to-basics, competency testing, public disenchantment, etc.
4. Finances - budgets, taxes, energy costs, etc.
5. Legislation - centralization, P.L. 94-142, Title IX, etc.
6. Student Factors - apathy, violence, alienation, etc.
7. Technology - media as knowledge disseminator

8. Lifelong Education - particularly adults

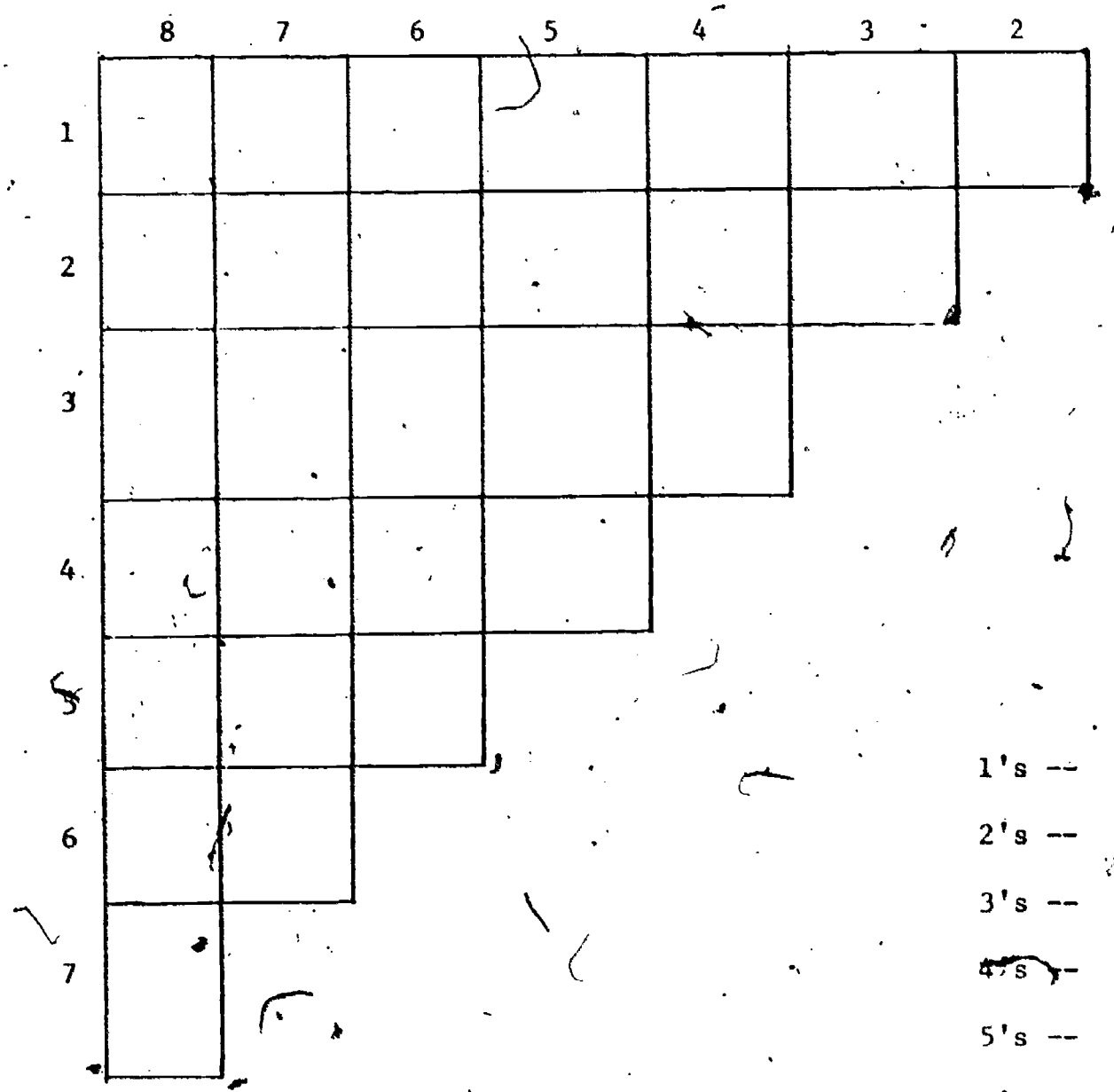
Note that each of these issues has several sub issues. In this sense, the eight represent broad conceptual issues large enough that concerted effort on any one would be difficult, but worthwhile. The following sections demonstrate for different ways to process the eight (or other) issues which can be utilized by educators at various levels.

Cross Impact Matrix Method

Futures planning at any level involves discussion of major issues. To facilitate planning, such issues ought to be prioritized. One way to do this is through the use of a cross impact matrix. This technique utilizes a matrix form illustrated in Figure 2. The figure assumes, in this case, that eight issues are under consideration. These would be listed from one through seven down the left side of the matrix and in reverse order across the top. The user then fills in each box by comparing the two intersecting issues. For example, in the upper left-hand box issue one and issue eight are compared and the number 1 or 8 is entered depending upon which one is considered to be a higher priority. In this same manner, all the boxes are completed. By this method each issue is compared to every other issue. Finally, the participant records in the lower right-hand section of the form the number of times each number appears in the matrix. This list then shows the participants priority ranking (the total number should equal 28 since there are 28 boxes in the matrix). By summing the item counts for several participants, a group priority ranking may be determined. This systematic method thus allows every person in the group to participate and avoids unnecessary discussion.

Figure 2

CROSS IMPACT MATRIX



1's --

2's --

3's --

4's --

5's --

6's --

7's --

8's --

Using the cross impact matrix, e.g. Figure 2 adapted for eight issues, individuals and then the group prioritized the items. Table 1 shows the results of the exercise.

Table 1: Eight Educational Futures Issues Prioritized

Issue No.	Matrix Raw Score (Group)	Issue Rank (Group)
1	25	4*
2	34	2
3	12	6
4	37	1
5	25	4*
6	33	3
7	23	5
8	7	7

*tie

Note that issues two and four were clearly highest ranked, issues three and eight were clearly lowest. The others tended to be fairly close with issues one and five actually tied. Such a list obviously, then, suggests areas in need of attention through planning. While the reader may find the content of the group's prioritizing of interest, the more important implication here is that the cross impact matrix is a useful device for local efforts in thinking about educational futures.

The Critical Problems Responsibility Index

A second device for thinking about educational futures issues involves consideration of who might have major responsibility for helping to resolve

each one (the device was developed by Conrad F. Toepfer of the University of Georgia).

In this case each of the issues is considered in terms of responsibility using the following scale:

1 = Totally the school's responsibility

2 = Mostly the school's responsibility, partially home and/or community

3 = Equally the responsibility of the school, home and/or community

4 = Mostly the home and/or community, partially the school's responsibility

5 = Totally the home's and/or the community's responsibility.

As shown in Figure 3, each issue is then simply listed and assigned an index by the group. Figure 3 shows that of the study group which prepared this paper.

Problem	Responsibility
1. Numbers games	3
2. Changing social values	3
3. Return to normalcy	2
4. Finances	2
5. Legislation	4
6. Student factors	3
7. Technology	2
8. Lifelong education	2

The purpose of this exercise is not to avoid responsibility, but rather to try to determine who would need to be involved in planning and action. Once completed, the index can then provide direction in constructing representation on task forces and working groups.

Identifying Leadership Concerns

A third device is intended to help educational leaders think about emerging concerns and/or needs relative to futures issues. In practice the device calls for listing the issues and then brainstorming the kinds of actions or needs which each calls for. Figure 3 shows the eight issues being considered here and illustrative actions or needs identified by the St. Bonaventure Study Group.

Figure 4: Education Issues and Leadership Actions

Issues	Leadership Needs/Actions
1. Numbers Game	1. Promote legislation to repeal current laws limiting adult access to schools (action)
2. Changing Social Values	2. Determine the schools role in new lifestyles such as unconventional homes (need)
3. Return to Normalcy	3. Promote broader definitions of "basics" appropriate for new knowledge technology (action)
4. Finances	4. Define ways for the school to assist the local community with energy conservation (need)
5. Legislation	5. Resist centralized curriculum legislation and mandates (action)
6. Student Factors	6. Develop humanistic school climate (action)
7. Technology	7. Study ways for the school to better use new communications technology (need)
8. Lifelong Education	8. Offer community access to schools and sponsor local study groups (action)

Decision Trees

Another device used in thinking through futures possibilities is the decision tree. In this method, one starts with an issue about which a decision can be made from two choices. Each of those then leads to two more options and so on. In the process the decision-option chart becomes a series of branches.

For purposes of illustration a decision tree has been developed here (Figures 5, 5a, 5b). The initial issue chosen is declining enrollment from which two choices are offered; (1) an attempt to maintain services and (2) a search for new clientele for schools. Figure 5 represents the schematic for the overall tree, 5a that of service maintenance, and 5b that of new clientele search.

While appearing complex, the device actually offers a relatively elementary way to think through consequences of present issues. What is obvious in this illustration as in others, however, is that taking the least risk (service maintenance here) may cause problems, particularly in delaying positive action. If one chooses at some later date to switch to the new clientele branch, one must go back to the beginning. The reverse, on the other hand is not necessarily the case.

Figure 5

OVERALL SCHEMATIC FOR FIGURES 5a, 5b
(each decision point is marked (•))

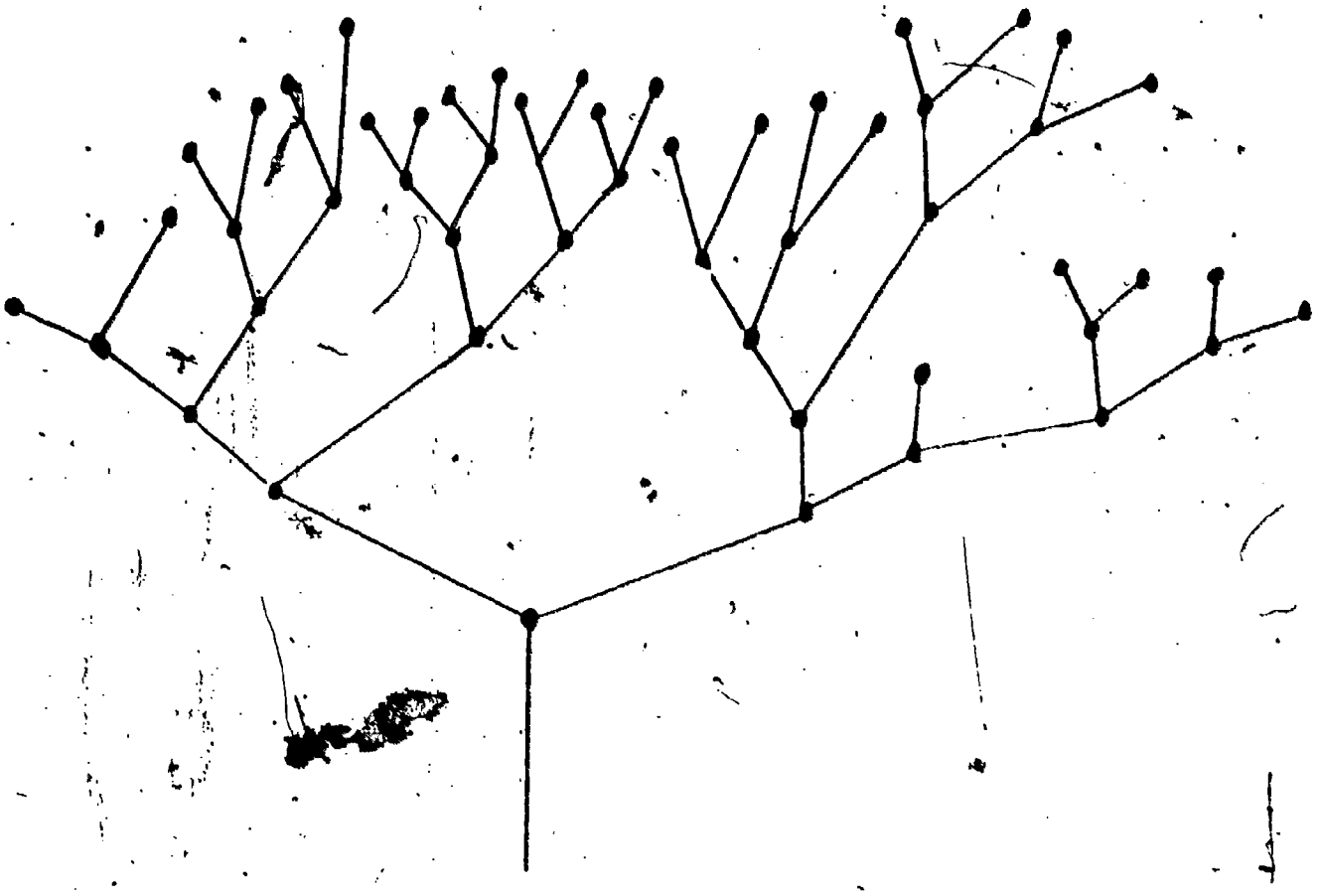


Figure 5a

DECISION TREE BRANCH BASED UPON

MAINTAINING PRESENT SERVICES

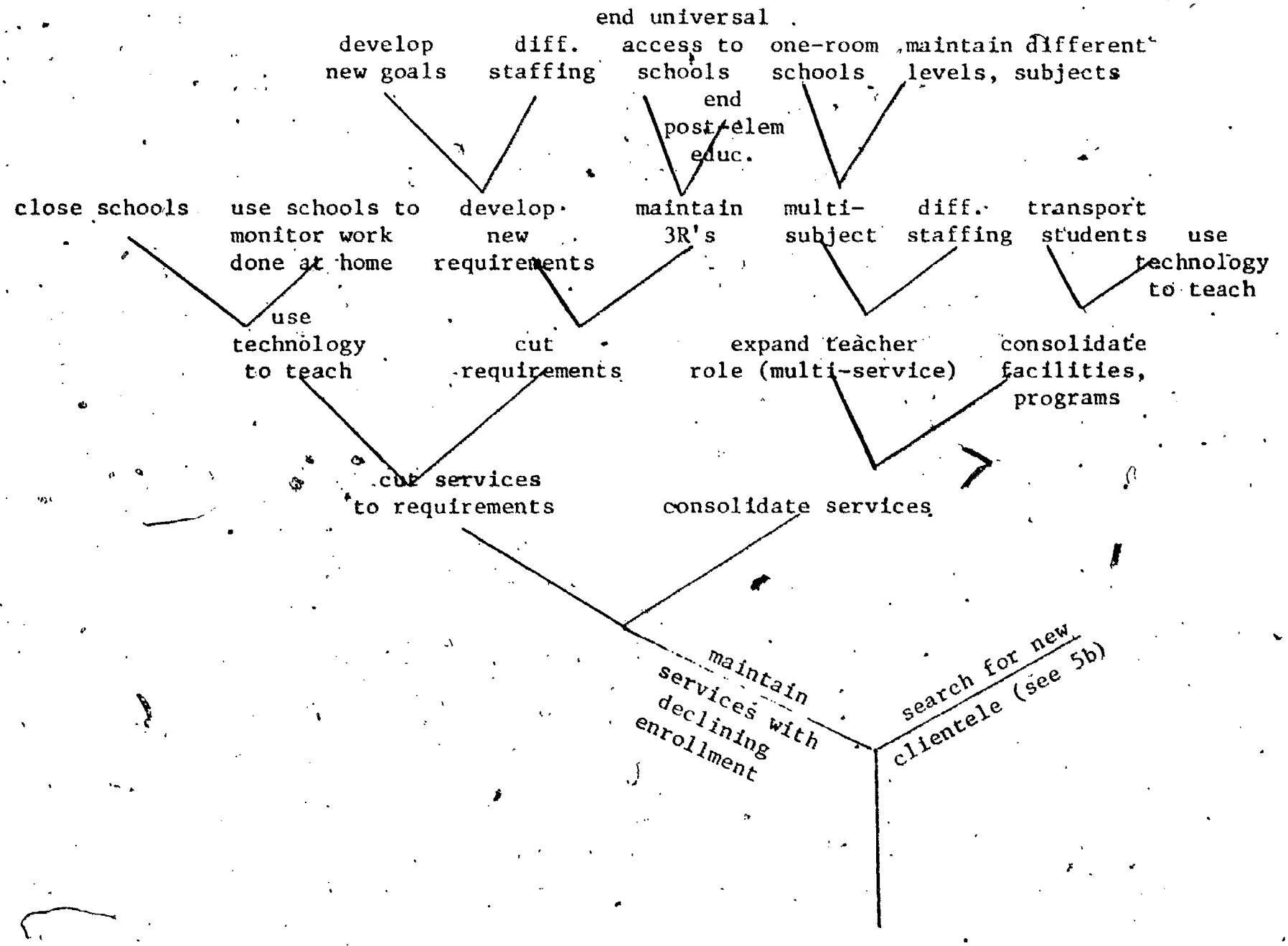
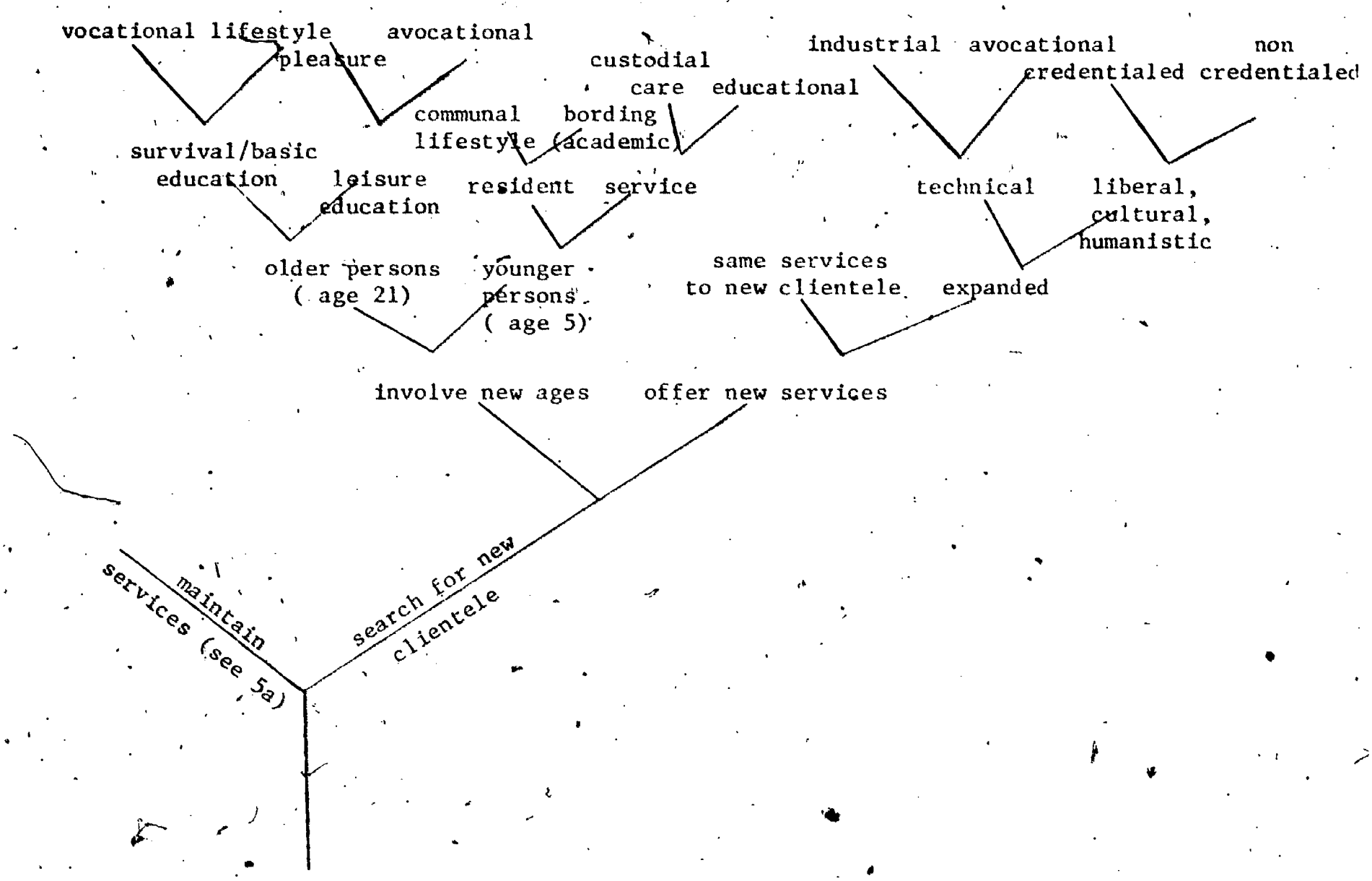


Figure 5b

DECISION TREE BRANCH BASED UPON

SEARCHING FOR NEW CLIENTELE



The Future of Education: A Forecast

Given the lifestyle and workstyle direction in which one seems pointed, there is little doubt that education in the broad sense has a positive future. Following is a list of forecasts about the nature of that future. Whether or not schools are a part of it depends upon the degree to which they embrace its substance, particularly where present institution features become a hindrance.

1. To some extent, increased and improved media technology has already made us a learning society. Education in the future will be considered a lifelong affair. Persons of all ages will participate together in various learning settings based upon common interests and needs, career re-orientation, and personal and social development. Many of these settings will be institutionally sponsored while others may be non-formal. Whatever the setting, access will be available to any interested participant. One desirable organization is represented by the present Swedish Study Circles, government-supported groups of about ten persons which met to learn together, explore issues, and in some cases recommend legislative policy.
2. As media and communications technology offer increased access to knowledge, premium will be placed upon educational arrangements which stress application of information. Home computers, television, video-cassettes, holography and perhaps bioelectronics will make human dissemination of knowledge an inefficient and ineffective anachronism.
3. Educational settings and programs will emerge to some degree as social services. They will offer counseling and courses aimed at social needs such as parenting, social issues, and community improvement.

4. Institutions or agencies involved in education will become humane places characterized by personalness, participation and cooperation. Stress will be placed not only upon personal development, but on cultural pluralism, social problems, democratic procedures and open access.

5. More serious alliances will be developed among agencies, groups and institutions which sponsor educational programs. These may include media, business, museums, schools, recreation agencies, local governments, hospitals, universities, community colleges and many others. Alliances will lead to cooperative programs and avoidance of duplication.

6. Educational institutions will offer programs year-round and at all hours, day and night. This will allow flexible access to participants regardless of life or workstyles.

7. Leadership and teaching personnel in educational agencies will be identified on the basis of appropriate expertise rather than credentials alone. Clearinghouses will offer services to bring together teachers and learners on individual or group bases through regional learning networks.

8. Goals and objectives for learning situations will include planning, thinking, conserving, self-concepting, humanizing, valuing and problem-solving.

9. The government, state and federal, will assume major responsibility for financing of education. Every person will be entitled to some level of participation in educational agencies or institutions each year. Such financing will evolve through tax credits, direct aid, vouchers or some combination of those.

IV

Aiming For The Future: School Programs and Management

In the final phase of the framework around which this paper is organized, educators are directed to consider present action which aims toward potential desirable futures. To this point, global and educational futures prospects have been considered. Following are some ideas for programs and planning.

Programs

The schools of today can make no more significant contribution to the future than in educating young persons to live in and shape tomorrow. To accomplish this, various program recommendations ought to be seriously considered.

1. Since knowledge is already instantly accessible, the goal and objective emphasis on subject matter mastery should be reconstructed to emphasize new purposes which focus on the use of knowledge. These goals should include planning, critical thinking, conserving, self-concepting, humanizing, valuing, problem-solving and the like.
2. Evidently the future holds many moral dilemmas which will require thoughtful action by citizens. Therefore particular attention should be paid to critical thinking, valuing and problem-solving. In the absence of these, our society can probably not look forward with great optimism to the future.
3. There is little doubt that unless the technological clock is turned back, citizens will have increasing amounts of leisure time not only with respect to work, but longer lifespans as well. Opportunities abound to

learn recreation and lifetime sports skills, while to develop aesthetic, cultural and lifelong learning attitudes are considerably less. The schools should certainly take a more serious responsibility for these. Such programs will also counter the increasing emphasis on technical skill development and specialization.

4. Every school should offer opportunities for learners to study and think about the future. At each level programs and units in futuristics should be developed and implemented. Such programs already exist around the country and are being reported in professional literature (e.g. Stock, 1977). Perhaps more importantly, schools should undertake efforts to promote consistent patterns of futures thinking. No topic or problem should be dealt with short of consideration about its short- and long-range future consequences. In this way we all might begin to develop thinking habits which lead to a better future.

5. To help overcome the kind of futures apathy with which we are surrounded, efforts should be made to extend participatory democracy to all aspects of school life. This action should extend from the study of nutrition applied to planning of school menus to the development of town meeting structures for governing the school.

6. Immediate action should be taken to involve adults of all ages in school programs. Such involvement might include roles as learners, community resources, or simply resident elders. This action will not only allow for cross-generation consideration of futures problems, but also begin to break down the educational age stereotypes in our society.

7. Units of instruction should be developed which promote the notion of a global community since transportation and technology are rapidly

breaking down nationalistic attitudes. This does not necessarily mean new foreign language requirements, but rather the study of worldwide philosophies and cultures so that we may enter the future with openness rather than ethnocentricity.

Management

To promote a viable role for the schools in the future of education, the following recommendations are made in terms of structure, organization and management.

1. Every school and district should immediately establish a local task force/study group consisting of citizens and educators to consider educational futures. Such a group might make recommendations for local action and act as a "watchdog" with regard to ongoing decisions in local schools in terms of their contributions to desirable futures.
2. Many states now limit or prohibit daytime adult attendance in schools and nighttime attendance by youth. Such laws deny the evolution of lifelong learning and detract from the school's potential in educational futures. For this reason local, state and national education groups should encourage repeal of these anachronistic laws.
3. Schools ought to seek ways of participating in the larger view of lifelong learning. First, school facilities such as libraries, industrial arts facilities, and recreation facilities should be open year-round, day and night, for community use. Second, school personnel should take the leadership in exploring and refining the content and process of new communications technology. Third, schools should sponsor and support non-formal study groups on various topics of interest to the community. These

should be modelled after the Swedish Study Circles previously alluded to.

4. Professional growth programs should be developed which put educators in touch with the future. Programs may focus on futures study, development of futures units, or learning of new skills such as those required for working with adult learners.

5. While thinking about the future, educators should also reconsider the ways in which it isolates itself and youth from the evolving world-at-large. First, the school should take a leadership role in promoting cultural pluralism, better human relations, services to the young and disadvantaged, and the democratic way of life. Second, the school should seek to rid itself of all artificial barriers to the above such as grading, ability grouping, rigid scheduling, punitive climates, and the like. In this way, perhaps a new generation will arise more interested in learning and problem solving than those which have preceded it to the present.

V

Summary

No doubt citizens in every historical period have imagined that they stood at a crossroads on one or more issues. In the sense of the decision tree method this is technically true. Nevertheless, education today seems to be faced with some critical decisions which may well lead to very divergent consequences.

As technology of all kinds creates increased leisure time and as knowledge becomes more easily accessible, we are rapidly becoming a "knowledge society." A myriad of agencies, groups and institutions are taking advantage of this reality by offering comprehensive opportunities to learn new knowledge

and skills. In this sense, the future of education is most optimistic. To think otherwise would be to suggest that our society will choose to stop learning. Of this happening, there seems little likelihood.

Against this backdrop, however, the future of schools seems somewhat less optimistic. Our present school systems, and their attendant attitudes, emerged in a period of institutional growth and population boom with what was viewed as a continually growing clientele. Now with enrollment and finances dwindling, institutional gatekeepers appear reluctant to revise rigid policies and procedures which cannot survive in a society searching for flexibility. Unless this is changed the future of education may not include schools as we now know them.

School authorities must begin now to become part of the futures movement. As a first step they will need to bring to school matters the knowledge and processes which are a part of the futures field. Participatory planning, reconstructed goals, revised programs and reorganized policies are but a few of these. Should the schools do less, by choice or acquiescence, they may well find themselves as a new kind of dinosaur in the broader field of educational futures.

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