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Changing Conditions— Changing Schools

In the 1980s and early 1990s, education has once more come to the center of public debate. Issues related to cultural diversity, school governance, parental choice, school dropouts, and the declining achievement of American students have become the stuff of countless news articles and television broadcasts. One of the primary characteristics of this debate has been its focus on the link between education and economic productivity and the need to upgrade the performance of American students if we, as a nation, are to continue competing successfully in an increasingly global market. A central preoccupation of recent educational discourse has been the way in which the transition to a postindustrial, nonmanufacturing economy has necessitated major changes in the kind of education Americans offer their young.

This debate points to the close connection between economic practices and other cultural institutions. It is therefore not surprising that among those who have been most vocal in their calls for dramatic educational reform are the representatives of America's corporate sector, one of whom is now Deputy Secretary of Education. Focused as this debate has been on the immediate threat to America's well-being posed by more competitive industrial nations, discussions regarding U.S. schools have ignored entirely what may in fact be a much more serious long-term threat to our economy and common welfare: the environmental crisis and the depletion of the energy sources upon which our entire social structure depends. Although the environmental crisis has not yet begun to make itself felt in obvious ways, it has

become an increasingly insistent theme in our daily lives. Consumed as we are with the tasks of the moment, however, few of us have begun to consider the implications of these crises for common institutions like the schools.

This book is an effort to interject environmental considerations into the current discourse about U.S. education. It is predicated on the assumption that a continued expansion of the forces of production may well be impeded by ecological factors beyond human control, and that this closing of the era of material progress will have a profound impact on the configuration of our social relations. This impact may be as significant as that which accompanied the process of modernization, itself. Among the changes that are likely to be generated by an environmentally necessitated decline in material production will be a transformation of the relationship between the individual and the broader society. In the long period of economic expansion that has been the hallmark of the modern era, it has been possible for individuals to achieve a level of independence from kin group and the larger community unheard of in agricultural or hunting and gathering societies. Given the prospect of apparently limitless economic growth, the twentieth century has seen a sizeable proportion of citizens in developed nations acquire the ability to create for themselves and their offspring the personal security that has been one of the central goals of the middle class. This desire for security, though individualistic, has not necessarily been egotistically selfish; it has, however, been anticolonialist, contributing to a growing atomization of American society and a withdrawal from public life of increasing numbers of citizens.

One of the primary vehicles for the creation of individual security has been public education and the access it has provided to the occupational opportunities that have accompanied an expanding economy. Through schooling children ideally acquire both the skills and the social norms required to negotiate the economic and political institutions that dominate contemporary society. These norms have often functioned in ways that diminish children's ties to their homes and communities, freeing them to participate in a dynamic and ever-changing market society. Although the alienating consequences of this form of socialization have been tolerable during the preceding era of economic growth, current ecological developments may jeopardize the ability of increasing numbers of people to create acceptable levels of personal security for themselves outside the context of mutually supportive human associations.

The environmental, political, social, and economic crises we are

beginning to encounter now and are likely to encounter in coming decades lie outside the control of individuals. Addressing or reversing them will almost certainly require collective action both at local and international levels. We may possess, however, neither the orientation nor the skills to enter effectively into such collective action. The socialization most of us have encountered in middle-class homes and in most American schools has been primarily pointed in the opposite direction—toward independence, self-reliance, and the shaking off of impediments to personal freedom. To learn to deal with the new material reality coming into shape around us may require the mastering of other social relations, ones more appropriate for an era of restricted, rather than seemingly unlimited, opportunities. Given the reduced strength of the home, the neighborhood, and churches, schools may provide one of the few sites where children could learn the social relations and skills they will need to grapple with these fundamental changes in the material basis of our common existence.

As they are presently shaped, schools are poorly suited for this task. By preparing children to think of themselves as individuals who must sell their talents in a competitive job market if they are to succeed, schools erode social collectivities more than they support them. To respond to the changing environmental conditions we are likely to encounter in the coming decades, educators will need to develop an educational process that cultivates a very different set of expectations and norms. If they do not, our children could well lack the social skills and dispositions needed to foster their own survival.

These skills and dispositions must include the ability to cooperate and enter into alliances with others to solve common problems and to recognize the fundamental interdependence that people share with one another. Only as children come to see that their well-being depends on the well-being of others will they begin to reclaim and reshape the patterns of mutual support that have sustained human communities throughout millenia. Schools, as well, must acquaint their students with a very different approach to the natural world, one that acknowledges its finitude and the need to weigh the consequences of human activity against the welfare of the environment as a whole. No longer can we afford to believe that the pursuit of self-interest, or even the apparent interest of human society, inevitably contributes to the common good. That "good" must be served with a consciousness of social and environmental costs, and with accompanying self-restraint. Socializing students to this new reality will require making significant modifications in the nature of American education as it currently exists.

Unraveling the Modern World

Before embarking on a consideration of what these educational changes may be, it is important to explore in more detail why a transformation in environmental conditions will interfere with the ability of American citizens to create the personal security and freedom from communal ties that has been one of the central aims of our way of life from the early 1800s on. Biologists and ecologists have described a sequence of events that other species encounter if they mistreat the environment. The first of these states is known as *draw-down*. During this period, the perpetuation of the species can lead its members to undercut the ability of necessary resources to replenish themselves. Unless this situation is reversed—for example, through migration—this process will continue until a threshold known as *overshoot* is passed. Overshoot occurs when “the use of resources in an ecosystem exceeds its carrying capacity and there is no way to recover or replace what was lost” (Sale, 1985, 24). Once past the threshold of overshoot, the species experiences mass starvation that reduces its population to a level supportable by the ecosystem. If the ecosystem has been too severely damaged, however, such a crash can lead to a total species *die-out*.

Kirkpatrick Sale compares our present situation to that of yeast in a wine vat (1985, 26). Human beings have thrived beyond measure as a result of our own inventiveness and the discovery of sources of energy that at least temporarily gave us the power to reshape the natural environment to suit our own purposes. Coal, oil, and natural gas have been the sugar upon which we have supported this growth, but like the sweet, rotting grapes in a wine vat, they are quickly being turned into poisons that are destroying the environment’s ability to support our lives. Although we continue to hope that some new source of energy—more abundant and less polluting than fossil fuels—will be found to replace those that have undergirded the industrial revolution, such hope forestalls the necessity of recognizing the limitations imposed by the finite and malleable content of the wine vat itself. There is a strong possibility that, like yeast, we will be unable to stop before we have irremediably polluted the source of our own nourishment. If we continue acting as though there are no limits to the possibilities opened by our inventiveness and power, this will be the likely result.

Lester Brown and Sandra Postel (1987) of the Worldwatch Institute point out that we are not the first civilization to face the possibility of a major deterioration of environmental support systems and the dangers engendered by such a collapse. Four thousand years ago in

Mesopotamia, large-scale irrigation projects dramatically increased agricultural productivity. Though these projects supported the growth of the first civilizations encountered in the archaeological record, the absence of underground drainage for irrigated land eventually led to the salinization of some of the most fertile soil in the ancient world. Over several hundred years, crop yields dropped by 65 percent or more, eventually contributing to the decline and then devolution of the first human experiments in large-scale social organization.

The classic Mayan civilization experienced a similar decline after 750 A.D. At one point, this society supported a population of five million. Within less than two centuries, this number dropped to one-tenth its previous level. Although scholars are uncertain about the precise reasons for this collapse, many believe that the overburdening of a limited ecosystem by a growing population was a central contributing factor. Brown and Postel (1987) cite a mathematical model developed by anthropologist John W. G. Lowe that describes the way in which different stress factors, including food shortage, could have triggered the disintegration of this once flourishing society. His model parallels the phases of draw-down, overshoot, and collapse discussed by Sale.

The experiences of the Mesopotamians and the Mayans can serve as object lessons about the vulnerability of humankind and our dependence upon the natural world. What distinguishes modern/industrial civilization from these earlier societies, however, is the extent to which human activities have become global rather than merely regional. Whereas the activities of the civilizations described damaged the carrying capacity of circumscribed ecosystems, our activities threaten the biosphere as a whole.

In the early 1970s and then in an updated version in 1980, Robert Heilbroner surveyed current studies regarding the environmental consequences of industrialism and presented his *Inquiry Into the Human Prospect*. His analysis is not unlike that of Kirkpatrick Sale. He identifies the problem as growth—both in terms of numbers and in terms of our increasing ability to exploit the biosphere for our own purposes. Heilbroner argues that behind this growth is our preoccupation with the continued expansion of the forces of production, a preoccupation that has been central to the success of capitalism; if this expansion is not checked, however, we face the almost certain prospect of the malfunctioning of natural systems.

In place of capitalism and the acquisitive culture that sustains it, Heilbroner suggests that we must create a way of life in which frugality, simplicity, and the pursuit of nonmaterial ends are primary val-

ues. In doing so, we may be able to protect needed resources for future generations and prevent the disasters that will await us if we refuse to contain our desire for increasing levels of material comfort. Although such sacrifices may be painful, Heilbroner asserts that they are imperative if we are concerned about more than the limited sphere of our own temporal existence.¹ Although one may disagree with Heilbroner's assertion that our only salvation may lie in the creation of a highly authoritarian State, it is hard to argue with his portrait of the planet's limits and their implications for continued industrial growth, as well as the burgeoning of our own numbers.

Even taking just one set of resources, fossil fuels, it becomes clear that our way of life can be supported for little more than another century. Data from the *International Energy Annual* (1988), published by the U.S. Department of Energy, suggest that we are living on borrowed time. In 1988, for example, world oil consumption was 23.4 billion barrels. Known reserves equal 990.6 billion barrels. If there were no increase in usage rates and no increase in available reserves, this would leave us with 42 years of oil. Currently, estimated undiscovered recoverable oil resources increase potential reserves only to 1060 to 1720 billion barrels, giving us at most 75 more years.

Although conservation and the discovery of additional oil reserves could extend this period to some extent, a more important yet generally ignored aspect of this issue is the question of oil production. As oil companies are forced to exploit reserves located in geographical regions not amenable to drilling (e.g., the Arctic or deep water locations in the Gulf of Mexico), costs of extraction and transport will rise. As Riva (1983) reports, unless oil prices go up as well, it will not be in the interest of energy corporations to develop these fields.

Already the capital costs per daily oil production in some areas of the North Sea are forty times the costs in the Middle East. Over 11,000 man-years are required to construct the largest of the North Sea gravity production platforms; the cost would exceed that of a nuclear power plant or oil refinery. The guyed tower constructed for oil production in 1,000 feet of water in the Gulf of Mexico will recover oil at about sixty-five times Middle East production costs. As oil production moves into the frontier basins in deeper waters or under Arctic ice, these costs will further escalate and be reflected in the world economy. (xxi-xxii).

It goes without saying that environmental risks associated with such energy production will increase as well. What this will mean is that

although we may continue to draw upon remaining reserves for a number of years, the long period of cheap and easily accessible energy that has sustained industrial development throughout the twentieth century is coming to an end.

The dilemma of rising energy costs will accompany the use of alternatives to oil as well. Although natural gas, nuclear plants, and solar, wind, hydro, and geothermal power could well replace petroleum in the short and perhaps long term, their development is unlikely to be as inexpensive and profitable as oil. Though temporarily abundant, natural gas, like petroleum, is a finite resource. And, though attractive, the development of nonfossil fuel sources of energy will require the investment of vast amounts of capital, which may or may not be available depending upon the point at which industrial societies decide that they must curb their addiction to oil. The fate of the nuclear power industry over the previous decade is indicative of the problem of capitalizing new sources of power. When costs threaten to exceed potential returns, investors become scarce. Furthermore, it is unlikely that public works projects capable of sponsoring the development of alternative energy sources (e.g., the building of hydroelectric dams) will enjoy wide governmental support in a period of increasing fiscal indebtedness. Assuming that alternative energy sources will be capable of sustaining the ever-increasing expansion of the forces of production that underlies our civilization is therefore problematic.

Even if fossil fuel reserves were unlimited, it is unlikely that we would be able to continue utilizing them in the way we are now. As is commonly known, the burning of petroleum and coal appears to be leading to climatic changes that could seriously affect agricultural productivity, as well as the habitability of coastal areas around the planet. This is the reason that, even though vast reserves of coal remain to be exploited, their use could well cause more damage to industrial civilization than support. Midcontinental regions in the Northern Hemisphere responsible for a major share of the world's grain production could well be subject to higher temperatures and lower rainfall if we continue to burn oil and coal as our major sources of energy (Postel, 1987). The consequences would be even greater if we turned to coal as our primary energy source. The drought of 1988, possibly symptomatic of global warming, at minimum demonstrates the consequences of hotter summers and diminished rainfall on crop yields. In this year, U.S. corn production fell by an average of 37 percent, and soybean production by 23 percent (Samuelson, 1988). Although the effect of an occasional bad year can be offset by surpluses from years of higher

productivity, a steady series of poor years would have a profound impact on not only the profitability of American agriculture, but the ability of U.S. farmers to feed our own population. Unrestricted industrial growth could therefore eventually affect our capacity to provide basic necessities for coming generations.

Other forms of pollution—of water, of land, of food—all threaten to have a deleterious impact on human health, as well as the health of other species. In our efforts to increase our level of material comfort and security we—like the Mesopotamians and Mayans before us—have eroded the viability of the life systems that support us. As Brown and Postel (1987) note:

A frustrating paradox is emerging. Efforts to improve living standards are themselves beginning to threaten the health of the global economy. The very notion of progress begs for redefinition in light of the intolerable consequences unfolding as a result of its pursuit.... The scale of human activities has begun to threaten the habitability of the earth itself. (4-5)

At the heart of our current crisis, however, is an even more disarming paradox than the one acknowledged by Brown and Postel. Our way of life depends upon consumption. Without it, the engines of industry and profitability cannot be maintained. When these are slowed, the results are unemployment and social disorder. And yet with consumption come the relentless exhaustion of resources and environmental damage that will eventually render the economic practices of the modern world obsolete. Moving to the world of simple frugality envisioned by Heilbroner and necessitated by a recognition of limits will require us to imagine collective rather than individualistic social structures that will enable all people to meet fundamental needs for food, shelter, and health care. If we do not, individuals will continue to seek the goods they believe are necessary to give them the illusion of security in an unpredictable world (see Wachtel, 1988); the social consequences of this form of competitive accumulation will be devastating.

Throughout the 1980s, workers in the United States received a taste of what can occur when production is reduced outside the context of alternative structures of social support and collective action. Although this decline in productivity was the result of the exportation of many U.S. manufacturing firms to nations where labor is less costly, the consequences of "capital flight" provide a useful object lesson of what is likely to occur when the declining availability of cheap

energy or increasingly restrictive pollution standards lead to a reduction in industrial output.

Since the mid-1970s, millions of formerly well-paid workers have been laid off. Between 1980 and 1987 alone, two to three million high-value jobs were eliminated as a result of foreign competition. Another nine million high-value jobs were lost as a result of automation, mergers, plant closings, and overhead reduction measures (Noble, 1986; Seabury, 1987a). Although many of these jobs have been replaced, new positions are generally in low-paid occupations such as janitors, nurses' aides, salesclerks, cashiers, and waiters and waitresses (Reich 1983). After a review of U.S. Labor Department projections, Levin and Rumberger (1983) concluded that

As a whole, employment growth in the United States will favor the low- and middle-level occupations.... By 1990, jobs in all professional and managerial occupations will account for only 28 percent of all employment growth, less than in either of the previous two decades. In contrast, clerical and service occupations will account for 40 percent of total employment growth in the 1980s. (19)

Current projections from 1986 to 2000 reveal the same pattern (Department of Commerce, 1988, 375). The result of these trends has been a steadily falling median household income (Seabury, 1987b) and the growing impoverishment of a significant proportion of the American population.

What has been particularly problematic is the increasing number of working poor. Employment is no longer a guarantee of an adequate wage. Although the number of adults on welfare went up only 14 percent between 1975 and 1986, the number of poor adults who are working rose by 52 percent. This population is not found primarily in our declining inner cities but is scattered across the entire country and is widely distributed among members of all racial and ethnic groups (*U.S. News and World Report*, 1988).

Although this decline in higher paying jobs may be a temporary phenomenon, particularly if projections about a labor shortage in the 1990s prove to be correct, the effects of this deindustrialization of the U.S. economy are not dissimilar to what we might expect following a reduction in economic expansion. The growing level of poverty in the United States is now preventing individuals from securing the basic necessities they and their children need to support their lives. As we either choose or are forced by external circumstances to develop an

economy in which the forces of production are contained, we can expect to see this form of hardship and reduced occupational opportunity become more widespread. Such a situation will call into question the viability of capitalism itself; it will also threaten our political structures.

More than 30 years ago, David Potter (1954) argued that democracy, as well as capitalism, may depend upon unlimited economic expansion. The property of the privileged will only remain secure as long as members of the lower classes believe that material conditions are such that they or their descendants may eventually come to share similar privileges. If this situation changes, the poor will become a threat to the rich. The founders of the United States were not insensitive to this dynamic. James Madison, for example, asserted that an ever-expanding empire was essential to ensure the stability of the American government. For two centuries, first an expanding frontier and then an expanding economy have brought to Americans the increasing opportunities required to sustain public faith in the U.S. political and economic systems. If that expansion is curtailed, however, both systems may be jeopardized (Williams, 1980).

Given the limited availability of cheap energy, the curtailment of that expansion is almost a foregone conclusion. With it, we can expect to see a reduction in economic opportunity for an increasing proportion of U.S. workers, a growing rather than declining underclass, threatened democratic institutions, and a continuing erosion of communal safety and civility. In short, changes in our material conditions could precipitate a form of social disintegration not unlike that confronting citizens of the Soviet Union in the final years of the 1980s and the early 1990s. The "triumph of capitalism" may thus be short-lived. The economies of Western nations, richer and more flexible than command economies, could well persist without serious disruption for a number of years. Their ultimate vulnerability to the availability of inexpensive petrochemicals and the environmental consequences of their use, however, cannot be changed. Unless equally cheap but less environmentally damaging energy sources are discovered and widely disseminated within the next sixty years, the efflorescence of productivity that has captured the imaginations of people of the twentieth century will come to an abrupt end, and with it many of the institutions we value most.

We face, at this point in history, a critical moment. If steps are not taken to address these crises, we can expect the collapse of necessary ecological and social systems. Diminishing the consequences of this catastrophe will almost certainly require us to invent a new way

of being, both with one another and the planet. If unlimited economic expansion is no longer a possibility, we must find ways to provide for the support of people no longer able to make their way in the world as isolated individuals. We must learn as well, that harming the earth, in the end, harms us and our children. Such lessons and social practices appear to be incompatible with the basic premises of the culture we have inherited and are continuing to bequeath to our young. Given this incompatibility, what is called for is nothing less than the invention of a culture more appropriate for the conditions we now face. As one of the primary transmitters of culture, educators have a grave responsibility to participate in this process.

The Failure of Educators to Acknowledge Changing Conditions

Despite the gravity of these environmental and economic developments, few educators have begun to integrate their implications into their own work. Instead, people in the schools and those who direct, teach, or study them are proceeding as if the reality into which most adults were born earlier in this century will continue. Few publicly question the commonly shared assumptions about unlimited growth and expanding individual opportunities that undergird the schools. This is not to say that environmental concerns have not entered the classroom. Children in schools all over the United States are taught about the effects of pollution, deforestation, or the need for recycling. Environmental education, however, has been relegated to the status of another subject, another part of an already overburdened curriculum. This new discipline has had little if any impact upon the underlying goals and objectives of American education (Stevenson, 1987).

As indicated earlier, the central preoccupation of most educational debate over the previous decade has been America's competitiveness in an international market. This certainly was the motivating factor behind the reform movement in the early 1980s. Among the proposals from this period that received the most attention were *A Nation at Risk: The Imperative for Educational Reform*, by the National Commission on Excellence in Education (1983); *Action for Excellence: A Comprehensive Plan to Improve Our Nation's Schools*, by the Task Force on Education for Economic Growth of the Education Commission of the States (1983); *Academic Preparation for College: What Students Need to Know and Be Able to Do*, by the College Board (1983); and *Making the Grade*, by the Twentieth Century Fund Task Force on Federal Elementary and Secondary Education Policy (1983). Summarizing these proposals, Stedman and Smith (1983) suggest that

Their recommendations are designed to cure our educational failures and to prepare students for a new society—for a future economy based on high technology, emphasizing information processing and computers. By adopting these recommendations, the commissions believe, the United States can recapture its economic vigor and regain its competitive edge in the world economy. (87)

These reports—nearly all of which are politically conservative in orientation—assume that by upgrading content, raising academic standards, increasing time on academic subjects, educating for economic growth, training students in the skills necessary for college, and providing greater incentives and standards for the teaching profession, American schools will be able to develop a work force capable of competing in the international marketplace. That this marketplace may be threatened by limitations imposed by the planet is never acknowledged.

Instead, the reports suggest that what threatens the United States is our unwillingness to demand that American children do more. If only U.S. students and the schools that prepare them produced the level of mastery and commitment encountered abroad, then our former economic preeminence could be regained. The authors of *A Nation at Risk* (1983), for example, see our current predicament in these terms:

Knowledge, learning, information, and skilled intelligence are the new raw materials of international commerce and are today spreading throughout the world as vigorously as miracle drugs, synthetic fertilizers, and blue jeans did earlier. If only to keep and improve the slim competitive edge we still retain in world markets, we must dedicate ourselves to the reform of our educational system for the benefit of all—old and young alike, affluent and poor, majority and minority. Learning is the indispensable investment required for success in the “information” age we are entering. (4)

Furthermore, they go on to suggest that the promise of individual fulfillment through educational attainment remains intact.

All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost. This promise means

that all children by virtue of their own efforts, competently guided, can hope to attain the mature and informed judgment needed to secure gainful employment and to manage their own lives, thereby serving not only their own interests but also the progress of the society as a whole. (5)

In two sentences, the authors of this report articulate the fundamental American faith in the ability of education to advance individual opportunity that environmental developments threaten to contradict and which deindustrialization is currently disproving. If such spokespeople feel any uncertainty about the negative impact that resource depletion or ecological crises may have on the continued health of our economy and social life, they betray none of it in these reports. Their suggestions are a recipe for an intensified continuation of business as usual.

Although highly influential among governmental policy makers, the reform reports of the early 1980s received mixed reactions from the educational community itself, particularly its more liberal members. Most criticism, however, tended to be directed to the authors' faulty use of data or the negative implications of standardization and higher requirements for youth already at risk of educational failure (Kaestle, 1985; McDill, Natriello, and Pallas, 1986; Stedman and Smith, 1983). By the end of the 1980s, the first wave of reform, as it came to be labeled, was replaced by a second that called for more fundamental forms of educational change. Instead of simply intensifying current practice, second wave spokespeople argued that schools needed to be restructured (Council of Chief State School Officers, 1989; David, Purkey, and White 1989; O'Neill, 1990). Only if curriculum and instruction as well as school governance practices were changed would schools be able to adapt to the needs of a postindustrial society. Although second wave reformers brought to the debate a commendable concern for equity as well as excellence, the central motivation behind this movement has remained the preparation of American students for a competitive global market in which continued growth is unquestioned.

In *The Moral and Spiritual Crisis in Education*, Purpel (1989) suggests that the source of this peculiar blindness on the part of contemporary educators is related to their preoccupation with the techniques of schooling. This has led those who study schools or who work in them to disregard their role as the transmitters of cultural values responsible for our current impasse. Instead of dealing with these broader issues, they focus on an increasingly minute analysis of cur-

rent educational practice. Though the study of curriculum, pedagogy, and school structures has utility and potential merit, it too often distracts people within the schools from the real work at hand, and ignores entirely the role that educators might play in forging a cultural orientation more appropriate for the changed reality that may face our children and grandchildren. To quote Purpel:

given the elements of our political, economic, and cultural crises, educational discourse must focus on the urgent task of transforming many of our basic cultural institutions and belief systems. Responses that are at best ameliorative have the danger of deepening the crisis by further strengthening social and cultural policies and practices that endanger our deepest commitments. If we accept the basic proposition that we must make some drastic changes in our culture to forestall danger and facilitate growth, then clearly educational institutions must be a part of the process. However energetic and imaginative, efforts that ignore or deny this necessity are eligible for "trivial" status. (3)

Regrettably, much if not most educational research and innovation fails to touch upon the most serious issues of our time.

A similar myopia is demonstrated even by leftist critics of American education. Even though such critics must be commended for their concern regarding the complicity of schools in perpetuating economic discrimination, they rarely look beyond these economic issues to the ecological context in which they are embedded (Apple, 1982; Bowles and Gintis, 1976, 1986; Carnoy and Levin, 1985). Instead, they turn their attention to questions of distribution, both of resources and power, and the ways in which these might be shared more equitably throughout the entire society. Although the issue of equitable distribution is unquestionably important, little thought is apparently being directed to the possibility that environmental limitations may impose severe restrictions on available resources. Instead, there seems to be a general consensus that the standard of living now enjoyed by the American middle class can somehow be made available to all. Such a vision of the future is undeniably attractive, but the earth itself appears to be incapable of sustaining it.

Educators, regardless of their political persuasion, thus seem unwilling to confront the possibility that modern industrialism will almost certainly be constrained by natural limits, and that such constraints call into question fundamental assumptions about the historical process, progress, and the place of humanity on this planet. Nor is

much consideration given to the forms of social relations that may be more appropriate for an emerging reality that, when first recognized, is both frightening and saddening. It seems imperative, however, that we confront both our fear and despair about the changes that are taking place around us in order to guarantee any kind of future for our children. By grappling with that fear and despair we may come to see this difficult era as one which is rich in possibilities as well as dangers.

Reconceiving Education for an Era of Environmental Limits

Just as schools have played a significant role in helping formerly agrarian populations adapt to the opportunities and requirements of the modern world, they might now play a role in midwifing cultural changes necessitated by the requirements presented by the planet's unavoidable material barriers. These barriers may force us to reformulate social relations with a more circumspect and realistic understanding of our own limitations. Educators could offer important guidance as changing material conditions require us to alter our response to the physical environment and one another.

If educators are to play this role, it seems essential at the outset to explore the ways in which current educational practices and policies are inextricably wedded to the worldview that underlies modernization. It is this worldview which has led us to believe that liberating ourselves from our natural and social environments is both desirable and possible. Until this worldview is illuminated and critiqued, and until its relationship to the structures, practices, and curriculum encountered in U.S. schools is understood, it will not be possible to develop new educational forms more appropriate for the limited and interdependent era we are now entering.

Chapter 2 provides a brief overview of the primary components of this worldview. The analysis contained here summarizes the work of other scholars who have sought to unravel the central belief structures or ideology of modernism. Though their interpretations remain subject to debate, they offer a useful means for disentangling why it is we have come to our current situation and what it may take to move on. This chapter should be viewed as a conceptual tool by which we might more fully understand the operation of our schools, and in understanding that operation, transform them.

Chapter 3 focuses on the nature of contemporary education in the United States and the way in which our schools transmit and confirm the conceptual assumptions and social practices of the modern/industrial worldview. Central to the thesis of this book is the

claim that schools can play an important role in shaping the habits and attitudes upon which social life is constructed. In an attempt to substantiate this claim, I review the way in which children's adjustments to the behavioral and programmatic regularities of the school (Sarason, 1982) prepare them for participation in the modern world.

Just as an identifiable worldview undergirds current educational practice, so another worldview may need to buttress the educational forms required for life in the economic and social environment that will result from a contraction in the forces of production. Chapter 4 presents the outlines of a worldview that is now emerging in response to the environmental developments discussed earlier. This worldview is associated with a variety of spokespeople, although it is currently being articulated most vocally by radical ecologists and members of environmental movements in a number of advanced industrial nations. It could be argued that this worldview, given its marginality, is unlikely to have any influence on public policy or the shape of public education. Although it is impossible to predict the future, the perspective shared by this loose collection of activists and theoreticians comes closer to acknowledging the cultural, economic, and political implications of the ecological crisis than the worldviews provided by any other group, especially by those on the political right or left. For that reason, I have chosen this perspective as the basis upon which to construct educational practices more appropriate for the reality that may await us.

Chapters 5 and 6 will discuss the implications of this emerging worldview for educational practice. Chapter 5 provides a tentative model of an educational process more likely than the current dominant pattern to affirm children's interconnectedness with one another and the natural environment. This model specifically addresses elements of conventional educational practice that appear to encourage detached independence, achievement, and conformity to bureaucratic categories and regulations. Because such a model runs the risk of being perceived as impractical, Chapter 6 describes a variety of current educational programs that in fact embody many of the principles set out in the previous chapter. These innovations are becoming increasingly widespread throughout public education, especially in alternative educational programs now being created to foster school success and retention for economically or socially disadvantaged students. Few, if any, of these innovations are specifically aimed at instilling the forms of interdependent and participatory social relations that concern me here, particularly as they are aimed toward adaptation to a profoundly altered economic environment. If com-

bined, however, many of these practices could serve as important components of the hypothetical school described in Chapter 5.

The final chapter considers strategies for developing and implementing an educational process more in line with a worldview that recognizes our limitations and inescapable interdependence. Succeeding in such a project would perhaps be hopeless if there were not already widespread dissatisfaction with public education. Tapping into that dissatisfaction may be the most important tactic for establishing alternative forms of educational practice. Doing so will require eliciting the support of three constituencies: governmental, corporate, and educational policymakers; the general public; and public school educators. The process of gaining such support will be inherently contradictory because the goals of the schools described here run counter to the worldview of nearly all sectors of the American public. Conditions are such, however, that proposals which in the past would have been rejected may now be accepted because of the gravity of current problems and their intractability in the face of more conventional solutions. The space exists to foster change; our task is to make use of it.