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ABSTRACT

After describing the economic, social, and technological forces that aggravate the discrepancy between the emerging social structure of society and the organization of schools and necessitate educational restructuring, this document discusses renewal, reform, and restructuring as three levels of efforts toward change in schools. Brief representative definitions of restructuring are offered, and a continuum of support for fundamental change in education is examined, with educational reformers being the most supportive and parents showing the least support. Following several categorization schemes for restructuring efforts, restructuring activities are grouped into three broad categories and explored as follows: (1) the three Central Variables, which focus directly on student learning--curriculum, instruction, and assessment; (2) the four Enabling Variables--time, technology, learning environment, and school community relations; and (3) the four Supporting Variables--governance, working relationships, personnel, and teacher leadership. Last, descriptions are given for three possible scenarios for the future of public education: continued mediocrity; incremental change and improvement; or restructuring. Sources of further information are appended. (128 references) (CLA)

TRENDS & ISSUES

A series of papers highlighting recent developments
in research and practice in educational management

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Educators Adapt to a Changing World

David T. Conley

ERIC Clearinghouse on Educational Management
College of Education, University of Oregon
1787 Agate Street Eugene Oregon 97403

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Foreword

School restructuring is a term that has been used, with little discrimination, to encompass a wide array of changes in the ways schools carry out their missions. In some cases these changes are mere window dressing; in other cases, educators are devising truly innovative solutions to problems that must be addressed if this nation is to prepare all its young people for productive roles in the next century.

For teachers, administrators, policy makers, and others with an interest in education who are looking for a practical guide through the restructuring maze, this edition of the Trends and Issues Series is an excellent place to start. David T. Conley clearly explicates the economic, social, and technological forces underlying the need for fundamental change in the nation's school systems. Then, after defining *restructuring*, he explains and discusses eleven dimensions of restructuring and considers their potential impact on schooling.

Throughout his discussion, attention remains focused on the intended result of restructuring: improved student learning. "It is imperative," he says, "for any change occurring under the banner of restructuring to address student needs first and foremost."

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Introduction

Restructuring. Why is it occurring? What does it mean? What does it look like? These questions are being asked with great regularity by reform-conscious educators and community members in many American school districts. The notion that education is searching to remake itself, to define a new mission and goals, raises the pulse of educators and noneducators alike, sometimes for entirely different reasons.

Society views with caution and suspicion attempts to reshape the public educational system. Education in the United States has had a conserving function, one of transmitting community values. The strong tradition of local control of school districts has helped ensure this. At the same time, public education has been called upon in recent times to serve as a vehicle for social change, with varying degrees of success. Educators have struggled to strike a balance between these two sometimes conflicting forces.

Now along comes an entirely new challenge, one driven not by shifts among the current goals and priorities of education, but one that attempts to redefine those goals and priorities entirely. The impetus for restructuring comes from within and outside the educational community. It represents a dawning realization that the world has changed in such a fundamental manner that schools no longer adequately fulfill the goal of preparing young people to be contributing members of society. This is due in large measure to the changing skills needed to achieve this goal.

The call for restructuring began after the reforms of the early eighties failed to yield the desired results. This failure, combined with vocal criticisms of public education from corporate and educational leaders, led to increasingly frequent exhortations for schools to change at a more basic level, to rethink the underlying assumptions and practices of education.

Most educators are, by now, familiar with the litany of challenges facing public schools, and the deficits in the current structure, organization, content, and methods employed by schools (Cohen 1987, Kearns and Doyle 1988, Shanker 1990b). It is probably not necessary to repeat in great detail the "imperative speech," as it has been described by some (Pearlman 1990). At this point, people either accept the need for change, or they don't. For those who do, their energy is turning to investigations of possible solutions. They are now beginning to ask, "What does restructuring look like? What are we learning about it?"

The answer to these questions is at once fascinating and foreboding. There are many interesting, isolated activities being undertaken throughout the nation; at the same time much, perhaps most, of what is labeled as restructuring is tepid, safe, and uninteresting. What we're learning is that it is incredibly difficult to change the status quo in public education.

There is, however, reason to be optimistic. It is perhaps to be expected that much of what is attempted will not be fruitful. The trick is to learn from these initial efforts and apply these lessons to ongoing attempts to rethink public education.

Restructuring, as it is being played out in public schools, is complex, multidimensional, and, at times, contradictory. It involves discussion, planning, programs, and structures. In many places discussing restructuring is perhaps more important at this point than launching into programmatic change. In other settings, detailed, careful planning is under way based on newly emerging visions of education. Still other sites have launched programs that give form to their vision of restructuring, often before they can fully articulate the vision. For many, restructuring means changing organizational or governance structures. These attempts have been and are being implemented throughout the nation with varying degrees of success.

This paper will provide an analysis and discussion of these issues and others that illustrate the impact (and potential impact) of the many efforts under way to restructure schools and schooling. Its purpose is to inform and further the discussion and process of restructuring schools by helping to identify patterns, problems,

and promising practices that are emerging as public educators grapple with the challenge of remaking their institutions.

Since events in this area are moving so rapidly, it is impossible to remain current with everything that is occurring. This paper captures the thoughts, concepts, and arguments of many of the people and organizations deeply involved in restructuring. It also presents representative examples of programs that are attempting to operationalize their vision for education. Some may no longer be in operation by the time you read this. Others may have learned from their experiences and modified their program or their way of thinking about restructuring. This paper provides you with a "snapshot" of the issues and responses engendered by the restructuring movement. The goal is to help teachers, administrators, boards, and community members to develop their personal perspective, philosophy, and vision of education in a time of rapid, fundamental change.

Why Restructure?

The gap between the emerging structure of society and the organization and goals of schools is widening almost daily. This discrepancy will result inexorably in profound changes in education.

The forces operating to create this discrepancy are numerous, and there are many ways in which they might be grouped to comprehend them better. For the purposes of this discussion, they will be considered under three broad headings: economic, social/political, and technological. The following sections provide some examples from each of these areas, with a consideration of their potential impact on the current educational system.

Economic Forces

It is evident to even the casual observer that the U.S. economic system is undergoing radical transformation. Most obvious is the diversification of the economy from its traditional industrial base, built on low-skills jobs, to one with a much greater emphasis on services and a much different mix of employee skills (Vaughn and Berryman 1989). It is noteworthy that during the growth of the eighties, the largest number of new jobs were created by businesses employing 150 or fewer workers, not by large corporations (Carnoy and Levin 1985). Most of these were service oriented enterprises. Linda Darling-Hammond (1990) notes that

> In 1900 about half of the nation's jobs required low- or unskilled labor; today, fewer than 10% do. And while fewer than 10% of jobs at the beginning of this century were professional or technical jobs requiring higher education, more than half of the new jobs created between now and the year 2000 will require education beyond high school, and almost one-third will require college degrees. (p. 286)

It is estimated that by the year 2000, nearly 90 percent of the jobs in the U.S economy will be service-related, and that about half will involve the collection, analysis, synthesis, structuring, storing, or retrieving of information (Cetron and others 1988).

Increased Economic Competition

At the same time, the industrial sector, which thrived in the fifties, sixties, and early seventies, finds itself competing internationally on an unparalleled scale. Goods from abroad have increased from the early fifties, when they were an insignificant factor in the American market, to the eighties, when 70 percent of the goods produced in the United States had international competition (Reich 1990).

This intense, unremitting competition has led to a rapid increase in the pace of change in the workplace. Companies cannot simply devise a useful product, develop economical means of production and marketing, then sit back and make a profit. They must constantly improve and revise both their product line and their production techniques. The workplace has been transformed from a place where change was often viewed as a disruption that might interrupt the flow of profits, to a place where the ability to adapt rapidly is essential (Reich 1990). Teamwork and worker involvement in decision-making are the emerging norms. These changes are being undertaken to help companies adapt more rapidly to the increasingly swift currents of change in which businesses must stay afloat (Port and others 1990). The old motto "If it ain't broke, don't fix it," has been replaced by a new one, adopted first by the Japanese. That motto is "If it ain't broke, improve it."

Access to Jobs and Careers

Combined with change in the nature of work and the pace of change has been an equally fundamental alteration in the way workers locate jobs, particularly entry-level workers. In the past, high school graduates and even dropouts had

clear prospects for jobs with an economic future before they left school. Now they seldom have such a guarantee. The old methods, where son followed father, where factory or mill had been the only employer in town for generations, or where personal contacts opened the door to stable employment, have been replaced by requirements that companies follow hiring procedures designed to allow equal access to all, or by employers who realize they must employ the most highly skilled individuals available to stay competitive. To find jobs, many young people must leave the towns where they grew up. For the unskilled and semi-skilled, it is even more difficult to move successfully from the educational system to the job market.

Coupled with these changes in access to jobs are changes in the makeup of the work force. The diversification of the labor force from one dominated by white males to one highly dependent on women and racial minority groups will accelerate. Of the approximately twenty million new workers expected to enter the work force between 1980 and 2000, 82 percent are projected to be combinations of female, nonwhite, and immigrant (Hoachlander and others 1989).

The 'Internationalization' of Employment

A second, related set of changes in the economy deals with the "internationalization" of American companies, large and small. More and more companies are realizing that their only hope is to develop international markets and strategies (Mandel and Bernstein 1990). This is as true for farmers and ranchers as it is for accountants and automobile manufacturers. Owners and workers alike must comprehend their connection to a larger system, a relationship that may require their company to develop subsidiaries or partnerships in many different countries in order to survive and compete.

This trend has been accelerated by constant improvements in communications and international travel, which make the dissemination of information much more immediate. For example, AT&T and Kokusai Denshin Denwa, Japan's largest international long-distance company, have announced plans to lay an optical fiber cable between Japan and the United States that could carry up to 600,000 telephone calls or other forms of electronic communication. This will increase by fifteen times the capacity of the current cable, laid in 1988, which carries up to 40,000 calls.

Motorola has unveiled plans for a network of seventy-seven small low-orbiting satellites that can send and receive cellular radio signals without the need for switching equipment. They plan to construct a worldwide network capable of translating into reality a long-standing prediction; by the end of the century instantaneous communication and access to data banks, business colleagues, fax machines, family, and friends will be possible from anywhere on the globe. Events half a world away can and will affect an American company in, say, the Midwest in an immediate and profound manner.

The internationalization of the American economy has meant more than U.S. companies expanding overseas. Foreign companies are moving their operations to the United States, as well (Misahiko 1990, Shane 1989). Examples include Japanese auto assembly plants in Kentucky, Ohio, Illinois, and California, including some with the express goal of producing autos for export from the United States to Japan.

Foreign companies with large-scale U.S. operations are not limited to the Japanese. Nestle Corporation of Switzerland employs over 48,000 Americans; British Petroleum, 37,000; Royal Dutch Shell, 32,000; and Tengelmann of Germany, over 74,000. All indications are that the trend toward the globalization of work will continue. To an ever greater degree, American workers are going to be in the employ of corporations with headquarters in different countries, with different cultural values and traditions (Hoerr and others 1990).

Impact of the Federal Deficit

A final economic force that will profoundly impact the future of the schools in this country is the federal deficit. It creates two related problems. First, the structural deficit in the federal budget must be brought under control, and, second, the staggering debt incurred during the past ten years must be repaid at some point (Hollister 1990).

This means that education cannot expect much in the way of additional federal funding. At the same time, since the federal government has the greatest power to raise taxes, it is likely that state and local governments will be under pressure to reduce taxes as federal collections increase. All of this will occur in an environment in which there is waning public support for social programs.

Given that the number of workers available to repay the debt will be decreasing, both in actual numbers and in proportion to those who are retired, it is urgent that each new worker is capable of being highly productive (Beck 1990). If not, we may find ourselves less able to repay our debts, engaged in intergenerational warfare over how to allocate the resources that do exist, or both.

The Need to Educate All Students

Whereas in the past it was acceptable for public education to educate some subset of students—perhaps 10 to 25 percent—to high levels of competence, the new economic order will require essentially all students to achieve these levels. A report from the National Center on Education and the Economy examined the state of training among those who are not trained to high levels of competence. Former U.S. Labor Secretary Ray Marshall, who headed the commission that wrote the report, told reporters that the American educational system was "the worst system of any major country for educating the non-college bound" (Mitgang 1990). In a bluntly worded conclusion, the report stated: "What we are facing is an economic cliff of sorts—and the front line working people of America are about to fall off it" (Commission on the Skills of the American Work Force 1990).

The report recommends that all workers be educated to high levels of functioning in "job basics" and that they be able to demonstrate those skills in means other than standardized tests. The report's conclusions were based on the results from over 2,000 interviews conducted at more than 550 companies and agencies in the U.S., Germany, Sweden, Denmark, Ireland, Japan, and Singapore.

The difficulty of addressing this challenge with the current educational system is brought into perspective by a study of American students at risk conducted by Phi Delta Kappa (Frymier and Gansneder 1989). Data were collected on forty-five factors deemed to place students at risk of failing—in school and subsequently in life. Of the 22,018 students included in the study, between 25 percent and 35 percent were deemed to be "seriously at risk."

As disconcerting as these figures may be, the report suggested that things may be even worse than they seem: "But even these figures are artificially low....[O]ur figures represent conservative estimates." The study did not indicate that the schools were confident or effective in adapting to meet the needs of these students: "Various data suggest that the professionals surveyed lacked skill with or confidence about particular approaches to working with at-risk students." Given the decreasing pool of labor available to the American economy during the next ten to twenty years, it will not be possible to write off one-quarter to one-third of the student population and continue to compete with nations that are educating essentially all students to high levels of functioning.

Table 1 presents a summary of the skills employers believe workers will need to succeed (American Society of Training and Development and U.S. Department of Labor 1990). A survey reached the following conclusions about employer needs:

- Employers want employees who can learn the particular skills of an available job—who have "learned how to learn."
- Employers want employees who will hear the key points that make up a customer's concerns (listening) and who can convey an adequate response (oral communications).
- Employers want employees who have pride in themselves and their potential to be successful (self-esteem); who know how to get things done (goal-setting/motivation); and who have some sense of the skills needed to perform well in the workplace (personal and career development).
- Employers want employees who can get along with customers, suppliers, or co-workers (interpersonal and negotiation skills), who have some sense of where the organiza-

Table 1
Workplace Basics: The Skills Employers Want

- ✓ Learning to Learn
- ✓ 3 R's (Reading, Writing, Computation)
- ✓ Communication: Listening and Oral Communication
- ✓ Creative Thinking/Problem Solving
- ✓ Self-Esteem/Goal Setting—Motivation/Personal and Career Development
- ✓ Interpersonal Skills/Negotiation/Teamwork
- ✓ Organizational Effectiveness/Leadership

Source: *Workplace Basics: The Skills Employers Want.* American Society for Training and Development, U.S. Department of Labor, Employment, and Training Administration, 1990.

> tion is headed and what they must do to make a contribution (organizational effectiveness); and who can assume responsibility and motivate co-workers when necessary (leadership). (p. 8)

Increasingly, productive workers are those who can make decisions, apply information, and, most importantly in the eyes of many employers, continue to learn throughout their careers

Unlike the past, where a hierarchical structure of work reigned—the few making the decisions and the many implementing them—in the future increased emphasis will be placed on teamwork, problem-solving, and communication at all levels of the organization (Reich 1990).

Clearly, there is a sense of urgency attached to employers' desires that public education equip essentially all students to survive and prosper in a new economic arena.

Social/Political Forces

A host of writers have described the social forces that are converging on public education (Apple 1990, Cook 1988, Giroux 1988, Hodgkinson 1988, Morrow 1988, Moynihan 1988). There is little reason to expect that the impact of these forces on schools will lessen. In fact, the relative ineffectiveness of public schools as instruments of social policy will tend to result in increased, not decreased, demands to fulfill this role. This is due in part to the vacuum of organizations or structures capable of providing support as pressures on the family intensify.

The Changing Family

The changing structure of the American family has not yet been assimilated by the educational system (Hodgkinson 1988, Shane 1989). While some schools offer before- and after-school care, the school system as a whole still operates on implicit assumptions about parents and family structure that are no longer true. The number of family "constellations" has increased tremendously during the past three decades to the point where the nuclear family represents only one of perhaps a dozen different family structures. Schools tend to assume the existence of the traditional nuclear family, even while espousing rhetoric to the contrary. It will require profound changes for schools to develop different conceptions of the family and of the "contract" that exists between home and school.

The Relationship to Other Social Service Agencies

In a similar vein, the relationship between schools and other social welfare agencies will continue to be redefined (Liontos 1990). There is

frequent overlap in the services provided to many families by schools and social service agencies. All too often the desired results do not seem to be achieved by either agency. This duplication and lack of impact will not be able to continue in an era when decreasing public resources will cause all governmental agencies to reexamine priorities and strategies. Schools and other public agencies will, of necessity, find ways of collaborating.

Schools as Vehicles for Desegregation

A second area where schools served as vehicles for social policy has been in the desegregation of unitary school systems. After twenty-five years of concerted effort it is clear that school desegregation has not been an effective way of integrating residential neighborhoods (Olson 1990a). In Topeka, Kansas, Linda Brown-Smith, on whose behalf the landmark *Brown v. Board of Education* suit was filed, herself filed suit in 1979 against the Topeka Board of Education on behalf of her child, charging that the vestiges of segregation remained in the Topeka schools (Bates 1990).

A report from the Network of Regional Desegregation Assistance Centers and Northwest Regional Educational Laboratory (Simon-McWilliams 1989) identifies a series of "second-generation problems" related to school desegregation, including school policies that impact racial groups differentially, programs that result in de facto racial tracking or segregation within schools, in-class grouping practices based on race or ethnicity, and the evolution of extracurricular activities that become identifiable by race or ethnicity. Bates (1990) concludes, "We are moving toward a resegregation of America's public schools." This suggests that new strategies, in addition to or in place of busing, will need to be employed if schools are to strive to be one place in the community where people of different races and social classes interact with each other on anything approaching an equal footing.

There is every indication that this nation will continue to become more diverse racially and culturally (Cook 1988, Hodgkinson 1988). This should be viewed as a positive trend, since so much of American achievement has been based on the vigor and creativity of immigrants and members of all ethnic and racial groups. The challenge for schools remains: will diversity be an asset or liability for American society in the coming millennium?

Increasing Economic and Social Polarization

This aspect of public education will become increasingly important if the economic polarization that began in the seventies and accelerated in the eighties continues (Hollister 1990, Jencks 1989). Evidence continues to mount that it is becoming more and more difficult to escape one's social class of birth, particularly for those born into the lower economic classes. A report from the National Center on Education and the Economy (Commission on the Skills of the American Work Force 1990) describes the "economic cliff" facing American workers. While a few are getting richer, most are losing ground:

- The highest-earning 30 percent of American families increased their share of national income from 54 percent in 1967 to 58 percent in 1987, while the bottom 70 percent have been losing ground.
- Over the past 15 years, the earnings gap between white collar professionals and skilled tradespeople has gone from 2 percent to 37 percent; the gap between professionals and clerical workers has gone from 47 percent to 86 percent.
- Over the past decade, earnings of college-educated males age 24 to 34 increased by 10 percent. Earnings of those with only high-school diplomas saw their real incomes drop by 12 percent.
- Over 60 percent of white families have incomes over $25,000 per year, compared with only 49 percent of Hispanic families and 36 percent of black families. The poverty rate for black families is nearly three times that for whites, and the gap has been widening.
- One in five American children—one third of our future front-line workforce—is born into poverty. (pp. 19-20)

It is a chilling realization that students may

go through their entire childhood without ever interacting with people who are different from them. If this pattern continues and expands, it has profound implications for the attitudes future adults will have toward those who are less (or more) fortunate than they are Our social system has been based on the existence of a large middle class that has been relatively tolerant of both those who have more and those who have less. Changes in this alignment will reverberate through the policy-making machinery of government with unpredictable consequences.

Decreasing Civic Responsibility

Closely related to this phenomenon is a concomitant drop in both the understanding of democracy and the sense of civic identity felt by most citizens. Polls have demonstrated increasing cynicism by Americans over the past thirty years, reflected by the unabated decline in participation in the electoral process since the early sixties. Other indicators are the deep-seated distrust of public office holders, and a declining knowledge of and interest in civic affairs on the part of American students (Boyer 1990, Fowler 1990. People for the American Way 1989). Schools are the institution with the primary responsibility for creating a value and understanding of democratic ideals and principles. If schools remain predominantly authoritarian at worst and bureaucratic at best, there will be little opportunity for students (or parents) to develop and apply the skills and perceptions needed to function in a complex democracy (Glasser 1990).

Why is it important to have citizens who are understanding and are tolerant of one another? Beyond obvious considerations, there is another set of issues that relates to the economic issues outlined in the previous section. Throughout the world regional economies are developing and being formalized, the European Economic Community being the most striking example. There are strong indications that the North American economy will have to follow a similar model in order to compete. It is likely that the United States, Canada, and Mexico will need to open their borders and blend their economies to match changes in Europe and Asia (Baker and others 1990).

This trend, combined with the increasingly multinational nature of all businesses, not just large corporations, means that in order to survive economically, students will need to be able to understand and get along with people who are quite different from themselves. In practice this may mean having a boss who is of a different racial/ethnic group, or of a different gender (Dumaine 1989). It may mean the need to travel and live outside the United States for extended periods in order to advance within a company.

For many of our students, there is little to indicate that what is occurring in our schools will prepare them for these changes in even the most remote way.

Technological Forces

The changes wrought by technology are among the most visible and dramatic of those taking place in society. They seem to be occurring around us constantly. And yet, a visit to a public school will not reflect the impact of these changes. Schools have introduced computers only grudgingly and with little clear sense of their purpose or function. Presently, more advanced technologies are not even being contemplated by many, perhaps most, schools. These unheeded technologies have the potential to make schools as they currently exist obsolete (Mecklenburger 1990).

Changing Structure of Knowledge

Knowledge has always been the domain of schools. They have controlled access to it through a variety of means, including teacher certification rules, structured curricula, grades, and tests. Information technologies challenge this hegemony by decentralizing knowledge and making it available to all. One does not need a teaching credential to operate a CD-ROM or utilize an online data bank. As a matter of fact, one needs only rudimentary technical skills to employ these resources.

The increasing ease of access to information has profound implications for schools and their role. It is becoming clear that all learning need not occur within classroom walls and that teach-

ers are not the only ones capable of structuring learning experiences for students. In addition to the individual computer, many other modes of technological communication, including local area networks, national bulletin board services, CD-ROMs, video disks, satellite, videotape, and fax technologies contribute to this process of decentralization.

Schools have another inherent problem in dealing with knowledge in its new forms. The increasingly rapid rate at which information is being generated and shaped into knowledge far outstrips the school's ability to incorporate this knowledge. Estimates of the rate at which knowledge is doubling vary; the Association of Teacher Educators' Blue Ribbon Task Force (1986) estimated it is doubling every forty months. Whatever the rate, it is much more rapid than the ability of schools to even react to it, much less incorporate it. School districts typically review each curricular area on a five- to seven-year cycle. Even the casual observer will recognize that this is completely unacceptable if school knowledge is to remain consonant with real-world knowledge.

Compounding this problem is the schools' heavy reliance on traditional print-based materials, such as textbooks and encyclopedias. The initial response of schools has been simply to move the information and structure of these print-based materials to computers or disks, often in the form of "integrated learning centers." Such lab-based approaches often compound the problem, since they centralize the teacher's role as gatekeeper and eliminate or reduce the potential inherent in the new technologies for students to explore material and extract their own meaning from it (Levinson 1990).

Adapting to the new structure of knowledge will be much more complex and demanding than simply replacing a traditional encyclopedia with one on CD-ROM. It will require a rethinking of the school's relationship to knowledge and its proper role in its distribution. Schools will have to ask the questions: What should students learn? At what level of skill should they learn it? For what purpose are they learning it? It has not been easy for educators to ask these questions, let alone answer them. The implications often suggest changes that make many in public education uncomfortable.

This revolutionary metamorphosis of the structure and content of knowledge will bring with it a whole new and unexplored set of ethical and moral issues regarding life and death, our relationship to the earth and to each other, and the basic definition of our humanness. Many scientific advances during the previous several decades, such as biotechnology, reproductive biology, and the ability to prolong life artificially, have outstripped current moral, ethical, and legal frameworks (Plein and Weber 1988). Schools, as currently conceived and structured, are ill-prepared to deal with these issues.

Traditional methods of certifying teachers will prove to be tremendous roadblocks to reconceptualizing knowledge in an era when the boundaries between disciplines are blurring and new disciplines are being created (Anrig 1990). The teacher will have to model the attitudes and strategies being taught to the students. This requires teachers who are lifelong learners, who cannot be categorized as a "science" or "English" teacher, let alone an Advanced Physics or Remedial Reading "specialist" for their entire career.

Information as a Problem-Solving Tool

On a more practical, but equally significant level, the way information is being portrayed is moving from two-dimensional, symbol-based, to four-dimensional, sensory-based. No longer are problems solved solely by analyzing numbers on a piece of paper. With the development of the powerful workstation, engineers, researchers, workers, and corporate decision-makers are dealing with information in visual and graphic formats almost exclusively. Sound and color, along with animation or "real time" data, enable people to see patterns not apparent when information is in more traditional "paper and pencil" forms. The public schools persist in treating visual data as a distraction from the basic learning process, which is entirely symbol based and almost devoid of graphical information except in the form of an occasional supplement to "break the boredom" of the traditional lesson.

New strategies are being employed to understand and solve problems in nearly every

sector of our economy. These techniques involve modeling and simulations as tools to comprehend complex phenomena. The researcher must be able to see the big picture, the gestalt of the data. Computational work is left to the technology.

The use of multimedia representations of information is not limited to the arenas of science and engineering. All aspects of the work world are seeing its emergence, from marketing to city planning, architecture to accounting. It is almost a certainty that graduates of today's schools will be interpreting information in technology-based systems that employ sound, motion, color, and interactivity.

On the horizon are even more exciting possibilities for organizing information. As computers become ever more powerful, data will be able to be represented in ways that conform to, or reproduce, the natural world more faithfully. One example is the concept of virtual realities, where data are analyzed, then projected to create a three-dimensional representation of some physical phenomenon that allows the researcher to actually move through the environment and essentially "experience" the data. Another approach, neural networks, offers the vision of computers that can mimic, perhaps even duplicate, many of the brain's functions (Gorman 1990).

The skills required to comprehend information in these new forms are vastly different from those that schools have emphasized. Rather than calculating and recording information, then comparing it to predetermined standards, learners will need to be able to employ intuition, to develop a "feel" for the patterns and anomalies present in data, to comprehend information holistically (Duttweiler and Mutchler 1990). These skills are developed through educational experiences very different from those currently employed in most American classrooms (Goodlad 1984).

There has been an awakening and realization among educators that the preceding forces will inevitably affect current practices. This realization has led many people, both inside and outside education, to call for fundamental changes. This call has been labeled *restructuring*, at least in part to distinguish these efforts from those of the reform movement of the early eighties. What does this term mean and what are its implications for public schools?

What Is Restructuring?

The fact that the term *restructuring* could not be easily or consistently defined has been both a strength and a weakness of the restructuring movement—a strength in that it allowed and encouraged many efforts and approaches to school reform to blossom under its banner, a weakness because anyone could do almost anything and label it "restructuring" (Olson 1988).

This inclusiveness has allowed nearly everyone, including teachers' unions, administrators' and school boards' organizations, and many policy makers to feel comfortable under the banner of restructuring. The inclusive nature of the concept has been a positive in the sense that it has allowed and encouraged considerable dialogue among individuals from many segments of the educational community who have not done a very good job of communicating in the past.

Renewal, Reform, Restructuring: Three Levels of Change

One way to comprehend better the myriad approaches to change in schools is to consider three basic levels, or groupings, into which most of the activities taking place can be sorted: renewal, reform, and restructuring. This differentiation can be important, particularly when schools profess a desire to restructure but have no standards to determine which sorts of activities constitute restructuring.

It is not necessarily the activity in and of itself that determines its classification, but rather the intent of the activity. Cooperative learning, for example, could be introduced and employed in a manner that might renew a school; it could be the result of some sort of district mandate; or it could be coupled with other activities to represent a genuine attempt to restructure.

Table 2 provides a summary of these three levels of change and presents a definition and examples of each.

Renewal

Renewal activities are those that help the organization to do better and/or more efficiently that which it is already doing. Most school improvement projects fall into this category, as do many district-sponsored staff development programs. It is easy for schools to assume that if they are undertaking several important renewal activities that they are "restructuring," since these activities take a great deal of energy and are capable of yielding positive results. This type of program, however, does not cause schools to examine any of their fundamental assumptions or practices, except by implication. For many schools this may be the most appropriate way to proceed. For others, renewal efforts disguised as restructuring will lead to frustration, because they will fail to achieve the intended goals.

Deal (1990) notes the importance of maintaining links with the past, stating, "Restructuring or reforming schools assumes that old patterns need to be changed. But renewal assumes that a gateway to a better future requires a backward look. Rather than embracing the latest innovations, it may be wise to reconsider time-tested traditions" (p. 7). He points out that all organizations have a culture and that restructuring must acknowledge the importance of the cultural institutions, traditions, values, and practices that currently exist in schools.

Reform

Changes that fall into the reform category are those that alter existing procedures, rules, and requirements to enable the organization to adapt the way it functions to new circumstances or requirements. Two important features help to identify and define reform-oriented efforts: One, changes center on procedural elements, the policies and procedures that determine the basic

Table 2
Three Focal Points for Organizational Change

Renewal: Activities designed to help the organization do what it currently does better and more efficiently.

Examples:

- Inservice on a new teaching technique
- Review and rewrite of current curriculum objectives
- Peer coaching program
- Inspirational or motivational speaker
- Stress reduction workshop

Reform: Activities that change existing procedures, rules, and requirements to enable the organization to adapt the way it functions to changing circumstances.

Examples:

- New graduation requirements
- Revised attendance policy
- Curriculum revision based on new state requirements
- Development of a buildingwide discipline policy with common expectations and consequences
- Adoption of a different type of test to measure student writing ability
- Establishment of differentiated diplomas

Restructuring: Activities that change fundamental assumptions, practices, and relationships, both within the organization and between the organization and the outside world in ways that lead to improved student learning outcomes.

Examples:

- Moving from Carnegie units to point values being established for all courses based on a peer review process
- Changing the hours of high school to 7 a.m. - 10 p.m. and incorporating various life experiences into the student's program.
- Developing new incentives for students to achieve by providing employers a portfolio of high school work and an easily understood transcript; asking employers to base starting pay in some measure on these documents.
- Assigning teams of teachers to work with teams of students for four years.

"rules of the game" for all participants in the system; and, two, the impetus for reform almost always comes from some external force, such as a board of education, a state department of education, or even educational reformers. This impetus results in the appointment of committees to examine current practice and bring it into conformity with the new expectations or requirements.

Passow (1990) summarizes the impact of the changes that were initiated largely at the state level during the mideighties. These efforts changed rules in areas such as teacher certification, standardized achievement testing, and course requirements in the hope that changes in these variables would lead to greater student learning. Given the nature of the power that policy makers wield, most of these attempts can be categorized as "blunt instrument" attempts at change; they got the victim's attention, but did not necessarily lead to the desired outcomes.

Table 3 provides a summary of the educational reform movement of the 1980s. This movement concentrated initially on providing "top-down" solutions to problems in education. When these remedies failed to yield the desired results, policy makers began to set the stage for restructuring by decentralizing decision making and allowing districts to enact their own solutions to locally identified problems. For more detailed discussions of the first and second wave of reform, see Passow, A. Harry. "How It Happened

Table 3
Educational Reform in the 80s

First Wave
- Top-down
- State actions
- Improve achievement through raising standards

Results of First Wave
- Increase in number of math and science classes
- Increase in salaries
- Increase in qualifications and requirements for teaching credential
- Increase in testing and assessment
- Local boards of education, administrators, teachers ignored
- Frustration among practitioners

Second Wave
- Decentralization of decision making
  —waivers of regulations
  —site-based management
  —restructuring experiments
  —top-down, bottom-up
- States set standards, provide flexibility in how local districts meet them
- Teacher ownership and involvement in change
- Emphasis on accountability and outcomes
- Restructuring in addition to reform
  —restructuring emphasizes bottom-up vs. top-down

Source: Adapted from Passow (1990).

Wave by Wave: Whither (or Wither?) School Reform?" in *Education Reform: Making It Happen* (Samuel Bacharach, ed., Boston: Allyn & Bacon, 1990).

Clearly, reform-oriented change cannot be overlooked. At the same time, it is less likely to result in an examination of fundamental practices or assumptions about schooling than it is to produce a new rule or procedure. As with renewal activities, a school can devote a great deal of energy to reform-based improvements without realizing that they have not engaged in a consideration of issues related to restructuring the educational environment.

In discussing the impact of reform-oriented efforts, Deal (1990) notes that

> for the most part, efforts to improve public schools have concentrated on correcting visible structural flaws.... Such "first-order" changes overlook more durable and stable cultural values and mind-sets behind and beneath everyday behavior. These deeper patterns provide meaning and continuity. They are also the source of many frustrations and problems. Modifying them involves "second-order" changes, a level that most reform efforts have missed. (Cuban 1984, p. 9)

Timar (1989), in his analysis of restructuring efforts in three school districts, concluded that endeavors that are labeled as restructuring but do not have the organizational support required can be counterproductive:

> Creating a policy climate capable of fostering an integrated and organizationally coherent response to restructuring requires more than making such marginal changes as adding new programs or reshuffling organizational responsibilities. Such tinkering may actually have a negative effect on schools by embroiling them in organizational conflicts that further fragment operations and diffuse energy. (p. 274)

Restructuring

The third category of change is restructuring. This term, already much used and abused, deserves serious examination and analysis. It is too easy for a term to become popularized in education, then abandoned before enough time has passed to determine its value. There is some danger that the concept of restructuring may suffer the fate of many other educational innovations. Ron Brandt has noted, "The freeway of American education is cluttered with the wrecks of famous bandwagons" (Brandt 1983, see also Orlich 1989). The following section considers this term in greater detail and offers a working definition for it.

In Search of a Definition of Restructuring

Several representative definitions help highlight the diverse ways in which restructuring is being conceptualized. Anne Lewis, in her book *Restructuring America's Schools* (Lewis 1989), reviews the definitions offered by a number of leaders in the restructuring movement.

Frank Newman, president of the Education Commission of the States, interprets restructuring to mean "changing the nature of schools from the interior, so that students 'become active learners, partners in the learning process' " (Lewis 1989).

Policy analysts Richard Elmore and Milbrey McLaughlin also believe that restructuring starts at the school level. Policies must help "initiate development [of solutions to educational problems], rather than mandate resource allocation, structures, and rules. It means commissioning people who work in real schools to fashion workable solutions to real problems and allowing those solutions the opportunity to fail and the time to succeed" (Elmore and McLaughlin 1988).

Albert Shanker, president of the American Federation of Teachers, has taken a leading role in moving restructuring to the front burner for consideration by policy makers. He assails the reform movement of the early eighties for trying to improve schools without significantly altering the basic structure of education. He believes restructuring "seeks to create new relationships for children and teachers" (Lewis 1989) by "giving teachers the greatest possible flexibility in matching students with the appropriate learning experience" (Shanker 1990a).

Jane David, consultant to the Center for

Policy Research in Education, defines the goal of restructuring as "long-term, comprehensive change guided by a conception of schools as stimulating workplaces and learning environments" (Lewis 1989).

Theodore Sizer, founder of the Coalition for Essential Schools, views the purpose of educational change as creating schools where we "teach students to think" (Lewis 1989).

Phillip Schlechty, who served until 1989 as the executive director of the Jefferson County Public Schools/Gheens Professional Development Academy, an organization designed to serve as a catalyst for school restructuring, notes the ambiguous nature of the term *restructuring* and the difficulties this ambiguity has caused. He defines restructuring as "altering systems of rules, roles, and relationships so that schools can serve existing purposes more effectively or serve new purposes altogether" (Schlechty 1990).

Anne Lewis, drawing on these definitions and others, offers this summary of the basic elements of a definition of restructuring:

- Is student- and teacher-centered
- Changes the way students learn and teachers teach, requiring both to assume greater initiative
- Applies to all students and all schools, not just the disadvantaged
- Affects curriculum as well as organization
- Needs a central vision within a school to which all involved subscribe
- Requires becoming "unstuck" from many current reforms and from a built-up centralized bureaucracy
- Is advocated by diverse interests in society
- Amounts to those actions that allow and encourage higher expectations of both teachers and students. (Lewis 1989, p. 6)

For the purposes of this paper, the following definition emphasizes the idea that restructuring has to affect educational practices and student learning outcomes rather profoundly, not just superficially. *Restructuring* is defined as:

> Activities that change fundamental assumptions, practices, and relationships, both within the organization and between the organization and the outside world, in ways that lead to improved student learning outcomes.

The important element of this definition is the emphasis on ensuring that student learning remains the key variable that is being affected through the proposed changes. It is easy for this goal to become obscured in the discussion of various changes that may really make schools better places for adults, not students.

While the needs of adults must not be overlooked, it is imperative for any change occurring under the banner of restructuring to address student needs first and foremost. Clearly, there are many areas where the needs of students and those of the adults in schools overlap and where opportunities to improve schools for both groups are compatible. These efforts should be pursued vigorously. However, many of the ideas currently being considered as forms of school restructuring will not have any impact on students in and of themselves unless they are explicitly linked to other activities more closely related to student learning.

By way of contrast, it is interesting to note the definition of restructuring held in the private sector, given that the term originated in that arena and has been subsequently adopted and adapted by educators. Enderwick (1989) notes that "the rate and forms of corporate restructuring which have occurred over the last 15 years are unprecedented in the post-1945 period.... Corporate restructuring, which is prompted by the need to maintain or regain competitiveness, is a process of radical reaction to product or market changes" (pp. 44-45).

Restructuring: Who Wants It?

One of the most interesting aspects of restructuring is the different ways various constituencies are responding to it. The continuum of support for fundamental change in education runs a very long gamut. Figure 1 depicts this continuum.

On one end are national leaders in education and business, such as Albert Shanker of the AFT and David Kearns of Xerox, providing articulate, compelling critiques of the current system (Kearns 1988, Kearns and Doyle 1988, Shanker 1990b). Flanking them are governors and former governors who have varying needs to improve their educational systems. Some of the most active and visible have been Thomas Kean of New Jersey, William Clinton of Arkansas, and Lamar Alexander of Tennessee. They are joined by other educational leaders such as Ernest Boyer, John Goodlad, Theodore Sizer, and an array of foundations and commissions.

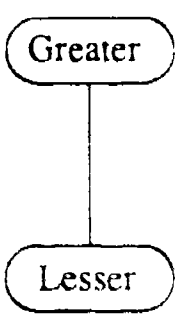
Educational reformers are among the most convincing and influential spokespersons for movement from tinkering to fundamental changes in the structure and methods of education. Most link the need for and value of educational change to economic issues.

The next level of support for educational restructuring is more diffuse. It is composed of policy makers at the state level and educators throughout the nation in a wide spectrum of roles. Many legislators, members of state departments of education, university faculty, superintendents, principals, and teachers around the country have become advocates of school restructuring. This group has played an important role in translating the largely conceptual thinking of the national spokespeople into forms that address programs and structures in education. They have organized meetings to discuss these ideas and have helped nurture fledgling programs designed to support development of working models that demonstrate what restructuring can look like.

The next layer in this continuum is composed of people who do not accept the need for basic change without asking many questions. Most boards of education are at this level or the next along the continuum. This is not surprising. Little of the information or rhetoric in the call for restructuring has been aimed directly at boards of education or classroom teachers. While this is beginning to change, most educators at the local level have only a general sense that education

Figure 1
Levels of Support for Educational Restructuring

Need for Restructuring as Perceived by Various Constituencies



- Educational Reformers
- Business Leaders
- Policy Makers
- School Board Members and Practicing Educators
- Local Community
- Parents

needs to improve and may not be convinced that it needs to undergo fundamental change.

This is particularly true in schools and districts that are doing reasonably well by conventional standards. In these settings, conversations and programs tend to identify site-based management as restructuring; once decision-making is devolved to any degree from central office to school sites, restructuring is said to have occurred. In fact, one of the first uses of the word *restructure* occurred in a report advocating the freeing of teachers from bureaucratic structures in order to allow them to set goals for students for which teachers would then be held accountable (Carnegie Forum on Education and the Economy 1986).

Teachers have not jumped on the restructuring bandwagon in overwhelming numbers just yet. In part this can be attributed to a healthy skepticism on the part of teachers, many of whom have seen the failure or abandonment of past change-related efforts. For some, their reticence has been due to a lack of clarity about what restructuring is. Others don't perceive schools as the problem; instead, they identify the attitudes of students and their families as obstacles to improving education.

Parents have not been leading the charge for change either. It is one of the many paradoxes of the restructuring movement that, in many cases, parents and the local community are the most resistant to change. In one sense this should not be surprising, since parents expect school to look and function in much the same way as it did when they were students. Parents have rarely been the initiators of educational reform. It was not they who called for the development of standardized achievement tests, the seven-period day, or the middle school. These innovations have been developed by educators and "sold" to communities, that, over time, came to incorporate them into their definition of what school is. Educators should not count on parents to lead the movement toward restructuring.

In schools where a sizeable percentage of students are succeeding by conventional standards, resistance to change has been mounted by those parents whose children are "winners" under the current system (Olson 1990c, Timar 1989). This group, which can be extremely influential, has not been included in discussions about the need to change, and it often limits its critique of the local educational system to the proportion of students accepted by prestigious universities. Others object to the lack of research supporting the types of changes being suggested. They do not want their children to be experimented upon (Olson 1990c).

Currently, there is not a consensus, or even a majority, of people who feel that *their* school needs to be restructured. As polls have consistently demonstrated, people are more critical of schools nationally than they are of those in their own neighborhood (Elam 1990).

Tye (1987) suggests that this is because there is a "deep structure" of schooling that is "determined by values and assumptions that are widely shared throughout our society. Americans do not vary greatly in their views of desirable and appropriate educational experiences for children and young people" (p. 282). The power this image wields is considerable, and any vision of schooling that strays from the elements of the deep structure engenders considerable concern and scrutiny in most communities. Many advocates of restructuring have not as yet been highly successful in communicating their vision to teachers and parents.

Dimensions of Restructuring

Numerous definitions of restructuring have been offered. This section will examine the range of definitions that exist to help identify commonalities and differences among them. In addition to considering definitions, the types of activities that authors consider to comprise restructuring will also be examined. Many possible categorization schemes have been offered. Several notable ones will be discussed briefly before introducing the design that will be used for this discussion.

Richard Elmore (1990) notes that school restructuring encompasses three broad dimensions:

> 1. changes in the way teaching and learning occur, or the core technology of schooling
> 2. changes in the occupational situation of educators, including conditions of entry and licensure of teachers and administrators, and school structure, conditions of work, and decision-making processes within schools
> 3. changes in the distribution of power between schools and their clients, or in the governance structure within which schools operate (p. 11)

Elmore notes that the distinction among these categories is often not made in practice, that reform proposals combine aspects of all three, but that the decision to focus efforts on one point has serious implications both for the process one employs to achieve reform and the results one is likely to obtain.

He offers three models of school reform based on these dimensions:

- Model 1: Reforming the Core Technology of Schools
- Model 2: Reforming the Occupational Conditions of Teaching
- Model 3: Reforming the Relationship Between Schools and Their Clients

The model offered by the National Governors' Association (David and others 1987) parallels Elmore's, but develops four, rather than three, focal points:

- *Curriculum and Instruction:*
  Higher-order thinking; flexible use of instructional time; learning activities more flexible and engaging; grouping practices that promote student interaction and cooperative efforts.
- *Authority and Decision Making:*
  Decentralize important decisions to the site level; teachers, administrators, and parents collaboratively set the basic goals and direction of the school, along with the instructional program.
- *New Staff Roles:*
  Support for new teachers, increased collaboration among veteran teachers, more opportunities to design curriculum and staff development activities; principal as vision-maker and risk-taker in a performance-oriented environment.
- *Accountability Systems:*
  Assess performance at the building level; link incentives and rewards to student performance; allow schools discretion to determine how they will be held accountable; states should develop measures to assess valued outcomes and link rewards and sanctions to them.

The categories in *Today's Children, Tomorrow's Survival: A Call to Restructure Schools*, a report by the National Association of State Boards of Education (1990), closely parallel those contained in the National Governors' Association report and adds a fifth category, Collaboration with Others.

Joyce Epstein (1988, 1990) sorts restructuring efforts into six dimensions, based on an analysis of research conducted at the Center for Research on Effective Schooling for Disadvantaged Students and the Center on Families, Communities, Schools, and Children's Learning. These six dimensions form the acronym "TARGET:"

> T *Tasks:* the content and methods of classes and schooling; what we ask kids to do in classrooms.

A *Authority structures:* the way we run our schools and the way we treat kids within schools.

R *Rewards/incentives:* the ways we recognize behaviors we want to reinforce, and the kinds of things we choose to value by rewarding it; access to rewards for all kids.

G *Grouping practices:* the ways in which we separate kids from one another in schools on a more or less permanent basis.

E *Evaluation methods:* the ways we provide feedback to students on their behavior; do we let them know how to succeed before or after the fact?

T *Time:* the ways it is organized and utilized.

Theodore Sizer's Coalition for Essential Schools began in 1984 as an informal network of fourteen high schools. As a result of attention focused on these initial efforts, the coalition entered into a partnership with the Education Commission of the States in the summer of 1988 to develop the Re:Learning project. Currently operating in six states, the project is expected to expand to include 117 schools. It is based on the principles of the coalition. These comprise nine points that blend general philosophical positions and more specific proposals for changes:

1. *Academic Focus*

   The paramount purpose of public schools should be to teach students to learn to use their minds well. Schools should not be comprehensive at the expense of intellectual rigor.

2. *Less Is More*

   Teachers should teach fewer topics more deeply and not be slaves to a syllabus or textbooks. Mastery, not coverage, should be the schools' watchword.

3. *Universal Goals*

   Academics should be a priority for *all* students. No student should graduate with a purely vocational education. An intellectual education is every citizen's right and need.

4. *Personalizing Learning*

   To reduce anonymity, teachers should teach no more than 80 students each semester. Power over schedules, teaching materials and curriculum should rest with the teachers and principals.

5. *Student as Worker*

   Teachers should model themselves after athletic coaches, advising and encouraging students, rather than lecturing at them; students should be "workers" who labor at their own education.

6. *Demonstrating Competence*

   Students should be passed only after showing mastery of subjects. Multiple-choice exams should be replaced by essays and projects that answer "essential questions" about course content.

7. *Attitude*

   Schools should foster decency, trust and high expectations. Parents should be "essential collaborators" in promoting these values.

8. *Staff*

   Teachers and administrators in schools should share teaching, administrative and counseling duties. Teachers should be generalists, willing to teach more than one subject.

9. *Budget*

   Better schools need not be expensive. The cost of running high-quality schools should be roughly equivalent to that of traditional schools. (Toch and Cooper 1990)

McCune (1988) emphasizes the importance of creating a sense of community as well as retaining student learning as a central goal of restructuring. She identifies the following approaches to restructuring:

- *Bringing the Community to the School—Expanded Clients and Programs*

  The creation of learning communities in schools where persons of all ages are engaged in human resource development activities.

- *Windows to the Community—Taking the School to the Community*

  This approach reverses the learning community approach of bringing services into the school and moves the school to the community. The core of this approach has been business-school partnerships.

- *Restructuring Management*

  Perhaps the approach most often associated with restructuring, this method generally consists of the initiation of site-based management or site-based decision making, and teacher participation in decision making.

- *Restructuring Student Learning*

  This approach encompasses a number of subpoints:

  - Schools must recognize and actively incorporate the development of student self-concept as a precondition for all learning.
  - Schools must strengthen the language development in all areas of study.
  - Schools must extend the methods of instruction and provide a significantly greater amount of time in interactive activities.
  - Schools must move away from the teaching of facts as the outcomes or ends of the learning process and use facts as the means for developing information processing skills.
  - Schools must help students to relate information across subject areas and to real-world issues.
  - Schools must learn how to use the learning resources that information technologies, the community, and community institutions can provide.

Lieberman and Miller (1990) offer five "building blocks" of restructuring, fundamental points that underlie any attempt at meaningful school reform:

1. *A rethinking of curricular and instructional efforts in order to promote quality and equality for all students.* In Lieberman and Miller's view, this is the critical variable. Restructuring must address current instructional practices, basic tenets that educators hold about how students learn, and the organizational structures of academic disciplines.
2. *A rethinking of the structure of school.* Issues of school operations, specifically the role of the teacher, must be reexamined and redefined. This building block suggests a need to consider school-based management, participatory decision making, and teacher leadership.
3. *A two-pronged focus on a rich learning environment for students and on a professionally supportive work environment for adults.* Site-based management alone will not result in improved student learning outcomes. Neither will an emphasis on the needs of students to the exclusion of the needs of adults. Schools must be stimulating, humane, fulfilling environments both for students and teachers.
4. *A recognition of the necessity for building partnerships and networks.* Schools that enter into restructuring must develop networks with one another and with other institutions outside of education, including universities, community agencies, and businesses.
5. *A recognition of the increased and changing participation of parents and the community.* Parents, in particular, must be involved early and continuously throughout any restructuring process. (p. 761)

The preceding analyses demonstrate the complexity and challenge inherent in true restructuring of schools. They indicate the need to examine nearly every assumption and aspect of public education.

Most schools involved in restructuring are not attempting to address all these issues simultaneously. In fact, most focus on one or two areas. This means it is essential for schools to concentrate on restructuring the components that are most critical or central to the learning process, those that will provide the greatest dividends in student learning.

To help create a better understanding of the various dimensions of restructuring, this paper groups restructuring activities into eleven categories. Given that one of the strengths of restructuring is the variety of activities it has spawned, it seems prudent to adopt a categorization scheme that is inclusive, capturing most of the activities being labeled as restructuring. There is some overlap among these eleven dimensions, but they are offered to help capture the range of activities being undertaken by schools.

An attempt has been made to apply the definition of restructuring offered earlier as a screen when considering whether to include a particular activity in this discussion. This is difficult to do with consistency, however, since the activity in and of itself may not be the determining factor. Rather, its unique application in a particular school setting may determine the degree to which it brings about changes in funda-

mental assumptions, practices, and relationships in ways that lead to improved student learning.

It is important to make a further distinction among the eleven categories. Since it is so easy to become bogged down by only one or two major changes in public education, restructuring activities must be chosen carefully. It is easy to lose sight of the core mission of schools and become enmeshed in projects that, while interesting, bear little hope of improving the learning of students.

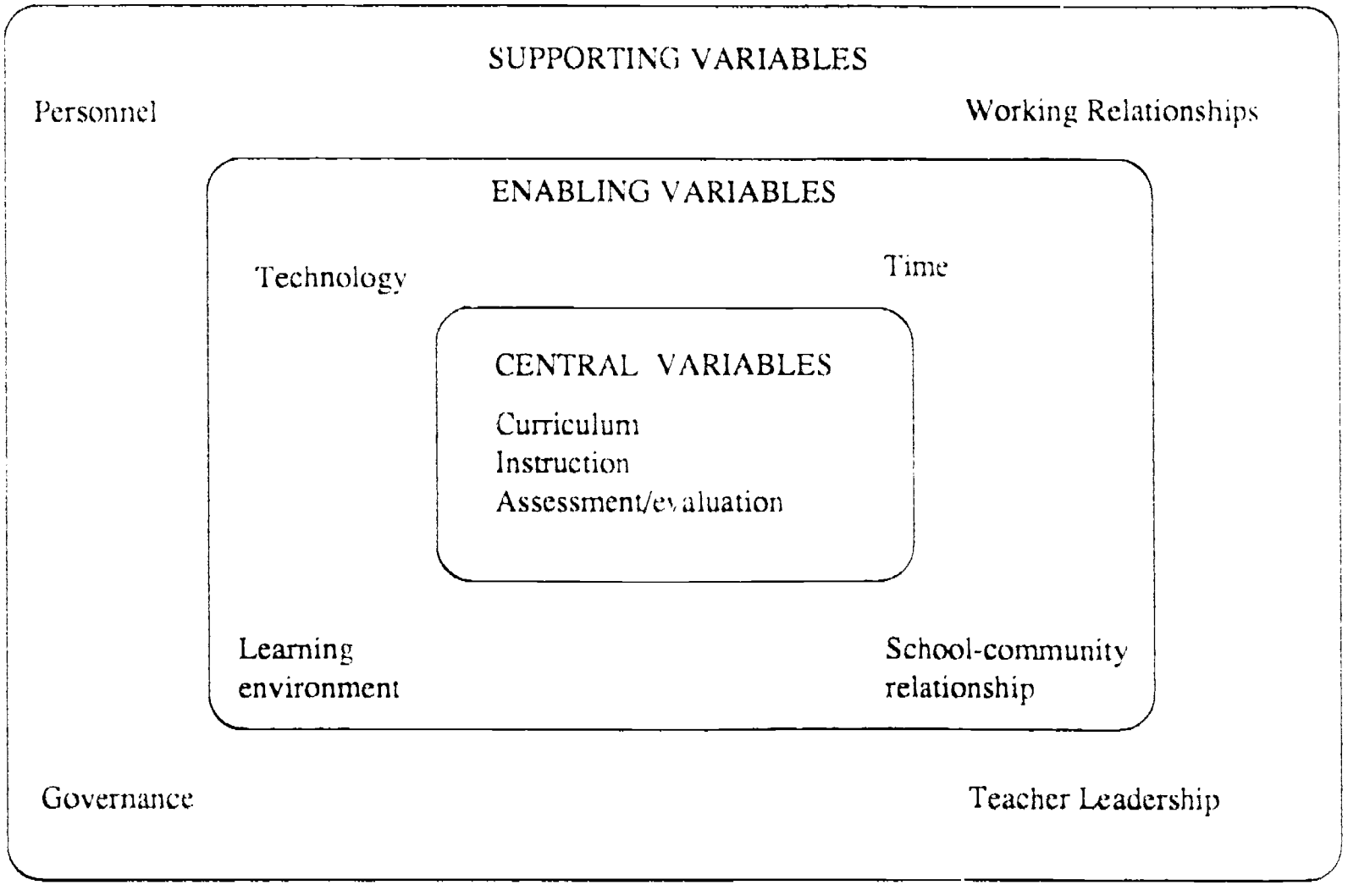
For this reason, the eleven categories are divided into three groupings: three central variables of restructuring that focus directly on student learning, four enabling variables capable of enhancing the learning process rather directly, and four supporting variables that hold the potential to restructure education but are more removed from the classroom. Figure 2 illustrates these levels.

The three Central Variables are Curriculum, Instruction, and Assessment and Evaluation. The four Enabling Variables consist of Time, Technology, Learning Environment, and School-Community Relations. The four Supporting Variables encompass Governance, Working Relationships, Personnel, and Teacher Leadership.

An indepth discussion of what is taking place throughout the nation's schools in each of these areas is beyond the scope of this paper. The goal here is simply to provide a condensed overview of the kinds of activities that are occurring in the different areas, along with the policy and program issues associated with each area, and to incorporate a general discussion of some of the issues surrounding the restructuring movement.

Figure 2

Dimensions of Restructuring



Central Variables

Because changes in Curriculum, Instruction, and Assessment/Evaluation have the greatest potential to affect student learning, the quality of activities in these areas will offer the clearest measure of the success of the restructuring movement.

Curriculum

It is becoming increasingly clear that both the manner in which we conceptualize the curriculum and the content that is included in that curriculum bear close examination. Many attempts are now under way to integrate content, both horizontally between subject areas and vertically between grade levels. Professional organizations in the content areas are offering new guidelines and goals for the organization of their subject areas (American Association for the Advancement of Science 1990, Commission on Standards for School Mathematics 1989, Curriculum Task Force of the National Commission on Social Studies in the Schools 1989, National Research Council 1989). These guidelines attempt to integrate mastery of material with the thought processes necessary to understand and apply the content.

Clearly, the movement is toward using factual material as a means to an end, not an end in itself. In its report, *Science for All Americans* the American Association for the Advancement of Science recommends that

> the amount of detail that students are expected to retain...[be] considerably less than in traditional science, mathematics, and technology courses....Details [should be] treated as a means of enhancing, not guaranteeing, students' understanding of a general idea. (1990, p. 5)

No one is seriously suggesting a completely process-based curriculum; however, nearly everyone agrees that students need not master facts for their own sake. Information must be viewed as a tool to solve problems and understand the world. The National Council of Teachers of Mathematics addressed this issue: "We do not assert that informational knowledge has no value, only that its value lies in the extent to which it is useful in the course of some purposeful activity" (Commission on Standards for School Mathematics 1989). Lewis (1990) summarizes the key statements in the report that illustrate this point:

> Some quantitative techniques are needed in almost every field, not just engineering and the physical sciences. Therefore, the commission recommends that all students be given opportunities to develop understanding of "mathematical models, structures, and simulations applicable to many disciplines."
>
> As much as possible, math knowledge should be developed from experience with problems, not taught in isolation before a student has a need for the knowledge.... In addition, students should work individually and in groups on real problems. "Learning should be guided by the search to answer questions," the report concludes. (p. 537)

At the same time, changes in the world are occurring so quickly that it is difficult to keep abreast of them. This is an additional argument against overreliance on facts and disconnected skills as the basis for the curriculum, since much of the factual information will soon be obsolete, and the skills need to be connected to real-world tasks. The rapid pace of change supports integration of content areas and an understanding of concepts, with factual information and skill instruction serving as one means of developing this understanding.

Based on analysis of policy trends in American schools between 1985 and 1988, McCune (1989) concludes that most school districts use the term "higher-order thinking skills" to describe movement away from overreliance on factual information and toward a curriculum based on students constructing meaning, rather than on "routine performance." The incorporation of such programs generally requires changes in both curriculum and instructional strategies.

The lines between disciplines are beginning to blur. Subject area organizations recognize this as well. The American Association for the Advancement of Science states that "boundaries between traditional subject matter categories [should be] softened and connections . . . emphasized" (p. 5). Social studies educators are recommending that

> social studies provides the obvious connection between the humanities and the natural and physical sciences. To assist students to see the interrelationships among branches of knowledge, integration of other subject matter with social studies should be encouraged whenever possible. (Curriculum Task Force of the National Commission on Social Studies in the Schools 1989, p. 3)

Emerging patterns of changes in the content of high school programs can be discerned. Many of these changes are centered in the vocational education area, involving either the elimination or radical reconceptualization of areas such as home economics, business, industrial arts, and auto, metal, and wood shop. In many cases, these programs are being replaced by courses about technology and technological principles.

Other efforts attempt to organize content knowledge into forms other than the traditional "big four" subjects of English, social studies, math, and science; the allied subjects of art, music, drama, and physical education; and the vocational subjects.

James Beane, in his book *A Middle School Curriculum: From Rhetoric to Reality* (1990), argues for a thematic-based curriculum for middle schools that builds on the natural interests and concerns of students and society, and addresses student needs for personal, social, and technical skills, while building on a value base that includes democracy, dignity, and diversity. He argues that most middle schools have not abandoned the subject-centered model of the high school, even those that employ block scheduling or other variations on traditional subject-based arrangements of time. Until these arrangements are abandoned, he argues, the curriculum in the middle schools cannot be reconceptualized into one based on the developmental needs and abilities of students, combined with society's values and expectations.

Discussions about changes in content and curricular structure are among the most difficult for educators. For this reason, few restructuring experiments address this area. In many instances, every variable except content is examined. Schools may reorganize or change time, governance, parental roles, uses of technology, or any of the other variables while assiduously avoiding changes that impact what teachers teach or how they teach it. Beane (1990), in reflecting on the difficulty of moving from subject-centered conceptualizations of curriculum in middle schools, states,

> While curriculum rethinking has had a limited place in the middle school movement generally, its place in actual middle schools is even more problematic. As we have seen, while particular cases of alternative forms have been reported from the schools, they hardly represent the usual case of practice. (p. 19)

He notes that the interdisciplinary teaching teams established in many middle schools do not necessarily lead to interdisciplinary curriculum organization:

> My own conversations with "team" teachers suggest that they spend the overwhelming majority of their time talking about individual student problems, disciplinary procedures, and logistical-administrative issues. While these are not unimportant topics, they are not central curriculum considerations. (p. 21)

Discussions of interdisciplinary curriculum are among the most common focal points for restructuring in the Central Variables. Interdisciplinary strategies allow for incremental movement away from the existing compartmentalized approach to learning, provide numerous opportunities for the use of higher-order thinking skills, and support varied methods of instruction in addition to traditional lecture-discussion techniques.

Jacobs (1989b) provides a detailed discussion of issues involved in the design and implementation of interdisciplinary curriculum. She describes a continuum of options for interdisciplinary curriculum design:

- *Discipline-Based Content Design.* Traditional structure; focuses on a strict interpretation of the disciplines with separate subjects in separate time blocks. No attempt at integration is made.
- *Parallel Discipline Design.* Teachers sequence their lessons to correspond to lessons in the same area in other disciplines.
- *Complementary Discipline Units or Courses.* Certain related disciplines are brought

together in a formal unit or course to investigate a theme or issue.

- *Interdisciplinary Units/Courses.* Periodic units or courses of study deliberately bring together the full range of disciplines in the school's curriculum. The units/courses employ a full array of discipline-based perspectives.
- *Integrated-Day Model.* A full-day program based primarily on themes and problems emerging from the child's world. The emphasis is on an organic approach to classroom life that focuses the curriculum on the child's interests and questions rather than on content determined by a school or state syllabus.
- *Complete Program.* Students live in the school environment and create the curriculum out of their day-to-day lives based on their experiences and interests, and the resources and experiences available in their environment. (Jacobs 1989a, pp. 14-18)

Various forms of interdisciplinary teaching are the first step many schools take in an attempt to restructure the curriculum. Whether these early experiments will be vehicles for the continuation of traditional discipline-based education in slightly altered form or will lead to long-lasting, fundamental reconceptualizations of knowledge, learning, and teaching still remains to be seen.

Instruction

Two issues are central to the reexamination of instructional techniques: (1) student motivation and (2) assumptions about the ability of all students to master high levels of material. Beyond these issues are two additional dimensions of instruction—methods and materials—where the implications of these issues are acted upon. Issues related to student motivation and ability will be discussed first; the implications for instructional methods and materials will then be considered.

Restructuring efforts have begun to acknowledge what many educators have known for years—that it is difficult to motivate students in the absence of unquestioning parental support for public schools; students cannot simply be told to do things because they will benefit from them "later." The result is that tasks must have more intrinsic meaning, value, and pleasure if they are to motivate students.

The Carnegie Foundation for the Advancement of Teaching (1990), in a survey of over 21,000 teachers nationally, found that 46 percent of secondary school teachers believed that student apathy toward school was a "serious problem" in their school. This was up from 30 percent in 1987. An additional 49 percent believed student apathy was "somewhat" of a problem, indicating that fully 95 percent of secondary teachers view student motivation as a concern. When presented with the statement "Students at my school want to do just enough to get by," 71 percent of elementary and secondary teachers combined agreed.

The survey found increases in teacher concerns about parental support as well. In 1987, 25 percent of secondary teachers felt that lack of parental support was a "serious problem." By 1990, the figure had risen to 32 percent. If one includes those who thought lack of parental support was "somewhat" of a problem, altogether 93 percent of teachers in 1990 expressed concerns about parental support. In the same survey, when asked to rate support conditions at their school, 63 percent of teachers indicated that parental support of teachers was either "fair" or "poor." Only 4 percent indicated it was "excellent."

Implicit assumptions regarding student ability to achieve are deeply rooted in American schools. Based on the acceptance of the "normal curve" as a reality, most instructional practices set about to confirm, rather than question, its existence. Other nations, most notably Japan, begin from the assumption that all children are capable of learning; achievement is more a function of effort than ability. This is reflected by an illiteracy rate of 0.7 percent in Japan, compared with 20 percent in the United States (White 1987).

> The difference between Western and Japanese concepts of effort and personal commitment needs to be understood if we want to explain how our respective children's goals and performances vary. Why, in short, is Johnny told to "do his best," whereas Taroo is exhorted to "keep on struggling" even after he has bested his own best previous efforts? In Japan pushing on,

> persisting, not giving up, are in themselves important, and show once again the significance of the way something is done as more important than the end accomplishment. (White 1987, p. 30)

The survey of American teachers conducted by the Carnegie Foundation for the Advancement of Teaching (1990) indicated that 39 percent of respondents agreed with the statement "Public schools cannot really expect to graduate more than about 75% of all students." This was nearly double the 21 percent who agreed with the statement in 1987.

Jeannie Oakes and Martin Lipton consider the issue of differential expectations for student achievement in their analysis of American schools:

> The best schools are those in which *all* children—not just a few—are believed to be capable, where all are offered rich learning opportunities, held to rigorous intellectual standards, and expected to succeed. (Oakes and Lipton 1990)

There are attempts under way throughout the nation to enhance student motivation and create environments where all students succeed. These programs tend to integrate material and emphasize its application in real-world settings.

The battle to shift from abstract, authority-based motivation strategies to intrinsic, interest-based approaches, and from exclusive to inclusive conceptions of student potential will be among the most important in education in the coming years. Clearly, without such reconceptualizations it will be extremely difficult for American teachers to escape profound feelings of frustration.

Assuming such changes in motivation and conceptions of ability begin to occur, what are the implications for traditional methods of instruction and materials used to achieve instructional goals?

The emerging definition of effective instruction is shifting from one based exclusively on *inputs* to one focused entirely on *outputs*. This rethinking of the goals and methods of instruction reflects a shift in the meaning of education. Chester Finn (1990) captures this shifting conception:

> Under the *old* conception..., education was thought of as process and system, effort and intention, investment and hope. To improve education meant to try harder, to engage in more activity, to magnify one's plans, to give people more services, and to become more efficient in delivering them.
>
> Under the *new* definition, now struggling to be born, education is the result achieved, the learning that takes root when the process has been effective. *Only* if the process succeeds and learning occurs will we say that *education* has happened. Absent evidence of such a result, there is no education—however many attempts have been made, resources deployed, or energies expended. (p. 586)

Under this definition of education, success must be assessed based upon what students are able to do that they would not be able to do in the absence of school. The emphasis is on the "value-added" that schools impart to students, not on the time spent in classes, the pupil-teacher ratios, or the number of books in the library. The focus is on the "result achieved," not the processes undertaken.

Restructuring experiments in the area of teaching methods have focused on moving the teacher from the role of conveyor of information to facilitator of learning, and on reducing teacher isolation. These are not easy transitions. Most teachers have developed their entire instructional repertoire based on the assumption that they will be in front of a class, by themselves, for extended periods of time. Many attempts are now under way to develop alternatives that humanize the interaction between teacher and student, that build instruction around the goals, needs, and interests of students, both individually and in groups. Restructuring, as applied to this variable, means discovering (sometimes rediscovering) methods of instruction that allow students to take the content and apply it in ways that cause them to remember and understand it better. Frequently this means the use of project-centered learning, cooperative learning, simulations, inquiry learning, debate, field experiences, and other techniques that involve the student more actively in the learning experience.

Instructional materials are changing along with methods. There is less reliance on textbooks,

which are often expensive, bland, instantly obsolete, and overly general and superficial. The funds previously spent on textbooks are being redirected to technology purchases. Technology will be discussed in a separate section, since many of the uses of technology are not necessarily instructional in nature.

As schools move away from excessive reliance on textbooks, they are placing a greater emphasis on project-centered learning. In this form of instruction, materials may take many different forms, depending on the needs of the project. Whether it is the more familiar science project, a play or video production, or a topographic map, projects require use of a greater range of instructional materials, including more source documents in areas such as social studies. As curriculum is integrated there are opportunities for students to use visual and auditory media, in addition to the written word, to express ideas and concepts. As art and music become linked to other disciplines, and to new technologies, many new and expressive forms of student work are emerging.

Finn (1990) describes what such a change in instructional materials might look like:

> The range of materials and mechanisms by which one can legitimately study and learn will expand hugely. Watching a film on your VCR, playing an audiotape on your headset, learning to use your computer more efficiently, enrolling in a seminar at the public library, attending a tutorial on Saturday morning, and reading a paperback from the supermarket may all constitute suitable means by which to pursue specified ends. (p. 592)

The scope of changes being contemplated in the area of instruction is as daunting as that being considered in the field of curriculum. Rethinking these areas will impact the culture of schools at a basic level. However, many schools have begun tackling various aspects of the problem with enthusiasm and creativity. For changes in these two areas to be possible, the third Central Variable, Assessment/Evaluation, must be addressed simultaneously.

Assessment/Evaluation

Since assessment and evaluation drive the instructional process by defining what learning outcomes are valued, it is critical to consider them as a central variable. What remains to be seen is whether the responsibility and strategies for assessment will remain basically a local matter, with varying degrees of state requirement, or will shift to the national level, with the development of national tests or performance measures (Rothman 1990b, Rothman 1990e).

The national education goals developed by the governors at President Bush's urging, were adopted in March 1990 by the National Governors' Association. These goals include several performance-based measures, including a goal that "by the year 2000, American students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography." ("Text of Statement on Education Goals Adopted by Governors" 1990). The governors go on to urge that "the National Assessment Governing Board...begin work to set national performance goals in the subject areas in which NAEP will be administered."

According to Finn (1990), this emphasis on outcomes signals a paradigm shift in education, from a system where success was measured by inputs to one where outputs are the only measures of success. Assessment results will become much more important in this environment and will need to go far beyond paper and pencil tests to measures that gauge performance more accurately.

Employers are signalling their interest in performance-based assessments of student skills. The national Center on Education and the Economy recently completed a report entitled *America's Choice: High Skills or Low Wages!* (Commission on the Skills of the American Work Force 1990) in which it concluded that the education that all students receive would lead them toward a "Certificate of Initial Mastery," certifying high levels of competence in math, English, and other job-related skill areas. The certificates would be granted only after students demonstrate skills through specific tasks.

At the same time, states and school districts are initiating attempts to develop assessment programs that support (or help bring about) restructured activities in classrooms.

For restructuring to succeed, learning must

be measured and assessed using techniques appropriate to the stated goals of the activity. Most current measures are inappropriate for the learning goals present in restructured curriculum. Many projects are being developed to provide assessment techniques more appropriate to these new goals. Most of these new techniques focus on performance or outcomes as key measures of student (and school) success (Rothman 1990d). In New York, for example, the state commissioner of education has recommended the creation of a state system that would evaluate students and schools on the basis of their performance by setting statewide goals and seeking new forms of assessment, including student portfolios. Graduation would be contingent on satisfactory performance on the twelfth-grade assessment, rather than completion of a set of prescribed courses or accumulation of credits. Schools would also receive rewards and sanctions based on student performance (Rothman 1990c).

As the debate over national versus state and local standards intensifies, many new assessment techniques are being developed and piloted throughout the nation. Vermont has embarked on one of the most ambitious large-scale attempts to transform assessment into an activity that enhances student learning, rather than merely measuring it (Rothman 1990a). Its new assessments in mathematics and writing use portfolios and examples of students' "best pieces" of work in addition to standardized achievement tests. The standardized test includes items from the National Assessment of Educational Progress to allow comparison with other states. The purpose is to provide parents and policymakers with broader gauges of student knowledge and skills than can be obtained from achievement tests alone. Rothman (1990a) describes the content and method of analysis for the portfolios:

> The writing portfolio is expected to contain a poem, play, or personal narration; a "personal response" to a cultural or sports event, book, mathematics problem, or current issue; and prose pieces from classes other than English and language arts.
>
> The materials will be evaluated on at least seven criteria, including the degree to which the organization suits the writer's purposes, the writing exhibits a sense of personal expression, and the use of detail adds to clarity, as well as evidence of progress over time and evidence of opportunities for students to revise their work. (p. 18)

Student demonstrations are another means of ascertaining student competency in certain skill areas. In this method, students must present a project, either individually or as a group, to a review panel who judge it according to predetermined criteria. The panel may be composed of educators and community members. Students receive feedback that compares their performance to real-world standards of quality, clarity, interest, and so forth. There is high motivation to produce a quality product, and assessment is an integral part of the learning experience, not something separate from it.

These three preceding variables, Curriculum, Instruction, and Assessment/Evaluation, represent both the most important and most difficult dimensions of restructuring; important because student learning is at the core of what schools do, difficult because, historically, changes aimed at altering teachers' behaviors have not been particularly successful.

Enabling and Supporting Variables

The next eight variables demonstrate the range of areas in which changes are being contemplated or undertaken in individual schools and districts. Several have been identified closely with the concept of restructuring.

It is important to note that these variables are one level removed from the classroom. While they may be necessary to support changes in curriculum, teaching, and assessment methods, they do not necessarily lead to changes in these central variables unless care has been taken to link them closely.

These variables are important areas to examine when comprehensive restructuring is contemplated. However, schools should avoid spending all their time dealing with these enabling variables, while never addressing the central variables related to conditions and practices in classrooms.

The eight variables are divided into two subgroups, Enabling Variables and Supporting Variables, each containing four variables.

Enabling Variables

Included in this category are Time, Technology, Learning Environment, and School-Community Relationships.

Time

There are numerous attempts under way to reconfigure the way time is structured in public schools. These range from reducing the number of class periods in the high school schedule, to extending the school day, to year-around school. The intent with most of these experiments is to support the types of changes in instruction described earlier. Problems occur when the changes in time are made without concomitant attention being paid to teachers' need for support as they attempt to adjust their instructional techniques to the new time configuration. Nothing would be worse than a move to three-hour blocks of time that resulted in 170-minute lectures.

One plan that has received considerable attention is the Copernican Plan (Carroll 1990). Designed for use at the high school level, it is centered around the idea of "macroclasses" of differing possible lengths, from 70 to 226 minutes. The plan includes the use of mastery-based credits instead of letter grades, differentiated diplomas, and "I-credits," awarded for successful participation in seminars. It emphasizes the integration of subject matter through seminars and a decrease in curriculum fragmentation as a result of a decrease in the number of different subjects a student is taking at any given time. Teachers would teach fewer classes each day, thereby reducing the number of different students with whom they interact. This should help improve students' sense of belonging and increase teachers' ability to meet the individual needs of more students. This, in turn, should lead to greater student success and increased motivation.

The summer vacation, a remnant from our agricultural past, has received closer scrutiny as pressures for increased instructional time have mounted. In the space of several months, six states initiated proposals to lengthen the school year. Maryland proposed the addition of twenty days to the school year; Virginia called for a new schedule to make better use of summer vacation time; New Jersey is investigating strategies for extending the school year; North Carolina, Missouri, and Georgia are examining the possibility of adding twenty days over a period of several years (Pipho 1990). Unfortunately, most experiments to lengthen the school year use the additional time to do more of the same kind of instruction. The key may be to use summer time for different activities than the regular school year. Pipho (1990) suggests creating a more entrepreneurial, market driven approach through the issuance of "summer vouchers" good for twenty days of activities or instruction:

> What would happen if state policy makers...mandated a 20-day longer school year, but gave parents a voucher to redeem when and where they could best accommodate the extra learning? Schools would be forced to rethink their summer offerings, other private and public agencies might be able to combine education and day care.... Better use of the summer could be the bold challenge needed to bring achievement levels up to par. (p. 24)

Gage (1990), discussing what he calls "radical approaches" to dealing with the dropout problem, offers the idea that, like college students, high school students need to be able to leave school before graduation, either on a permanent basis or with the idea of having a break from formal education for a period of time, without being disgraced or perceived as a failure. Jackson Toby cites practices in Sweden, where "it is acceptable for...secondary school students to withdraw from school for a semester to recuperate" (Toby 1989, see also Gage 1990). Hamilton (1986) contrasts the German model's extensive use of apprenticeships in over 400 occupations with the American approach, where non-college-bound males flounder for "two or more years working at low-level jobs in the secondary labor market, interspersed with periods of unemployment" as they seek to develop a trade or job-related skills (see Gage 1990).

School systems that reconceptualize time from a linear model beginning at kindergarten (or before) and extending unbroken through twelfth grade (and beyond), into one that allows students

to participate to greater or lesser degrees at different points in time, will create opportunities for more students to succeed, and to maintain their dignity and self-esteem as they undergo the transition from the world of school to the world of work.

Technology

The potential applications of technology are at once exciting and fraught with danger. Schools have not been in the forefront of technology utilization. In fact, of the more than 45 million people who learned how to use personal computers during the past decade, the vast majority acquired their knowledge from vendors, books, other users, and the computer itself (Perelman 1990). They are now confronted with a rapid metamorphosis of technologies from the computer alone to videodisks, CD-ROMs, fax, satellite, and video. Given that one of the central "businesses" of education is the organization and transmission of information, it is inevitable that these information technologies will find a role in the learning process.

Integrated Learning Systems

For some schools, the vision for technology is to move the fact-based, textbook-driven curriculum to a disk, allowing each student to move through this material individually on a computer, with the teacher monitoring on a central machine. These Integrated Learning Systems (ILS) or Integrated Instructional Systems (IIS) are developed by large corporations, many with ties to the textbook market. They are touted as tools for increasing teacher "productivity"; one teacher can monitor several students simultaneously. The curriculum is designed by the corporation based on its conception of what each age group "should know." It is a mastery-based approach, which can be very valuable for certain portions of the curriculum with certain students in certain situations. The danger is that, having made major investments in hardware and software for these centralized labs, there will be pressure to keep them occupied with students. They will come to drive the curriculum.

Programs that integrate math, English, social studies, and science already exist. Their emphasis is on the mastery of factual material at a knowledge and comprehension level. How much time students can spend at these learning stations before "productivity" declines remains to be seen. However, once this technology is purchased, the commitment to use the materials in their current form and for the goals specified is relatively irrevocable.

The appeal of the IIS is evident, particularly to local boards of education, whose members are frequently business people to whom the "efficiency" of such systems generally appeals.

Sherry (1990) suggests that the developers of IISs have begun to modify and improve their systems, based on earlier experiences:

> Most of the original IISs really weren't much more than systematically organized collections of drill-and-practice software. However, some of them began to change with the addition of tutorials as well as other features. And many of those early critics...had ignored their major strength: their management systems. (p. 118)

For IISs to be successful, Sherry (1990) suggests the following guidelines, based on a study for the Educational Products Information Exchange:

- Coordinate the school curriculum with the IIS curriculum. "In most schools little attempt is made to coordinate the students' IIS activities with the rest of their instructional day."
- Teachers must be given the time and training necessary to understand how to take advantage of the strengths and weaknesses of the IIS. "Data collected from schools now using IISs show that staff training has been grossly neglected."
- Choose an effective system manager. "The most effective IIS labs we visited were managed by imaginative teachers who were able to motivate students and to help the ones experiencing difficulty.... Despite some vendors' claims, schools with optimally used IISs have found, in most cases, that an IIS requires full-time professional management."
- Ensure there is active support from the principal and the school district.
- Beware of "hidden" ongoing costs. Who pays for staff training? Are there yearly "software licensing" fees, "updates," and maintenance contracts? What are the costs of constructing

> and maintaining the lab? How will computers be maintained? (pp. 119, 120)

The IIS can be a positive addition to a school system's repertoire of teaching techniques, but no new technology guarantees that new teaching methods will be employed. In Texas, where a videodisk-based science curriculum was approved, experts commented that the disks posed little threat to traditional texts; publishers were already developing tools through the use of bar-code technology that would relegate the videodisk to an accessory to the text, an extended set of visuals to accompany the textbook (West 1990b). Whether this technology will allow students (and teachers) greater control over the structure and content of curriculum and learning experiences remains to be seen.

A report issued by the International Society for Technology in Education emphasizes the integral role technology must play in the development of new curriculum (West 1990a). Its president, Gary Bitter, said, "Technology must be tightly woven into the curriculum, rather than being merely a supplement to the curriculum." The report, entitled "Vision: TEST (Technology Enriched Schools of Tomorrow)," recommends putting computers, telephones, and modems on every teacher's desk and in every teacher's home.

Restructuring Experiments

Technology can be a tool to liberate teacher and student from the confines of the text, the classroom, and the school. The best restructuring experiments put technology in the hands of teachers and students and let them play with it. It is too early to impose rules for the use of technology. There must be much more experimentation to see what its possibilities are. The most interesting restructuring projects do just that. The examples that follow briefly illustrate how some schools are proceeding.

The Anoka Senior High School in Anoka, Minnesota, uses its computer lab to link students with databases used by Minnesota state legislators. The students are charged with identifying policy-related problems and developing solutions. Students with differing cognitive styles work together in groups to develop policy recommendations. This collaborative dimension of the process emphasizes consensus building, communication skills, and problem-solving techniques. The students present their findings to the legislators at a special session.

The Juneau-Douglas High School in Alaska employs teleconferencing to share data on international health issues with students in the Soviet Union. This helps students see themselves as members of a global community.

T. DeWitt Taylor Middle School in Pierson, Florida, established an agriscience program. Since 90 percent of the world's leatherleaf ferns are grown locally, students used technology in combination with local human resources from the University of Florida to develop a fern research station. This opportunity to understand and apply scientific concepts in the real world helps boost student enrollment in science.

New multimedia technologies that combine visual information with sound, color, and full-motion video are just beginning to have an impact on education. Whether this technology will be dominated by large companies producing integrated multimedia "extravaganzas" or by teachers who create unique uses for their classrooms, schools, and districts, or some combination of the two, remains to be seen.

> Educators have known for years that students learn best when they are provided with multisensory experiences. Now that it is possible to combine realistic voice, music, text, graphics and video into a single interactive package, it's only natural that teachers and administrators should jump at the chance to provide this sort of multimedia experience to their students. (Salpeter 1990, p. 64ED)

The emergence of more powerful, effective network technologies holds great promise for education. Networks within schools, between and among schools worldwide, and those linking schools and homes will create ways for new practices, ideas, and information to be disseminated rapidly. Teachers will exchange information about students and teaching among themselves and with parents.

Grunwald (1990) illustrates how this information sharing might take place:

> Parents could check on homework assignments, classroom and school activities, cafeteria menus, and other information through text- or voice-

based systems. Local parent groups could communicate on-line and discuss and act on educational issues without leaving home. Communication between parents and teachers could also take place more efficiently than is the case with parent/teacher conferences. (p. 114)

Distance Learning

Distance learning systems, common in the form of two-way audio transmissions and one-way video transmissions, have been employed for some time in remote regions of the world. New technologies allow two-way interactive systems to be utilized by schools, both in rural and urban areas (Piele 1990).

In cities with cable television systems, schools are experimenting with full two-way interactive video between schools within the district through use of dedicated channels reserved by the cable system for public access or educational uses. In Ft. Collins, Colorado, the Poudre R-1 Schools have developed interactive video links between the district media center and two high schools that allow a course to be taught at one site but delivered interactively to the other two. A teacher at one high school can ask and answer questions from students at two other high schools. At the same time, this signal can be made available to all cable subscribers, if so desired.

Many states and school districts are acquiring the satellite receiving dishes necessary to participate in networks, such as TI-IN, which offers "over 140 hours per week of live, interactive high school credit courses, student enrichment viewing, staff development programs, and college credit courses" (De Freitas 1989, see also Piele 1990).

Piele (1990) contends that the use of distance learning, in a variety of applications grouped under the general heading of telecommunications, holds the greatest potential for reshaping education:

> The real technologically induced transformation of schools has already begun, not by the microcomputer, but by a technology structurally more powerful and, therefore, able to touch far more students' and teachers' lives than the microcomputer. The technical details and operation of this technology are virtually unknown to all but a small percentage of the population, but its applications are known, used and relied upon by nearly everyone: telecommunications. (p. 96)

The implementation of telecommunications technologies will not be without controversy, however. As currently employed in rural areas, these applications do not threaten teachers' jobs, since they are used to teach classes that could not otherwise be offered. What will happen where telecommunications are used in a way that threatens teacher employment? Piele (1990) sees two possible scenarios:

> Teacher unions (with strong collective bargaining traditions) can be expected to see distance learning technologies as a threat to job security and to resist their use across the board. Optionally, local teachers might equate access to and control over the distance learning technologies as a much needed source of workload reduction and status enhancement.
>
> Local teacher leaders could view the incorporation of distance learning technologies into daily classroom practice as an opportunity to gain recognition as a specialized and technologically advanced profession. (p. 103)

Whether the seemingly limitless potential of technology to restructure education will be employed to recreate a more "efficient" version of the schools that currently exist, or to reconceptualize both schools and schooling, remains an open question.

Learning Environment

For at least the last ninety years, the learning environment has been characterized by the single classroom with the single teacher working with an age-homogeneous group of students. All of these elements are being reexamined. Classrooms are being moved into the community, teachers are working in teams to instruct groups of students, and multiage groupings of students are being employed, particularly at the primary level. As changes occur in the central variables, the learning environment naturally changes as well.

Nickle and others (1990) provide a detailed description of how the development of a school-within-a-school helped benefit both students and

teachers. Students felt they were learning more because there was less pressure to cover a mass of material and because they had more opportunities to learn from each other. They also felt that material was better integrated and related to real life. It was easier to arrange field experiences, for example. The small size (eighty students, four teachers) made the atmosphere more personal. This personal environment and sense of identity created a sense of ownership within the students.

Teachers were challenged by the need to work together, after years of working in isolation. The development of common goals provided the screen that allowed them to examine proposed courses and activities to ensure that each teacher did not strike out on his or her own. The teachers developed "essential questions" that served as the focus for the curriculum. Examples of questions included What is food? Where does food come from? Why do we eat what we eat? Why does it make a difference what foods we choose? These questions were then examined from the perspective of various disciplines, such as science, social studies, and language arts. Teachers learned to draw upon each other's knowledge and expertise to develop curriculum to coincide with these questions. Students pursued answers through investigation, inquiry, and expression. The program developed over several years of trial and error before arriving at these techniques.

It is important to avoid the mistake of the early seventies, when the classroom walls came tumbling down and teachers had no idea what to do next. Suddenly, tall bookcases were in great demand. Changes in the learning environment must coincide with changes in curriculum and instruction, not precede them. Altering the physical structure of schools or changing the schedule will not in and of itself change schools.

Nickle and others (1990) describe the problems encountered when their school-within-a-school was expanded from 80 to 135 students, and from 4 to 8 teachers. With students and staff no longer choosing to come to the school, a whole new set of problems arose, from decreasing attention paid to students, increased dropout rate, and parents who did not subscribe to the basic mission of the school.

Timar (1989) illustrates this phenomenon in describing changes in four high schools in Jefferson County, Kentucky, that created schools-within-schools. In two of these schools, the "schools" consisted of the creation of "core" programs that grouped incoming ninth graders for English, math, social studies, and science. Four teachers worked with eighty students during four-hour blocks. Changes in the structure did not necessarily lead to changes in instruction. Teachers outside these programs did not necessarily understand much about them, leading to a lack of support for them.

Another promising practice is based on having a group of students and teachers remain together for more than one year. These multiage groupings allow teachers to get to know students and parents better, thereby reducing the time spent at the beginning of each school year becoming familiar with each child's strengths, weaknesses, and interests. This approach is particularly successful in communities where parental involvement is encouraged. Teachers learn more about the families and are able to develop closer relations between home and school.

School-Community Relationships

Restructuring efforts have led to a variety of attempts to affect the nature and extent of community involvement in education.

Increasingly, partnerships between schools and businesses signal a realization that for education to be successful it must become everybody's concern. Businesses and governmental agencies are working more closely with schools, providing resources in the form of employees who "adopt" a school, loaning executives who teach classes, as well as contributing materials and money. Businesses are creating more opportunities for student internships and apprenticeships. Some schools are also instituting a community service component to their graduation requirements. Districts are even entering into partnerships with businesses to build and run schools.

The Education Commission of the States (1988) offers the following advice to businesses interested in becoming involved with schools generally and restructuring specifically:

1. *Build a Coalition:* Unite business, government, local school leaders, the unions, parents, and community leaders; help these

groups to drop their individual agendas, develop a common vision for education, and translate the vision into an agenda for change.

2. *Understand the Issues:* Business leaders must become aware of the complexity of the issues involved in restructuring schools; they may, at the same time, promote a broader understanding of these issues throughout the community.
3. *Support the Development and Implementation of a Statewide Restructuring Initiative:* Instead of limiting involvement to one school, work to bring about changes at the state level by pressuring policy makers to support a new vision of education.
4. *Support Projects that Contribute to the Overall Restructuring Effort:* Be selective when getting involved in projects with individual schools to make certain the project furthers the vision of restructured schools. Encourage state-level initiatives in addition to school site projects.
5. *Advocate Change—Publicly, Frequently, Insistently:* Public schools are difficult to change; it will take sustained external pressure for fundamental changes to occur.
6. *Walk the Talk:* Can the corporation change any of its policies to help support restructuring? Can hiring practices, for example, take school performance into account? Can the corporation support involvement in schools by its employees who are parents by allowing greater flexibility? Can training and development programs be opened to educators?
7. *Monitor Results:* Ask hard questions; insist on high expectations and better results for *all* students; ask for evidence of change; keep change alive.

What Doesn't Work:

- More money *alone*.
- Turning around one school, but not the school system.
- Tinkering at the margin.
- No *single* change.
- More multiple-choice standardized tests.
- Efforts involving *only* educators and the education system. (pp. 3-4, 8-15)

The report notes that to restructure education is to invest in human resources, and that these human resources will be crucial to the success of business and society.

There is ample evidence that teacher effectiveness is much greater when parents value education and are involved in their child's education and school (Zeldin 1990). At the same time, there is evidence that parent involvement has been decreasing during the past thirty years. One of the challenges of restructuring is how to reengage parents. Many restructuring experiments seek to find ways for parents to become more involved with their children's education, and to extend some responsibility for aspects of education beyond the school to the entire community (Davies 1991).

Supporting Variables

The final group of four variables includes governance, which is most often mentioned when restructuring is discussed. It also includes working relationships among adults, personnel arrangements, and teacher leadership roles, categories that have also received a great deal of attention.

Governance

Site based management, or site-based decision-making, is the most prevalent example of this form of restructuring. It was introduced as the prerequisite, the basis for restructuring, in initial discussions about the need to achieve fundamental changes in the organization of schools. This approach came into vogue in large measure as a result of disappointing results of the state-level reforms adopted in the early eighties. The failure of these centralized approaches to reform led to the conclusion that if change could not be mandated centrally, it would have to occur in a decentralized manner. The goal policy makers hold for decentralized decision making continues to be educational reform and improvement, not the empowerment of teachers and parents for its own sake.

It is important to distinguish between site-based management, where authority is devolved to the school principal who may choose to involve others in decisions, and participatory decision making, where staff and community acquire formal decision-making responsibility.

Site-Based Management

The literature on site-based management is growing rapidly, and a comprehensive review of it will not be attempted here. For a more thorough discussion of the issues and literature surrounding site-based management, the reader is referred to Jane L. David's "Synthesis of Research on School-Based Management," appearing in the May 1989 issue of *Educational Leadership*.

Cawelti (1989) offers the following "key elements" of site-based management:

- Various degrees of site-based budgeting affording alternative uses of resources
- A team operation to expand the basis of decision making
- School-site advisory committees with key roles for parents and students at the high school level
- Increased authority for selecting personnel who are assigned to the school
- Ability to modify the school's curriculum to better serve their students
- Clear processes for seeking waivers from local or state regulations that restrict the flexibility of local staffs
- An expectation for an annual report on progress and school improvement (p. 46)

For school-site management to be implemented successfully, there are three critical components (Conley and Bacharach 1990). First, there must be a districtwide strategic plan for decentralization that is developed with participation of staff. Second, the goal of decentralization should be for teachers to be better able to identify problems and acquire the resources needed to address those problems. Third, the principal retains the role of making decisions regarding resource allocation and acts as an advocate for additional school resources.

The preceding recommendations indicate that participation in decision making for all affected groups should be one dimension of site-based management. The emphasis on broader based participation in decisions has led to a variety of structural responses.

School-based management councils are an example of one form of participatory decision making. Marburger (1985) describes the conditions under which such councils work best and concludes that the key element is trust, that boards and superintendents trust principals to share responsibility with such councils, and that the councils will make decisions that are in the best interests of students.

There are numerous examples of site-based management experiments throughout the nation, with many variations in the governance structure and the areas of responsibility associated with each (Smith and Piele 1989). Unfortunately, many avoid the central variables of learning; instead, they concentrate more on the working conditions of the adults in schools. Shulman observes,

> For too many people, restructuring has become an end in itself. They've lost sight of the fact that the purpose is not empowerment, but enablement, not to give teachers more power but the ability to respond more appropriately to kids. (Olson 1988, p. 7)

Perhaps more time is needed for these experiments to move their focus to the classroom. The prospect of fundamental changes in education being achieved through site-based management alone is not bright at the moment. Mark Tucker, of the Carnegie Forum on Education and the Economy, observes, "A lot of people have equated restructuring with site-based management or shared decision making. I think districts who follow that are headed for disaster" (O'Neil 1990, p. 9).

Schools of Choice

A second major initiative with implications for governance is the movement toward schools of choice. While choice may be seen as a strategy to address changes in the central variables (and may be one of the best ways to achieve the sort of fundamental changes in instruction suggested), there is a distinct dimension of the movement toward choice that is concerned with governance issues. In particular, it is seen as a tool for neutralizing the power of school bureaucracies, a means to allow parents to influence or control the type of instruction their children receive, and a way to make schools more accountable for student learning.

Schools of choice cannot be, or at least have not been, developed solely by bureaucratic fiat or

dictate. They are based on the vision of an individual or group of individuals—a vision that is different from the existing educational program in some substantive way. Such programs require the buy-in by parents and staff of the vision, or purpose. This requirement generally results in different governance structures, usually designed to create greater involvement in decision making and goal setting.

When choice is employed in school districts, it tends to take one of several forms—alternative schools, magnet schools, schools-within-schools, and open enrollment schemes. Vouchers, much discussed, have not yet emerged in a form that allows their impact to be assessed.

The goals of choice in public schools have been diverse. Nathan (1987) lists the following goals:

- Reduce dropouts.
- Increase student achievement and appreciation of learning.
- Improve parental involvement and satisfaction.
- Encourage racial and economic integration.
- Provide extra challenge for students dissatisfied with the conventional program.
- Raise the morale of educators who were allowed to create distinctive programs from which families can choose. (p. 747)

Chubb and Moe (1990) argue that market forces must be allowed to shape schools to a greater degree. "We believe that the fundamental causes of poor academic performance are not to be found in the school, but rather in the institutions by which the schools have been traditionally governed" (Chubb and Moe 1991).

They identify three basic issues: the relationship between school organization and student achievement, the conditions that promote or inhibit desirable forms of organization, and how these conditions are affected by their institutional settings. The key to making schools effective lies in "unleashing the productive potential already present in the schools and their personnel" (Chubb and Moe 1991). This is achieved by freeing schools from external control to the maximum degree possible.

Theirs is not simply an argument for site-based management in public schools, however. The forces of bureaucracy are too strong within any public educational system, they contend. The pressure of the marketplace is the only way to guarantee freedom from stifling bureaucracy. "The system [must be] built on decentralization, competition, and choice" (Chubb and Moe1991).

They propose that states create "a new system of public education based on the market principles of parental choice and school competition, with the following properties":

- The state sets minimum criteria and charters any group that can meet the minimum criteria.
- The state will monitor enrollment and distribute public monies accordingly.
- The system of school finance will continue to be determined and controlled by the state.
- Scholarships will be available for at-risk students to make them attractive clients.
- Each student can attend any chartered school, with state funding following the student.
- Every effort will be made to provide tax-supported transportation to all students who need it.
- The state will provide a Parent Information Center to help parents choose among schools.
- The application process to schools must be equitable.
- Each school must have complete autonomy to determine its governance structure and internal organizational structure.
- The state will hold schools accountable for meeting the criteria set out in their charters, and for adherence to applicable laws.
- The state will not hold schools accountable for student achievement or other dimensions that call for assessments of the quality of school performance. This is the function of the market place. (Chubb and Moe 1991, pp. 22, 25)

Chubb and Moe's work is notable in part because it was developed at a traditionally liberal think tank and is being read and discussed by many business and governmental leaders.

While there has been considerable legislative action to encourage increased choice (Nathan 1987), there has not been a concomitant amount of activity at the level of school districts. Open enrollment programs, one of the major forms of

state-level choice, have not yielded student movement. There have been few experiments to date with substantially different choices within a school district, outside of some urban areas with magnet schools and a limited number of systems with "alternative" schools.

Choice remains a largely unexplored avenue for school restructuring. Since its implementation frequently causes severe dislocation within the traditional educational system, it is rarely employed as an option, except in the most limited and controlled forms.

Nathan (1987) believes that demands for educational choice will not recede in the immediate future:

> Three trends are clear: 1) policy makers will show more interest in expanding choice among public schools; 2) regardless of what legislatures do, educational options will increase for affluent families; and 3) part of the pressure for expanding options will come from parents, business people, and others outside education. (p. 751)

Governance issues will continue to be discussed and argued, particularly by policy makers who have the capacity to change such arrangements. For changes in governance mechanisms to have long-term impact and viability, they must lead to increased student learning outcomes. They are not intended as ends in and of themselves. It is interesting to conjecture upon where we will look for solutions if both top-down and bottom-up attempts at reforming public education fail.

Working Relationships

This category includes the ways in which educators arrange their formal working relationships through such mechanisms as contracts, collective bargaining, unions, and associations. There are many concrete examples of school districts working on alternative forms of working relationships (Lewis 1989, Rauth 1990, Smith and others 1990, Watts and McClure 1990). The current trend does not suggest replacing collective bargaining, but acknowledging its limitations. However, this realization is leading to the exploration of numerous strategies that are redefining working relationships in ways that parallel changing labor relations in the industrial sector.

Smith and others (1990) use the term *collaborative bargaining* to describe a variety of experiments that seek to move beyond the limits of traditional collective bargaining. "Collaborative bargaining is not an alternative *to* collective bargaining, but rather is an alternative *form* of collective bargaining," they say. Its use as an important tool in school reform is becoming recognized:

> Some districts, particularly those in big cities, are finding that collaboration is not only a worthwhile end in itself, but an extraordinarily effective means to achieve a higher end: school reform. The district and union leaders in these cities are using collaborative bargaining as a vehicle to initiate school-based management, mentor teacher programs, performance accountability mechanisms, and other reforms. (Smith and others 1990, p. 4)

Rauth (1990) traces the origins of this reexamination of the traditional trade union view of teacher-administrator-board relations that collective bargaining embodies to the Toledo Intern-Intervention Program. This program, the first of its kind when it was written into a contract in 1981, mandated teacher involvement in the evaluation and improvement of their peers. It captured the emerging issues of increasing teacher professionalism and control over working conditions.

Most attempts to establish new working relationships are based on this desire to gain greater control over working conditions and to emphasize the professionalism of teachers. This is being undertaken, at least in part, out of a realization that the major gains to be made through collective bargaining and the trade union model have already been achieved. McDonnell and Pascal (1988) determined that "with relatively few exceptions, the improvements in working conditions teacher unions had attained by 1975 were not enhanced in the 1980 and 1985 contracts" (pp. v, vi; see also Rauth 1990).

Some examples of initial attempts to redefine problem-solving strategies and working relationships in the collective bargaining arena include the offer by the Pittsburgh teacher's union to reopen negotiations a year early to allow money issues to be settled before addressing a second agenda containing issues such as

professionalizing teaching and improving education.

One outcome was the creation of the Teacher Professionalization Project, which called for the formation of joint union/management committees charged with developing recommendations on many issues that had not necessarily been addressed during the negotiating process. When appropriate, the results of the work of these committees were incorporated into the contract. This process of "collaborative bargaining" has proven to be a powerful tool to address issues of educational reform, particularly those related to shared governance.

The process puts stress on the union leadership as well. Its members, long accustomed to the union's adversarial relationship with management, can feel abandoned if administrators undermine or renege on reforms. In Dade County, Florida, joint labor/management technical assistance teams exist to review breakdowns in the process. However, even the existence of mechanisms such as this are not enough for a "win/win" bargaining philosophy to succeed. Pat Tornillo, president of the Dade County Federation of Teachers, notes:

> The attitude and training of union staff must be changed from that of confrontation to collaboration. In reality, many of the same skills are involved, such as how to persuade and reach consensus. Additional skills are required because, in order to help teachers in the shared-decision-making process, the staff must understand the process. (Rauth 1990, p. 784)

Unions are realizing that movement to decentralized decision making drives changes in their roles as well. Adam Urbanski, president of the Rochester Teacher's Association, another district involved in alternative forms of bargaining, observes:

> If site-based management and shared decision making are taken to their logical conclusions, groups of teachers may negotiate their own environment on an ongoing basis. The union, like the central office, would become a resource. There is no reason the union should not be held to the same standard as the administration. (Rauth 1990, p. 788)

Hammond, Indiana, has allowed individual schools to depart from the contract since 1981, under condition that shared decision making be employed. They have built upon this foundation by negotiating an eleven-year "Living Contract." This document provides the basic outlines of working relationships and can be modified at any time during the eleven years through a sixty-day "reopener clause." This will allow issues to be dealt with as the need arises and will help avoid the type of "trading" of issues that is one of the hallmarks of the traditional negotiating process. This will also help alleviate the time compression that occurs during marathon bargaining sessions, where fatigue rather than judgment becomes the criterion for agreement on issues.

Pat O'Rourke, president of the Hammond Federation of Teachers, hopes to see the process become institutionalized so that the day arrives when contracts no longer have to be ratified. They will simply exist and be amended automatically as staff engage in continuous exploration of issues and collaborative problem-solving.

The success of collaborative, or "win/win," approaches is not limited to districts with a history of positive labor relations. On the contrary, the techniques have had the most dramatic success in those districts "stuck" in traditional models of bargaining. Often both sides have refined their strategies to the point where they are prepared and even comfortable engaging in an adversarial process. In Albuquerque, New Mexico, when, in 1986, they adopted win/win techniques, "It was like a dam burst," said Dan Whatley, the local union president. "Win/win bargaining produced discussions and solved contract language problems that had been on the table for years.... Looking back, I don't know why we didn't do this before. We spent 10 years unproductively" (Rauth 1990).

In California, the Policy Analysis for California Education is sponsoring a pilot program with twelve districts that have entered into Educational Policy Trust Agreements. These agreements were put into place to develop new forms of school organization and new working relationships among teachers and administrators, and to move discussions from procedural work rules to issues central to educational policy (Smith and others 1990).

These agreements are not developed as alternatives to collective bargaining but as means

to allow more innovation in districts and to deal with issues that do not fit well in the collective bargaining arena.

This reexamination of relationships is driven by many forces, but one of the most important is an emerging emphasis on teacher professionalism. Support for this concept is coming from teachers, union leaders, and policy makers. It goes hand in hand with site-based decision making, and a general sense that the role of teachers as decision makers must be enhanced and supported. It remains to be seen if these forms of power sharing will lead ultimately to changes in classrooms and improved outcomes for learners.

Personnel

Our current model for staffing schools utilizes certificated teachers almost exclusively. Currently, there is a wide gap in training, responsibilities, and pay between professional and paraprofessional staff. Because of this discrepancy, the typical response to most problems in education—hiring additional certificated teachers—is proving to be unworkable fiscally and not always effective programmatically.

Districts are beginning to experiment with the creation of positions below teacher (intern teacher, for example) and of paraprofessional positions that require more training and responsibility than instructional aides. This additional differentiation of staffing offers hope of creating more combinations of adults to work with students. Schools are experimenting with teams of professional and paraprofessional staff working with larger groups of students in a collaborative manner. Such arrangements are making it possible for six or seven adults to work with 100 students, reducing student-adult ratios, and creating more opportunities for students to feel valued as individuals.

Similarly, moves are underway to integrate special education and pullout programs such as Chapter 1 into "regular" classroom environments. When staff associated with these programs is integrated as well, many opportunities for grouping and regrouping students are created, and students have a greater number of adults with whom to interact.

Many communities are utilizing parent volunteers more extensively and involving them in instruction. As schools acquire new technology, it is often parents who provide the training and assistance to help staff integrate the technology into the instructional program. Examples include parents who run a "publishing center" at an elementary school or those who help students operate computers in the evenings.

There have been few attempts to reshape personnel structures. This is a variable with great untapped potential. If developed properly, alternative personnel structures may allow teachers to assume the role of coach, to receive increased pay, and to reduce the ratio of adults to students simultaneously. For this to occur, there will ultimately be fewer certified teachers in schools, with greater responsibility and remuneration, and more adults with less specialized training and authority.

Given the increasing availability of workers who prefer to work less than full-time or who wish to work with children but do not want to enroll in education training programs, the role of parateacher offers a way for many skilled individuals to become part of the public school system. If the goal is to have education remain labor-intensive and at the same time have high-quality adults, alternatives to the two-tiered system of certified teacher and classified aides will have to be examined, as they have in medicine and law during the past thirty years.

Teacher Leadership

The term *teacher leadership* has been heard with increasing frequency during the past five years. It reflects a broad array of changes being contemplated, or undertaken, that expand teacher career opportunities for those who choose to remain in the classroom and provide new roles for those who are interested in pursuing out-of-classroom alternatives.

Many new roles for teachers are being created, most notably mentor and lead teachers. States have developed mentor programs to capitalize on the expertise of experienced teachers and to expand their influence on practice. These programs have focused on beginning teachers, for the most part, though this focus is being reexamined.

Little (in press) details the limits of the first

wave of state-level programs of teacher mentors. She notes that they often violated longstanding norms of equality present among teachers and were fraught with other problems, as well:

- The proliferation of mentoring programs comes not from teacher interest, but from policy-makers.
- In local schools, mentors fulfill three basic functions: guiding beginning teachers during a period of induction; serving as a local cadre of staff developers or teacher consultants; leading or supporting program and curriculum development ventures.
- Selection is problematic, since it involves defining what an effective teacher is and labeling someone as more effective than his or her peers, creating status differentials. The ability of mentors to communicate or their "disposition toward sharing ideas and materials, assisting others, or taking initiative" (p. 16) are not taken into account.
- Districts or states rarely consider whether newly proposed roles are compatible or in conflict with existing leadership opportunities (p. 20).
- Ambiguity and conflict surrounding role definition have been greatest where mentor roles remain unlinked to any larger picture, where norms are unfavorable to professional growth or career mobility, and where teachers have been left to "invent their roles as they went along" (p. 22).
- Looking to the traditions of teaching and preferences of teachers, however, formal mentorship may constitute a case of "contrived collegiality" in pursuit of institutional purposes to which teachers may or may not subscribe (p. 34). "We can anticipate that threats to teachers' self-esteem are alleviated when the helping relation with mentors stems from legitimately difficult circumstances rather than from personal inadequacy, when it permits or even requires a degree of reciprocity, when it adequately preserves the teacher's freedom to act, and when it demonstrably contributes to the teacher's success and satisfaction" (p. 37).
- Genuine mentoring is more widespread under conditions of high interdependence, where each person bears the consequences of others' success or failure (p. 39).
- The attempt in teacher induction to achieve match-making through formal assignment appears to fail at least as often as it succeeds. It founders on its inability to produce genuine interdependence where it does not exist in the larger system and on its inattention to local professional norms (p. 42).
- Mentoring is being offered as the preferred mode of dealing with teacher induction, excluding examination of options such as reduced workload, peer group support, and formally structured staff development (p. 43).
- Retention, not advancement, is the stated institutional aim of formal mentoring among teachers (p. 46).
- Mentoring appears to reinforce commitment to teaching where it already exists, but does not necessarily reduce disappointment or disillusionment where it exists, or dissuade teachers from leaving the profession (p. 51).
- There is evidence that each teacher leadership position is firmly rooted in its own context, and that context is critically important to the success of the role (p. 55).

A great deal has been learned from these initial attempts at introducing this role into schools. More recently, the concept of lead teacher has emerged as a mechanism for institutionalizing teacher control over decision making and as a strategy for reducing (or not increasing) the number of administrators in a building. Berry and Ginsberg (1990) conclude that lead teachers can be significant forces in:

1. defining what good teaching is
2. establishing standards by which to assess the quality of teaching
3. helping to enforce those standards (p. 620)

Rochester, New York, has been experimenting with a lead teacher role that allows teachers to move up on the salary schedule into the range of most administrators and still remain in the classroom for significant amounts of time. Teachers are responsible for working as mentors, consulting on textbook selection, writing curriculum, planning staff development programs, and serving as demonstration teachers, charged with modeling effective teaching techniques (Urbanski

1990).

Devaney (1987) believes that the position of lead teacher should be an "empty socket" that can be adapted and developed based on the needs and culture of each individual school. This encourages the total school community to be involved in the definition of the position and helps ensure its acceptance.

These conceptions of the lead teacher emphasize leadership in curricular and instructional areas, not in the supervision of colleagues. As trends in instruction and school-based management converge, there will be increasing interest in and pressure to augment the instructional aspects of leadership with other dimensions such as supervision. How this new role ends up being conceived and structured will tend to define the new teacher roles and relationships that will emerge from the restructuring movement.

Secondary schools in particular are looking beyond the traditional labels of department head, assistant principal, and even principal, toward a new array of leadership roles for staff.

David (1989) provides a summary of examples of new teacher roles in some of the early districts attempting restructuring. These include:

- Staff members at Jefferson County's (Kentucky) Gheens Professional Development Academy who work with teachers and principals to help them meet their professional development needs
- Schools-within-schools managed by teachers
- More extensive use of mentor and lead teachers to assist teachers, direct district-level teacher education centers, and manage satellite learning centers located at parents' workplaces

Smith and Scott (1990), in their summary of current trends and issues relative to collaboration within schools, emphasize the emerging leadership roles for teachers, both in school improvement and governance. Teachers are spending more time on school improvement teams, are engaging in cooperative professional development, are involved in peer observation and coaching, and are serving as members of teacher support teams to provide systematic support to individual teachers; all these are roles and activities in which few, if any, teachers were involved as recently as fifteen years ago.

The proliferation of teacher roles and the increasing professionalization of teaching have gained increasing attention during the past ten years. Although they are not yet rooted or institutionalized in the majority of districts nationally, it appears that, over time, more roles and responsibilities will be open to teachers. This change will lead to an examination of the norms associated with the role of teacher. As new norms develop, so, too, will new roles and expectations. This may be the beginning of an extended evolution of the definition of *teacher*.

Summary

It appears that attempts at restructuring can be loosely grouped into first-order and second-order strategies. First-order approaches generally involve going outside the system and constructing a school "from the ground up." This strategy allows the existing bureaucracy and institutional norms to be circumvented, and it means staff members want to be there. These schools are generally organized around a vision or theme that defines and focuses them.

Second-order schools, far more numerous, are attempting through incremental change to remake or reshape the existing institution of public education. They are attempting to "rebuild the airplane while it is in flight," as Philip Schlechty (1990) describes it.

Many of these second-order activities and strategies may not seem to suggest profound change, and, in fact, it remains to be seen whether this strategy can or will lead to fundamental changes in schools as organizations and to improved student learning outcomes. These approaches, blossoming throughout the nation, are currently the response of choice for most schools as they attempt restructuring. Given the conservative nature of the American educational system, the difficulties in changing it, and the lack of parental demand for fundamental change, it is not surprising that most schools are pursuing second-order change strategies.

The results of this burst of creativity are just beginning to be visible. Schools throughout the nation are looking for sites to visit to see new

approaches in operation. The eleven dimensions discussed in this paper illustrate the diversity of approaches being undertaken as the American educational system attempts to remake itself for reasons and toward ends that may not yet be clear to all constituent groups.

Conclusion: Three Possible Scenarios for the Future of Public Education

Given previous responses by public education to calls for basic change, it is likely that restructuring will lead to one of three possible scenarios: Continued Mediocrity, Incremental Change and Improvement, or Restructuring. Each will be discussed briefly.

Continued Mediocrity

Public education has proved to be remarkably resilient and resistant to change at the classroom level during the past eighty years. Perhaps restructuring will be successfully "resisted" by professional educators in alliance with those parents whose children are the current "winners" in public schools. In this case, it is entirely likely that the impetus to move toward a voucher system of some sort will increase. Additionally, entrepreneurs will establish more single-purpose educational businesses that address particular shortcomings of public school education. Rapidly emerging information technologies will hasten the process.

In this environment the role of public schools will continue to contract, with an emphasis on custodial care and basic skill instruction. It can be anticipated that funding will remain static or decrease. It is unlikely that communities will significantly increase resources to an institution that is doing less, not more. This could lead to a "vicious circle" of lower expectations and decreasing funding. In the next twenty years, this could result in the demise of public schools as we have known them.

Incremental Change and Improvement

In this scenario, public schools address the most grievous of their current shortcomings. This may result in a modest increase in reading, writing, and mathematics skills as measured in ways that relate to real-world tasks, an increase in teacher and parent participation in decision making, a contraction of the "shopping mall high school" curriculum (with a reshaping of vocational offerings in particular), a redefinition of the role of counselor from academic manager to social service liaison and personal crisis specialist, some increase in internships for the non-college-bound, limited experimentation with integration of curriculum mainly as elective offerings, and the "taming of technology," such that its use does not alter traditional teacher-student and teacher-teacher relationships. New educational jargon will develop, signalling to parents and business leaders that change has occurred.

In many ways, this is perhaps the most likely scenario, given the conserving nature of public education. Perhaps this sort of piecemeal response will be adequate. Perhaps it will provide a safe transition for many who will then be ready to examine more fundamental changes. Or perhaps it will absorb all the energy for change available in the system, and, after a burst of reform, schools will sink exhausted into their "retooled" model, only to realize in five to ten years that they are again out of step with societal priorities and needs.

Restructuring

This scenario can be expected to be played out in a smaller proportion of schools, at least for the next several years. Given the tendency of educators to look around to see what others are doing (DiMaggio and Powell 1983), the emergence of the lighthouse "restructured" schools will be an important step in the evolution of

school reform in the mid- to late-1990s. It is difficult to see how these schools or districts will overcome the entrenched bureaucratic and organizational forces arrayed against them. Since most restructured schools ask more, not less, of the adults associated with them, it requires a belief in the school's mission and vision of education to sustain it until its practices are institutionalized. Even then, there will be a need to re-examine and challenge these new practices regularly once they are institutionalized. This is a daunting prospect for an institution where unbolting the chairs from the floors was one of its major advancements in an eighty-year span.

What will restructured schools look like? More and more, what they will look like will be determined by the needs of their students and communities. The "McDonald's" model of education, where one could walk into a classroom anywhere in the nation and see more or less the same thing occurring, will be replaced by the "salad bar" model, where many of the components may be similar, many "garnishes" will be present, and there will be great variation in how they are combined.

Where Next?

The next few years will be exciting ones. Schools will continue to experiment in all the eleven areas described previously. There will be successes and failures. There will be excitement, sharing, and adapting of one another's ideas. In five to seven years, it is unlikely that schools will look the same as they do today, and certainly not in ten years.

This has been said of education before. The difference this time is that the world around us has changed, and expectations for schools have changed profoundly, fundamentally, and irreversibly. The implications of this shift are only now becoming clear to those in education. Change, in this environment, is not optional, nor even necessarily debatable. It is, and will continue to be, a simple fact of life. The world will change. Schools will change. Some schools will move to exert more control over this process than others, but in the end all will change.

The overview of restructuring presented here is a "road map" of sorts, a view toward where we are headed and the places where changes are likely to take place in our schools. It is clear that it is a journey that has barely begun.

Appendix: Where to Look for More Information on Restructuring

A number of national organizations are sponsoring or encouraging restructuring efforts in selected school districts throughout the nation, and they are making information about these activities available to others in education.

The American Federation of Teachers has created the **Center for Restructuring** with the purpose of critically examining the assumptions upon which traditional schools have been based. The Center publishes a bimonthly newsletter with highlights of programs, research, and activities related to school restructuring. The Center can be contacted at: AFT Center for Restructuring, 555 New Jersey Ave., N.W. Washington, DC 20001; (202) 879-4461.

The Association for Supervision and Curriculum Development sponsors the **Consortium on Restructuring**. Beginning with eighteen schools nationally, the consortium seeks to restructure governance, organization, and curriculum. Participating schools will develop, implement, and evaluate a school-based restructuring plan. Information can be obtained from: ASCD Field Services, 1250 N. Pitt Street, Alexandria, VA 22314-1403; (703) 549-9110.

The **Coalition of Essential Schools** is a collaborative effort among fifty-six secondary schools trying to redesign the way they operate. The coalition is based on nine principles explained earlier in this article. Theodore Sizer, the founder of the coalition, believes in "student as worker" and "less is more"; that students should learn fewer subjects in greater depth. The coalition publishes a newsletter, *Horace*, that describes activities at coalition schools. More information can be obtained from: Coalition of Essential Schools, Brown University, Education Department, Box 1938, Providence, RI 02912; (401) 863-3384.

The **Re:Learning** project is a joint collaboration among the Education Commission for the States, the Coalition for Essential Schools, and participating states. It is intended to improve student learning by redesigning a state's education system "from the school house to the state house." For more information, contact: Beverly Anderson, Education Commission for the States, 1860 Lincoln St., Suite 300, Denver, CO 80295; (303) 830-3631.

The **National Association of State Boards of Education** is sponsoring a school improvement project in the school districts of Santa Fe, Tatum, and Zuni, New Mexico, to examine the impact of state policy on restructuring efforts at the school level. It is also working with the Seattle schools to alter the structure of middle schools. For further information, contact: National Association of State Boards of Education, 1012 Cameron St., Alexandria, VA 22314; (703) 684-4000.

The National Governors' Association's **Restructuring Schools Project** assists states in redesigning their school systems based on recommendations from the NGA report, *Time for Results: The Governor's' 1991 Report on Education* (1986), and the Carnegie Forum on Education and the Economy report, *A Nation Prepared: Teachers for the 21st Century*(1986). The Carnegie Corporation has provided more than $1.5 million, which, along with matching grants from states, has been used to develop projects that help rethink the role of teachers and administrators, redesign accountability systems, and help states sponsor or encourage school innovation. For more information and a list of publications on restructuring available from the NGA, contact: NGA, 444 North Capitol St., Washington, D.C.

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