



Tech-Letter

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Today's Education Of Tomorrow's Workers: A Risk Management Perspective

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Introduction

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It is almost a truism that the primary and secondary educational systems of the United States are not meeting the 21st Century academically competent needs of students. In New York City, for example, the City University of New York (CUNY) has to provide several semesters of remedial education to incoming students. CUNY has "open admissions," which means that any graduate of a New York City high school will be admitted to a college. However, "only 13 percent of CUNY community college students pass three basic-skills tests measuring 11th grade proficiency, and only 1 percent of the students graduate within two years." (Sandham, 1998, p. 17). These remedial courses include basic algebra and English composition. Many observers, including New York City Mayor Rudolph Giuliani, see this statistic as not only an indictment of the CUNY system, but proof of the poor quality of primary and secondary public education.

The American Federation of Teachers (AFT) also decries the falling standards of American public education. The AFT position paper on standards reports:

In one extreme case, when Adele Jones, Delaware teacher, failed a large number of the students in her algebra class, the

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school district tried to fire her. Nearly one third of AFT teachers report feeling pressure to give higher grades than students' work deserves. Nearly half (46%) say they have experienced pressure to pass along to the next grade students who are not ready.

When every teacher sets his or her own standards, those standards appear idiosyncratic and are therefore negotiable to students. Moreover, students will often regard more demanding teachers as gratuitously mean. Teachers are left to expend valuable time and energy swimming against the cultural tide, with no institutional support, trying to cajole students to meet high standards. (AFT Executive Council, 1996, p.5).

The AFT contends that calling for and implementing higher standards will relieve the effects of the failure of education. However, even after 15 years of trying "to improve public schools and raise student achievement, most states are mired in mediocrity," according to a comprehensive report published by Education Week. The report, Quality Counts, ranks the nation's states on categories such as standards and assessments, the quality of teaching, school climate, resources and student achievement. In each area (with NAEP scores on students' achievement), states earned most C's" (AFT, 1997, P 1)

According to the 1993 National Adult Literacy Survey (NALS), surprisingly large numbers of two- and four-year college graduates are unable, in everyday situations, to use basic skills involving reading, writing, computation, and elementary problem solving (NALS, 1993, p. 10). In the area of quantitative skills, for example, 56.3 percent of American-born, four-year college graduates are unable to consistently perform simple task, such as calculating the change from \$3 after buying a 60 cent bowl of soup and a \$1.95 sandwich (NALS, 1993, p.11)

Without basic problem-solving skills, the far more complex needs of the business and industrial environment cannot be effectively met by today's graduating classes. It is not surprising that many corporations reimburse tuition for their employees who seek to further their education and also institute in-house training and education. A larger number of CEOs and other business officials have explained that their own firms now have to take up the education baton. At the 1996 National Education Summit, three prominent business leaders expressed their concern:

"The bottom line is that unless we improve the skills of our young people, it will become increasingly difficult to remain competitive in a global market-place," said Robert F. Allen, chairman and CEO of AT&T.

"If we do not raise standards and expectations, then we must accept whatever comes out of the system, and right now we're seeing a continued decline in the achievement of U.S. kids versus kids overseas," said Frank Shrontz, chairman and CEO of The Boeing Company.

In his keynote address, IBM's Gerstner called setting high standards for our children "the starting point for change" and pointed to "overwhelming support for standards from virtually every demographic segment of American society." (NES, 1996, p.4).

The lack of basic problem solving schools among today's primary and secondary school students suggests that one of the major difficulties, the American business community has, is finding and training competent employees in risk and safety management. Risk management is a discipline for living with the possibility that future events may cause adverse effects. Safety management is a more specific form of risk management in which workplace and storage space safety is controlled through the reduction of risk creation within business processes. In both risk and safety management, employees and management need to:

- Assess continuously what can go wrong (risks).
- Determine what risks are important to deal with.
- Implement strategies to deal with those risks. (SEI, 1998, p.2)

The Business Response

Over the past decade, there has been a greater movement by business into the public education system. Michigan Business Leaders for Education Excellence (MBLEE), for example, has introduced a number of recommendations and a workbook for use by business leaders and schools in implementing these recommendations. Most important in the MBLEE recommendations is the expansion of the perception of "stakeholders" in the educational system to include the business community and the citizenry at large, in addition to the traditional stakeholders: parents, teachers, and students.

MBLEE hopes to "encourage local school/business initiatives that communicate to citizens an inspiring and coherent vision of what comprises a high-quality education. MBLEE's Keep the Promise, Michigan campaign and this workbook for Michigan business leaders could serve as models." (<http://www.michamber.com/foundation/workbook/gap.html>, 1998, p. 18).

There are other initiatives from the business community as well, many of them charitable in nature:

In an unusual collaborative effort, three major local companies, AT&T, Citibank and IBM, detailed plans today for investing \$250,000 in projects to improve the quality and increase the supply of child care resources in the St. Louis area.

The companies initially are funding five major initiatives ranging from increasing the number of local child care centers offering extended hour care to an innovative "summer of service" program for middle school youngsters.

The initiatives are part of the American Business Collaboration for Quality Dependent Care, a national effort to invest more than \$100 million in dependent care programs in

68 communities across the country over the next four years. (Work/Family Directions, 1998, p.1).

This example, while demonstrating the capability, concern and interest of the business community in involving itself with public education, also shows some of the limits of the current forms of interventions. As stated above, when graduates of American high schools, and even colleges, cannot perform basic mathematics, they certainly will not be able to perform cost/benefit analysis, risk management assessments and safety management plans.

Those relatively few employees with technical and problem solving skills may have to design more and more complex machines, production processes and control processes. The current safety programs (policies and procedures) very well may be compromised in the future when the current crop of primary school students comes of working age. Therefore, firms will need to depend on more controlling forces upon the workers to assure a safe work place. In other words, more technology and design engineering for the worker who may not necessarily possess good problem solving skills. The machines will have to think for them.

This potential future is clearly not an encouraging one. In a global economy, firms have to be more flexible in their processes. Other industrial nations often look to their employees to work in "productivity circles" and under "just in time" production regimes, which requires a large amount of autonomy, initiative and problem solving abilities. Will the American workplace of the future be able to adopt similar practices with the current educational system in place? It seems doubtful.

The balance of this paper will argue that to avoid capital flight and/or economic defeat, American businesses should become more involved with the public education system. Schools have failed to teach basic skills to a significant fraction of their students; these students cannot then be expected to be proficient at handling the complex problem solving demands of the modern information economy. Businesses must partner with schools today in order to assist in getting qualified, problem solving and thinking students ready to work in the economic environment of tomorrow.

The Importance of Safety Management

Safety management can be an excellent conceptual and practical bridge between corporations and schools. Poor decisions have historically not only cost money and risked individual lives, but have had major impacts on history. Negligence by armies, governments and high officials have led to the collapse of economies, major accidents, the deaths of entire industries and even exacerbated the social conditions that have led to war. Safety department personnel can use their critical thinking skills both in the schools and on the schools. In the schools to help illuminate the importance of problem solving skills in everyday and in professional life, and on the schools to help make the schools more efficient systems of learning.

Safety management is nonetheless a difficult concept to pin down. Thomas Smith (1998) points that "businesses have not developed operational definitions for safety management. An operational definition doesn't describe what you want to see happen, but what actually does happen. Operational definitions would help everyone in a company understand what management means when it says it wants employees to be 'safe'." (Smith, 1998, p.2). While most all firms have issued statements on their desire to have a 'safe' working environment, the definition of safety itself is often left undefined or poorly defined.

Smith says, "definition of safe must meet the purpose of those involved in the process. An employee who is required to bend and twist her wrist 700 times a shift to perform her task needs to define when the job is 'safe' for her purpose." (Smith, 1998, p. 3). Safety can be seen as the creation of a process that will minimize the possibility of this worker suffering an injury, or it could be seen as developing a process that maximizes productivity regardless of employee turnover in this position.

The firm needs to identify the key characteristic of safety (e.g., the mitigation of the effects of wrist strain), develop a means to measure this characteristic (employee feedback, using the same example), select how the measurement will occur (the employee will report incidents of pain on a check sheet).

The fourth step is to examine the evidence in light of the initial criteria. "Judgment criteria allow you to make a decision about the key characteristic. Yes or no, the problem does or does not exist. In our example, the check sheet tells you if indeed strains to the wrist do occur. The key word in this criterion would be 'pain.' The team knows that stretching your wrists doesn't always create pain. These types of distinctions are critical so the operational definition is clear and understandable." (Smith, 1996)

The concept of the "operational definition" is not only important to safety management, of course, but is also crucial to nearly all forms of rigorous analysis from market research to scientific investigation and experimentation. It is one of the many concepts that need to be introduced to young thinkers, since it is the basic precept of the creation of an intellectual or business process.

Safety management not only deals with work processes, but with storage, construction and nearly every other facet of the business field. Safety management also includes the inspection process, training in the use of personal protection gear, hazardous materials management (whether these materials are part of the production process or waste material generated by the process), claims management and the physical plant maintenance program.

Additionally, business processes tend towards a greater complexity as markets open up and technology advances. Business processes are dynamic in nature. As the market changes, as the organization changes, as regulations change, the business process must change in response.

Safety management must also advance in the same way. This requires problem solving skills and the ability to isolate

independent variables, establish performance and safety criteria, and make sure that the costs of achieving safety goals does not outweigh the benefits of having them. Safety management is not the only real-world application of critical thinking and problem solving skills. Risk management, one of the most important parts of the business process since it directly deals with the financial and fiduciary health of the firm in question, is also an essential skill set that today's students must learn, and learn early. Businesses, who are increasing their presence in the schools with grants, donations of technology and computers and even mentoring programs must also be prepared to encourage training in safety management and risk management as well.

Risk Management and Corporate Governance

Kloman summarized the meaning of risk management in the context of a number of different disciplines in an article for Risk Analysis:

"What is risk management? To many social analysts, politicians and academics it is the management of environmental and nuclear risks, those technology-generated macro-risks that appear to threaten our existence. To bankers and financial officers it is the sophisticated use of such techniques as currency hedging and interest rate swaps. To insurance buyers and sellers it is coordination of insurable risks and the reduction of insurance costs. To hospital administrators it may mean 'quality assurance.' To safety professionals it is reducing accidents and injuries." (Kloman, 1993, p. 322). Risk is the possibility that an outcome can be other than maximized, and is most often expressed in mathematical terms. Uncertainty, a related concept, is a risk in which the probability of the non-maximized outcome is unknown.

Clearly, as can be seen by Kloman's definition, risk management is nearly an ubiquitous concept in modern business. It is essential to corporate governance. "There can be no definitive definition of corporate governance, however, that espoused by Ira Millstein, an American corporate lawyer, is particularly apt: 'Corporate governance is the system developed to balance the need for managerial risk taking, entrepreneurial energy and high capability with the need for some form of monitoring so that management's direction is aligned with the interests of those who have entrusted their capital to the enterprise and, to the extent... (deemed) appropriate, aligned with the interests of other constituents such as employees, communities and the like.' (Koussas 1996, p 3)

Corporate governance is about managing the company and managing risk in an increasingly riskier global economy. It is the central theme for the 1990s but it is not new—it derives from the common and statute law, from the requirement for an efficient distribution of resources and from societal expectations of acceptable conduct.

Corporate governance can be an effective tool to be used in meeting the increased accountability of CEOs to the board and of the board to its stakeholders. Any complacency about good

corporate practices has ceased to be an appropriate response in the 1990s and runs the risk of increased personal liabilities for directors. Risk management and corporate governance are learned behaviors, not intrinsic "knacks" that corporate officials are born with or develop informally.

Risk management education is a formal part of many different industries, from insurance to law. Even farmers, a 19th century agrarian based industry rather than a 21st century information industry, have begun to utilize risk management techniques.

The Texas Risk Management Education Project, for example, is training farmers in the Texas area about how to develop business plans:

Computer and communications technology will be developed to provide information needed for individual long-term strategic farm planning (3-5 years) as Texas farm and ranch managers adjust their operations to a new risk environment. More specifically, this information for their operations will allow farm and ranch managers to:

- *Measure the relative risk associated with alternative production, marketing and financial decisions in a whole farm or ranch framework;*
- *Understand the economic impacts on the farm or ranch from adopting new production or information technologies; and*
- *Understand the economic impacts on the farm or ranch from changing agricultural, regulatory, monetary and/or fiscal policies. (<http://trmep.tamu.edu/1997>, p.2).*

There is increased pressure on businesses to engage in systematic risk management. In addition, the pressure to improve project performance, time-to-market, reduce costs, and improve management practices is driving organizations to avoid expensive problems, hence to more effectively manage risk. Risk management is not simply a buzzword, but is a set of techniques and evaluations that need to be practiced on an everyday, individual level.

Choosing one form of bank account over another (with differing fees, minimum balances and interest rates), purchasing a home and even choosing one career or place of work over another are all activities that require risk management. If children are not taught basic problem solving skills in schools, it should not come as a surprise that many young adults today are extending their stays in their parent's homes, including returning home after completing college. It can be argued that many of these members of "Generation X" simply do not have the critical thinking skills to prepare a household and a working life on their own.

Business involvement in schools and school curricula should use both the precepts of safety and risk management to help educate the children inside today's educational system. A greater level of private and community involvement in schools can increase the quality of education and the standards students must use to in order to succeed.

Business and Public Schools

As mentioned above, there are a number of private businesses that are already heavily engaged in trying to reinvigorate the public schools. As first steps, the programs (scholarship, mentoring, cash infusions) seem worthwhile but "So long as adopt-a-schools, partnerships and cooperative ventures are the first, exploratory steps, they are important; as last steps, they are not worth the paper they're written on," commented D. Doyle, a scholar at the Hudson Institute, in a special section of Business Week. "As a device to lay the groundwork for restructuring, they are invaluable; if they simply represent transient, cosmetic changes, they are a wasted effort." (Doyle, 1989)

Unfortunately, most business activities on behalf of education reform during the middle to late 1980s can only be described as cosmetic, not radical, surgery; and with each passing year, the health of American education continues to deteriorate.

Furthermore, in a few cases, business leaders have become co-opted by the education establishment, on whose watch public schools have performed so poorly, with the result that business has pushed for more of the same purported reforms that have proven to be wasteful and counter-productive in the past: massive infusions of cash, continued reduction of teacher productivity, and more centralized regulation of school operations, personnel, and curriculum. (Hood, 1991, p. 3)

Business involvement in schools has to start long before the high school level, and must be a more dramatic intervention in

order to make the dramatic changes necessary for tomorrow's workers. The basics of corporate intervention are not any different than the basics of standard public education and can be broken down into three simple steps.

The first step - start early. The introduction of basic problem solving skills must begin at the pre-school level, as does the need for business involvement. In St. Louis, as mentioned earlier, AT&T, Citibank and IBM, are funding five major initiatives ranging from increasing the number of local child care centers offering extended hour care to an innovative 'summer of service' program for middle school youngsters.

The initiatives are part of the American Business Collaboration for Quality Dependent Care, a national effort to invest more than \$100 million in dependent care programs in 68 communities across the country over the next four years." (Work/Family Directions, 1998, p.1). These care programs are not simply "caretaker" programs but also involve learning and problem solving techniques.

The program will create an after-school, skills-based enrichment program for elementary and middle school youngsters. Specialty classes in theater, animal training, investigative physics, and other topics will be offered. Middle school youngsters will be able to participate in fine arts classes, while elementary school children will choose from a wide range of special classes. The program will serve up to 80 youngsters enrolled in after-school programs at Rockwood Valley Middle School and Rockwood South Middle School." (Work/Family Directions 1998, p. 3)

Projects and studies in the Third World demonstrate the efficacy of early education. "Several international comparisons have been made of the rates of return on education in developing countries and, generally, the same conclusions emerge: in most countries, basic (primary) education yields higher social rates of return than any other level of education. This finding stems from the fact that basic education inputs are less costly than are those for higher levels. At the same time, basic education reaches greater numbers of learners than secondary or tertiary education." (Education Development Center, 1995, p. 4).

While mandatory public education in the United States increases the number of students who complete their secondary education, the large social and private benefits of early-age primary education retain their power even in the U.S. Other industrial countries show the same positive benefits of early, rigorous education. Primary education is the single largest contributing factor to economic growth in Asia's newly industrialized economies. Virtually every Asian country that experienced rapid economic growth during the '70s and '80s had established universal enrollment in basic education by '65. (EDC, 1995, p.5)

The second step requires the reduction in the levels of bureaucracy and non-local control in schools. School Based Management (SBM) allows for greater parental, community and business influence on the school. It also allows schools to be more cost-effective. Hood (1991) points out that most of the increases in school funding since the 1960s have not gone to increasing the quality of education, but towards nutrition programs, special education, handicap access and other programs which are only indirectly related to classroom time.

SBM demands increased responsibility and authority on the part of all the stakeholders in the success of the school: the principal, teachers, students, parents, other community members and, of course, the business community. At the building level, the principal is usually the key figure in fostering shared governance within the school. Principals not only have increased responsibility and authority in school programs, curriculum, and personnel decisions, but also increased accountability for student and program success. Principals must be excellent team leaders and delegators.

Teacher empowerment and accountability are major ingredients of SBM. Teachers influence decisions by participating in planning, developing, monitoring, improving instructional programs within the school. Involvement of parents is essential to successful implementation of SBM. Ultimately the argument for parent involvement rests on two benefits to children: better attitudes toward school and higher grades.

To ensure SBM success, stakeholders need to understand what SBM is and how it is implemented. Each participant must understand his or her new roles, responsibilities, and accountability. School and district must be supportive of SBM and ensure that communication channels will be kept open. Most of all, SBM must be given time to succeed; researchers recommend anywhere from three to fifteen years' minimum commitment to SBM. (<http://www.asod.org/services/enc/sbm.html>, 1997, p.14). There also needs to be firm commitments on the district and state levels to SBM.

The third step requires changing, or at least investigating, standard measures of assessment (grading) and tracking (classroom placement). Problem solving skills, the type that are

required for effective safety and risk management, require the ability to deal with employees and managers with different skill sets and outcome interest levels. Additionally, the skills are diffuse even if they are systematic, and cannot be fully represented by a letter or number grade. Assessment could take many other forms including a prose assessment (similar to a performance review) or "nongraded" education.

Nongraded education is the practice of teaching children of different ages and ability levels together in the same classroom, without dividing them or the curriculum into steps labeled by "grade" designations (Gaustad 1992, p. 2).

Within these structures, children progress along a continuum of simple though more complex material at their own rates, making continuous progress rather than being "promoted" to the next grade at the end of a school year. Children in nongraded programs typically stay with the same teacher (or, preferably, teaching team) for two or three years. With the beginning of each new school year, one-half to two-thirds of the students from the previous year's class remain together as well, with only the oldest students entering new classes. (Gaustad, 1992, a, p. 2-4).

Instead of working within the tight constraints of the standard classroom, in which the schedule of the day supersedes the needs of the students to spend more time on one topic than on another, the nongraded classroom allows for a number of new teaching and learning techniques:

- Different levels of ability, development and learning styles are expected, accepted, and used to design curriculum.
- Curriculum is integrated so that children's learning in all traditional subject areas occurs primarily through projects and learning centers that are organized around themes and that reflect children's interests and suggestions.
- Teachers plan and prepare the environment so children can learn through active involvement with materials and with each other, with adults, and with older children serving as informal tutors.
- Individual children or small groups are expected to work and play cooperatively, collaboratively or alone in learning centers and on projects they may select themselves or be guided to by the teacher(s). Centers are changed frequently.
- Learning materials and activities are concrete, real, and relevant to children's lives.
- Teachers promote pro-social behavior through offering stimulating activities and facilitating choices.
- Teachers involve parents through conferences, invitations to help in classroom, and the provision of home-based activities for parents to engage in with their children. (Bredenkamp, 1987).

These three steps are necessary, but not sufficient, for the introduction of risk and safety management site of education and the alteration of the classroom are preliminary steps to making education more like a business environment where students are encouraged to be self-motivated and to cooperate with one another to achieve goals. Businesses must step up their involvement in education in order to introduce risk and safety management into school curricula.

Business' Current Involvement

"Business involvement in pre-college education, while varied and in some cases manifested in unique programs, generally falls into

three basic categories: (1) business helping schools, by providing donations and other aid to elementary and secondary schools; (2) business acting as schools, by providing company-run training and remedial programs; and (3) business changing schools, by being involved in the social and political debate over education reform. After some 20 years of intense and sometimes frenzied activity on these fronts, business enterprises have generally found that their efforts in helping by giving aid, although well-intentioned and laudable, have had little effect on the quality of such education." (Hood, 1991, p.21).

American business drastically increased programs to provide funds, technical assistance, volunteers, and other aid to particular schools or school systems during the '80s. Many of these programs were constructed on the public-private partnership model, a consultative process in which companies determine the needs of their partner schools and then make arrangements to fill them

By 1988 the number of such partnerships had reached 140,000, up from 40,000 in 1983 (Foltz, 1990). According to statistics compiled by the Council for Aid to Education, corporate donations to schools totaled about \$225 million in 1989, an increase of 125 percent since 1986 (Mabry, 1990). And that figure does not factor in the dollar value of volunteer efforts on the part of business executives, managers, and other employees. In spite of all this money and effort, businesses have very little to say about the curricula of the schools they have involved themselves with

There are many examples of businesses becoming directly involved in teaching inside their own sphere of influence. e.g.

Philadelphia Newspaper, Inc., (the owner of the Philadelphia Inquirer and the Philadelphia Daily News) provides co-worker tutors and classes for employees with poor reading skills. The company started the program after learning that about 20 percent of the employees couldn't read the newspaper they were printing or delivering

The Aetna Life & Casualty Company operates the Aetna Institute for Corporate Education in Connecticut. Educating some 28,000 students each year, the institute offers Aetna employees more than 250 courses, ranging from management techniques to basic writing

Motorola Corporation tests prospective employees for basic skills, requiring that all workers reach a fifth-grade level in mathematics and a seventh-grade level in reading. At any given point in time, about 4 percent of production workers are in company-sponsored classes

Honeywell, Boeing, Eldec and other corporations in the Pacific Northwest sponsor classes at a vocational center near Seattle. Business participants hire most of the program's graduates (Hood 1991, pp 22-23)

The in-house actions of major firms are not sufficient. Small businesses cannot afford to train their employees and the time and money spent teaching employees basic math and literacy can be used to teach more advanced subject matter. Businesses have to go to the schools. But how can risk and safety management be taught in the schools? The business influence on curricula and training has to be explicit and based on the three steps outlined above. Simply importing concepts of risk and safety management into the existing system is not sufficient

Bringing Risk and Safety Management to the Schools

Much the same way businesses teach skills to their employees, they need to develop curricula for different age groups and introduce the learning of risk and safety management into the schools. There are a number of other obstacles that need to be countered first.

First, businesses have to work together, with the cooperation of the federal, state and local governments, in order to reduce redundancy and facilitate the introduction of a new curriculum. Without the cooperation of the government and other stakeholders of the school (the principal, teachers, parents, etc.), none of the three preliminary changes in the school system can be met. There is a lot of inertia keeping the educational establishment from serious reform.

Second, original and innovative tactics need to be used. The introduction of business principles can be made to happen through role-playing exercises and sponsorship of regular events, e.g., "New York City public school Virtual Enterprise students, along with 50 virtual businesses and their real corporate partners from the U. S., Europe and Canada, will showcase their products and services at the trade fair. Exhibits, technology and educational workshops high-lighting the hi-tech, distance learning and computer aspects of the Virtual Enterprise international network will be featured at the fair." <http://205.232.151.90/news/press/menu.html>, 1994, p.1. In this program, students are assigned virtual representations of businesses to run and compete with. The creation of products, distribution plans and the basic risk management skills that come with making a product plan are all involved through hands-on practice.

Safety management is also being introduced into New York City schools. The system is introducing the 'Safety Makes Sense' program, with the aim of reducing the number of claims that arrive at the Office of the Comptroller. "The 'Safety Makes Sense' Program actively involves the entire community school family, public agencies and health organizations in promoting safety in the public schools," said A. Avedon, chief administrator for the Office of the Board of Review. "In doing so, this wide-ranging, collaborative effort can be a management model for other urban school districts seeking to reduce injuries and lawsuits" (<http://205.232.151.90/news/press/menu.html>, 1998, p.5). The program brings students into the process of safety management by having them examine their own surroundings and the policies of the schools critically, and having the students write essays analyzing the safety issues surrounding their school building.

These are two small examples of what could be done by businesses in the schools. Unfortunately, the introduction of businesses into the schools has been limited to superficial or ancillary instruction, in-kind donations and the like.

The Future

The school system has to change radically. Corporate intervention should follow a model of early intervention, single building management and nongrading in the classroom. This can best be done through larger businesses being allowed to help maintain and run individual school buildings.

SBM will allow businesses to introduce concepts of safety and risk management alongside the problem solving skills taught in

primary grade math classes and in other courses as well. Social sciences classes can teach business history: for example, an examination of the Progressive Era and the lax regulation of manufacturers of this time (best illustrated in Sinclair Lewis' *The Jungle*) can be used to begin the study of risk management. How does government regulation help and hurt productivity; what actions can businesses take to assure both a high market share and a low level or potential liability, are questions that could be explored by the students.

English and Reading classes can introduce topics of safety management through reading authors who are already part of the canon, such as Dickens. *Hard Times* and *Bleak House* for example, contain many scenes describing the unsafe horrors of the "dark satanic mills" that once populated the industrial world and which still populate the Third World. Discussions can lead towards the ethics of avoiding risk (pollution, unsafe working conditions, etc.) by exporting it to nations with low levels of regulation and union organization.

Mathematics curricula can be changed in order to concentrate more on verbal problem solving, the kind that will allow students to choose between two or more alternative answers. In addition to simple mathematical operations, the use of such operations to maximize outcomes should be concentrated upon

Most importantly, however, companies must seek out their own information, ideas, and opinions on critical education questions, rather than rely on the answers provided by the education establishment.

If education-spending lobbyists can use the support of prominent business leaders to great effect in political debates, companies and other proponents of market-oriented reforms can use the support of reform-minded educators to equally persuasive effect. Through research, advocacy, and political organization, companies can bring about the kind of reform they know is needed in American public-education—but only if they remember that adopting schools isn't enough and can often be used to protect the status quo. The discipline of the marketplace must be applied to education. (Hood, 1991, p. 27)

Businesses should be actively engaged in the debates over voucher programs and school choice as well as working to widen the variety of choices parents and students can make. Much the same way that vocational and performance magnet schools have been in place for decades, business magnet schools that utilize the precepts of SBM and non-graded education can be introduced to educate students on the concepts of risk and safety management. The time is right for such radical moves by the business community; both the federal government and the public are ready for change. For example, a recent survey by "US News and World Report" said

- 75 percent of all Americans believe standards for basic school subjects are too low; and
- Nine of 10 Americans believe students should not be allowed to graduate from high school if they cannot pass academic exams

The public now ranks education as its top concern, ahead of crime, drugs and taxes, according to a recent Gallup poll commissioned by CNN and "USA Today" (NES, 1996, p. 3). The National Education Summit, which involves both major CEOs

and state governors, is combining efforts in order to address two main issues:

- How to develop, implement and measure high academic standards for U.S. K-12 public schools and how to hold students, teachers and school systems accountable to those standards;
- How to infuse the U.S. public education system with new technologies as tools for improved teaching, learning and school administration (NES, 1996, p.4).

One of the best ways to integrate the combination of higher standards and technology into a vision of schools that can fit the needs of tomorrow's business is to introduce concepts of risks and safety management as described above. Instead of simply bemoaning the state of education, business leaders should be ready to introduce curricula that will support their goals.

Risk and safety management are two fields that need a more explicit presence in the primary and secondary school programs across this country. By acting in concert with other stakeholders, businesses can introduce new curricula and also compel schools to be more efficient with their budgets and other resources. Only the use of risk management skills by businesses can bring risk management into the American school system. Instead of simply throwing money at the problem of education, businesses must take on the role of teaching through consortium agreements, sponsorship of classes and training and the direct management of schools on the level of the individual building.

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