



VERMONT BUSINESS ROUNDTABLE

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# Vermont's Unspoken Danger

Educating Our Children  
for the 21st Century

1989

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# **Vermont Business Roundtable**

The Vermont Business Roundtable is a non-partisan organization dedicated to helping Vermont achieve long-term public policy objectives worthy of its citizens. Composed of the principal officers of 140 Vermont companies representing geographical diversity and all major sectors of the economy, the Roundtable is committed to achieving prosperity and preserving Vermont's unique quality of life.

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## Executive Summary

Vermont businesses need skilled workers to survive and prosper in the increasingly competitive and global market they find themselves in today and that they will face into the 21st century. The need for skilled workers is felt directly or indirectly by virtually all employers, no matter how large or small, and at every level of the employment spectrum. The Vermont Business Roundtable believes it is time for all Vermont stakeholders—parents, students, teachers, administrators, school board members, elected officials, and employers—to work together to improve the quality of Vermont education and, if necessary, to rethink the entire system to adapt to our changing society and the multitude of demands placed on the schools. A collaborative approach focused on learning outcomes is essential to develop significant and lasting improvements in the education of Vermonters. Some important highlights of this report are:

**Workplace Skills:** The Roundtable Survey of Vermont Business and Industry found in some Vermont employees a deficiency in basic mathematics, reading, and communications skills. The survey also identified a set of emerging skills that will increasingly be required for success in the workplace. Examples of these emerging and higher-level skills are analysis and reasoning, problem solving, team building, and decision making.

**Need for Reform:** Because of the changing needs of Vermont employers, the public educational system must teach appropriate skills to Vermont children. The existing K-12 educational system is failing to graduate Vermonters who possess basic skills and who will meet the emerging and more demanding skill requirements.

**Educate Everyone to His/Her Full Potential:** Since low unemployment is likely to continue in Vermont, it will be

necessary to educate and train every Vermont student to his/her full potential.

**Technology:** New technology has not yet been fully utilized to dramatically improve the delivery of educational services. Evidence is mounting that the integration of technology into education has the potential to substantially improve student achievement and increase productivity in the classroom.

**Need for Action:** Business people, along with educators and other Vermont stakeholders, possess the potential to form a successful partnership to solve problems of mutual interest if properly focused and adequately financed. The evidence suggests that a comprehensive and integrated approach involving all key stakeholders is the only way to tackle and resolve the problems facing public education today. The Roundtable makes the following three policy recommendations to restructure and revitalize Vermont's K-12 public education system:

- 1. Identify learning outcomes—** The Vermont public education system should make clear exactly what it wants its students to learn. In attempting to develop a clear picture of the "best" educational system for Vermont, the Roundtable recommends that the focus be on the outcomes the key stakeholders want from the educational system. The Roundtable endorses the learning outcomes identified in this report titled "Requisite Skills For High School Graduates."

- 2. Hold educators accountable for achieving the learning outcomes—** Educators at the local level—school principals and teachers—must be given the freedom to develop a challenging and interesting learning environment so that students want to attend school. Every

educator must be committed to doing his/her best to educate all students to the best of their abilities. The Roundtable recommends implementing market responsive initiatives to promote and foster the accountability of educators.

**3.** *Assess whether the system is achieving the learning outcomes*—To be able to continually improve and refine its programs, the public education system must know how it is doing.

Current assessment practices that rely on standardized tests are clearly inadequate in measuring whether the Vermont education system is doing its job. The Roundtable believes that new assessment tools should be used to effectively measure student mastery of the learning outcomes.

# Introduction

## Global Context

A subtle and unspoken danger threatens the people of Vermont. It is insidious and perverse because it is not obvious or well understood. What is this danger? It is the inadequate education that students young and old in Vermont now receive. The danger is one similar to that identified at the national level by the 1983 report *A Nation at Risk*: educational mediocrity is threatening the future well-being of America's children and adults.

Education opens the door for wonderful things to happen in the lives of children and adults. Schools help people sharpen work skills, find jobs, and earn good livings. Education provides a forum for people to learn about the history and values on which this great nation and the state of Vermont were built. Schooling allows people to understand public issues and make informed decisions about them. Education also develops an appreciation for art and literature that enriches the daily life of the individual. Perhaps the most important benefit, however, is that education gives people the chance to succeed in life. A sound education helps people achieve their goals, further develop the legacy of their parents, and make a better world for themselves.

At a time when the value of and need for education is increasing, the danger Vermont faces—now and into the 21st century—is an educational system that is average at best. Although many still retain an image of Vermont as an idyllic setting far removed from the hustle and bustle of the modern world, Vermont is in fact part of a global village of information and knowledge. Technological advances in transportation and communications have made it possible for Vermont businesses to sell their products throughout the world. At the same time goods that travel around the globe are purchased in Vermont at the local store. People near and far visit

Vermont to vacation or to spend time being educated in Vermont schools and colleges. Vermonters also travel extensively around the globe.

Vermont is an integral part of a national and global network of people and nations. If Vermonters share a common vision that they wish to participate and prosper in the global community, then it is essential that Vermont's children and adults are properly educated to compete and achieve in the "learning society" of the 21st century.

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*"Education in the world is outstripping us. We're not training the mind. Cognitive skills have to be taught in the classroom."*

President  
Small Manufacturing Company  
Southern Vermont

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## Changing Role of Education

The role of education at all levels has changed dramatically in this country since World War II. Early in the 20th century only a very limited number of children went to school for more than a few years. This elite group then went on to earn a high school diploma and enter the workforce armed with a good education. A select handful went on to college, an unattainable goal for all but a few.

In recent times, however, expectations of educational achievement have changed dramatically. Society today demands universal education for all children regardless of race, sex, or socioeconomic status. It is expected that all children should be educated to the best of their abilities: the physically



and mentally handicapped, immigrant children, and the poor children as well as the rich.

At the same time, public schools have been charged with the responsibility of curing social ills. Over the past thirty years schools have been legislated and regulated into addressing social problems in addition to their traditional role of teaching literacy and work skill development. Social issues such as drug use, discrimination, juvenile delinquency, poverty, unemployment, and domestic violence are now the domain of the schools.

Schools have been forced into taking on these added duties because of a rapidly changing society. The traditional role of the family and church in supporting the education of children has changed substantially. The nuclear family, where the father is the sole breadwinner and the mother stays home to care for the children, is quickly disappearing. Single-parent households now constitute a significant proportion of families in the United States. The role of the church has also changed, with church attendance declining and the number of church-run schools diminishing.

An extraordinary number of factors now influence children in the education process. The effect of the media on children is particularly noteworthy, with the major impact being the influence of television. The general disenchantment with traditional social processes and institutions has affected educational institutions as well.

The many changes and problems facing society have confused values and priorities. Key stakeholders must reassert the critical importance of education not only as a high priority for workforce needs, but also as an essential component of a sophisticated society poised to enter the 21st century.

## Call for Action

The Vermont Business Roundtable believes it is time for a change. It is time for all Vermont stakeholders—parents, students, teachers, administrators, school board members, elected officials, and employers—

to work together to improve the quality of Vermont education and if necessary, rethink the entire system. New approaches are needed now to respond to our changing society and the multitude of demands placed on the schools. To develop significant and lasting improvements in the education of Vermonters a collaborative approach focused on results is essential.

Business leaders should communicate to educators the learning outcomes business needs to survive in the competitive marketplace. They can identify ways the business community is willing to help educators achieve the learning outcomes. Businesses and other taxpayers are spending a great deal of money to educate and train young people and adults. A way needs to be identified for all key stakeholders to meet on a common ground to share ideas and resources to better serve students to the benefit of all Vermont citizens. This Education Report is the Roundtable's first step in a long-term journey to improve education in Vermont. Quick fixes will not work. Any **education reform** effort must work through current problems—from now until well into the 21st century.

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*“Let’s try to generate a commitment and a team atmosphere, among educators and business to make it work. Educators and business have to learn about each other. Hostility exists between education and business and we have to overcome it.”*

Personnel Director  
Large Corporation  
Central Vermont

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# Rationale For This Report

## Purpose

In recent years a strikingly clear and consistent consensus has developed among business leaders, educators, and researchers: the educational systems in the United States are in many significant ways seriously deficient. Education researchers have compiled a massive amount of evidence to substantiate this claim. It is the purpose of this report to:

- Articulate the context of and assumptions underlying the conclusion that education in this country is deficient. Particular emphasis will be placed on learning outcomes and the effect of education on preparing people to enter the workforce of the 21st century.
- Relate this national and global context to the needs of Vermont. Although it is difficult to focus with precision on any particular part of the Vermont educational system to the exclusion of others, this report's primary focus will be on K-12 public school education.
- Discuss the policy options implied by this information. Recommendations will be made about Vermont's educational system and its viability in the 21st century.

## National Context

Abundant evidence exists on a national level that public school education faces serious deficiencies and must improve dramatically to meet future needs. The sheer weight of evidence to support this contention is overwhelming. Three of the most noted publications are *A Nation at Risk*, *Workforce 2000*, and *A Place Called School*.

### A Nation at Risk

This 1983 "Open Letter to the American People" is the landmark report for current educational reform. It sets the tone for the

problem when it states that "the educational foundations of our society are presently being eroded by a rising tide of mediocrity" evidenced by inferior student performance and America's loss of competitive edge to other countries. The report found serious deficiencies in secondary school curricula; a lowering of expectations of student achievement in reducing homework, diluting degree criteria, and asking for minimum competency rather than maximum performance; ineffective use of time spent by students in school. The teaching profession has also declined significantly since the brightest students are not being attracted to teaching, teacher preparation programs are deficient, and the working life of a teacher is often composed of demeaning and unrewarding tasks unrelated to teaching.

### Workforce 2000

The Hudson Institute 1987 *Workforce 2000* report on global economic trends is concerned with changes in the American workforce and the effect of these changes on education and training. Between now and the year 2000 the workforce will "grow slowly, becoming older, more female, and more disadvantaged."

The jobs with the fastest growth will be "in professional, technical, and sales fields requiring the highest education and skill levels." The service sector "will create all of the new jobs" between now and the year 2000, and those jobs will require much higher skill levels than today's service jobs. "States that try to capture new factories to boost their local economies . . . will miss the most important opportunities of the future." There is a need for competition at the elementary and secondary school level to encourage efficiency and innovation. National testing is necessary to measure improvements and increased investments in educational technology are required. Policies should be developed to promote workforce retraining and "should be backed up with changes in

the tax code to encourage lifelong learning.” It is essential to increase human capital by means of education and training since “human capital formation plays a direct role in how fast the economy can grow.” Educational standards must be substantially raised; students must “go to school longer, study more, and pass more difficult tests covering more advanced subject matter.”

## A Place Called School

This 1984 book by John I. Goodlad reports on research involving a carefully selected sample of 38 public elementary, middle, and high schools located throughout the United States. His analysis indicates that “American schools are in trouble. . . . It is possible that our entire public education system is nearing collapse.” Goodlad argues that schools must adjust to the changing environment. The school culture must be transformed so that pedagogical and curricular methods are implemented that will encourage problem solving, creativity, and cooperation in group activities. He found that:

- Parents and the church no longer take the fundamental responsibility for educating children.
- The relationship between parents and educators has changed from one of cooperation and trust to one of suspicion. The disruption of this cooperation has affected their ability to work together to achieve the common goals of educating children.
- The general education environment has changed with a disruption of local neighborhoods and the destruction of the sense of community that people once felt.
- Key stakeholders are failing to work together to improve schooling.
- Educators squabble among themselves about what is best for children.
- The goal of universal education brings with it an extremely complex and diverse student population that educators are not prepared to deal with.

- Children learn about the world from many different sources today, with television replacing school and parents as the primary source.
- Secondary school teachers utilize outdated pedagogical and curricular methods with lecturing and testing dominating rather than writing long essays, working in groups, taking field trips, and engaging in hands-on activities.

## State Initiatives

Several study projects within the state of Vermont re-emphasize and localize the issues raised in the national studies.

### The 1988 Vermont Assessment

In March 1988, an achievement test was administered to a sample of 732 Vermont eighth graders. Following is a brief summary of the test results for Vermont students as interpreted by the Vermont Department of Education:

**Mathematics:** Students did well at computation with whole numbers and fractions; the use of decimals on a number line; reading of protractors, clocks, and thermometers; computing the average of five numbers; reading simple graphs. The students had trouble with word problems, lacked a conceptual understanding of common fractions and a comprehension of percentages, could not apply geometric principles, performed poorly on questions involving perimeter and area, and on questions about units of measurement within a system, and did not understand the concept of averages.

**Science:** Students appeared to understand the concept of control in an experimental design, did well in human biology and geology, understood the causes of pollution, and knew how to use fulcrums and inclined planes. Students tended to rely on authority to solve problems rather than to empirically find the solution, were weak in their concepts of measurement, could not categorize shapes or read and interpret

graphs, were weak in the area of heredity and plants, did poorly on ecology questions about the interaction of living things with the environment, were weak in astronomy and meteorology, and were unable to apply the law of conservation of energy.

**Social Studies:** Knowledge of history and economics were mixed, with students understanding larger issues but not the details of any one event or its ramifications. The students performed moderately well in geography, climate and terrain, population density and clustering, and environmental issues but they performed poorly in political science. In process skills students did quite well when asked to read information, but performance dropped when asked to interpret or evaluate the information.

**Reading:** Students were able to identify thematic threads in literary passages, but did less well on content readings when asked to evaluate and analyze the information presented.

**Humanities:** Students did well in interpretation of contemporary poetry and in questions about the social and historical perspectives of literature, but did less well in identifying literary devices such as metaphors. Students were successful in questions about color and color awareness and the meaning and purpose of the visual arts. Achievement was high in the performing arts and good in language skills. Performance on religion and philosophy was generally weak.

## **1988 Annual Report: The Condition of Education in Vermont**

This report, issued annually by the State Department of Education, documents the current status of Vermont public schools and draws comparisons of Vermont achievement with national and global trends. Recent data indicate that American students lag behind students in other countries, i.e., American

students ranked last in math and ninth in science. Vermont high school students score at about the national average on the Scholastic Aptitude Tests (SAT), although Vermont students lag behind when SAT scores are adjusted for racial differences.

The report also points out the high turnover rates among Vermont principals and superintendents. From 1985 to 1987, "40% of principals and 25% of superintendents were no longer in Vermont's education system." The teacher turnover rate was 25%.

## **Future State Reports**

Two special commissions appointed by the Governor are currently working on education issues. One is the Getting Ready to Work Commission, whose charge is to create a blueprint for action to prepare Vermonters for work, with particular emphasis on vocational education and the retraining of current workers in the private sector. A second activity is the Commission on the Economic Future of Vermont, which is including in its work an examination of the relationship of secondary and post-secondary education to the Vermont economy.

## **Education And Training In Vermont Today**

### **Public Education System**

In 1987-88, public education accounted for 34% of the Vermont general fund state budget, with the allocation for K-12 at 163 million dollars. Local revenues totalled 307 million dollars and federal support was about 22 million dollars, resulting in a total public appropriation of approximately 492 million dollars for K-12 education in the state of Vermont. Enrollment in K-12 was 92,755 students and the system employed 7,106 teachers and 455 superintendents and building principals in 382 buildings in 59 supervisory unions. Vermont ranks seventh among the fifty states in high school graduation rate. About 17% of all students who enter the ninth grade in Vermont at some

point drop out and do not graduate from high school. Vermont's most recent average SAT scores were 905 as compared to the national average of 903. In 1987-88 a total of 6,597 high school diplomas were granted by high schools and secondary school level vocational institutions.

## Training in Vermont Business and Industry

Although the data cited above are available about public education in Vermont, no information was available about the "hidden school" in Vermont where employees are being trained to master the skills necessary to compete in the future. The Roundtable conducted a survey to gather information about the training efforts of Vermont businesses in 1988. The specific objective was to gather information about Vermont employers, both small and large, including:

- Training dollars employers spent on Vermont employees in 1988.
- Importance of the various training resources a company might use.
- Importance of various job skills.

A stratified random sample was selected from a list of 17,329 active employers in the state. The goal of the stratification was to obtain a representative sample of employers from all relevant Standard Industrial Classification (SIC). The survey was sent to the chief operating officer of each company asking that the survey be filled out by a person knowledgeable about training in that company. Of the employers that responded, a small number were asked to meet for an in-depth, face-to-face interview to provide a richer description of the survey data.

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*"In-house training picks up where the schools left off, dropped the ball. We have no choice. We can't wait for the people in the educational system to feed us what we need."*

Personnel Director  
Manufacturing Company  
Northern Vermont

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## Survey Findings

- Vermont employers spend a significant amount of money on training, approximately \$144 million in 1988.
- A category of skill areas—process skills and computer skills—is emerging that demands the attention of the educational system.
- Large employers (i.e., 100 or more employees) do more training than small employers (i.e., under 100 employees) on a percentage basis in the skill areas covered in the survey.
- Vermont employers are devoting resources to training in what are clearly the remedial areas of basic arithmetic, basic reading, basic writing, and basic communication. Basic communication was reported the most, with 20% of all employers (40% of large employers and 16% of small employers) doing training in 1988.
- Over half of all Vermont employers are experiencing some hiring difficulty. Large employers are having more difficulty hiring than small employers.
- Almost one-third of all employers (more than half of large employers) predict that their future training needs will change. Frequently mentioned future training areas are in process skills and computer skills.

## **Changing Demographics of the Workforce and the Workplace Environment**

“ . . . The economic importance of schooling and learning on the job is increasing. The economic history of the modern world shows acquired human skills inexorably replacing natural and machine resources as the basic building blocks of production and service delivery...Human resources now account for more than four-fifths of the nation's total economic output. The acquired skills and abilities of the population have become the pivotal resource.”

*The Learning Enterprise  
The American Society for  
Training and Development*

Changing demographics, increased job skill requirements, and a growing service sector are only a few of the factors that will significantly affect the workforce in the next twenty years. The following facts and anticipated trends point to the need for significant change in the composition of the workforce and the importance of education for the workplace of the 21st century:

- The U.S. workforce will be increasingly female and minority. By the year 2000, 80% of all new members of the workforce will be women, minorities, or immigrants.
- The proportion of the workforce that is 16 to 24 years old will shrink from 30% in 1985 to 16% in 2000.
- High school dropout rates, nearly 30% nationally and 40 to 50% in some inner city areas, will diminish the skill level of new entrants to the workforce.
- About 13% of U.S. adults are illiterate in English.
- Higher education, business, and the military will be keenly competing for people with skills and new entrants to the workforce.

- Workers will fill five to six jobs in a lifetime, and switch occupations two to three times.
- Between 5 and 10% of the workforce may need to be retrained each year.
- Training/retraining of people who lose their jobs through plant closings or technological innovations will be required to fill employer needs for workers. Much of this training will focus on remedial education.
- Approximately 85% of the workforce will be in the information/service sector. A sizeable share will be employed in the growth areas of computers and telecommunications, but not all growth will be high tech.
- In the next decade, about six million more jobs are projected in the high-skill professions compared to about one million new jobs in the less skilled and laborer categories.
- The workforce will be more ethnically diverse, with a high percentage of women employees (63% of new entrants). Competition for employees may make discrimination because of race, age, or gender almost irrelevant.
- In a rapidly changing work environment, no single job skill will serve throughout the worklife of an employee.
- Computer technologies will be used in every sector of the economy and throughout the workforce.
- Vertical integration of the workforce will become commonplace through practices such as Quality Improvement Teams.

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*“We've got a labor force out there that does not meet our minimum company requirements for the entry level, non-professional jobs.”*

Human Resources Manager  
Service Corporation  
Central Vermont

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## Business Community Cares

When told that the business leadership in Vermont has prepared a report on education, a skeptic might wonder why the business community is spending time and resources on a topic so seemingly unrelated to selling a ski pass or manufacturing a computer. Why would a membership organization of chief executives representing 140 Vermont employers be investing resources in a report about education?

The answer is that the Vermont business community cares about Vermont schools, students, parents, and educators. The business community cares for reasons of self-interest, survival, and future competitiveness. The business community also cares for reasons that are not directly associated with bottom-line profits. The Vermont Business Roundtable has identified four fundamental reasons why the business community is interested in education:

**1.** Vermont employers need skilled workers to survive and prosper in the increasingly competitive and global market they find themselves in today and that they will face into the 21st century. This report is developed to help begin a dialogue in Vermont about this issue. The need for skilled workers is felt directly or indirectly by virtually all employers, no matter how large or small, and at virtually every level of the employment spectrum. Employers have a practical self-interest in education since global competition forces employers to demand the best possible educated and trained workforce that Vermont can muster in order to compete and survive in the global economy of the 21st century.

**2.** Vermont employers think Vermont is a great place to work and live. Vermont is a state blessed with an abundance of natural resources, hard-working people, excellent recreational activities, and a thriving economy. The Roundtable wants to insure

that Vermont is as wonderful a place to live and work in the 21st century as it is now. Business leaders have a vital stake in making sure Vermont retains its healthy economy and its excellent quality of life so the state continues to be a great place to live and work and do business.

**3.** Vermont businesses are Vermont taxpayers. The business community wants to see its tax dollars spent on the education system in an efficient and effective manner. No matter how large or small, every business pays income taxes and property taxes. Those taxes are an investment in local communities. Any investor has a right to know how the money is being spent in the local schools and what kind of return to expect in the form of a well-educated graduate.

**4.** Vermont employers are people who are concerned about schools. Employers and employees have families and children who attend Vermont schools at all levels. As concerned parents, they want the best possible education for their children and their children's children. Vermont employers have a vital personal stake in Vermont schools.

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*"Let's find out what's really going on in the classroom. What is really going on in the science class or the math class?"*

Owner  
Manufacturing Company  
Southern Vermont

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This report focuses primarily on the Vermont employers' need for trained and capable people to work for them and develop the future business opportunities so vital to a healthy economic environment. Although most of the employers and businesses referred to in this report are privately or publicly held companies, the terms "employer" and "business" mean much more. They may be educational organi-

zations such as colleges and universities in Vermont as well as day care centers and pre-schools. They also may be other non-profit organizations such as hospitals, mental health agencies, and counseling services. They may be family-owned farms. These employers need a well-trained workforce just as the country store or the manufacturer does.

The Vermont business community must explore every option to maintain its competitive edge. The outlook in Vermont may be bullish now, but what about the 21st century? Many businesses are concerned about the skills of their current workforce and the competencies of the graduates they are hiring from the education system. Questions that come to mind for the Vermont business leader include: Are educational institutions in Vermont prepared for the changes of the future? Will their graduates be able to adapt to the changing workplace environment? Will Vermont businesses be as competitive in the 21st century as they are now? Is there a place for partnerships between education and business so that all of us may be better prepared for the future?

These questions and concerns have led some business leaders to take a more active role in education. Although this report was prepared by the Vermont Business Roundtable, it is not another attempt to tell educators how to run the schools. Rather it is an attempt to identify *from a consumer's perspective* the needs and expectations the Vermont business community has of its most important partner in supplying high quality employees: the Vermont educational system. One hallmark of a successful business is clear and constant communication between the consumer and the service provider. This report represents one step in the vital communication process between the Vermont business community and Vermont educators.

The changing workplace will require different skills than in the past if Vermont businesses are going to compete successfully. Previously the emphasis was on the individual's ability to remember facts, perform discrete, routine tasks, make fundamental calculations, and follow directions. Today, and in the future, successful employers in-

creasingly focus on interpersonal and integration skills. The ability to work as a team and to build a team are highly valued attributes as are problem solving and analytical skills. The ability to analyze information, and not just recall it, is increasingly required. There is a growing need to find creative solutions to new problems rather than applying previous solutions to past problems.

The educational system has to produce employees who have the above skills, are willing and able to be trained and retrained, and can manage change.

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*“Essential skills, attitude, and work ethic are very important. What we hear from 18 to 23 year olds is how much vacation do I get rather than what can I do for this company.”*

Personnel Manager  
Financial Services Corporation  
Central Vermont

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# Requisite Skills For High School Graduates in the Information Age

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*"We have a lot of trouble finding new people. People don't have the basic skills. They are not willing to learn to work their way up the ladder."*

Owner, Service Company  
Southern Vermont

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The American business community is undergoing two fundamental and dramatic changes that are revolutionizing how business works: global competition and unprecedented changes in technology. Policymakers and forecasters have made some predictions that give us an idea of what the world of the 21st century will be like. One prediction is that at least half the jobs available in the year 2000 do not even exist today. In addition, most of today's knowledge will be obsolete or computerized within ten years. It is clear that coping with change, and an increasing rate of change, will become a way of life for American business in the 21st century.

Global competition has become a reality for every company where location and physical assets are secondary to the skills and knowledge of the workers and the cost of production. Businesses in Vermont must realize that they compete in a global marketplace where the potential customer is just as likely to be around the world as around the corner. By the same token, corporations around the world will compete just as fiercely for the same customers. American business and industry compete in a global marketplace that is being radically altered as we leave the industrial era and enter the information age. Technology and capital now move across international borders with unprecedented ease.

Technology, particularly computerization, is one of the major forces behind the changes American business will experience. Computers have redistributed information, giving more people access to and control over it and thereby reducing the need for those who process information. The dramatic reduction of middle managers is a testament to that fact. As a result, organizational structures are becoming flatter and job descriptions less precise with a networking focus rather than definitive reporting relationships. Span of control is increasingly defined by information and issues managed rather than number of people supervised. Computers and telecommunications also allow for an increasingly dispersed workforce; as much as 30% of the workforce could be off-site in ten years.

This information revolution has produced a profound transformation of the world economy, one that demands a new understanding of the educational standards necessary to create a competitive high-wage workforce. The economic changes demand a revolutionary rather than evolutionary change in our educational system. We must assure all high school graduates the same quality of education currently received by college-bound students. Computers will increasingly become central to restructuring the classroom where technology will become the instructor and the teacher is the leader, coordinator, and facilitator of the learning process.

Over the last few years, many schools have demonstrated significant gains in student performance on standardized test scores. We are doing better on the old goals. However, in striving to improve education, we have unwittingly turned backwards when it is essential that we look to the future. In addition to important basic academic skills, high school graduates must also be able to learn easily on the job, read complicated material, evaluate

and make complex arguments, write well, and apply quantitative concepts to unfamiliar problems. The requisite skills for high school graduates are:

**Communications Skills:** Graduates need the written and oral skills essential for effective reasoning; they must be able to understand complex ideas and instructions and express those ideas and instructions to others.

**Mathematics and Science:** Graduates need an understanding of mathematical and scientific principles, exposure to the life sciences, chemistry, and physics, and the quantitative skills of algebra, geometry, and statistics to solve complex problems.

**Technological Literacy:** Graduates should conceptually understand telecommunications and how computers work, their utility and limitations as tools, and be familiar with common applications.

**Cultural Fluency:** Graduates need to understand, appreciate, and respect varieties of cultural experience. This includes geography, foreign languages, arts, political and religious philosophies, and cultural heritage.

**Interdisciplinary Studies:** Graduates need to recognize the interrelationships of the various academic disciplines and recognize that solutions to complex problems will draw on a variety of subject areas.

**Ethics:** Graduates must be sensitive to ethics issues and understand the growing importance of individual and business accountability.

**Order of Magnitude and Decision Making:** Graduates should be comfortable with order of magnitude calculations and approximations of solutions and be able to recognize whether solutions are realistic.

**Team Work:** Graduates need to be comfortable with team environments and group problem solving.

**Information Access and Problem Solving:** Graduates must know how to gather information on a subject, assess what is relevant and credible, and then apply that information to finding creative solutions to problems.

**Learning to Learn:** Graduates need to be instilled with a desire to learn and an understanding that they will be required to continually cope with change and the lifelong learning process it entails.

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*“We need competent and committed workers.”*

Personnel Manager  
Service Corporation  
Central Vermont

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# **The Roundtable's Policy Approach**

The fundamental question for the business community and other employers to ask is: "What kind of educational system will best provide Vermont young people with the workforce skills that are necessary for the competitive environment of the 21st century?"

## **The Business Perspective**

Different perspectives on education will produce differing analyses and recommendations regarding the best thing to do to improve education in Vermont. The Roundtable recommendations are made from a business perspective: results are important and quantifiable, daily activities in the organization must change if the organization is not working properly, and organization members must take responsibility for their actions.

The business community has had considerable experience dealing with organizational and systemic restructuring in the retrenchment of American business that has taken place in the past 15 years. The Roundtable believes that sufficient resources are available to the educational system to achieve high performance. The Roundtable encourages new strategies to spend existing funds in more productive and innovative ways. Significant new funding should follow demonstrated improvement in performance by the education system.

The business perspective is experienced, dynamic, action based, and results oriented. The three policy recommendations were developed in this context.

## **Vermont Education as a System**

A system is a model of human activities that has purpose, structure, identifiable properties, and a method of communication and

control within the system. A system is viewed as an integrated whole rather than as a group of separate entities independent of each other. In this context, the Roundtable is treating Vermont K-12 public education as an integrated system rather than as hundreds of separate schools carrying out their own independent activities.

The Roundtable believes that although school autonomy is an important element of success, every school is in fact part of a larger system—Vermont public education. If lasting and substantive change is to come about in Vermont public education, a systems perspective is essential. Key stakeholders within the system must understand the inter-related nature of the educational system. They must also adhere to the roles they play within the system instead of trying to interfere in the roles of others.

# Policy Recommendations

In order to work towards an educational system that performs to the best of its ability, the Vermont Business Roundtable endorses the following three policy recommendations:

## 1. Identify Learning Outcomes

In attempting to develop a clear picture of the “best” educational system for Vermont from an employer perspective, the Roundtable recommends that the focus be on the outcomes that the key stakeholders want from the system. If agreement can be reached on what the final “product” must be for Vermont to rank among the world’s best, key stakeholders will then develop a strategic plan to design a system that will deliver the desired outcomes.

All key stakeholders should develop criteria for the learning outcomes they demand from the educational system. A fundamental requirement is that students possess the basic skills in communications and mathematics so a sound foundation is formed upon which more sophisticated skills can be developed. However, more than that is needed for the 21st century. A new set of emerging skills is required for future workforce needs. The Roundtable recommends the *Requisite Skills For High School Graduates* as described earlier in this report:

- Communications Skills
- Mathematics and Science
- Technological Literacy
- Cultural Fluency
- Interdisciplinary Studies
- Ethics
- Order of Magnitude and Decision Making
- Team Work
- Information Access and Problem Solving
- Learning to Learn

## 2. Hold Educators Accountable For Achieving the Learning Outcomes

The local school and individual classroom should be the focus of school improvement. The school principal and classroom teacher must be given the freedom to develop a learning environment that encourages students to attend school. The educational system should stimulate and reward leadership at the local level so students will achieve the learning outcomes. Every educator must be do his/her best to educate all students to the best of their abilities.

If Vermont is to have a first-rate educational system, it must have first-rate teachers who are willing and eager to be held accountable for their students’ performance. It is time to give teachers the responsibility and rewards they deserve by increasing available resources and giving them the authority to make the important decisions at the critical point of contact: the contact between the teacher and the student.

In the business world employers and employees are ultimately held accountable for their performance by the economic yardstick of making or not making a profit. In education, student achievement replaces profit-making. Several important elements vital to the successful operation of a business can be applied to the educational system. The Roundtable recommends the following market responsive initiatives to promote and foster the accountability of educators:

***The Market Makes the Decisions:*** Successful businesses are responsive to the needs of the market. They communicate to the market the reasons for buying their

products; the customer then chooses the product. Permitting choice in the educational system would provide students and parents with a means by which to choose a school, thus providing a “vote” on school performance and allowing the educational “market” to make decisions on the product. Schools that can more effectively deliver the needed educational services will be in greater demand.

**Recruit the Best People:** In the business world competition is intense to hire first-rate professionals who promise the highest probability of successful performance. Similarly, elected officials, school boards, and parents should expect the highest professional standards of performance from educators. Under current certification rules, a senior engineer from a Vermont corporation would not qualify as a full time math teacher in a Vermont high school. Alternative teacher and administrative certification should be considered to broaden the pool of potential teachers and administrators available to work in the schools.

**Reward for Performance:** People are the most important ingredient in any business. The people who make a business succeed are appropriately compensated in the private sector. Salary and benefits for educators should similarly be based on performance. Educators who do a consistently outstanding job should be monetarily rewarded in a significant and substantive way. Educators should enjoy salaries and benefits that are comparable to those of other professionals in the community.

### 3. Assess Whether the System is Achieving the Learning Outcomes

Vermont needs an effective assessment policy. To be able to continually improve and refine its product, the public education system must know how it is doing. The Roundtable believes that educational perfor-

mance can be measured in a meaningful way. Current assessment practices that rely on standardized tests are clearly inadequate in measuring whether the Vermont education system is doing its job. New assessment tools must be used to effectively measure student mastery of the learning outcomes.

Valid and continuing assessment will measure whether Vermont’s K-12 education system is achieving the desired learning outcomes and providing the maximum learning opportunity for each student. An effective assessment policy should include the following elements:

- Assess all students at designated points throughout their K-12 academic career.
- Evaluate student achievement based on mastery of the desired learning outcomes.
- Report assessment results on a regular and continuing basis to all key stakeholders.

# What The Business Community Can Do

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*“If business wants a quality workforce, then it has to make a commitment to help education.”*

Personnel Manager  
Service Company  
Central Vermont

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The Roundtable realizes that it is not enough to merely make recommendations. The only way to improve the public education system in Vermont is for the key stakeholders to take concrete action. The Roundtable therefore recommends the following opportunities for action by the Vermont business community to become partners with the schools.

**Commitment:** Employers can make a long-term commitment to assist local schools. They can make their employees available as resource people in the classroom and they can provide opportunities for teachers and students to visit business sites to gain first-hand knowledge of workplace requirements. They can provide non-human resources such as equipment, supplies, and dollars for special projects.

**Involvement:** Employers and their employees are encouraged to become more involved in school affairs by running for school boards and supporting local school groups and activities.

**Experience:** Businesses can provide some insight into school restructuring. The decentralized and innovative management approach that the American business community has adopted to streamline its operations and revitalize its markets have a striking parallel with current educational reform efforts. Evidence suggests that dramatic improvement in educational per-

formance will take place by treating the individual school as the unit of performance and improvement. The implication is that many of the approaches the business community has used in restructuring are also applicable to schools, for example:

- Place a high value on production of a quality product and service.
- Encourage the proper values among the workforce and give employees responsibility for implementation.
- Reduce or eliminate bureaucracy and red tape to encourage autonomy and innovation.
- Spend money on direct services and reduce administration and overhead.
- Identify local solutions to local problems.
- Stay close to the customer.

There is increasingly convincing evidence that “one-shot” efforts such as adopting a school for a year or sending in an occasional guest speaker do not constitute the type of partnership commitment required for restructuring and long-term educational improvement. Partnerships between businesses and schools need to be continuing, long-term commitments and investments.

The Roundtable believes that its three policy recommendations provide an innovative and dynamic framework for rethinking and restructuring the Vermont K-12 public education system. Although the business community should play an important role in making these recommendations come to life, it is up to the other important participants in this process to also embrace the need for change and implement the Roundtable recommendations. These other stakeholders include elected officials, state-level administrators, school board members, teachers, school administrators, parents, and students.

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The Vermont Business Roundtable appreciates the generous contribution of staff and services provided in conjunction with preparation of this report by Digital Equipment Corporation, New England Telephone Company, and Simmonds Precision.

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