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Education

ABSTRACT

The performance of the education industry is vital to the national security and economic prosperity of the United States. The advent of the Information Age has significantly increased both the opportunities and the challenges presented to policymakers and educators. An examination of the education industry leads to five principal conclusions. First, high academic standards and effective assessments are essential to promote achievement and measure progress. Second, efforts to recruit, train, and retain high-quality teachers and administrators require special priority. Third, the United States should continue to implement policies, and increase targeted resources that promote equal access and opportunity for all U.S. citizens. Fourth, teachers cannot be successful alone. Social support with parental involvement and a safe learning environment are key to successful student development. And fifth, innovative ideas such as school choice, home-schooling, charter schools, and e-learning can spur competition, raise industry performance, and promote equity. The overall assessment of the U.S. education industry at present produces mixed results. Primary and post-secondary schools are above average compared with those of international competitors; middle schools are average; and secondary schools are below average. The performance of the transitional sector (non-collegiate adult education) is marginal (but improving) and that of the workplace sector is expanding and satisfactory. Although most U.S. citizens agree that education in the U.S. needs improvement, the degree and method of change remain debatable issues.

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PLACES VISITED:

Domestic:

American Federation of Teachers, Washington, DC
 The Archdiocese of Detroit, Detroit, MI
 Boston Private Industry Council, Boston, MA
 Boston Renaissance Charter School, Boston, MA
 Chelsea Public Schools, Boston, MA
 Educational Testing Service, Washington, DC
 Focus: HOPE, Detroit, MI
 Francis Parker Charter School, Ft. Devens, MA
 General Motors University, Detroit, MI
 Harvard Graduate School of Education, Cambridge, MA
 Maryland State Department of Education, Baltimore, MD
 Minuteman School of Applied Arts and Sciences, Lexington, MA
 Montgomery County Public Schools, Rockville, MD
 Motorola University East, Mansfield, MA
 National Alliance of Business, Washington, DC
 National Governors' Association, Washington, DC
 Northern Essex Community College, Haverhill, MA
 Potomac Job Corps Center, Washington, DC
 Raytheon Corporation, Lexington, MA
 Thomas Jefferson High School, Alexandria, VA
 U.S. Department of Education, Washington, DC
 U.S. Department of Labor, Washington, DC
 U.S. House of Representatives, Committee on Education and the Workforce,
 Washington, DC
 World Bank Human Development Network, Washington, DC

International:

Daimler-Chrysler European Aerospace Defense Systems, Ulm, Germany
 Department for Education and Employment, London, England
 Deutsche Bank, Frankfurt, Germany
 Enfield County School, Enfield, England
 Goethe Gymnasium, Frankfurt, Germany
 Ministry of Education, Baden-Wuerttemberg, Germany
 Qualifications and Curriculum Authority, London, England
 University of Maryland University College, Heidelberg, Germany
 Morgan Stanley Dean Witter, London, England
 Teacher Training Agency, London, England
 Institute of Education, University of London, London, England

Team members also interviewed a number of distinguished experts in the field of education, including Ms. Anne C. Lewis, Dr. Gerald W. Bracey, Mr. Denis P. Doyle, and Dr. Ted R. Sizer. The semina hosted speakers from the American Federation of Teachers, the Educational Testing Service, and the Human Development Network of the World Bank. We wish to express our sincere gratitude to the distinguished individuals and organizations for their time and candor.

INTRODUCTION

The Education Industry is an extremely complex field with many levels and facets involving government, corporations, as well as public and private institutions. There is no monolithic approach to education in the U.S., let alone the world. Education is an emotionally charged topic. President George W. Bush has made education reform a cornerstone of his new administration with a program titled "Child Left Behind." The 2001 Hart-Rudman Commission says, "...the inadequacies of our system of research and education pose a greater threat to the U.S. national security over the next quarter of a century than any potential conventional war that we might imagine." The Commission highlighted the increasing importance of math and science skills, the deficiencies of U.S. students, and the lack of quality teachers in these areas. Leaders of industry also believe that education is key. In a 1998 survey of 430 CEOs in the fastest growing product and service companies over the last five years, 69 percent reported the shortage of skilled, trained workers as a barrier to growth. A proactive approach to educating our citizens is vital given the implications for continued U.S. world economic leadership and national security.

Historically the education industry has provided a significant factor in sustaining the foundation of the national security interests of the United States. However, today, there is much room for improvement. The continual need for college and corporate remedial training indicates weaknesses in our K-12 system. Remedial, and work takes away needed time from professional level college and corporate courses that are critical for today's sophisticated workplace. While many of our primary, secondary, and post-secondary school systems are clearly among the best in the world, too many are substandard. (Vinnys Data?) For example, many high schools in the northern suburbs of Chicago are nationally renowned for their excellence. Yet, pocket poor performing schools exist in every state. Equity and access to a quality education is still an ongoing problem.

Efforts to retain and train high quality teachers and administrators also require immediate priority. Thirty percent of new teachers leave teaching within three years. Various models of education reform such as charter schools, school choice initiatives, and the recent push to articulate rigorous state standards of learning are beginning to yield improvements, but challenges remain. (See Essay on School Choice) Moreover, the respective roles, interests, and questions on who will influence education and sources of funding for federal, state, and local levels add to the ongoing debate over the direction of future policy initiatives. The exponential growth of technology and the increase in diversity present both opportunities and challenges in today's education industry. This paper predominantly focuses on bedrock issues in the K-12 arena and provides recommendations for the future.

THE EDUCATION INDUSTRY DEFINED

Defining the education industry is a challenge in itself. The distinctions that formerly existed between many of the industry's sectors are increasingly difficult to delineate as collaborations among school training programs, and businesses grow and flourish. Technological advances and market forces continue to stimulate change and innovation, with distance learning and e-learning creating many new programs and impacting traditional programs. The education industry encompasses an enormous number of diverse institutions, public and private, traditional and non-collegiate. These institutions can be divided into three sectors—schools, transitional organizations, and workplace.

The schools sector is the image that comes to mind when most people think of education. It includes

many childcare facilities, preschools, elementary and secondary schools, community and junior colleges, colleges, universities, and professional schools, postdoctoral study, and research. Technical and vocational schools also fall into this category if their primary objective is the attainment of an academic degree.

The school-to-work transitional institutions consist of a diverse group of non-collegiate public and private (nonprofit and commercial) organizations and community college non-degree programs that provide a wide range of adult education and training to individuals. For example, this sector includes computer training classes, professional and management development training, technical and trade schools, and apprenticeship training to name a few of the many programs. In some cases, such as the Minuteman School of Applied Arts and Sciences in Lexington, Massachusetts, local businesses partner/collaborate with the high school to develop an outstanding transitional curriculum.

The workplace sector consists of education and job training provided by employers. The training generally focuses on job-specific technical skills, management and supervisory skills, computer literacy and applications, product knowledge, interpersonal and team skills, customer service, sales/administrative skills, business practices, occupational safety, quality control, and basic skills (reading, mathematics, language, and writing). Corporate universities, employer-provided funding for tuition reimbursement, payments to outside commercial vendors, and military training are included in this sector.

CURRENT CONDITION

School Sector

The United States spends nearly \$390 billion on K-12 education in the year 2000, 4.2% of its GDP. If we add in higher learning institutions/colleges and universities total formal education spending goes up to \$650 billion or 7% of the GDP. Currently, there are 53 million students enrolled in K-12 and 15 million in higher learning institutions/secondary schools. There are 15 million enrolled in colleges and universities. (See Attachment 1). Many would contend that our education system is effectively supporting the nation. High school graduation rates have doubled over the last 40 years and the percentage of eligible students attending college is higher than at any time in history. Our universities are some of the world's best and attract students from around the world. About 37 percent of the doctorates in natural science, 50 percent of doctorates in mathematics and computer science, and 53 percent of doctorates in engineering are awarded to non-citizens. Unemployment is only 4.2% and our economy is strong. So, why the negativism in public debate and the media concerning the U.S. education industry?

Secretary of Education Rod Paige notes that even though statistics tell us we are the most educated nation in the world, we must also be the best educated. The performance of our school sectors would best be described as mixed overall. Some students get a high quality education while others receive education that is woefully inadequate--so bad that they cannot even read at the basic level upon graduation from high school. Approximately 18 percent of U.S. companies now offer remedial training in basic math and reading skills, learning that should have taken place in school.

Recent studies analyzing and comparing students worldwide rated U.S. elementary school performance as above average, middle school as average, and high school as below average. A drop-off in student performance appears to occur as Americans progress through the public education system as indicated by an analysis of results from both the 1995 Third International Math and Science Study (TIMSS)

the TIMSS-Repeat in 1999. U.S. student performance relative to the rest of the world drops between 4th and 8th grades, continuing through 12th grade. For example in the 1995 TIMSS, 4th graders were above the international average in math and ranked second overall in science. However, 8th graders dropped below international averages, and 12th graders fell even further. In advanced mathematics: physics, U.S. 12th graders ranked last.

Three consistent themes contribute to this drop-off in student performance. First, in elementary schools, young children are still very dependent on parents, whereas middle and high school students gain more independence and are greatly influenced by peer pressure, especially if there is not a strong parental figure in the home. Secondly, through the elementary school grades, all local school districts across the country are teaching roughly the same general topics, such as reading writing and arithmetic basic standards that all states are teaching at all schools throughout the U.S. Conversely, through middle and high school, the curriculum becomes more splintered as different state and local education boards vary on the types of courses they offer. This significant lack of consistency from state to state illustrates the disparities between states and the need for common standards. Third, as math and science courses increase in subject matter complexity in later grades, teachers often do not have the corresponding specialized subject matter training and expertise. Finally, another reason for the drop may be that the public school system is, in essence, a monopoly. With little competition, public school administrators may have become somewhat complacent in their methods and resistant to change. In business if a company does not provide the services it claims, it finds itself out of business. The same principle should apply in the education business. Recent initiatives like vouchers, distance learning, home schooling and private companies such as the Edison Company, which is running a number of public schools, may provide impetus for failing schools to improve.

Transitional Sector

This sector is characterized by a wide range of institutions, businesses, partnerships, and government programs involved in moving the individual from schools into the workplace or retraining to upgrade skills and improve job placement for dislocated workers. Two reports "A Nation at Risk" in 1983 and "American's Choice: High Skills or Low Wages" in 1990 sounded the alarm about the newest entrants to the U.S. labor market. Both reports concluded that many graduates entering the job market had neither the academic background nor entry-level occupational skills to succeed in the changing economy. (Jill and Vinny) Training and employing our increasingly diverse and immigrant population is also a challenge for this sector.

Although efforts have only been marginal in solving this problem, one example of success was a private organization - Focus: HOPE - in Detroit, Michigan. This program centers on building partnerships with business, universities, and the Department of Defense to overcome barriers and lead underserved populations into the economic mainstream.

Many organizations have shared the responsibility for transitional education using limited resources with varying degrees of success. Much is dependent on the commercial or private sector. However with the passage of the federal Workforce Investment Act (WIA) in 1997, the Department of Labor started several new initiatives to improve transition into the workplace. They include "One Stop" centers nation-wide which help in building resumes, skills assessments, career counseling, and job search and placement. They continue to support programs such as the Job Corps for training and employment of at-risk youth, and welfare-to-work initiatives. The School to Work Act of 1994 is another federal program that provided "seed" money and a framework for state and local communities to help students team with business for technical skills training and job experience. The law "sunset" this year and the jury is still out on its success or possible renewal.

Although more emphasis is being focused on this key area, there is still much to do in efficiently coordinating the varied programs, providing adequate resources, and ensuring opportunities are provided for all to participate and advance in the new workplace. The nation should look at education systems in England and Germany as examples of more coordinated efforts. At the national level, both systems countries have one organization responsible for running leading and monitoring transition programs that lead to formal certifications in specific occupations.

Workplace Sector

This year, U.S. businesses will spend over \$54 billion to provide formal training and development courses for employees. Corporations and businesses perceive training as increasing in importance. In total, over 45 percent of organizations studied in Training Magazine's "Industry Report 2000," increased their spending on training between 1998-1999. According to the American Society of Training and Development (ASTD), the average firm utilizing their benchmarking service trained 70 percent of their employees in 1998, up from 69% in 1997. Leading edge firms were much higher at 97%. This result remained consistent regardless of the size of the company.

Therefore, industry is training its people in a variety of skills from technical to managerial. Although IT skills dominate, there are many facets to corporate training with these areas listed as the most common:

Types of Training Organizations Providing

- Computer Applications 99%
- Management Skills/Development 96%
- Supervisory Skills 96%
- Technical Skills/Knowledge 94%
- Communication Skills 94%
- Computer Systems/Programming 88%
- Customer Service 88%
- Executive Development 87%
- Personal Growth 84%
- Sales 56%

Business is recognizing the benefits education and training bring in recruiting, retention, productivity and employee morale. Motorola University (MU) is an excellent example. It is among the best known and widely benchmarked corporate universities in the world. MU is a \$100 million global service business that is responsible not only for education, training, and development, but also for the gathering and distribution of vital company information. Motorola considers education to be an employee right as well as a responsibility.

Motorola is not alone. Many successful companies espouse a life-long education and training philosophy and have established corporate universities. Corporate universities are a growing trend among large organizations. More than 1600 corporate universities existed in the U.S. in the year 2000 compared to 400 in 1988, with average budgets ranging between \$20 million and \$600 million. Nationwide, the ASTD reported the average benchmark organization employee received 29 hours training per year. Corporate universities are a growing trend among large organizations. More than 1600 corporate universities existed in the U.S. in the year 2000, compared to 400 in 1988 with average budgets ranging between \$20 million and \$600 million.

Companies also are recognizing the need for improvement continued increase in the quality of the

students graduating from U.S. high schools and colleges and are becoming increasingly involved in state education. No longer content to simply donate money and technology, they are leading lecturers advising on curriculum, training teachers, and mentoring thousands of youngsters in an effort to improve the educational performance of future employees. Companies have joined together in an attempt to systematically enhance education through organizations such as the National Alliance of Business and the Business Roundtable.

Overall, workplace education is receiving abundant attention from business leaders and corporate CEOs. It is producing a return on investment in the form of increased productivity, higher recruitment and retention and morale. Workplace education is expanding and is meeting the needs of the U.S. business sector.

CHALLENGES/RECOMMENDATIONS

Throughout our history, emphasis on education as a national priority has varied. Therefore, the U.S. has not made consistent commitments to enable us to achieve national goals. Specifically, the U.S. must address the following issues that impact the quality of education barriers to success: teachers' salaries and training, equity in education for all children, standardization of curriculum, more school choice for parents and students, standardization of curriculum and increased social support.

Teachers

The first daunting challenge facing the education industry is retaining current teachers and recruiting new teachers. There has been much discussion about teacher shortages exist in every state, even more so, particularly in inner city areas particularly in economically disadvantaged schools. and. Further, math and science teachers are particularly scarce across the nation. (See essay on "Improving Teacher Quantity and Effectiveness.") The U.S. must make a national commitment to provide adequate salaries and incentives to retain current and future teachers. Teacher effectiveness must also be our focus. The nation should create national-level teacher certifications, adequately resource continuing professional education, and provide quality classroom and curriculum support

Equity

A second and equally challenging issue involves equity. Our policies and programs must ensure access to quality education for all children, regardless of any cultural and/or socio-economic barriers. XX Approximately 17 million, or 34 percent, percentage of percent, of the nation's children attend public schools in poor, urban or rural areas. (DATA, J.C.) Our recommendations include providing all schools with access to 21st century technology, increasing federal education spending, and targeting more federal money toward the poorest communities. We specifically recommend establishing more safeguards to ensure that states and districts do not divert the money from programs intended for low-income students. The benefits of closing the educational gap between the "haves" and "have-not's" will far outweigh any monetary costs.

Standards

Nation-wide learning standards could also help reduce inequity by providing a framework for school curriculums that ensures all children get similar foundational education experiences. Currently even within a single American school districts, curriculum sometimes can vary significantly. Contrast this with England, which established a detailed national curriculum using input from local educators. Additionally, Germany's sixteen different state curriculums all share common elements as agreed to

the states' Ministers of Education.

In the U.S., national learning standards could simply provide the basic objectives each student should demonstrate prior to advancing to the next grade. National standards also become more important in light of our increasingly mobile society. According to the National Alliance of Business "The nation's population centers are moving away from the industrialized sections of the Northeast upper Midwest to the South and West, and projections indicate that this pattern will continue for some time to come." As more people move, it will be prudent to have consistency across state education systems.

State educators will have to compare the current non-standardized methods, then develop and agree on a common set of national standards. The burden of accomplishing this must fall to state educators, not on a federally mandated standard. National standards also become more important in light of our increasingly mobile society. As more and more people move, it will be prudent to have consistency across state education systems. Attempts to establish nation-wide standards in the U.S. were defeated in the past mainly because local and state governments were unwilling to relinquish control over education. The challenge will be to see if these governments are now willing to give up some autonomy and get local and state governments to work together with the federal government in establishing a national framework of education standards. State educators will have to compare the current non-standardized methods, then develop and agree on a common set of national standards. The burden of accomplishing this must fall to state educators, and not on a federal mandated standard.

Choice

A third challenge generating a great deal of controversy and attention focuses on giving parents and students alternatives in selecting the best method for achieving their education. The major advantage of these varied programs is that they enable students to best explore their potential by customizing programs to optimize their strengths. We recommend more flexibility in education and support programs such as home schooling, charter schools, and vouchers. Choice can also spur competitive improvements in a public school system that is virtually a monopoly. The common element in all the alternatives is participation from parents and students in selecting the best method for the delivery of educational services.

Standards

Another topic receiving considerable discussion focuses on nation-wide learning standards so that children are assured similar education experiences. This concern has posed a problem in the past mainly because local and state governments were unwilling to relinquish control over education. The challenge will be to see if these governments are now willing to give up some autonomy and work together with the federal government to establish national goals, thus preventing disparities in education between states. This becomes more important in light of our increasingly mobile society (DATA on mobility-Jeff: ENP demographics??) As more and more people move, it will be prudent to have consistency across state education systems.

One solution to this sensitive and complex issue is the establishment of national learning standards that provide the basic objectives each student should demonstrate prior to advancing to the next grade. State educators will have to compare the current non-standardized methods, then develop and agree on a common set of national standards. The burden of accomplishing this must fall to state educators, and not on a federally mandated standard.

Social Support

Parental involvement in the education process is critical for improving student performance. Educators emphasize the value of proper pre-natal care, early cognitive learning, and parent-teacher interaction as essential to establishing a child's early learning foundations and subsequent opportunities for educational success. In addition, students from two-parent families perform better in school than those with one parent. With the growing number of single parent homes in America, increased societal involvement, especially with the growing number of single parent homes, is critical. Parental involvement is critical to remedy the shortage of adult attention many children receive today. Improved social support could also improve school safety. There have been 215 deaths from school shootings in the U.S. since 1992. The challenge is how to deal with a problem that is more of a social issue than an educational one, yet has profound implications for our educational environments. The Departments of Education and Health and Human Services should assess the current performance, compatibility, and synergy of their existing programs and place emphasis on those programs that work.

The many challenges facing this nation in preparing its youth to be productive members of the large society are immense. The underlying foundation for long-term success in this critical undertaking must be adequate resources and a strong national focus, coupled with flexibility and innovation in the provision of educational services that are tied together by a sound framework of national standards. The current budget surplus offers a unique opportunity to invest in the future through the education of this country's most valuable asset - its human resource capital.

GOVERNMENT GOALS AND ROLES

Who is in control of education? Local, state, or national government? The answer is all three in various measure. The federal government provides 7% of the funds provided for public education. The majority of the funding comes from an even split between state and local governments. Data from the U.S. Census Bureau shows the following breakdown of elementary-secondary school revenue for 1999-2000: 96-97

U.S. Total	Federal Sources	State Sources	Local
\$307.5390B (100%)	\$19.7273B (6.47%)	\$150.0B (48.8%)	\$137.8B (44.8%)

The availability of funding for the different levels of government ties to different revenue sources. Federal funds come via the general appropriation cycle. States generate school funds primarily by taxes and/or income taxes. Education revenue for localities comes largely from real property taxes.

Local and state roles and goals

States and local municipalities fund most of the education, hire teachers, set local standards, and build and maintain facilities. The reliance on localities - with vastly differing demographics, wealth and values - is also the source for inequities in both the financing and delivery of quality education across America. States also take federal education funds to augment their local programs but frequently do not use these funds under a plethora of federal restrictions and guidelines. As such, local communities insist on strong local control largely in response to perceived federal intervention. The goal of state and local governments is to customize their education programs so they meet the needs of individuals in the community. So, what role does the national government play in education?

National Government Roles and Goals

The national government should play three primary roles in education. First, it must promote

educational equity in America so that no child is left behind. Every child in America should have access to a comparable quality level of education. Second, the national government must focus the nation and discretionary federal budget funding on the most pressing educational problems. Third, must facilitate a cross flow of information on education excellence, acting as a repository of the nation's best educational practices.

Making Educational Equity a Reality

The Department of Education has shifted its focus over the years to incorporate guidance from each new administration. However, since the Department's creation in the Carter administration, a central tenet of emphasis has always been equity in education. Educational equity will help all Americans opportunities for a productive and prosperous life. At the same time, educational equity will create broader, higher quality workforce for the 21st century that will help ensure America maintains its economic strength and national security. Educational equity could also create a common bond or cultural heritage in America, forged through a quality education for all our children. Common goals should decrease the divide between the educational, digital, and economic "haves" and "have nots."

Focusing the Nation

The second important role of the federal government in education is to keep the nation focused on pillars or themes that can raise academic excellence. Within discretionary budget funding, it puts money toward improving defined problem areas. For example, in 1988 Congress created The National Assessment Governing Board and authorized it to set performance standards for reporting the National Assessment of Educational Progress (NAEP) - commonly known as the "Nation's Report Card." The NAEP, operated by the Department of Education, measures and reports student achievement. NAEP brought student assessments to the forefront of national and state education thinking. It highlighted drop in performance in XXXX. (See Attachment 2). (Gail-data)

Another area where the government focused attention is the digital divide. Former President Clinton announced the award of a \$24 million grant to three school district partnerships under the Technology Innovative Grant Program Challenge. The former president said, "We must close the gap-the digital divide-between those individuals and communities that have access to Information Age tools and those that don't." He also issued a "National Call to Action" for businesses to support schools regarding technology. He challenged American corporations and non-profit organizations to "take concrete steps to meet two critical goals: provide 21st century learning tools for every child in every school and create digital opportunity for every American family and community." This superb challenge highlights a key point: when the government focuses the nation on specific education problems, using discretionary funds, it should always seek to transition the responsibility for program oversight and funding to state and local governments or businesses. Local governments, and communities, and businesses best understand the unique educational challenges in a state or municipality.

Repository of Information and Best Practices

The national government must also facilitate a better cross flow of information. It must build a repository of information that identifies communities, and more importantly schools, in need of financial help beyond what the national, state and local governments can supply. As highlighted by former President Clinton above, current and future administrations must help American business realize their capacity and opportunity to be philanthropists that sponsor education reforms/initiatives.

The U.S. Department of Education should also increasingly serve as a repository for national best

practices and innovation in education. Today, the Department's Eisenhower National Clearinghouse (ENC) has a vast, multiple link website that is a main source of information, best practices, curricula resources, and networks to help states and districts improve in all major areas of education. Located at Ohio State University, the ENC is funded through a contract from the Department of Education's Center of Educational Research and Improvements.

In summary, Overall the federal government should seek to reduce inequity in education, it should focus the states on closing economic and technical gaps, and it should promote best practices and industry partnerships. Increased federal funding can help achieve these goals, but results must be measured so the nation can assess the effectiveness of current and additional funding.

OUTLOOK

What does the future hold for the educational system of tomorrow? Current projections show an increase in the number of students over the next decade with new skills requirements and a large influx of immigrants. The National Center for Education Statistics forecasts record level enrollments. Public elementary schools will remain at approximately 38 million through 2010, reflecting a 25% increase from the 1980s. Secondary school enrollment continues to grow, exceeding past records and peaking at approximately 16 million in 2006, a 20% increase over the past decade. Private school enrollment increased by 7% in the past decade to approximately 6 million. New experiments in school choice, tuition programs for failing schools, and increased dissatisfaction with public education could increase the number. Beyond 2010, we can expect large increases in primary school enrollment since projected births rise from 3.9 million in 1991 to 4.28 million in 2010.

Immigration will also impact future projections as numbers continue to grow. Hispanic school age children will increase approximately 60% in the next 20-25 years with nearly 1 in 4 school age students in this category. The number of non-Hispanic white children will drop to less than 50% in the next decades, as the members of the "minority" groups become the majority.

These high student populations increase the burdens on an already strained educational system, which currently includes a severe teacher shortage. Today, public school teachers number about 2.98 million. Projections for the next ten years show the nation will need to hire 2.5 million more teachers. Without increases in pay and incentives to stem current shortages, the system will continue to depend on alternative approaches to fill the current and projected gaps. Alternative teacher certification, hiring professionals from different fields, soliciting help internationally, hiring retirees and encouraging our growing older population to contribute time and talent are all options for solving the critical shortage of tomorrow.

Although there is now more attention on the need for public investment in education reform and an awareness of critical shortages, allocated resources are not expected to rise sufficiently to conquer educational challenges. Instead, restructuring and new initiatives, combined with a better use of technology, are forming the foundation for educational reform. Charter schools, private educational management firms, and home schooling are increasing dramatically, focusing on core education goals and serving as catalysts for streamlining and improving our public institutions. Successful secondary schools are creating "hubs" of specialized knowledge within their walls such as advanced math and science, international studies, computer science, or service industry options. These better prepare students for the future global, interconnected, and high tech workforce.

Business and universities will become more involved in the success of our students and educational institutions. Driven by the growing need for a well-educated pool of employees and to avoid retraining

in basic skills, businesses and universities will increase partnerships and teaming with secondary institutions in developing curricula and requirements for transition to the workforce, assisting with needs, and preparing students for academic and vocational programs. Corporate universities can then focus on professional advanced learning.

The school of the future will vary in many ways from the traditional image. Technology is bringing better tools to the teachers and students via skill-tailored databases and instructional material. In addition, technological access offers current and standardized curriculum from the best resources, the best practices in shared knowledge and methods of instruction. Teachers may become facilitated by bringing easily accessible digitized subject matter experts into the classroom or by leading explorations of virtual environments. Students can progress at their individual pace, reinforced by continued availability of electronic instructional aids. In addition, students can network with other students anywhere on collaborative projects. They will have a new, global perspective, as daily contact with the international community becomes the norm.

The future is now. We must harness technology, educational reform initiatives, and a new commitment to opportunity and achievement for our future society to meet the challenges of the new millennium.

CONCLUSION

The education industry is generally supporting the United States national security interests. Careful analysis of this industry reveals many positive attributes as well as numerous challenges, but few absolutes. Honorable men and women can honestly disagree over issues currently in the news such as assessments, vouchers, and school choice. To be certain, there is some merit to opinions on either of these concerns. Education is an emotionally charged topic. It is also a very political one. The current and past most two presidents recent presidents have all all wanted to be known as the "Education President." Despite this executive level attention, most people agree that we can and must do more to improve certain areas of our educational system.

Of the many challenges currently facing this industry, two are most prominent. First is teacher availability and effectiveness. Our ability to recruit, develop, and retain quality educators is absolutely critical to the future success of this industry. The second challenge is to ensure all children in this country have equal access to a quality education. Our nation's interests are best served when we are able to close the gap between the "haves" and the "have nots". Education holds the key to making a dream a reality. We believe the recommendations put forward in this paper offer potential answers to these challenges.

Our nation stands at the perfect time and place to explore our national education strategy. Our economy, notwithstanding the recent downturn, is still the envy of the world and we currently have a significant federal budget surplus. We are at peace and consequently have little to distract us from focusing national attention on this critical concern. Moreover, we have just entered the 21st century and are still in the midst of a technological revolution with the rate of change occurring almost exponentially. So, we must ask ourselves, if not now, when?

President Bush has seized the moment by putting his education initiative at the front and center of the Administration. This sets the stage for a healthy national dialogue not only on education reform, but also on the appropriate role of federal government in education. Clearly with a nation as large and diverse as ours, state and local governance will, and should, remain predominant. However, the federal government has a key leadership role to play as well. It begins with a vision and setting of goals. It involves improving communication and coordination among the many educational agencies and

constituencies. And finally, it provides essential funding of programs necessary to ensure high achievement, access and opportunity for all students. Now is the time for education stakeholders to forces and promote the common good of the American education industry. After all, if not us, who

ESSAYS ON MAJOR ISSUES

ESSAY #1: IMPROVING EQUITY IN EDUCATION

Problem

President Bush's 2002 budget proposal adequately states the issue facing America today. "...for too long our education system has tolerated an unacceptable achievement gap between disadvantaged minority students and their more advantaged peers." A hallmark of President Bush's plan is to "learn from states and school districts across the country that have made remarkable progress in turning around failing schools, raising student achievements, and closing the achievement gap."

Solution 1: Better Funding

Disparities exist in per-pupil spending between states and local school districts. According to the 1999-2000 school year, the U.S. spent on average \$5925 per pupil. At the high end, New Jersey, spent \$9744 per student, and at the low end, Utah spent \$3783. In one recent report, an average of \$5,200 per pupil was spent on education in large urban schools compared to \$6,073 per-pupil in suburban schools. Rural school districts also spent less per-pupil (\$5,476) than suburban districts. Some localities spend as much as \$10,000 per student. (JC, any current data on high-end?) Within virtually every state, spending on children's education is funded at levels several times greater than that of other children simply because they reside in different districts. Legislatures in most states have devised funding plans that guarantee all schools minimum funding on a per-pupil basis, thus providing each school with revenue for a basic level of student education. However, these "foundation" or "equalizing formula" plans have not eliminated the gross disparities in funding among schools. School districts are free to add their property tax generated revenues to the foundation amounts. Therefore, we are left with a system that promotes inequity. This is where the national government steps in. The main tool to promote educational equity is federal government Title 1 funding, aimed largely at improving funding in poorer schools.

The latest Bush administration budget proposal increases Title 1 funding to \$9.1 billion (a \$459 million increase). Congressional Democrats are asking the president to significantly increase Title 1 funding to \$15 billion. They claim only one third of Title 1 eligible recipients actually receive Title 1 funding. If future administrations and Congresses are serious about improving education, then the education budget should increase enough to ensure that national progress on equity occurs sooner rather than later. Sooner is important if we really want to ensure no child is left behind.

Solution 2: Standardization

The second part to solving the equity problem lies in focusing on what is taught and how well it is taught in schools. States and local governments have autonomy to develop curricula, standards, and assessments as they see fit to meet the educational needs of their communities. However, standard testing procedures adopted by any one state may have little similarity to those developed by other states. The nation has attempted to evaluate national and state education progress with the National Assessment of Educational Progress (NAEP) - commonly known as the "Nation's Report Card."

The NAEP measures progress in math, reading, writing, and science at the state and national level looks for trends/change over time. It is the nation's only ongoing survey of what students know and do in various academic subject areas. NAEP is not tied to any formal national or state standards, as state participation is voluntary however, participation is increasing. But, NAEP testing is costly because of terms of time and money. As a result, many schools are looking for alternative assessment tools.

The nation should take the NAEP concept several steps further. It should develop some national standardization in curriculum, student testing, teacher qualifications, and teacher performance. National standards and evaluations would "raise the bar" for low performing states/districts/schools in these specific areas and would provide a common educational assessment across America. If we evaluate students and teachers only with state derived tests, we will be comparing apples to oranges. It would be difficult to truly assess which states are falling behind. With national standards, America can accurately identify high performing states and their schools. High performers could then mentor and share best practices and methods with low performers.

National standards could also work to solve another problem. They could alleviate some of the current diversity in education from state to state. Given the increasingly mobile/transient nature of our society, such diversity could become our "Achilles heel." since Diversity in education means many students could receive education products that vary greatly from state to state. For example, algebra might be taught in the fourth grade in one state but not until the sixth grade in another. Such diversity often leads to a disjointed education that could leave some of a student's potential untapped or could delay a student's development.

Conventional wisdom says states will fight any national standards initiative. There are two ways to overcome this resistance. First, the Department of Education must conduct an information campaign and emphasize that national standards are not an overt or covert attempt to control states. But rather, national standards will help the nation develop high caliber curriculum, teaching professionals, and students in every state. Second, additional federal funding could be provided to support development and implementation of these standards. Historically, in many other federal programs, money talks!

The Department of Education should not derive or mandate these standards. The Department should facilitate a meeting of education experts from all fifty states. With prior input from all stakeholders, state educational processes, these state experts would develop a set of "Fifty State Education Standards." Germany has successfully used this model. Its sixteen separate states convene in a forum called the "Standing Conference of Ministers of Education." This conference coordinates common standards among state education curriculums in Germany's primary and secondary schools. Doctor Ulrich Bachteler of the Baden-Wuerttemberg Ministry of Education estimates that at least sixty percent of school work in that state is based on the nationally agreed to framework of curriculum standards.

The initial development of these standards, and periodic reviews, should also include inputs from business and the Department of Defense. Their input will ensure K-12 education also prepares American children to meet national economic and national security needs.

The "Fifty States Education Standards" should not be all encompassing. Individual states should still develop augmenting, state specific standards that address unique state/local requirements. State/local unique education standards will ensure the nation still harnesses the beauty of American national diversity. For example, the states might notionally agree to a framework that standardizes core subject curriculum while leaving states and individual school districts with autonomy to tailor other curriculum to meet local needs.

Conclusion

Without a significant increase in federal funding, the federal government will continue to exercise direct control over an educational process that is clearly in the national security interest. The nation can decrease educational inequity through increased Title I funding. It can also initiate discussion and consensus among the states on establishing national standards as a key step toward achieving educational equity in America. Convincing the fifty states to derive, then apply and evaluate to the standards will be a difficult and arduous process. The main point is to start the dialogue now while education is at the forefront of national interest.

ESSAY #2: EDUCATIONAL CHOICE: VOUCHERS, CHARTERS, HOME SCHOOLS

There are many who feel we are not getting an adequate return on investment in our public school system, and our future workforce is at risk. Alternative educational choices have spurred interest in new solutions and innovation. The major reason for alternative education is to give every student the opportunity to explore his/her potential and become a contributing, productive member of society.

The public school system does offer some alternatives. One example is the Minuteman School of Applied Arts and Sciences in Boston, Massachusetts. This unique public school offers a diverse curriculum that covers the spectrum between academics, technical training, and hi-tech college preparatory courses. This school offers students opportunities to learn and practice a vocation in the school environment, teaming with businesses for support and transition employment.

Although some unique and innovative public schools exist, they do not meet the increasing demand for alternative solutions. Both vouchers and charter schools offer new alternatives within the educational structure. Home schooling offers opportunities outside traditional institutions. Vouchers are payments for students to use toward tuition in private schools or out-of-district public schools - usually granted to students of failing institutions. Charter schools are public schools in disguise - they receive public funds but are free from traditional school regulations to pursue innovation and often serve a specific need. They are accountable for student performance, and subject to closure if requirements are not met. What makes these initiatives so important in alternative education is competition to attract students. The best choice, thus forcing all to improve in order to survive.

Vouchers

The idea of scholarships or subsidized tuition originated from private foundations. CEO America and the Children's Scholarship Fund offered 40,000 partial scholarships and were inundated with 1.25 million applicants. Today, approximately 60,000 private "voucher" scholarships exist compared to 34,000 children in public voucher programs. The use of public funds to subsidize private education is very controversial and vouchers are hotly debated.

Advocates offer the following: Providing competition and an alternative to failing public schools will encourage improvement. In general, private school students are more academically challenged, experience less disruption in the classroom, and receive more discipline and respect for values. Parents who are more satisfied with the environment become more involved. Private schools offer better teacher/student ratios, better facilities, and normally higher achievement. Additionally, cost for private schools are generally less than public cost per child because private subsidies, donors or parents cover many costs such as facility maintenance and transportation. The average public school per pupil tuition in 1996 was \$6500 compared to private tuition at \$3100.

Opponents claim vouchers siphon money from failing public schools desperately in need of resources. They violate the Constitution by using government funds for religious purposes. There is no real accountability of public funds. Standards and testing may not be required. There are also concerns private schools will not be able to accommodate the demand or they will restrict student population prohibiting equal access.

Current Status - Since 1990, three state legislatures, Wisconsin, Ohio, and Florida have enacted voucher programs. In all three, the legislation is being challenged in upper appeals courts while programs are ongoing. President Bush's new education initiative "No Child Left Behind" gave this movement new attention. However, the controversy has led to little political support for public vouchers. Private voucher programs continue to grow responding to the great demand for better alternatives to failing public schools and equity in education. The benefits are yet unproven, and the National Research Council has proposed a ten year experiment to determine impact. Let the experimentation begin! The true benefits and successes need to be closely watched with the new demands and skills required of our future workforce.

Charter Schools

This initiative, though more widely in use than vouchers, still poses competition and an alternative to traditional public schools. Their proposed goals are to increase opportunities for learning and equal access to quality education - encouraging innovation and reaching underserved populations. Thirty states and D.C. have charter laws, and charter schools have grown to over 1800 schools and 350,000 students. One example of an innovative charter school is the Renaissance School in downtown Boston. Teamed with a private management firm, Edison Schools, this school occupies eight stories of a former office building. Local business support was crucial to their start-up and continued survival. These programs appear to be serving the needs of future education. However, there are still controversial issues.

Advocates claim charter schools promote innovation and specialization, introducing change and improved achievement. They seek an educational vision or serve a special student population. They encourage alternative governance systems, decentralized decision-making, more teacher participation and less bureaucratic intervention. They are relieved from most traditional regulation. Smaller class size with more individual instruction is encouraged as well as an improved learning environment focusing on discipline and high performance.

Opponents again argue that alternative schools siphon limited funds from public schools and may destabilize our school system. Teacher unions are concerned that certification and requirements may be waived, and different salary and incentives offered.

Home Schooling

This alternative has become increasingly popular and has grown from approximately 200,000 students in the 1980s to estimates as high as 2 million, or 3-4% of the entire student population. This phenomenal growth is based primarily on dissatisfaction with the public school system. Reasons for dissatisfaction include disagreement on religious grounds, low standards, class sizes, poor school environment, lack of discipline, and lack of opportunity for accelerated studies. Again, the arguments are strong for both sides.

Advocates offer the advantage of flexibility and tailored programs. They want to avoid the problems identified in the current public school system and follow their own educational goals. Advocates claim performance has been high--one in four home-schoolers are in grades above their "age" grade and by the 8th grade, are four grade levels ahead of their peers! In addition, home-schoolers are sc

15-30% above average on national standardized tests and are gaining acceptance into major universities.

Opponents argue home-schoolers lack standards and accurate measurements of performance, lack teacher credentials, but most importantly lack the social interactions with peers that produce productive, functioning citizens.

What is the best alternative choice?

There is no doubt that people are making alternative education choices today at an increasing rate moving out of inner city, failing districts - paying for private schools or removing their children from the system. Although it is important to put dollars and effort into failing public schools, in many urban and low-income areas it has not worked. These new initiatives may provide the impetus needed to focus attention on the problems and fix them. Alternatives are a market force that can encourage public schools to improve. Educational choice in the form of vouchers targets low-income families and is a useful tool in shrinking the educational gap. Education choice in the form of charter schools and home schooling provides diverse, focused programs to meet specific education goals. These alternatives should encourage innovation and renewed awareness and commitment of resources at all levels. Exploring alternatives can pave the way for a revolution in education to meet the needs of the next century.

ESSAY #3: IMPROVING TEACHER QUANTITY AND TEACHER EFFECTIVENESS

Problem

Schools experience a shortage of qualified teachers in almost every part of the nation. One source claims that one of every five teachers at 1,600 California schools is under qualified. In addition, 30 percent of new teachers leave teaching within their first three years. The National Center for Education Statistics shows we will need more teachers from now until 2010 and beyond due to projected teacher retirements, increasing enrollments, proposed initiatives to reduce class sizes, and increasing birth rates. While currently public school teachers number about 2.98 million, however, projections for the next ten years show the nation will need to hire about 2.5 million more teachers. To make matters worse, drawing qualified teachers to rural or underprivileged schools, where pay is lower than normal is extremely difficult and only exacerbates the problem of educational inequity in America.

When teacher shortages exist, school districts may just go short and accept larger class sizes or sizes and willingly hire teachers with little or none of the traditional qualifications. Schools generally take the second alternative. The city of Cleveland is actively recruiting math and science teachers from India. Some districts recruit professionals from other career fields as Washington D.C. is doing with its "Teaching Fellows Program." The federal government is attempting to ease the void with skilled recruits from the Department of Defense's "Troops to Teachers" program. In all of these cases, foreign, civilian and military professionals earn state certifications via abbreviated programs.

One of the best solutions states use to overcome shortages is re-hiring retired educators at their last pay scale while still allowing them to draw retirement pay. Nevertheless, this momentary fix, though high quality, only delays the impending train-wreck. The United States must act now. It must examine and examine ways to induce more people to pursue and then sustain a teaching career. On America recruits enough professional teachers, the nation must then improve the effectiveness of teacher effectiveness in America's classrooms.

Solutions for Improving Teacher Quantity

Better pay would draw more people into the teaching profession. The Century Foundation says the average 1998 college graduate with a bachelor's degree had a starting salary of \$48,000. However, average teacher with a bachelor's degree made only about \$30,000. With a master's degree, the average 1998 graduate started at about \$72,000 per year. Conversely, a teacher with a master's degree only averaged \$42,000 per year. The gap is wide and it is no wonder that college students often seek other fields of endeavor.

One solution for paying teachers better is "merit pay." Merit pay adjusts salaries or provides compensation to reward higher levels of performance. Merit pay has existed in varying degrees in America for many years. Merit pay is linked to a district's regular single salary schedule (teachers with high ratings advance up the scale more quickly), or it is administered as a supplement to the regular salary. There are a plethora of merit pay pros and cons. School administrators are generally opposed to merit pay. The main reason is administrative evaluations will inevitably be scrutinized by teachers who did not receive merit pay, resulting in union appeals. The biggest question is how do supervisors assess a teacher's performance or on student performance? Although past merit systems based pay on teacher performance, current systems increasingly base it on student performance assessments. With the heated national debate on student standards of learning and high-stakes testing, one can easily see that merit pay will continue to be a widely debated issue.

Another unique option for increasing teacher pay could be corporate sponsorship. National businesses must realize their capacity and opportunity to be philanthropists that support America's teachers. This would be a "win-win" relationship for both schools and American businesses. Such a relationship could fill voids in national, state and local funding and could present a positive national and community image for a sponsoring business. One could imagine a news headline at the national level: "General Motors, Chevrolet Division Boosts Wayne County School Teacher Salaries Through Five-Year Corporate Sponsorship Program."

The Century Foundation suggests another pay solution: the federal government could boost teacher salaries across the nation to a professional level status, costing between \$30-60 billion per year. The Bush Administration should study options to augment teacher pay with a much larger budget for the Department of Education or it should consider a significant tax deduction for teachers. The Hart-Rudman Commission also suggests reduced interest loans and loan forgiveness in exchange for students entering the math and science teaching career fields.

With or without nation-wide pay increases, the nation must also entice quality teachers to accept jobs in America's poor urban and rural schools. Former Vice President Gore promoted a plan to increase teacher salaries in schools serving low-income students at a cost of \$8 billion over ten years. The Business Coalition for Excellence in Education alternatively suggests providing scholarships to "college students who agree to become teachers and teach for a minimum of five years in high school areas." Once the nation draws more teachers into the profession with better pay incentives, it must ensure they become more effective teachers and it must hold them to a higher standard of performance.

Solutions For Improving Teacher Effectiveness

The nation can promote five key initiatives to increase teacher effectiveness. First, the Department of Education should facilitate a national study to define a set of "Fifty State" teacher standards. This study, chaired by education experts from all states, business and defense, would establish some common elements in all states for national teacher certifications, teacher salaries, teacher performance

standards, performance assessments, and remedial performance corrective actions. National teacher standards will also facilitate reciprocity between state boards, allowing qualified teachers to move where the future needs for teachers will exist.

Second, the fifty states must set standards for the curriculum American universities and colleges use to teach prospective teachers. This will ensure teachers are prepared to meet national performance standards and will help ensure uniformity in teaching quality across the nation. Since 1994, the Teaching Training Agency (TTA) in England has defined and monitored teaching preparation curriculum and national teacher certification testing. An independent assessment of TTA's efforts to improve teaching quality shows very positive results. New teachers have improved measurably.

Third, the fifty states must define and fully fund specific and continuing professional education for teachers to keep them abreast of the latest educational and technological advances. Many current continuing education programs for teachers are often ill defined or misguided. Too often, underpaid teachers are paying for this education out of their own pocket. The nation should again look to England as an example. There, initial professional education focuses on a new teacher's documented weaknesses as observed by supervisors during initial teacher training in universities and colleges.

Fourth, the fifty states must develop specific curricula within primary and secondary schools. Standard curricula will ensure teachers instruct children in a fashion that builds upon foundations from previous class work in the previous grade. Even a teacher with the best intentions could develop curricula that repeats material students already know, teaches something students are not ready for, or teaches something students no longer need in a rapidly advancing and ever-changing society. Standard curricula would also help students make a seamless transition when moving from one school to another. This is a major factor in today's increasingly transient society.

Fifth and finally, a teacher can only be effective in the classroom if he or she has a cooperative and disciplined group of students. The fifty states must develop an enforceable student code of conduct that teachers can use to remove perpetrators who disturb the peace and sanctity of the classroom.

The Department of Education must walk softly as it attempts to facilitate this set of fifty state standards. It must emphasize standards are not an attempt to control states. Traditional cries of "lose control," "we know what's best for our children," and "diversity is our strength" will certainly oppose any national level initiative. However, the Department must highlight that a fifty state set of standards will increase the quality of teaching professionals nationwide. This, in turn, will promote greater educational equity in America's schools so that no child is left behind.

Conclusion

Quality teachers are the key to meeting President Bush's goal of "No Child Left Behind." America faces a current and continuing shortage of qualified teachers. Now is the time for national action. Raising teacher pay to comparable professional levels and providing financial incentives for teacher education (such as scholarships, loan forgiveness, and tax incentives) would attract more teachers. America must significantly bolster its Department of Education budget to make increased teacher pay and the teacher effectiveness initiatives a priority and a reality.

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