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Industry Study

Final Report
Education Industry

The Industrial College of the Armed Forces
National Defense University
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EDUCATION 2007

ABSTRACT: The US has moved from an agrarian to a post-industrial society, presenting multiple crossroads to the US education industry. How the industry deals with three strategic themes of accountability, quality, and cost during the next few years will determine the paths taken at these critical crossroads. This report addresses three primary issues illustrating these themes: No Child Left Behind Act reauthorization, international competitiveness, and recruiting and retention of quality teachers. The US education industry is absolutely critical to national security and other industries. The formal education sector is solid overall, as indicated by the desire of other countries to copy its ability to foster innovation, creativity, and critical thinking. Yet, there are challenges that justifiably concern industry stakeholders and require difficult choices. A more centralized education system has many advantages, and the US should move in that direction with respect to national standards. However, careful thought must be given to potential trade-offs between federal and state/local involvement to ensure these changes are made without compromising the foundational principles of American democracy. Isolation is not an option for the US today; the education system must produce the skilled workers necessary for the twenty-first century. Toward this end, it is critical that the US maintain a balance between math and science skills, innovation and creativity, and international education, as all these areas are integral to future success. Finally, additional funding alone is not the answer to the education system's challenges. Investment increases at all levels of government must be carefully targeted to specific issues.

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PLACES VISITED

Domestic

American Federation of Teachers, Washington, DC
Boston Latin School, Boston, MA
Boston Renaissance Charter School, Boston, MA
Chelsea High School/Boston University Partnership, Boston, MA
Council of Great City Schools, Washington, DC
Department of Defense Education Activity, Washington, DC
Educational Testing Service, Washington, DC
Focus HOPE, Detroit, MI
General Motors University, Detroit, MI
George Washington University, Department of Teacher Preparation & Special Education, Washington, DC
Harvard University Graduate School of Education, Cambridge, MA
Home School Legal Defense Association, Purcellville, VA
Houghton-Mifflin, Inc., Boston, MA
Maryland State Department of Education, Baltimore, MD
Minuteman Regional High School of Applied Arts and Sciences, Lexington, MA
Montgomery County Public Schools, Rockville, MD
Mountain View Alternative High School, Centreville, VA
Northern Essex Community College, Haverhill, MA
Potomac Job Corps Center, Washington, DC
Raytheon Corporation, Waltham, MA
Thomas Jefferson High School for Science and Technology, Alexandria, VA
US Department of Education, Washington, DC
US House of Representatives, Committee on Education and Labor, Washington, DC
World Bank Human Development Network, Washington, DC

International

Baden-Wurttemberg Schools, Stuttgart, Germany
Department for Education and Skills, London, England
EADS Corporation, Ulm, Germany
Enfield County Schools, Enfield, England
Goethe Gymnasium, Frankfurt, Germany
Tifflin Girls School, Kingston, England
Training and Development Agency, London, England
University of Cambridge, Cambridge, England
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INTRODUCTION:

Education is the foundation of a prosperous and stable society. Aristotle, and other founders of western thought, believed that a community's success depended upon the quality of education provided to its youth. Similarly, the founders of the American Republic, to include Thomas Jefferson, considered education necessary to preserve a free nation and promote a prosperous economy: "Educate and inform the whole mass of the people…They are the only sure reliance for the preservation of our liberty" (1787). Building on this foundation, President Bush (2007) stated, "If this country wants to remain an economic leader in the world, we've got to make sure we have a workforce capable of filling the jobs of the twenty-first century."

The US education industry is at multiple crossroads. Globalization has created a far different world than our founding fathers envisioned. The US has moved from an agrarian to a post-industrial society. What type of education system bests fits this new paradigm? Centralized versus decentralized? Global integration versus isolation? More education investment versus the status quo? These are some of the questions framing the national debate regarding education accountability, quality, and cost as it applies to national education standards, economic competitiveness, and US national security.

To help answer these policy questions, the Education Industry Seminar met with many experts including teachers, administrators, and executives within local, state, federal, and international government, as well as business executives in major corporations. Each member of the team used the knowledge and insight gained during these visits to augment their independent research, culminating in an individual paper on an important industry issue. These papers form the foundation of knowledge used to build this report.

The remainder of this broad assessment is divided into five major sections. The first section outlines the industry as it exists today. The next four sections address the current industry condition, challenges, outlook, and government role and recommendations. How the industry deals with three strategic themes of accountability, quality, and cost during the next few years will determine the paths taken at these critical crossroads. Thus, the report will address three issues illustrating these themes: No Child Left Behind (NCLB) Act reauthorization, international competitiveness, and recruiting and retention of quality teachers. It then concludes with three short essays included to amplify these major issues.

THE INDUSTRY DEFINED:

Today, the US continues to rely on education to attain national security objectives, facilitate social assimilation, enable economic productivity, inculcate basic citizenship values, and empower the disadvantaged to access social mobility and pursue the American dream. The US education framework is highly decentralized, unlike the more centralized systems found in Germany and the United Kingdom. It relies on the cooperative effort of families, local communities, corporations, and the state and federal government. This is a strength and a weakness; it facilitates innovation and flexibility but also limits efficiency and effectiveness.

The education industry is comprised of three sectors. The first sector is the formal education system extending from pre-kindergarten to higher education. Eighty-five percent of American youth are enrolled in K-12 public schooling administered and controlled by the state and local governments within traditional, charter, and magnet schools (NCES 2006-005, Table 2). Paralleling the K-12 public system are private and parochial schools as well as home-

schooling. Beyond the primary and secondary schools lies the realm of higher education. Higher education includes technical and trade schools, two-and four-year colleges and universities, and graduate and professional programs. The second sector includes corporate training and education, adult continuing education, and lifelong learning. Lifelong learning encompasses correspondence courses, personal and professional reading, self-improvement through personal contacts, as well as information sharing and knowledge gathering. Finally, the third sector consists of educational support including textbook companies, testing services, and various suppliers. In its totality, the US education system molds and strengthens American democratic institutions and is the primary means for improving the productivity of the nation's workforce.

The stakes are high given the economic scope of the education industry. Today, public and private K-12 education employs approximately 3.5 million teachers and educates more than fifty million students annually (NCES 2006-005, Tables 2 & 4). Expenditures for the formal education sector alone totaled $827 billion or over 7.5 percent of Gross Domestic Product (GDP) in 2003 (NCES 2006-005, Table 25), with K-12 public education accounting for $500 billion. Both total educational expenditures and cost per student have risen rapidly in the last fifty years and this trend is expected to continue. The cost of educating a student at the elementary and secondary level has increased from $3,000 to over $8,000 during the same period (NCES 2006-005, Table 162). Given the sheer size of this industry, a detailed analysis of all sectors is beyond the scope of this report. This paper focuses on the formal educational sector because it plays a critical role in national security.

What role does education play in supporting national security? In a world of limited resources, sound decision-making entails knowing not only the full range of education's benefits to society, but also their value compared to other investments. Educational programs provide the means to develop the professional and technical skills needed for economic and technical leadership. Paradoxically, rapid advancements made by a highly educated workforce demand a constant refreshing and updating of education to keep pace with new developments. The country is now at multiple crossroads; key challenges in education are associated with the need to maintain global economic competitiveness and domestic social cohesion. Careful thought must be given to potential trade-offs to ensure that investments in education are made without compromising the foundational principles of American democracy.

CURRENT CONDITION:

The health of the education industry is as diverse as our nation – spanning the distance between remarkable success and innovation, to modest, steady progress, and to entrenched deficiencies and failure. As the nation debates the right level of investment in education, Americans are increasingly focused on the quality of student achievement and holding the education system accountable for efficient utilization of resources that lead to student academic success. As an example, the NCLB Act is up for reauthorization in Congress. A benchmark of federal involvement in the formal education sector, the restructure and reauthorization of NCLB will be one of the defining events shaping the future of US education.

No Child Left Behind Act

The NCLB Act of 2001 is built on four pillars: 1) accountability for results, 2) emphasis on doing what works based on scientific research, 3) expanded parental options, and 4) increased

local control and flexibility (Executive Summary, 2005, Slide 93). In order to receive federal funds, NCLB requires states to develop challenging, coherent, and rigorous academic standards in reading and math, and then demonstrate mastery of those standards by achieving Adequate Yearly Progress (AYP) at or above grade level in these subjects by 2014. In addition, NCLB established a requirement to have a "highly qualified" teacher in every classroom by the end of 2006 (Teaching Commission, 2006, p.15). This requirement was not met and is being addressed in the reauthorization debate.

The National Assessment of Educational Progress (NAEP), known as the "Nation's Report Card," measures the proficiency of fourth, eighth, and twelfth grade students in mathematics, science, and reading. Over the period 1990-2005, NAEP test results showed positive performance trends (NMAP, 2006). Fourth grade test scores in mathematics rose across the board, with the largest improvements shown by African-American students. In 2005, thirty-five percent of US fourth grade students tested at or above the proficiency level, compared to only twelve percent in 1990. Eighth grade students showed similar results over the same period; their proficiency rate was twenty-nine percent in 2005, up from fifteen percent in 1990. For high school seniors, sixteen percent were proficient in math in 2000, up from eleven percent in 1990.

While implemented too recently to directly influence NAEP scores, NCLB has had a positive affect on education by focusing national attention and debate on issues of school and teacher accountability, testing, and parental involvement as discussed in detail during the Education Industry Seminar's visit to the Department of Education. It is also consistent with activities ongoing in both Germany and the United Kingdom. In both countries, national debate centers on accountability in the form of a national assessment. In addition, the United Kingdom's *Every Child Matters* initiative expands national accountability by integrating social and welfare systems with schools to meet the holistic needs of the child.

International Competitiveness

In contrast to national standards measured by NAEP, a comparison of US scores against international standards is not as positive. The Trends in International Mathematics and Science Study (TIMSS) test was developed by education professionals, content experts, and measurement specialists from many different countries. In 2003, students from forty-six countries took the test. Fourth and eighth grade students were selected through a random process to ensure the student sample was nationally representative (NCES 2006-029). US eighth grade students showed good progress in both mathematics and science scores when comparing the 1999 and 2003 TIMSS scores. Notwithstanding this internal progress, international comparisons still show the US scores lagging those of other nations. Another international education assessment tool, the Program for International Student Assessment (PISA), tests fifteen year-olds from the Organization for Economic Cooperation and Development (OECD) member countries on math, science, and reading literacy. In the latest PISA in 2003, US students scored below the international average and did significantly worse than students from twenty of the thirty participating countries. These scores highlight concerns among many education industry stakeholders that US students are "falling behind" the rest of the world in math, science, and reading, as illustrated in Figure 1 (for math scores only). However, it should be noted that international comparisons can be misleading. In the US, public education is available to all children. In many of the countries where TIMSS was administered, only a small percentage of students go to school and still fewer take the test (Bracey, 2006, p.163). In addition, US student

performance on international math and science tests is improving in an absolute sense, although this improvement is slower than many other countries.

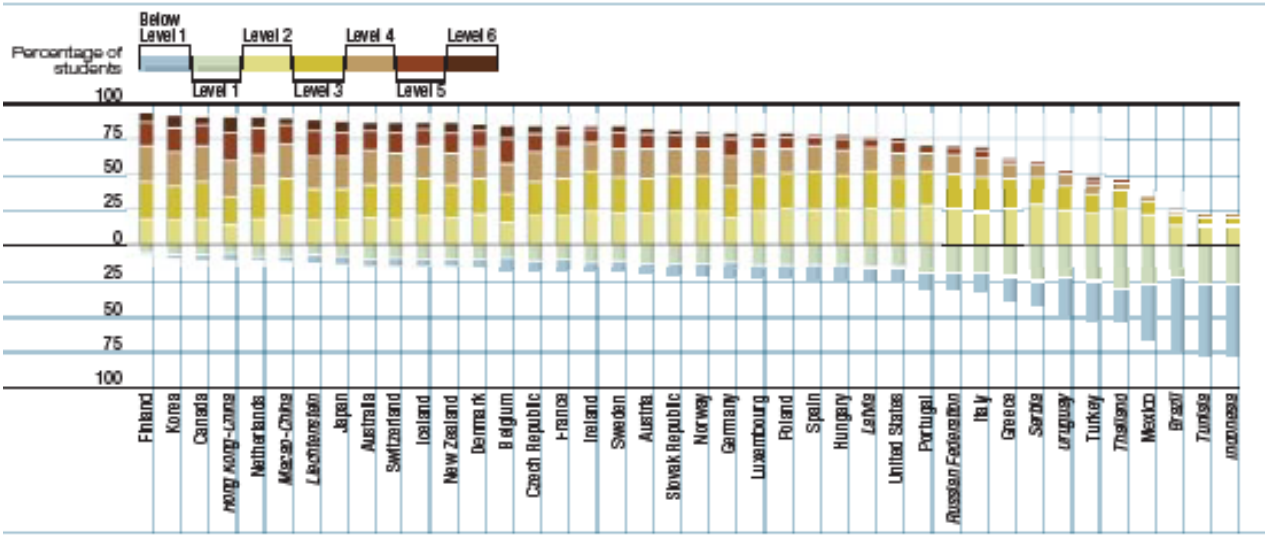

FIGURE 1: PISA 2003 data showing relative mathematics proficiency rankings across OECD member countries. Countries are ranked in descending order of the percentage of fifteen year olds in each of the proficiency levels. Level 1 proficiency is associated with very simple tasks. Level 6 proficiency highlights the most complex and demanding tasks performed by advanced students. The US scored below the international average in mathematics. SOURCE: OECD PISA 2003 Database, Table 2.5a.

While these tests measure math, science, and reading progress, many other important areas of education are not tested, yet are critical to working and living in the twenty-first century. An element of the NCLB Act that receives much less attention and funding is Character-Building Education (CBE). Character refers to the moral and ethical qualities, as well as the demonstration of those qualities, in emotional responses, critical thinking, and behavior. In the rush to make the US more competitive in an era of globalization, many stakeholders have opted to ignore the "soft skills" development taught in CBE programs. Studies show that the US also suffers from a capacity deficiency in all aspects of International Education (IE) – foreign languages, history, and geography (CED, 2006; NAFSA, 2006; McGray, 2006). Currently, only forty-four percent of high school students study any foreign language and less than one percent study strategic language areas (Chinese, Farsi, Persian, and Arabic). The overall enrollment in foreign languages has remained stagnant since the 1980s. The US approach is in stark contrast to the focus given to languages and culture in the European Union, most notably in Germany.

Despite this admittedly poor showing on the part of US students, foreign sources consistently point to certain advantages of "American-styled" schooling, described by Bracey as "the contrast between passive memorization and active participation in the learning process" (2006, p.154). Some experts believe active participation promotes such laudable traits as innovation, creativity, and entrepreneurship (Bracey, 2006, p.154). Indeed, the US higher education system is considered the "gold standard" worldwide. For example, according to National Science Foundation data, the number of doctorates awarded to foreign students doubled between 1986 and 1991 (Marshall, Coffey, Saalfeld, & Colwell, 2004, p.5). This fact is

consistent with the Education Industry Seminar's observations of the European Union (EU) university reform program that emulates US higher education (EU, 1999).

Recruiting and Retention of Quality Teachers

Research shows that quality teaching is one of the most significant factors in improving student performance, and more importantly, closing the gap between the lowest and the highest performing students (Children's Defense Fund, 2004). Teacher quality has been extensively debated, is difficult to define beyond credentialing criteria, and even harder to measure. There is no certification program today that is accepted by all states. Concerns over teacher shortages are growing, especially in the math and science fields. While experts disagree about the nature and extent of the problem, recruitment and retention of the right quality and quantity of teachers is critical. This urgency is compounded by increasing student enrollments, class size reduction initiatives, declining college enrollments in teaching programs, the aging of the current teacher workforce, continuing budgetary pressures, and the prevalence of alternate teacher certification to meet the growing demand.

Public Education Resourcing

The US spends more money per secondary student than most other nations, yet the US continues to demonstrate disappointing performance on international standardized tests, as previously discussed. On a per-pupil basis and adjusted for inflation, public school funding has increased twenty-four percent from 1991 through 2002 (DoE, 2005). State and local governments provide approximately ninety-one percent of the funding with the Federal government contributing the remaining nine percent. Local governments are under significant fiscal pressure since they provide more than forty-four percent of the overall funding (US Census Bureau, 2004, p.9).

For higher education, funding and associated student costs are also areas of concern. The largest portion of revenues for the average four year public college or university comes from state appropriations at nearly thirty-six percent. Sales, including educational activities, auxiliary enterprises, and hospitals run by the universities, provide revenue of approximately twenty-two percent. The federal government provides eleven percent of direct support; tuition accounts for eighteen percent. This federal support consists of grants and contracts. However, these figures are understated since they do not account for federally subsidized student tuition (Snyder & Tan, 2006, pp.533-553).

CHALLENGES:

Forming the foundation for all other industries, the education system must respond to the twenty-first century realities of globalization, rapidly advancing technologies, and demographic changes. As the US moves from the era of the industrial age worker to the knowledge worker, education must change and adapt. The industry must balance the continued growth in cost along with the implementation of accountability programs directed at improving the quality of student achievement. The challenges are finding the right balance across these three areas while maneuvering through obstacles at the multiple crossroads.

No Child Left Behind Act Implementation

Efforts to implement the NCLB Act have created tremendous challenges for the US education industry and the current administration. Some of the most significant challenges are associated with the controversial tenets of NCLB's accountability pillar. Today, academic standards among states vary widely. Because the 2001 legislation allows the states to set these standards, it is impossible to make an accurate national comparison of student progress. Furthermore, allowing states to have this autonomy permits them to set low standards to avoid NCLB-imposed sanctions. In addition, the law requires the use of a single high stakes assessment for all students, testing only math and reading as the sole indicator of school progress. Complicating matters, the expectation for English Language Learners (ELL) and children with disabilities to read at grade level within the one year required timeframe is unfair to individual students and to schools with a disproportionate population of these special needs students.

A second challenge associated with NCLB is teacher quality. As stated previously, the NCLB Act required every classroom to have a "highly qualified" teacher by 2006, a goal that has not been fully achieved. The education community has attempted some measure of standards but the effort lacks overarching national consensus and enforcement. No one state is aligned with another and not all states accept a single certification, but rely instead on fifty unique processes.

A final challenge making the situation more difficult is that adequate federal funds have not been made available to cover all the mandated actions associated with the law. This funding deficit adds to the fiscal pressure on state and local education entities. Additional NCLB implementation challenges are addressed in the included essay.

International Competitiveness – US Advantage under Threat

Some experts believe the US is losing its competitive and comparative advantage due to globalization and the associated gains achieved by other nations. This involves both hard and soft power aspects of national security. With respect to hard power, Lemonick (2006) claims that a decline in the quality of math and science education within the US is partly responsible for the loss of economic and technological advantage. A key challenge in this area is the lack of degreed math and science teachers in US secondary schools. In 2004, over thirty-one percent of high school students were taught math by a teacher without a major, minor, or certification in that area. The numbers are even worse in the sciences, with forty-five percent with degrees in biology, sixty-one percent in chemistry, and sixty-seven percent in physics (Matthews, 2007, p.8). The soft power knowledge gap is evidenced in the low international ranking of US students in aspects of history and geography (CED, 2006; NAFSA, 2006; McGray, 2006). The US education system also lacks adequate capacity to offer courses in strategic languages and where language courses are offered, they are rarely mandatory.

Retention of Quality Teachers

Research by the Brookings Institute's Hamilton Project found sufficient numbers of Americans are interested in teaching (Gordon, Kane, & Staiger, 2006). In fact, studies indicate that teacher retention, and not recruitment, is the larger challenge facing the public school system (Ingersoll, 2001, 2002, 2003). Estimates of teacher attrition have been reported as high as fifty percent during the first five years after graduation (Allen, 2005). Notably, math and science

teacher retention is comparable to teacher retention in other subject areas, with the exception of special education, where attrition is considerably higher. Results from the most recent Teacher Follow-up Survey, as well as the National Commission on Mathematics and Science Teaching (NCTAF), demonstrate that teacher attrition is due largely to job dissatisfaction (Unraveling the Teacher Shortage, 2002). In addition, the teacher workforce is extremely mobile today: teachers continually move in and out of the occupation as well as across district boundaries. Added detail regarding these challenges is provided in the essay section that follows.

Teacher Unions and Student Achievement

The two major unions, the National Education Association and the American Federation of Teachers, can be justifiably proud of a myriad of historical accomplishments across a range of social issues; but whether they can list quality improvements in our nation's 93,000 public schools among their successes has yet to be determined. There is currently a strong perception by some school officials that the unions are primarily concerned with the welfare of teachers, regardless of effectiveness, even when this puts their interests in conflict with the needs of students. School officials and the teacher unions must work together to recognize and better link teacher professionalism and effectiveness with student achievement.

Public Education Cost

As noted in the previous section, the US already spends over seven percent of its GDP on education, and research has shown that there is little link between overall spending and educational achievement. Policymakers must find a balanced mix between NCLB mandates, international competitiveness imperatives, and teacher quality and retention.

OUTLOOK:

After examining the current state of the industry as well as the challenges facing education, this section serves as a portal for policymakers to examine the multiple crossroads associated with accountability, quality, and cost. The perspective presented here provides a link to the recommendations made in the next section.

No Child Left Behind Act Reauthorization

While debate about specific provisions and mandates will no doubt carry on unabated, NCLB, in one form or another, will be reauthorized. With broad national, bipartisan, and even teacher union support for some form of school accountability, few want to see the industry returned to its former state, where there was little movement toward educational performance and qualification standards. The future focus, instead, will move toward implementation issues associated with these accepted principles. Specifically, considerable and heated arguments will ensue over *exactly what standards* will be re-established, removed, or added. This situation applies to standards regarding teacher quality and student performance, particularly with regard to disabled students and ELLs.

International Competitiveness

Although many have concluded that comparative student performance on assessments such as the PISA and TIMSS show that the US is losing ground to international peers over time (ETS, 2007, p.6; DoE, 2004), others caution that there are measurement and sampling flaws with such tests (CPE, 2007). In any event, US students will succeed globally in the long run due to the flexibility of our educational system (Bracey, 2006). However, flexibility aside, without a significant change in either student attitudes or teaching quality with respect to math and science (NMAP, 2006), especially at the high school level, there is little reason to expect that US students will improve their relative standings on future assessments.

The National Science Board has indicated that there will be no increase in American science and engineering graduates through 2010 (Pollack, 2006). To address this issue, President George W. Bush proposed the American Competitiveness Initiative (ACI). The ACI should improve math and science education by 1) increasing funds for training current teachers to lead Advanced Placement courses in math and science, 2) providing funds to support partnerships between school districts and public and private organizations to encourage math, science, and engineering professionals to become adjunct teachers, and 3) increasing financial aid for students pursuing math, science, and engineering degrees (OSTP, 2006). The ACI is expected to be included as part of the NCLB Act reauthorization.

Finally, many students who do begin their undergraduate studies majoring in technical fields are leaving them for others (Meeting, 2006). Given the vested interest of corporate America in the global competitiveness of the American workforce, business will continue its efforts to enhance mathematics and science programs (Raytheon's MathMovesU, Exxon-Mobil Foundation's support for math and science initiatives, IBM's Transition to Teaching, and the Gates Foundation targeted scholarships).

Recruiting and Retention of Quality Teachers

Without significantly more funding for professional career development and consistent certification standards across the states, it is unlikely that most school districts nationwide will meet the NCLB goal to have highly qualified teachers in every classroom anytime soon. Reports like *"What Matters Most: Teaching for America's Future"* by the National Commission on Teaching and *"Teaching at Risk: Progress and Potholes"* by The Teaching Commission (2006) warn that, if the US does not do a better job supporting teachers, it will suffer in the global economy. Engaged, visionary school leadership and a program that includes mentorship, an indoctrination program, peer collaboration, professional development, and interaction between teachers and support staff is essential for building a satisfied, strong and committed teaching staff. A national teacher marketing campaign, similar to the one sponsored by England's Training and Development Agency for Schools, would aid recruitment and retention in the US.

K-12 Public School Alternatives

One consequence of NCLB has been a reinforcement of the general societal trend toward school tailoring, choice, and diversification. There are a number of school choice options to include intra-district public school choice (magnet schools), inter-district public school choice, charter schools, tax subsidies, subsidies to private schools, school vouchers and supplemental

educational services (Smole, 2006, p.2), and home schooling. The Education Industry Seminar visited a number of these schools including the Thomas Jefferson High School for Science & Technology (magnet), the Boston Renaissance Charter School, and the Minuteman Regional High School of Applied Arts & Sciences. The seminar recognizes the value of these programs in meeting individual student needs.

The specific methods of choice afforded to students and their parents depend largely upon state and local mandates, and these are especially important with respect to parents considering the home schooling option. Even with so many choices available, the vast majority of parents (eighty-five percent) will still send their children to public schools (NCES 2006-005, Table 2). Total public elementary and secondary enrollment is predicted to rise from 48.5 million in 2003 to 51.2 million by 2015, while the private school figures are expected to climb from 6.4 to 6.9 million over the same period (Hussar & Bailey, 2006, p.6). Nonpublic school student numbers are likely to continue driving the national conversation concerning the value of school diversity, curricula, and instructional methods (Borja, 2007).

With respect to home schooling in particular, this proportion of the total K-12 student population rose from 1.7 percent (0.85 million) in 1999 to 2.2 percent (1.1 million) in 2003 (NCES 2006-042, p.1). Ray (2004, p.10) believes that there may be three million home schooled K-12 students living in the US by the year 2010. Evidence to date shows a high success rate in adulthood in general, and in college in particular (Ray, 2004). Given American families' reliance on dual incomes, however, it is also unlikely that home schooling will continue to grow indefinitely (Hill, 2000).

Higher Education Cost

Over the last thirty years, the average yearly cost (tuition, fees, room and board) of attending a public four-year college has ballooned from $1,936 to $12,796, and from $3,977 to $30,367 at private colleges, which respectively outpaced inflation by 3.3 percent and 2.6 percent annually (College Board, 2006, p. 11). There is little reason to believe that college cost increases above the rate of inflation will end anytime soon. The Higher Education Price Index shows that the cost inflation for goods and services consumed by colleges and universities is substantially higher than the Consumer Price Index (twenty-two percent versus fourteen percent over the last five years) (College Board, 2006, p.25). In order to competitively attract the best students, colleges will continue to escalate costs as they heavily invest in upgrading and erecting new dormitories, restaurants, laboratories, sports and other facilities, coupled with fierce bidding to attract top faculty (Price, 2003, pp.5-7). Even with rising financial aid, the cost of completing a traditional four-year college degree may remain out-of-reach for some lower-to-middle income students. This problem may exacerbate the high non-completion rate for US college students as compared with other nations (NCPPHE, 2006). During the seminar's visit to the US House of Representatives, Committee on Education and Labor, it was clear that Congress is interested in moving toward greater accountability in the realm of higher education.

GOVERNMENT ROLE AND RECOMMENDATIONS:

As previously discussed, the major goals supported by our educational system include preserving a free nation, promoting economic prosperity while remaining an economic leader in the world, facilitating social assimilation, inculcating basic citizenship values, and empowering

the disadvantaged to have access to social mobility. The forces of globalization, however, are changing the nature of national security by breaking down cultural, political, and economic barriers and freeing up the flow of people, capital, information, and technology, both within the US and across the globe. The challenge lies both in determining how to achieve the educational goals stated above, and what role the federal, state, and local government should have in addressing these goals.

The US Constitution does not assign a specific role in education to the federal government. This fact does not imply that the federal government should not have a role in educating the nation's citizens; rather, the nation must tailor that role to global circumstances now facing the country. International threats to economic and technical superiority, coupled with a new global interdependency, compel the US to consider the need for greater federal involvement in education. This involvement can be accomplished by leveraging federal budget authority, as well as protecting liberty and promoting equality, to encourage appropriate complimentary state and local actions. The following paragraphs will outline strategic policy recommendations to assist the US in navigating the multiple crossroads, while balancing educational accountability, quality, and cost.

Move Toward National Standards

National standards for student performance. To address the inconsistency in state academic achievement standards, the reauthorized NCLB Act should include funding for the development and implementation of mandatory national assessment tests and associated minimum performance standards for all US public school students measured at selected grade levels. State and local school district participation is essential in defining these comprehensive standards and avoiding the stigma of unfunded mandates. In addition, the NCLB Act should also provide more deference to the assessment determinations of special needs students, such as separate minimum standards or the development of fair and accurate growth models.

National board certification for teachers. The reauthorized NCLB Act should incorporate a national board certification that requires all public school teachers to meet minimum standards. Teacher Union participation is essential in developing and implementing these standards. These credentials will facilitate employment mobility, which should improve teacher retention.

Strengthen Math and Science Education

American Competitiveness Initiative (ACI). The Congress should pass the ACI as part of the reauthorized NCLB Act. The ACI should improve math and science education essential for the continued global competitiveness of the US.

Qualified math and science teachers. The reauthorized NCLB Act should require secondary school teachers to have degrees in math and science in order to instruct these classes. With this requirement, the federal government must provide the resources and time necessary to facilitate appropriate retraining and certification.

Strengthen International and Language Education

International education and language strategy. There are more than thirty IE programs administered by four federal departments (Crum, 1982; Kuenzi, 2005, 2007). The US needs a

comprehensive IE strategy to coordinate these efforts, as well as future actions. Added detail regarding this recommendation is provided in the essay section that follows.

K-16 pipeline programs in strategic languages. Accelerate funding and implementation of the current National Security Language Initiative. Added detail regarding this recommendation is provided in the essay section that follows.

Provide Tools to Aid in Teacher Recruiting and Retention

Recruiting and retention "flexible" toolkit. To accommodate the increase in teacher mobility, government at all levels should consider tax relief and exemptions to aid teacher recruiting and retention. Other potential tools at the state and local levels include compensation incentives such as signing bonuses, tuition reimbursement, loan forgiveness, insurance, day care, and housing assistance. In addition, merit pay systems which reward certification, gains in student performance, and teaching in difficult to staff subject areas (math, science, language, and special education) or localities are also effective incentives to increase retention. Added detail regarding these recommendations is provided in the essay section that follows.

Teacher career development and leadership training. Teachers do not leave college with all the skills necessary to excel in the classroom. Effective teaching demands keeping pace with new technology and techniques. Likewise, teaching requires sophisticated leadership skills both inside and outside the classroom. Therefore, local districts should create career development positions to help manage teacher continuing education, professional development, and career progression. Effective education professional development programs must include leadership training at all levels. Added detail regarding these recommendations is provided in the essay section that follows.

Resourcing the Recommendations

Many of the recommendations noted above involve increases in government funding, most from the federal treasury, or reprioritization. The Education Industry Seminar recognizes the challenges inherent in establishing budgetary priorities in an increasingly resource-constrained world. It should be noted that education is foundational to all other industries as well as to national defense itself. Thus, funding for education initiatives must be prioritized for the health of the nation on par with Medicare, Medicaid, and Social Security.

ESSAYS ON MAJOR ISSUES:

NO CHILD LEFT BEHIND: THE WAY AHEAD FOR REAUTHORIZATION

This essay provides background and a discussion of implementation challenges associated with the No Child Left Behind (NCLB) Act of 2001. It provides recommendations and outlook associated with the ongoing legislative reauthorization in Congress.

Background

The NCLB Act of 2001 was passed by a strong bi-partisan backing within Congress and signed into law 8 January 2002 by President George W. Bush. The Act mandates a number of

programs aimed at improving US education in elementary and secondary schools by increasing accountability standards. The approach behind NCLB is based on theories of standards-based (outcome-based) education, which states that high expectation goal-setting will result in greater education achievement for most students (White, 2007, p.1). The legislation expands the federal government's role in public education, with the following requirements: 1) school districts must annually test and meet performance goals for all students in third thru eighth grades and once in high school, 2) all academic teachers must demonstrate they are highly qualified by having a degree in their subject or meeting other criteria of subject matter competence, 3) districts must monitor and close achievement gaps among different groups of students, such as racial/ethnic groups, and 4) nearly all English Language Learners (ELLs) and students with disabilities must take the same subject area tests and meet the same achievement goals as other students.

NCLB has four main components or pillars. The first pillar, stronger accountability, measures student achievement, and reports school's Adequate Yearly Progress (AYP) in state and school district report cards. The second pillar provides more flexibility to states and school districts allowing them to spend up to fifty percent of their federally appropriated Title I funds without approval. The third pillar emphasizes the employment of highly qualified teachers using scientifically-based instruction programs. The final pillar provides parents of children in low performing schools the opportunity to receive Supplemental Education Services (SES) and to transfer their children to a better-performing school within their district.

Challenges in Implementation

One of the more controversial elements of the NCLB Act is school accountability. Proponents of standards-based assessments and strict accountability cite National Assessment of Educational Progress (NAEP) and Trends in International Mathematics and Science Study (TIMSS) scores that consistently demonstrate US students "falling behind" the rest of the world in math, science, and reading. Understanding and responsibly interpreting test data is essential for a credible assessment program. Although NAEP provides much useful information, state curricula are not designed to teach material tested on this assessment. In addition, of the nearly 57 million K-12 students in the US, only 20,000 volunteer students take the NAEP annually (NAEP FAQs). Therefore, comparability between state standards and NAEP is limited. International TIMSS comparisons can be equally misleading. In the US, public education is available to all children but in many countries where tests are administered, only a percentage of students go to school and even fewer take the test. Policymakers must ensure they are making true "apples to apples" comparisons (Bracey, 2006, p.163).

The NCLB Act uses a single annual high stakes assessment, testing only math and reading, as the sole indicators of performance that will determine a school district's fate. Critics of NCLB's accountability tenets complain that school officials are held accountable for circumstances outside their control that contribute to poor student performance. Also, principals and teachers are being held accountable, but have little to no authority over necessary resources to improve their schools. Issues outside teachers control include socio-economic factors, health care, housing, and transient student populations (Wood, 2004, p.vii). Critics also maintain the punitive nature of one set of tests is both unfair and unnecessary and claim that this type of testing causes behavior and outcomes diametrically opposed to NCLB's intended goals (Darling-Hammond, 2004, p.5).

States and districts that set high standards but miss them are at risk of losing funding, even if the state is demonstrating significant progress. The requirement for self-reporting AYP may incentivize districts to set low standards to avoid sanctions for missing goals. Some districts and schools have been accused of wrongly categorizing students. The AYP metric disaggregates test scores, dividing students into subgroups according to race, ethnicity, gender, English language proficiency, migrant status, disability status, and low-income status so that schools can no longer hide lower performing subgroups by averaging a school's scores (Wood, 2004, p.33).

One unintended consequence of reporting a school's disaggregated data has been to highlight a school as failing when in fact it isn't. This is known in the education community as the "diversity penalty" (Darling-Hammond, 2004, p.12). If any one category of student in a diverse school fails to make AYP, the entire school is labeled as needing improvement. All schools must report all categories of students. A school serving a diverse population has many more categories, some of which overlap, creating "failures" in multiple categories, while a more homogenous school reports a smaller number of categories, therefore reducing the number of categories and chance of failing. Also, the vast majority of homogenous schools are in financially upscale suburbs, where spending on students is approximately ten times that of more diverse schools (Darling-Hammond, 2004, p.7). In addition, a school that meets basic standards can also be labeled as high achieving, when it really is not progressing at all.

After five years of NCLB, many states and districts are directly challenging the accountability and flexibility pillars of the law either in court or by threatening to forego the federal contribution to free themselves of NCLB's requirements (Fisher, p.1). At the same time, after five years of curriculum scrutiny, states are getting more sophisticated at preparing rigorous academic curriculum and measuring results. The third pillar, requiring highly qualified teachers and scientifically based teaching methods, faces challenges in teacher retention, certification, and proficiency. American colleges turn out enough teachers to fill all vacancies in the public school system, but their long-term retention rate is low (Weaver, 2003, p.1-3). The reasons most often cited are low pay and prestige, no defined career path, lack of support, and frequent moves between classrooms, schools, and curriculum for the most junior and inexperienced teachers (Teaching Commission, 2006). The final pillar, parental choice and SES face challenges including timely and effective parental notification, availability of high quality schools within the district, the inability of schools to remediate students testing below level *before* they are offered SES, and the diversion of funds from schools that need them the most.

Summary and Recommendations

The concepts and principles foundational to NCLB are here to stay. While it is easy to be fooled by claims on each side of the debate, the US education system is neither as good nor bad as some would suggest. Because of the sheer audacity and ambition of NCLB, including its rather severe implementation and enforcement, a national debate has been transformed into national action and a cultural change is taking place. It has forced the US to both define the type of education system the nation wants for its children and to develop the best way to achieve these goals and measure their effectiveness.

Most stakeholders support some type of national standards or more cross-state comparisons. Regarding accountability, introduction of a more accurate, flexible and fair system developed around multiple longitudinal assessment systems is recommended. On the issue of students with disabilities, NCLB must provide more deference to the assessment determinations

of Individualized Education Program teams and continued development of fair and accurate growth models. With respect to teacher quality, the reauthorization should grant more exceptions to the "highly qualified" teacher credentialing requirements. Regarding teacher effectiveness, there are many disparate proposals and future research is warranted. For ELLs, the consensus is for more flexibility in testing immigrant students, including extension of the time a student may be included in the ELL subgroup for AYP. On the issue of funding, consensus is unanimous – NCLB should be fully funded. However, when competing with other national priorities including Medicare, Medicaid, the deficit, the debt, and the war, as well as the timing of a presidential election year, it is unlikely that funding will increase. The challenges identified above are being addressed by over twenty-seven bills submitted by both Republicans and Democrats currently pending in the US House of Representatives and the Senate.

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RECRUITMENT AND RETENTION OF K-12 PUBLIC SCHOOL TEACHERS

This essay examines challenges as well as promising program and policy solutions associated with teacher recruitment and retention for public elementary and secondary schools in the US. It also provides recommendations to address these challenges at the local level.

Background

The National Center for Education Statistics estimates there will be a six percent increase in public K-12 enrollment between 2003 and 2015, with an increase in public school teachers, up to 3.6 million (NCES 2006-084). In addition to increased enrollments, projections of teacher retirements are as high as forty-two percent as a result of the aging of the current teaching force with a requirement for 2.4 million public school teachers in the next five years (Beach, 2006). If these projections are true, given current teacher education and recruitment programs, can the requirement be met? According to the National Commission on Teaching and America's Future (NCTAF), "the demand for teachers can be easily met by current sources of supply…" (Unraveling the Teacher Shortage, 2002, pp.4-5). Research by the Brookings Institute's Hamilton Project, supports the Commission's findings. The project found sufficient numbers of Americans are interested in teaching, as evidenced by Los Angeles Unified School District's success in tripling its hiring of elementary school teachers following the state's class reduction initiative in 1997. Similarly, New York City's Teaching Fellows Program had 16,700 applicants for 1,850 openings and Teach for America had 17,000 applicants for 2,000 openings (Gordon, Kane & Staiger, 2006).

Ingersoll's work at the University of Pennsylvania supports the finding that teacher retention, and not recruitment, is the larger challenge facing the public school system (Ingersoll, 2001, 2002, 2003). Most researchers agree that teacher attrition rates are greatest within the first five years (as high as fifty percent) (Allen, 2005). The top reasons teachers leave the profession are: 1) retirement (thirty-one percent), 2) a job other than teaching (twenty-five percent), and 3) family reasons (twenty percent) (Marvel, Deanna, Peltola, Strizek, & Morton, 2007). Much attention has focused on math and science teacher attrition, alleging these rates are much higher than for other subject areas. Is this an accurate assessment of teacher attrition and is there a disproportionate attrition rate among math and science teachers?

Results from the 2004-2005 Department of Education Teacher Follow-up Survey (TFS) on Teacher Attrition and Mobility are based on the previous year's Schools and Staffing Survey. The survey sampled three million K-12 teachers to determine teacher attrition and mobility behavior (movement between schools and districts). The survey notes the percentage of teachers who leave the profession has been fairly consistent over time. Among the subject areas, the largest losses to teaching were found in Special Education (ten percent) and English and Languages (7.8 percent). Math and Science "leavers" were 6.8 percent and 5.9 percent, respectively. The National Commission on Mathematics and Science Teaching for the 21st Century conducted an assessment of math and science teacher retention (NCMST, 2000). The study, and its supporting research, found that turnover rates for math and science teachers were not higher than for other teachers. Also, the reasons math and science teachers left teaching did not greatly differ from other teachers who left the profession. Most departures were due to job dissatisfaction or to pursue other career opportunities (Ingersoll, 2000). Both the commission and the TFS did not find a disproportionate loss rate among math and science teachers. The Education Commission of the States (ECS) finds that between twenty-five and thirty-seven percent of teachers that leave the profession return to teaching later in their lives. This may help mitigate high attrition among new teachers (Allen, 2005).

Challenges in Teacher Retention

Compensation: Is higher pay the answer to teacher retention problems? Research does not provide a clear answer to this question. Salary was not one of the top reasons for leaving teaching identified in the TFS (Marvel, et al., 2007). While some studies find a growing salary gap between teachers and college graduates (up to $32,000 for those with Masters Degrees), these results have not been linked to retention (Chaika, 2005). Podgursky conducted comparative salary research based on a local market assessment and found that, relative to comparable careers, teacher compensation is adequate to attract qualified individuals to teaching. While there may be a good case to pay more for teachers who perform exceptionally well or who will work in hard to staff schools or subject areas, there is not a need for across the board pay increases (Podgursky, 2006). Notably, the ECS found evidence that working conditions may be more important to retention than salary alone. Their research indicates that the relative salary between districts is important, since the local labor market matters more than the national one (Allen, 2005). There appears to be a basic pay level that must be met to draw teachers already predisposed to teach. Beyond that, other factors have a strong influence.

Support Programs and Working Conditions: Support mechanisms, including opportunities for professional growth and collaboration were found essential to retention and new teacher success (Hammen, 2005). Teachers are not effective from the first moment they enter the classroom, so training and mentoring are important for retention (Olson, 2007). New teachers reported needing more interaction with colleagues and training; they felt communication and support from school leaders was inadequate (Recruitment Briefing, 2005). These findings dovetail with numerous studies that show the importance of a strong, supportive, and involved principal and administrative staff. Being accessible, providing developmental opportunities, mentoring and clear evaluation processes were key supervisory behaviors that improved retention (Hope, 1999). In fact, reduced teacher turnover was found in schools that provide more administrative support to teachers (Ingersoll, 2002). Principals with high retention focus on the teacher and emphasize training (The Principal Effect, 2004).

Policies: Policies that offer higher levels of faculty decision making and autonomy also help maintain higher teacher retention (Ingersoll, 2002). NCTAF identified development and maintenance of professionally rewarding career paths for teachers, mentoring programs, and policies that focus on streamlining hiring and administration as central issues for retention (Unraveling the Teacher Shortage, 2002). Strong induction programs improved retention, as did formal assignment of a coach/mentor, programs that link research and practice, and formation of peer study groups (Watkins, 2005). Because teachers respond best to intrinsic rewards, policies built on intrinsic values that encourage educator input and opinion sharing improve retention (Bradley & Loadman, 2005).

Promising Programs and Policies

A number of innovative programs and policies have been implemented at the federal, state, and local level to address teacher retention challenges. Compensation initiatives are most successful when they respond to supply and demand imbalances at the local level, and are re-evaluated and tailored to meet evolving market needs at the district level and individual school. A number of states recognize the importance of accessibility to the larger teaching market. Forty states plus the District of Columbia recognize each other's credentialing system and forty one states use alternative recruitment strategies to bring professionals with diverse backgrounds and life experiences into the classroom (Chaika, 2005). Signing bonuses are being used successfully to recruit challenging positions in hard to fill subject areas and school locations. Many require a specified longevity to be eligible for receipt of the full bonus. People are responding to incentives that offer direct monetary compensation as well as indirect financial benefits, like housing assistance, scholarships, and subsidized daycare. Clearly, incentives can't substitute for an inadequate base salary, but they can adjust job attractiveness to fill priority teaching positions.

Several innovative talent initiatives exist that are breaking old paradigms. Thomas Payzant's "Boston Teacher Residency Program," uses a medical residency model to develop teacher "residents." Students spend an entire year in the classroom under the supervision of a teacher mentor. These sessions are combined with focused instructional periods tailored to the school and classroom. The students earn a Master's degree, receive a stipend, and are covered by health insurance. With a retention rate of 96 percent, the program makes a strong case for mentorship and professional development (Solomon, 2007). IBM's "Transition to Teaching" program offers an innovative approach to bringing retiring corporate math and science professionals into the public classroom (Beach, 2006) and dovetails with the President's goals outlined in his American Competitiveness Initiative (ACI Overview, 2007). Several other countries such as Japan, Singapore and Switzerland are approaching their teacher retention challenges with innovative indoctrination and development programs (Olson, 2007). The most promising US initiatives focus on career development as well as performance based pay, like the "Teacher Advancement Program" and the "Professional Compensation System for Teachers" (Jacobson, L, 2006; Olson, 2007).

Summary and Recommendations

A comprehensive and systematic approach is necessary to tackle the challenges associated with teacher recruitment and retention. As the research demonstrates, problems in overall recruitment are not driving state and district teacher shortages. Teacher retention is the

larger issue. Addressing related challenges in a systematic and aggressive way is best approached at the local level, because shortfalls in teacher supply are a function of many interacting variables, which come together at the local level.

From a systems perspective, it is time for America to change paradigms on the teaching profession. Migration between teaching and other employment may be a natural by-product of the increasing employment mobility, especially among American women. Future teachers may not plan to enter the teaching profession as a permanent, thirty or forty year career, but rather step in and out of the profession as circumstances and opportunities unfold. Public schools may see a steady mix of movers, stayers, and new teachers. If this shift continues, maintaining a flexible kit of effective retention tools at the local level will become even more important. The value in these tools is the district's flexibility to interchange them and innovate, as circumstances shift and needs warrant. Indoctrination, professional development and in-service training programs will continue to be foundational for teacher and school success. To facilitate this paradigm shift, districts should create a career development position to manage continuing education, professional development and career progression for their teachers, with the focus on creating a true learning organization.

Principals must take a more active role in the retention of their teachers. Research demonstrates that their action, or in-action, has long-term and significant consequences in teacher retention behavior. As leader, they define the mission, vision and guiding principles of the team. They must lead the professional development of their staff, create opportunities for professional interchange and synergy among their teachers, keep communication channels open, take an active role in all facets of the learning environment, and engage teachers in planning and decision making. Teachers who are engaged, have meaningful work, and feel trusted as valuable members of a team will embrace challenging assignments, drive student achievement, and remain in the teaching profession.

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THE ROLE OF INTERNATIONAL EDUCATION IN THE UNITED STATES

To be an effective world leader and partner, the US needs to develop a cognitively sophisticated, tolerant, and intellectually flexible citizen base. The US educational system provides the means to support this strategic need. This paper reviews the current condition of International Education (IE) programs in the US and proposes policy initiatives to strengthen the domestic base of national security.

Background

Today over fifty percent of the world's adult population speaks more than one language in contrast to nine percent of American adults. Why is the US so far behind? Federal and state governments have funded and sponsored a wide array of IE programs since the 1960s. Experts state that today's programs are failing to meet the emerging requirements of the global era and that there is an urgent need to build new and different capacity (Nye, 2007; Mc Gray, 2006; Suarez-Orozco, 2005). Transnational forces of globalization are fundamentally changing the nature of national security; cultural, political, and economic barriers are being dismantled freeing up the flow of people, capital, information, and technology. The era of bipolarity has ended;

there are new centers of economic power such as China and India and security threats now come from the Middle East and Africa. Effective management of these global issues will require a greater degree of domestic capacity to understand and communicate with people and cultures far beyond US borders.

IE programs have been connected with national security concerns for many years. For instance, Nye (2007) discusses the critical role they played in winning the Cold War and states that the US is now squandering the competitive advantage it has enjoyed in the past. IE programs can be traced back to the *Sputnik era* and the National Defense Education Act (NDEA) of 1958. The NDEA recognized that education was a national unifying force and provided the impetus for new initiatives such as student exchange programs, foreign area studies, and language training. Today's IE programs are a legacy of this Cold War legislation.

Current Assessment and Initiatives

The No Child Left Behind (NCLB) Act does not contain provisions on foreign languages, while students in other countries have compulsory standards. The European Union recently issued a policy requiring foreign language for students starting at age seven (Andalo, 2007). Coupled with the foreign language "deficit" is the lack of proficiency in US history and geography. The latest national scores found that only eleven percent of seniors demonstrated proficiency in history (CED, 2006; DoE, 2001). In geography, the US ranked eighth out of nine major countries in a recent survey (CED 2006; NGS, 2006). This lack of knowledge has consequences for IE. Studies show that without a baseline of knowledge in history and geography it is more difficult to learn foreign cultures (Adler, 2002; CED 2006).

Most leaders and experts agree that it will take a comprehensive approach at multiple levels to overcome the current knowledge deficit (DoD, 2005). President Bush launched the National Security Language Initiative (NSLI) in 2006 to provide additional federal capacity. NSLI is built around three broad goals: 1) increase the number of Americans mastering critical language needs, 2) increase the number of advanced-level speakers of foreign languages with an emphasis on critical languages, and 3) increase the number of teachers of critical languages (Dominguez, 2007). One promising NSLI effort is Department of Defense (DoD)'s Flagship Program. The concept is to link K-12 students with universities to create seamless K-16 language pipelines. The DoD and Department of Education plan to expand the number of pipeline programs from the three to 100 in the next five years.

State governments will bear the major responsibility in developing IE capacity. Most states are still slow to come to the table with many concrete policies and programs. Only twenty-nine states offer immersion programs, less than five percent of elementary school students are enrolled in foreign languages, two-thirds of school districts report that resources for IE are non-existent or inadequate, and school principals in minority districts forecast further decreases in support for IE (CED, 2006). West Virginia is often mentioned as a leader in IE policy, as are Delaware, New Jersey, North Carolina, Wisconsin, and Wyoming. These states are leading the way by developing strategic plans, pilot programs, graduation requirements, and teacher training programs at the primary and secondary level (CED, 2006; McGray, 2006; NAFSA, 2006). The key task for the states is to develop policies to make IE a core subject at all levels of education.

Non-government organizations and business leaders are also beginning to play more prominent roles. The Committee for Economic Development (CED) reports that US companies have lost over two billion dollars in business revenue due to cultural misunderstandings and over

thirty percent of firms stated that a monolingual workforce costs business opportunities overseas (2006). Business leaders are participating in DoS high-level exchanges in Asia to expand student exchanges. Student exchange programs are growing, up 7.4 percent since last year (Figure 1). However, there is no strategic focus to place students in critical language areas. Seventy-five percent of students continue to choose Europe and Latin America for their studies, while only eight percent of students travel to critical language areas. Figure 2 shows the number of foreign students attending US institutions of higher learning. This is a very important component of IE strategy (Nye, 2007). The State Department is adding funding to strengthen both the domestic and international travel abroad programs.

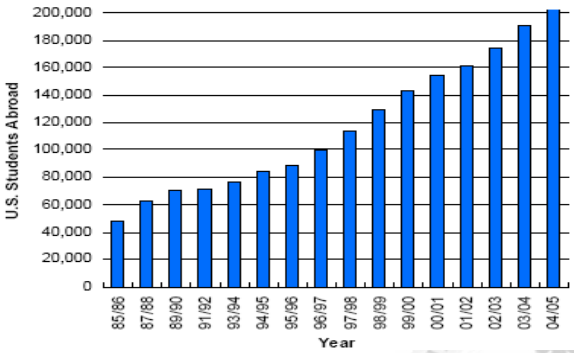

Figure 1: US study abroad trends
SOURCE: IEE, 2006.

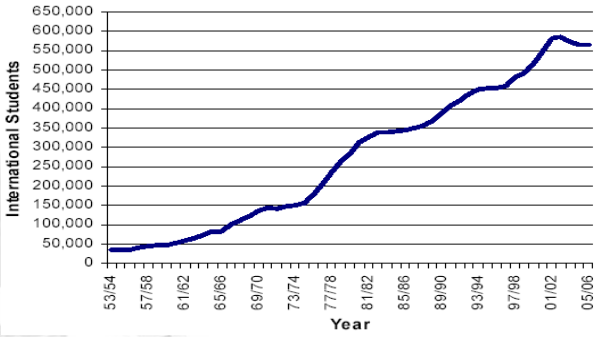

Figure 2: Total international student enrollment trends

Finally, the initiative with the most potential comes from the College Board (CB). The CB sets the standard for Advanced Placement (AP) testing across the nation. In 2008, the CB plans to add more emphasis on global issues in the AP history exam and to have AP tests in Chinese and Japanese for the first time. This may compel states to accelerate action to strengthen IE programs.

Summary and Recommendations

Education has always played a critical role in national security. In the twenty-first century with increasing economic and cultural interdependency, the US is at a crossroads in terms of developing a new national strategy for education. This is achieved through human capital educational policies focused on science, technology, engineering, and mathematics. However, there is a concomitant need to broaden the scope and role of IE; the US can no longer afford to have a provincial view of the world. Citizenship education curriculum and pedagogy need to be augmented; they need to go beyond the traditional national perspective to include more international perspective and context. Freedom and prosperity at home requires an understanding of the complexities abroad.

The short-term outlook for comprehensive reforms is not promising due to funding constraints. There are the competing demands of the NCLB Act and the level of new investment in NSLI is very small in comparison to other federal initiatives (McGray, 2007). Fundamentally, a new approach is needed with more explicit policies coming from the top. Local level interest is non-existent; there is less than nine percent support for IE in local schools (ETS, 2006). Without grassroots demand, supply must be provided from the top.

There are pockets of excellence that I recommend as a baseline for action. The first is to expand the K-16 pipeline program nationwide as soon as possible. A second recommendation would be to create a comprehensive national IE and language policy (industrial and citizenship education) to institutionalize commitment and action. A third recommendation is to create a National Language and Culture Foundation similar to the National Science Foundation (NSF) to drive IE innovation. The NSF model is particularly useful given the multiple levels of authority, interest, resources, and expertise in synchronizing this complex area of strategic concern. A fourth recommendation is to recalibrate strategy. There is too much emphasis on the Cold War hard power (Nye, 2007) aspects of IE (languages) and not enough on broader initiatives to expand cultural awareness and global context. Finally, strategic measurements for success are needed; current initiatives are not outcome based. Adding language proficiency and expanding the number of student exchanges are laudable goals, but what level of capacity is truly needed? To reduce capability to the "number" of linguists and translators is neither strategically nor economically smart. A careful and balanced plan is needed to ensure good strategic outcomes and the effective use of national resources.

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CONCLUSION:

The US education system is solid overall, as indicated by the desire of other countries to copy its inherent ability to foster innovation, creativity, and critical thinking. Nevertheless, policymakers must address certain challenges to ensure long term economic prosperity, technological superiority, and an enlightened citizenry. The NCLB Act reauthorization must fix key implementation issues to ensure continued accountability within the system. To compete in an increasingly globalized international market, the US education system must produce more science, technology, engineering, and math graduates. At the same time, courses in language, history, and geography are also important to promote an international perspective and cultural awareness. Lastly, quality instruction in the classroom is one of the most important elements in a high achieving school. State and local administrators must aggressively address retention and leadership to keep the best teachers in the classroom.

The education industry is absolutely critical to national security and other industries, yet is at significant multiple crossroads. Globalization has highlighted the importance of accountability, quality, and cost in the education of America's citizens. A more centralized education system has many advantages, and the US should move in that direction with respect to national standards. However, careful thought must be given to potential trade-offs between federal, state, and local involvement to ensure these changes are made without compromising the foundational principles of American democracy. Isolation is not an option for the US today; the education system must produce the skilled workers necessary for the twenty-first century. Finally, more funding alone is not the answer to the education system's challenges. Investment increases at all levels of government must be carefully targeted to specific issues.

The illiterate of the 21st century will not be those who cannot read and write but those who cannot learn, unlearn, and relearn – Alvin Toffler

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