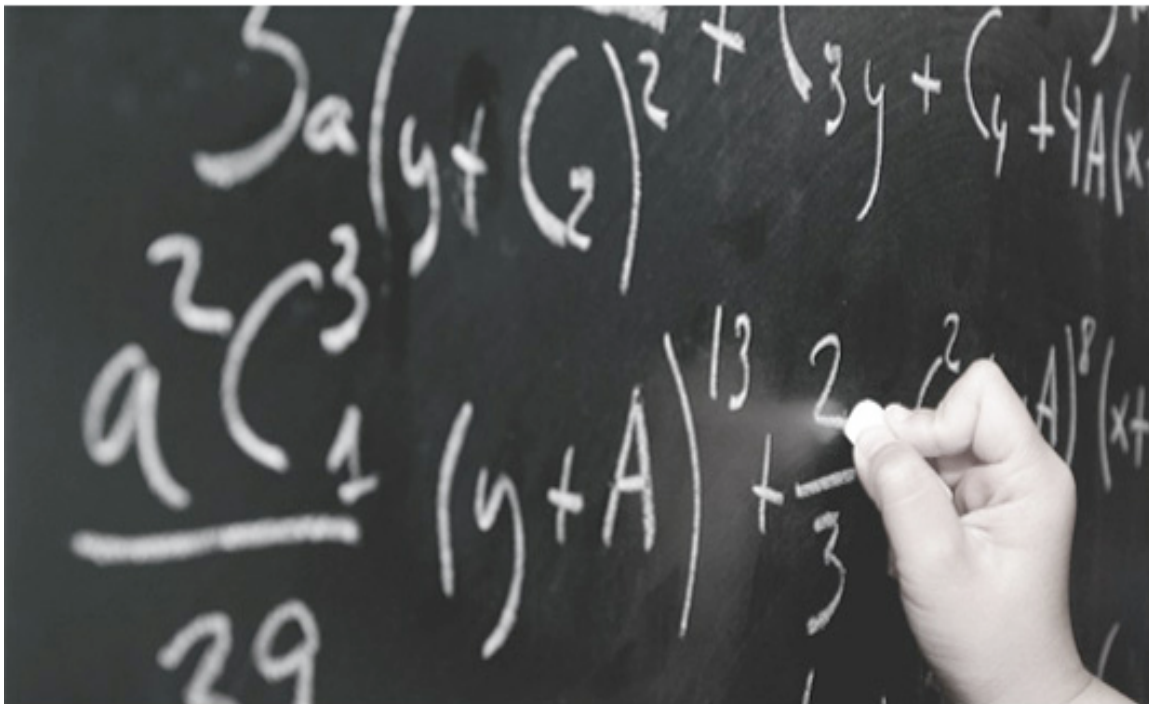


# The Mounting Crisis

A Call To Action: Sustaining America's Competitive Edge  
Through Quality Education



**Ronald F. Stowe**  
National Director

© 2008 America's Edge

# TABLE OF CONTENTS

## **The Mounting Crisis**

A Call to Action: Sustaining America's  
Competitive Edge Through Quality Education

<b>EXECUTIVE SUMMARY</b>	.....	i - iii
<b>THE MOUNTING CRISIS</b>	.....	1
What Business Leaders Want and Need	.....	3
The Challenge	.....	5
What Business Can Do	.....	10
Key Roles of Quality Education	.....	11
Valuing Early Education	.....	12
<b>CONCLUSION</b>	.....	16
<b>APPENDIX</b>	.....	17
<b>ABOUT AMERICA'S EDGE</b>	.....	18
<b>ACKNOWLEDGMENTS</b>	.....	19
<b>NOTES</b>	.....	20

AMERICA'S EDGE  
1212 NEW YORK AVENUE, SUITE 300  
WASHINGTON, DC 20005  
(202) 408-9282  
[www.AmericasEdge.org](http://www.AmericasEdge.org)



**THE MOUNTING CRISIS**  
**A CALL TO ACTION**

*Sustaining America's Competitive Edge  
Through Quality Education*

**EXECUTIVE SUMMARY**

Our nation's ability to compete in the rapidly changing global marketplace and the vitality of American society are threatened by our failure to prepare our students with the academic competence and 21st Century Skills essential for success. While many other countries are moving ahead to prepare their incoming workforces to meet the demands of the modern economy, much of the American education system continues to prepare for an industrial economy that no longer exists.

American productivity and competitiveness are being undercut by slowing workforce growth, stagnant educational performance and achievement, and a steady increase in the number of low-skilled employees entering the American workforce at the very time when more workers, with higher levels of education and more complex skills, are urgently needed. Many other countries are experiencing extraordinary growth in the size of their modern workforce, their skills and educational competencies, and their connections to the global economy that now allow them to compete directly with American businesses, anywhere in the world. The vitality of the American economy, and of American society, are at stake.

Alarms have been sounded for decades, confirmed by volumes of convincing research, and now the crisis is here. American businesses have a great deal at stake – as well as a great deal to offer – in developing necessary solutions.

For America to retain and assert its competitive edge, quality education for the 21st Century must begin in the earliest years of a child's life, and must be sustained throughout a life-time of learning. In order for American public education to succeed in making the changes required, business leaders need to work together with educators to identify the knowledge, skills and attitudes needed for successful outcomes today and in the future, and to ensure that they become imbedded in every student's learning experiences. Business leaders need in turn to work together

with public officials to ensure availability of the public support and funding required to make and sustain these essential changes in our approach to the modern education system.

American business leaders bring unique and needed professional insights and resources, and they must engage with the pragmatism, creativity and sustained energy that they ask of others if this effort is to succeed.

## WHAT BUSINESS LEADERS WANT AND NEED

- **Applicants ready to work:** Business executives nationwide cannot find sufficient numbers of workers with a basic competence in reading and math and the basic skills of teamwork, oral communications, initiative, and a highly developed work ethic, all of which are now fundamental to the ability of employees to succeed and the ability of businesses to compete.
- **Economic and social challenges:** The impending retirement of over 77 million experienced and skilled baby boomers, without a ready supply of qualified and prepared workers coming behind them, leaves American business at a huge disadvantage. Moreover, the new global economy is knowledge-based and innovation driven, and to compete, American business needs more employees with new competencies and skills, which are alarmingly difficult to find.
- **Both manufacturing and the service industry are dramatically changing:** Complex skills sets – including creativity, problem solving, communications, teamwork, and the ability to adapt – are now required in both. Even apart from future growth demands, tens of thousands of jobs, with excellent salaries and across all skill levels, are unfilled because of the lack of qualified applicants.

## WHAT BUSINESS CAN DO

### *A NEW ROLE FOR BUSINESS IN EDUCATION*

Quality education with a 21<sup>st</sup> Century focus holds the key to American competitiveness. Business leaders have a unique and much needed perspective about the attributes required for success in today's global economy. They should use their experience, resources, and creativity to

- **Identify specific knowledge, skills and attitudes that are needed for success in the 21<sup>st</sup> century workplace,** based on their first-hand understanding of what is needed, and of the deficiencies they all too often find in applicants;

- **Work with educators to identify and support specific and sustained local solutions that will integrate those outcomes appropriately and effectively into every child's learning experience**, including active participation in ways that will support the interests and needs of both educators and students; and
- **Build public support for adequate and sustained programs and funding** that will expand access to quality education opportunities to all children and students, from their earliest years through life-long learning, preparing them to meet the challenges of the modern workplace and to be productive members of society.

### **VALUING QUALITY EDUCATION AT EVERY AGE**

- **For every age level and skill:** High quality education and development are essential to prepare for the modern workplace at every skill level, beginning from a child's earliest years and continuing through adulthood.
- **High quality early care and education:** Employers who offer their employee families access to these services will expand their pool of qualified applicants, increase retention, and improve employee satisfaction and productivity. Both science and experience also clearly indicate that early and sustained intervention can dramatically improve the life-course trajectories of young children, improving both their lives and establishing the foundation for development of behavior and skills essential for later success.
- **High quality education through and beyond high school:** Access to high quality education, career awareness and training, and a focus on making learning relevant to student interests and skills will promote enthusiasm about learning, reduce dropout rates, and help develop the skills and attitudes needed for success in the global economy.

### **CONCLUSION**

The quality and focus of American education, from birth to adulthood, are at the heart of the challenge to maintain and enhance America's ability to compete in the global economy. Business leaders must take the initiative now, with specific, meaningful steps that move well beyond expressions of concern and exhortations, to become active partners and supporters of educators and public officials, and to ensure that business perspectives, experience and resources are a key part of both local and national solutions—solution that are needed now.

**Ronald F. Stowe**  
*National Director, America's Edge*  
**June 2008**

# The Mounting Crisis

A Call To Action: Sustaining America's  
Competitive Edge Through Quality Education

## Growth in the Labor Force

Last 20 years: 44 percent  
Next 20 years: 0

## Increase in workers with more than high school education

Last 20 years: 19 percent  
Next 20 years: 4 percent

## Immigrants as share of the workforce

Twenty years ago: 21 percent  
In 20 years: 55 percent

*Source: Aspen Institute*

In today's global economy, talent, knowledge, and contemporary skills are the keys to success for companies, communities, and the country as a whole. The quality and focus of education — from birth through adulthood — are the most important factors in determining whether these important attributes are developed, and whether America sustains and expands its competitive edge. Business leaders must engage with educators and public officials to ensure our success.

Four long-term demographic trends are undercutting American competitiveness:

- Workforce growth is slowing, hindering GDP growth
- Educational performance and achievements are stagnant
- The percentage of high-skilled workers will decrease with the surge of baby boomer retirements
- The percentage of low-skilled immigrants in the workforce is growing

In contrast, many other countries, with large percentages of their populations under 25, are experiencing extraordinary growth in workforce size, skills and education competencies. New global interconnections are beginning to make it far easier for businesses in other countries to compete head-to-head with businesses based in the United States. Education systems in many other countries are keeping pace with or even outstripping those in the United States in ways that undercut our ability to compete.

What was unimaginable a generation ago has begun to occur — others are matching and surpassing our educational attainments.

*Source: U.S. Department of Education, 1983*

Globalization is changing the playing field in profound ways. Global enterprises and networks transcend national boundaries; hundreds of millions of middle class consumers reside outside the United States; and millions of new, often well-educated, workers in other countries are creating a global competition that attracts wealth-creating investments and high wage jobs. In short, America is faced by new levels of competition from workers from other countries who are more numerous and increasingly more

productive than ever before. What is clear is that America will need new strategies to compete successfully in this global economy, beginning with education and training.

Designed largely to meet the needs first of an agricultural and then of a mass production industrial economy, public education in America has failed in many respects to change with the rapidly evolving demands of the global economy. Urgent calls for reform need to be met by action in content as well as in funding. America's education sector today faces a changed and intensified competition from around the world as much as American business faces such changes. Our success in developing education systems designed for the future will profoundly impact the ability of the United States to succeed in the new global economy. According to a report by the United States Chamber of Commerce:

*The United States in the 21st century faces unprecedented economic and social challenges, ranging from the forces of global competition to the impending retirement of 77 million baby boomers. Succeeding in this new era will require our children to be prepared for the intellectual demands of the modern workplace and a far more complex society. Yet the evidence indicates that our country is not ready... U.S. schools are not equipping our children with the skills and knowledge they—and the nation—so badly need.<sup>1</sup>*

As the largest consumer of the American public education system, business leaders can and must help inform, shape and support the process of modernization across the full education spectrum, from the earliest and most formative years of a child's life through entry into the workforce. Most immediately, business leaders can help identify the knowledge, skills and attitudes required for success across the modern workplace, and can work with educators to ensure that those attributes and outcomes are included in every student's learning experience.

## WHAT BUSINESS LEADERS WANT AND NEED

National studies show a widespread concern among business leaders not only about the numbers of available employees, but equally about the quality of their preparation for positions at every professional level.

A recently published analysis called *Are They Really Ready To Work?* summarized the views of Human Resources officers of over 400 companies based on interviews asking them to identify what knowledge and skills they need and are looking for in applicants for jobs across a wide range of skill levels, and what they are finding. Officials from small, medium and large companies all made quite clear that they urgently need, but are hard pressed to find, sufficient numbers of qualified new applicants. Respondents clearly stated that they need employees who bring:

*Not only the basic skills—reading, writing and math—but in the 21st century business world... a range of applied skills directly related to the workplace (which are) critical to success. When asked to rank skills in terms of their importance in the workplace, employers put professionalism, teamwork and oral communication at the top of the list.<sup>2</sup>*

However, those employers also painted a depressing picture of what they actually are finding among job applicants:

*Less than a quarter of employers (only 23.9 percent) report that new entrants with four-year college degrees have “excellent” basic knowledge and applied skills, and important deficiencies exist among entrants at every level. The deficiencies are greatest at the high school level, with 42.4 percent of employers reporting the overall preparation of high school graduates as deficient; 80.9 percent reporting deficiencies in written communications; 70.3 percent citing deficiencies in professionalism; and 69.6 percent reporting deficiencies in critical thinking. Although preparedness increases with educational level, employers noted significant deficiencies remaining at the four-year college level in written communication (27.8 percent), leadership (23.8 percent), and professionalism (18.6 percent).<sup>3</sup>*

Employers interviewed by America’s Edge consistently reported that they urgently need and are ready to hire many more qualified employees than they can find, especially at entry and middle skill levels. When asked to define more specifically both what they are looking for and what they are finding, employers repeatedly confirmed that they need but have difficulty in finding enough applicants who bring not only basic competence in math and reading, but also an increasingly critical competence in fundamental life skills and work ethics. Typical statements include the following:

*In addition to basic competencies in reading and math, employees need to bring a foundation of skills including creative problem*

*solving, teamwork and, perhaps most importantly, highly developed work ethic...So-called soft skills are no longer soft; they are becoming indispensable.<sup>4</sup>*

*Even the most fundamental jobs today require an ability to read and understand manuals, to apply computer technology to assembly and manufacture as well as to research, and to work quickly together in teams to identify and to solve problems.<sup>5</sup>*

*Children coming out of high school are computer savvy but have no common sense – they do not know what to do when confronted with a problem, and instead of asking for help they will sit there and look at the wall or ruin equipment simply because they do not know how to engage a supervisor or co-worker in a conversation to ask for assistance.<sup>6</sup>*

*Basic communications are a problem: I mean just conversational English, not technical language, but the ability to bring a problem to someone's attention, to articulate concerns, to talk with their co-workers – a basic element of emotional intelligence.<sup>7</sup>*

*The main thing we see is no work ethic at entry-level positions – trying to get them even to show up regularly at work is a challenge.<sup>8</sup>*

*Framework thinking; understanding the interrelationship of all the elements they are working with; creative and iterative thinking; open to new ideas and influences; ability to move to a final, well-designed product at deadline; honesty.<sup>9</sup>*

*The critical issues we look for are integrity, the capacity to think and create and being great with other people. Without integrity nothing works. It means that there is a high commitment towards the fulfillment of what they say and when there are circumstances beyond their control, they alert those who are involved, before the due date.<sup>10</sup>*

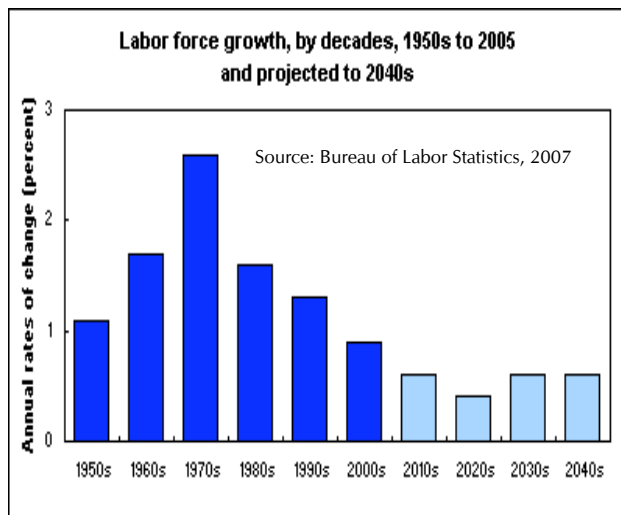
In brief, employers consistently confirm that both traditional fundamentals in math, reading, social skills, and ethics, combined with well-developed 21<sup>st</sup> Century skills are increasingly needed today at every level across the employment spectrum. Employers repeatedly confirm that they are substantially disadvantaged in their ability to compete because, notwithstanding the availability of many well-paying jobs across all skill levels, they are unable to find enough qualified applicants.

## THE CHALLENGE

### Demographic trends present growing challenges

#### A Slower Growth Workforce

For more than five decades, America's growing labor force helped drive economic expansion. With the emergence of the baby boom generation and the entry of women into the workforce, the number of workers grew by about 1.7 percentage points each year between 1948 and 2001.<sup>11</sup>



The growth in the labor force is starting to slow down as baby boomers retire and participation rates, especially by women, level off. According to the Congressional Budget Office, labor force growth will add only 0.9 percent to potential GDP growth between 2007 and 2012; it will continue to slow to 0.5 percent between 2013 and 2017. Absent faster gains in workforce quality (the other key determinant of labor productivity) the above developments could substantially slow down future GDP growth.<sup>12</sup>

#### Declining Growth in Educational Attainment

For most of the 20<sup>th</sup> Century, education drove steady increases in workforce quality; in every successive generation, incoming workers were more educated than those being replaced. The influx of better-educated workers allowed employers to exploit new technologies and create more flexible, adaptable workplaces which could respond better to the more dynamic business environment.

This rate of growth in education levels is also beginning to flatten. Between 1980 and 2000, the number of workers with education beyond high school increased 19 percent; over the next 20 years, the increase is expected to be just 4 percent.<sup>13</sup> Nearly one-third of students in America leave high school without a diploma. For minorities, the rate is closer to 50 percent.<sup>14</sup> Not surprisingly, English speaking skills are directly correlated with the level of educational attainment. Nearly 8 out of 10 new immigrants lacking a high school diploma reported that they either could not speak English at all or could not speak it well.<sup>15</sup>

Although the complexities of the modern economy are increasing the demand for skilled workers across virtually every level of employment, our education system struggles to keep pace with past demands, much less to meet the need of our changing demographics.

## Stagnation in Educational Performance

Current trends in educational performance are shocking:

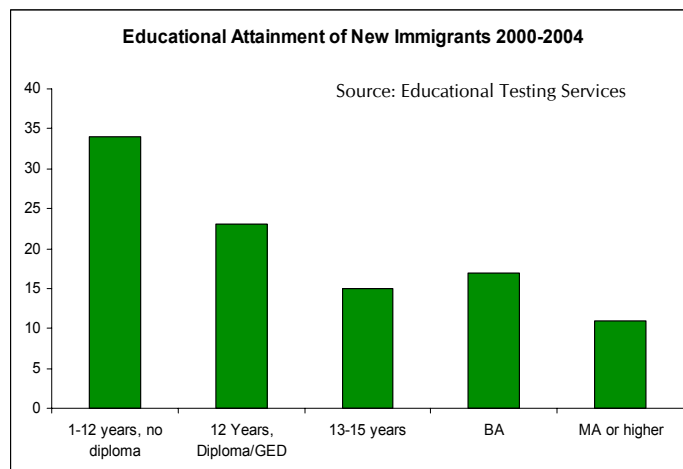
- Eighty-five percent of young Americans cannot find Iraq or Iran on a map, while 25 percent of college-bound seniors cannot find the Pacific Ocean.<sup>16</sup>
- SAT scores have remained flat.<sup>17</sup>
- Between 1984 and 2004, reading scores among 13- and 17-year-olds on the National Assessment of Educational Progress (NAEP) remained static, and the achievement gaps were large and relatively stable. The achievement gaps between Blacks and Whites and between Hispanics and Whites have remained large.<sup>18</sup>
- The literacy levels of college educated Americans declined significantly from 1992 to 2003, such that, by 2003, just 25 percent of college graduates scored high enough on the tests to be deemed “proficient.” The government defines proficient as “using printed and written information to function in society, to achieve one’s goals, and to develop one’s knowledge and potential.”<sup>19</sup>

Because we have produced a world-class competitive system in the past does not mean that we can rely indefinitely on the same approach, either now or in the future, especially while others are building on what we developed and are moving ahead to meet the next generation of challenges. We need to keep pace, and business needs to play a key supportive role.

## Growth in Immigrants as a Share of the Workforce

Immigrants will make up an increasingly large portion of the American workforce – more than half by 2020.<sup>20</sup> While immigrants bring great diversity, talent and energy to our economy and society, there is also a continuing increase of immigrants who lack basic language and literacy skills, not only in English but in their native language as well.

Among new immigrants ages 18 and older in 2004, approximately one-third lacked a high school diploma and approximately 28 percent held a bachelor’s or higher academic degree. Education attainment for new immigrants varies considerably by region of origin, but the greatest increase in numbers of immigrants also reflected the lower end of education attainment.<sup>21</sup>



## Competing in the Global Economy

American workers at every skill level – from low-wage, low-skilled to high wage, high-skilled – face growing competition from workers around the world, whose skills are rapidly increasing and whose lower salaries offer significantly lower cost structures. And the competition is intensifying.

The global labor supply that is tied into the global marketplace effectively quadrupled between 1980 and 2005. For example, China’s labor force—those working or looking for work—reached nearly 800 million in 2005, more than five times the size of the U.S. labor force. China’s manufacturing employment exceeds that of the entire Group of 7 major industrialized countries by 30 million workers.<sup>22</sup>

Source: McKinney Global Institute

**Large professional workforce in emerging markets**

YOUNG PROFESSIONALS, 2003, THOUSANDS

	Engineers	Finance/ Accounting	Life sciences researchers	Analysts
<b>China</b>	1,589	945	543	202
United States	667	1615	852	175
<b>India</b>	528	2273	674	537
<b>Russia</b>	486	1082	108	107
Japan	317	702	180	55
<b>Philippines</b>	290	423	14	16
<b>Brazil</b>	158	355	75	16
U.K.	150	165	100	27
Germany	128	137	31	26
<b>Mexico</b>	115	319	23	8
<b>Poland</b>	82	231	25	22
Canada	81	150	89	18
<b>Malaysia</b>	49	83	19	11
<b>Hungary</b>	27	59	2	1
Ireland	22	32	4	3
<b>Czech Republic</b>	15	33	2	5

Emerging Markets (China, India, Russia, Philippines, Brazil, Mexico, Poland, Malaysia, Hungary, Czech Republic)

Developed Economies (United States, Japan, U.K., Germany, Canada, Ireland)

A 2005 survey of 94 senior manufacturing executives conducted by AC Nielsen reported that two-thirds of the responding manufacturers expect that shortages of skilled labor will cost them an average of \$50 million over the next five years.<sup>23</sup> Similar shortages and challenges exist in the rapidly growing service economy, which the Department of Labor estimates will comprise nearly 75 percent of all jobs in the U.S. by 2016.<sup>24</sup>

For most companies, access to a talented, productive, and skilled workforce is critical to success in the intense and competitive global market. In addition, many are hoping to avoid outsourcing, and as a practical matter in many cases work actually cannot be outsourced overseas.

The reduction in numbers of applicants puts a premium on the quality and efficiency and creativity of those applicants, which in turn is closely correlated with the quality and focus of their educations.

### Industry Needs Are Changing Rapidly

Quality education and modern skills are increasingly needed at every level of the workforce in both the manufacturing and service sectors. Many of the employers interviewed for this report by America’s Edge emphasized that they have many more openings for well-paid middle-level jobs, including technical and trades career specialists in the manufacturing field and comparable jobs in the service sector, than they can fill with

qualified applicants. They reported that their jobs at every level of employment now require quality education and the development of new levels of skills to meet the changing requirements of today's highly competitive economy.<sup>25</sup>

Many of these jobs pay well above the national average and should no longer be considered "blue collar," but rather skilled career opportunities for millions of Americans.<sup>26</sup> We must understand that *"fundamental industry changes are underway, and that we need to change our definitions to match both the reality of the modern workplace and the reality that different students have different interests and abilities."*<sup>27</sup>

As noted above, on a national scale, the U.S. Bureau of Labor Statistics estimates that by 2010 the number of unfilled positions for skilled workers will reach 5.3 million in the United States, and will increase to 14 million by 2015.<sup>28</sup> Similarly, the Department of Labor reports that *"between 40 and 45 percent of all job openings in the economy through 2014 will be middle-skill occupations. Many of these jobs do not move offshore easily and they pay relatively well – and almost every region in the country faces critical shortfalls for these skilled workers."*<sup>29</sup>

In the service sector, low-end jobs now represent only a small percentage — just 22 percent — of the large and growing service employment in the United States. Thirty percent of service jobs are now in the highest skill categories: professional, technical, managerial, and administrative occupations.<sup>30</sup>

In fact, at virtually every level the service economy demands more complex skill sets than ever before: creativity, problem-solving, communications, customer relations, basic computing skills, collaboration and teamwork. Service workers have to be adaptive, flexible, and be able to respond rapidly and with independent initiative. The new post-industrial jobs require higher levels of communication and problem-solving skills due to higher levels of human interaction and often personalized responses to challenges and opportunities. The new knowledge economy that has emerged has replaced the rote skills of the assembly lines of yesteryear with flexible technologies and *"high-performance work systems that rely on more skilled and autonomous workers."*<sup>31</sup> [See Appendix, p. 17]

## Remediation

Together, American businesses and colleges spend billions of dollars each year on remedial education and training to bring applicants up to a minimal standard of math and reading competence required to meet the basic competency standards for entry level jobs, and to provide them with the rudimentary social skills and other basic skills needed for a given occupation. *The New Commission on the Skills of the American Workforce* estimated that colleges and universities alone spend about \$2.7 billion every year just to bring high school graduates up to minimum standards of literacy and numeracy for the required work at the freshman college level.<sup>32</sup>

Remediation programs do relatively little to solve the broader problem of preparing all students on a regular and systemic basis to be productive and successful participants in the economy. In addition, given the increased mobility of the workforce, the expense of

remediation programs is often one that needs to be repeatedly incurred just to maintain competence in the same position.

What does this mean for business? The answer is simple: higher costs and lost productivity. According to the National Governor's Association report "Reading to Achieve: A Governor's Guide to Literacy": *"Deficits in basic skills cost the nation's businesses, universities, and under-prepared high school graduates as much as \$16 billion annually in lost productivity and remedial costs."*<sup>33</sup>

### **Community Impact**

The vitality of our economy and our society are inextricably linked. In announcing its \$100 million dollar commitment to help "prepare young children for school and life," the Chairman and CEO of the PNC Financial Services Group stated that, *"A business cannot succeed if its communities are not well positioned for future growth and success."*<sup>34</sup>

But communities as well as companies pay a cost for these critical shortages of skilled and educated workers. According to a study released in January 2008 by Impact – Center for Community Economic Development, *"A shortage of highly skilled and educated workers in Los Angeles County undermines the county's ability to attract new businesses with higher paying jobs, and thus impedes the county's long-term prosperity. Approximately 25 percent of county residents do not have high school diplomas and fewer than 28 percent have college degrees."*<sup>35</sup>

## WHAT BUSINESS CAN DO

As employers, business leaders bring a unique perspective about the skills, knowledge and attitudes needed for success in the 21<sup>st</sup> Century economy. Business leaders and educators share fundamental interests in ensuring that students stay in school until they graduate, and that when they do so, they are prepared to be successful in the modern economy. Working in partnership with educators, business leaders can and must play a significant role in modernizing American education.

To accomplish those goals, business leaders need to support public policies that ensure access to quality education from the early, most formative years of a child's life through adulthood; reduce high dropout rates build respect and provide effective training for a full range of careers, including technical and mid-skill level jobs; and ensure that graduates of high school and post-secondary institutions enter the workforce with adequate knowledge, skills and attitudes to succeed.

To accomplish these goals, business leaders should:

- I. **Identify the specific needs of business to compete and succeed:** Business leaders should specifically identify the skills, knowledge and attitudes needed for success today, and the most significant areas where their applicants are falling short;
- II. **Identify specific solutions:** Business leaders should work to ensure that educators integrate the needed skills, knowledge and attitudes appropriately and effectively into the learning experiences, standards and curriculum offered to all children and students;
- III. **Build public support:** Business leaders should ensure that public officials and opinion leaders understand the critical links between quality education—for all children, from birth through adulthood—and national competitiveness; and that there is broad public support for teaching both academic fundamentals and 21<sup>st</sup> Century skills.

**America's Edge** has initiated a series of business leader focus groups designed to help employers identify their specific needs in ways that will be useful in developing meaningful solutions. We are expanding that effort and are identifying similar efforts so that we can share best practices with interested business, education and public officials. We are pleased to assist businesses as they take these steps in their own communities.

**America's Edge** also offers to assist business leaders in expressing to public officials their concerns, suggestions and support for changes in public policy and programs needed to improve our workforce preparation, with particular focus on the importance of early education and on the development of mid-level skills and career options.

## KEY ROLES OF QUALITY EDUCATION

### *Essential At Every Age, For Every Skill Level*

High quality education, including 21<sup>st</sup> Century skills as well as basic academics, is essential to America's ability to maintain and expand its competitive edge. To be of maximum value and effectiveness, high quality education must begin in the earliest years of a child's life and continue throughout elementary, middle and high school and post-secondary preparation for school and the workforce.

Access to high quality education is essential not only for the preparation of tomorrow's workforce, but also for attracting and retaining today the most skilled and valuable employees, who often use the availability of such programs for their children and families as an important factor in deciding where they are going to live and work.

Research shows that companies whose employees have access to high quality education and care programs for their children are able to enhance recruitment, reduce absenteeism, increase retention and improve productivity, all of which are interests of immediate importance to a company's bottom line. In addition, communities where such education programs are available are better able to attract investment as well as skilled workers, and typically offer a more vital and energized community as a whole.<sup>36</sup>

According to the report of the *New Commission on the Skills of the American Workforce*:

*The best employers the world over will be looking for the most competent, most creative and most innovative people on the face of the earth and will be willing to pay them top dollar for their services. This will be true not just for the top professionals and managers, but up and down the length and breadth of the workforce. Those countries that produce the most important new products and services can capture a premium in world markets that will enable them to pay high wages to their citizens.*<sup>37</sup>

The Carnegie Corporation and Alliance for Excellent Education found that "almost 40 percent of high school graduates lack the reading and writing skills that employers seek, and almost a third of high school graduates who enroll in college require remediation."<sup>38</sup> And the problem is only likely to grow.

For example, the twenty-five fastest-growing professions in America today require far greater than average literacy, while the twenty-five slowest-growing professions require lower than average literacy demands.<sup>39</sup> In response, essentially all public two-year colleges and 80 percent of public four-year colleges offer at least one remedial reading, writing or mathematics course. Students spent more time in these remedial courses in 2000 than they did in 1995.<sup>40</sup>

## VALUING EARLY EDUCATION

**"The research is overwhelming," says Arthur J. Rolnick, Director of Research at the Federal Reserve Bank of Minneapolis. "It all comes down to the earlier, the better."**

Source: Business Week

Contrary to popular belief, children actually begin to learn and to develop well before kindergarten. They begin laying the foundation for behaviors that we now identify and value as 21<sup>st</sup> Century skills. Development begins early for key skills including positive teamwork, creative thinking, problem solving and a sense of integrity, among others. Even as infants, children are observing, absorbing and learning the fundamentals; they are actually at their most formative stage.

Children who receive quality educational and developmental experiences in their earliest years between birth and age five continue to perform significantly better as they grow older than those who do not. Moreover, children who are poorly or inadequately stimulated in the early years find it very difficult or impossible to catch up later with those who have had quality early and sustained educational experiences. This early preparation and development are as important for those students who will pursue mid-skill level careers in a trade specialization as for those who go on to graduate school; the needs and the benefits apply across the full range of options.

In its *"Call to Action from the Business Community"* the Business Roundtable, in cooperation with Corporate Voices for Working Families, concluded that:

*We need to ensure that children enter school ready and able to succeed. Research shows, however, that far too many children enter school ill-prepared....When children begin school behind, they tend to continue to fall further and further behind. High quality early childhood education can help close this gap.<sup>41</sup>*

*Not only does high-quality early childhood education make a difference for children, it matters to their employed parents. Employers increasingly find that the availability of good early childhood programs is critical to the recruitment and retention of parent employees.*

*In today's world, where education and skill levels determine future earnings, the economic and social costs to individuals, communities and the nation of not taking action on early childhood education are far too great to ignore, especially when the benefits far outweigh the costs.<sup>42</sup>*

## The Science

The innocence of the period between birth and three years can be misleading. Behind the cheerful grins and perpetual motion of a toddler is occurring some of the most explosive and rapid cognitive, linguistic, social, emotional and motor development that a person is likely to experience during the course of a lifetime. Brains are built over time and a substantial proportion is constructed during these early years of life. According to the National Scientific Council on the Developing Child:

*An explosion in scientific research over the past few decades has shed new light on the most remarkable stages of human development—and the critical importance of the earliest months and years of life... Our earliest experiences are responsible for literally wiring the brain for future use, thereby building its basic architecture.*<sup>43</sup>

In its report on The Economic Impact of the Early Care and Education Industry in Los Angeles County, Impact states clearly that:

*Quality ECE (early care and education) lays the foundation for strong academic performance, social skills and discipline – key elements for continued success...*<sup>44</sup>

Research examined by James Heckman, Nobel Laureate in Economics, confirms that a child's early years provide the foundation for a full range of human competencies including cognitive, linguistic, social and emotional.<sup>45</sup> Heckman further wrote that:

*An important lesson to draw from the entire literature on successful early interventions is that it is the social skills and motivation of the child that are more easily altered – not IQ. These social and emotional skills affect performance in school and in the workplace. We too often have a bias toward believing that only cognitive skills are of fundamental importance to success in life.*<sup>46</sup>

## Value of the Investment

**“Although education and the acquisition of skills is a lifelong process, starting early in life is crucial. Recent research...has documented the high returns that early childhood programs can pay in terms of subsequent educational attainment and in lower rates of social problems....”**

—Ben Bernanke, February 2007

**“High quality early childhood education is one of the best investments a nation can make in its young people.”**

—The New Commission on Skills of the American Work Force:  
*Tough Choices or Tough Times*

Three long-term, carefully researched studies – one begun in 1962 – have shown that children in high-quality early learning programs have higher rates of high school graduation and college attendance, lower dropout rates, and earn higher incomes than the study participants who did not receive the preschool programs.<sup>47</sup> The most persuasive data comes from a 40-year, 123-child study at the High/Scope Perry Preschool Project in Ypsilanti, Michigan.

In 1962-67, preschool teachers worked intensively with low-income African American children aged three to four. The children attended preschool during the week and once a week teachers came to their homes to coach their parents. Forty years later, when researchers compared the children's life stories with those of 59 people who did not participate in the early education program, the payoff was impressive. Almost half of the preschool children were performing at grade level by the age of 14, compared with just 15 percent of the children in the control group, and 60 percent of participants were earning upward of \$20,000 a year in their 40s, versus 40 percent of those in the control group.<sup>48</sup>

In another study, researchers at the University of North Carolina set up a careful long-term test of the Abecedarian Program. One hundred and twelve low-income children were randomly assigned either to the early intervention that lasted from birth through age four, or to a second group that did not receive the program. By age 21, children not in the program had dropped out of high school 48 percent more often, and those in the program were significantly more likely to be in a high-skilled job or in higher education.<sup>49</sup>

The Chicago Child-Parent Center preschool program showed that similar gains were possible for a preschool program serving over 100,000 inner-city children. By age 24, participants in that program were 12 percent more likely to have graduated from high school, and were 11 percent more likely to have either attended college or to have been working steadily than those left out of the preschool program.<sup>50</sup>

Policymakers and business leaders have rarely viewed early childhood development as a growth or competitiveness strategy. But the research is persuasive that dollars invested in early childhood development provide extraordinary returns compared with most other types of investments.<sup>51</sup>

Analysts who have totaled up the various savings from reduced crime, lower special education costs, greater productivity, etc. have concluded that the benefits to society far outweigh the costs of providing this good start in life to kids who need it:

Net benefits per child for investments in early childhood education:

- High/Scope Perry Preschool program: \$243,722
- Abecedarian Project: \$ 94,802
- Chicago Child-Parent Centers \$ 70,977

At age 40, the Perry Preschool participants were so much more productive that their employers were willing to pay them, in terms of median incomes, a third more than those who did not attend the preschool.<sup>52</sup>

As business leaders increasingly realize the magnitude of these benefits, they also are becoming stronger advocates for these early investments. For example, according to a Zogby International Poll commissioned by the Committee for Economic Development: *“Fully 81 percent of business leaders agree that public funding of voluntary pre-kindergarten programs for all children would improve America’s workforce.”*<sup>53</sup>

## IN CONCLUSION

American students, business and society face a crisis in their preparedness to compete and excel in the 21<sup>st</sup> Century global economy. Based primarily on an outdated approach to public education at home, this crisis is exacerbated by rapidly growing and improving competition from abroad. Just as American business has to adjust continually to the changing customer and competitive demands, American public education needs to understand and respond to the changing challenges that it faces in preparing students for the 21<sup>st</sup> Century.

American business has both a great deal at stake and a great deal to offer in the refocusing and redesign of American public education. How students are taught is clearly the expertise and responsibility of professional educators. However, many of the goals of their education and what they are taught should be informed, at least in part, by the experience of business leaders who know what knowledge, skills and attitudes graduates will need to be successful in the global marketplace.

As the largest customer of the public school system, business leaders should be in constant communication and cooperation with educators, discussing their shared needs and interests. It is increasingly clear that the skills required for success as adults have their foundation in the learning experiences of earliest childhood, and that those who participate in high quality early education and care have substantial advantages over those who do not, assuming that quality is sustained. These findings are of profound importance to the children and students affected, to businesses, and to the economy and society as a whole.

Business is the economic engine that generates most of the jobs that produce goods and services, and that in large part determines the health and vigor of the economy. In addition, businesses directly and indirectly pay a large percentage of the taxes that support the roles of the public sector. The competitiveness and health of business, therefore, is not only in the self interest of the businesses themselves but is one of the key self interests of every community in the nation.

The United States is not yet prepared in many ways for the new century; but we must rise to the occasion. The quality and focus of American public education across the spectrum from birth to adulthood is at the heart of the challenge and, if changed, will be at the heart of the solution. Neither educators nor public officials, the traditional arbiters of education policy, can manage this on their own. They need a new level of active, direct and innovative participation by business leaders to join with them to solve these problems. American business leaders can and must increase their engagement to lend their insights, their experience and their support to get this job done.

## APPENDIX

### Basic Skills for the Service Economy

The “Three R’s” remain relevant today. But, increasingly in the post-industrial economy, employers need more than just reading, writing and arithmetic. The skills most in demand include:

- **Foundation skills: Knowing how to learn:** Learning is now a fact of life if workers are going to keep up with the blur of change in modern workplaces. Workers who have “learned how to learn” can achieve competency in other required workplace skills, but for those who have not, learning is not as rapid, nor as efficient or comprehensive.
- **Communication skills: Listening and oral communication:** Communication is central to the smooth operation of all work environments. Workers spend most of their days in some form of communication. They communicate with each other about procedures and problems, and they also relay and receive information to and from customers.
- **Adaptability: Problem solving and creative thinking:** The ability of a business to achieve its strategic objectives often depends on how quickly and effectively it can transcend barriers to improved productivity and competitiveness. These pressures put problem solving and creative thinking at a premium at all levels of an organization.
- **Group effectiveness- Interpersonal skills, negotiation and teamwork:** Interpersonal, negotiation and teamwork skills are basic tools for achieving the flexibility and adaptability that America’s workforce must have to remain competitive.
- **Personal management: Self-esteem and motivation/goal setting:** In the past, employers viewed workers with solid occupational-specific skills as sufficient for success on the job. But as workers are increasingly called upon to make decisions at the point of production or point of sale and display good interpersonal skills when working in teams or with customers, the confidence that engenders success in these areas springs from a positive sense of self-worth or self-esteem.
- **Organizational effectiveness and leadership:** Organizational effectiveness and leadership skills are essential to successful businesses. To be effective in an organization, workers need a sense of the cultural workings of the organization and how their actions affect organizational and strategic objectives.
- **Resilience — Cognitive style:** The new, fast-paced and unforgiving global economy requires employees to improve or even change their skills required for specific jobs.

SOURCE: Brown and Biter, “The Service Imperative,” Business Horizons



## What Is America's Edge™?

**America's Edge™** is a national non-profit organization established in 2007 to engage business leaders in support of local, state, and national education policies and initiatives aimed at providing all Americans—from birth to adulthood—the skills, knowledge and attitudes essential for success in today's competitive global marketplace.

The ability of American businesses to compete effectively depends increasingly on the talent, knowledge, and skills of employees at every level. To develop the workforce that will keep America competitive, we need to ensure that all children and students have access to

- *Quality early care and education programs* that prepare them for success in school and that provide the foundation for the skills required by the rapidly changing demands of the global economy;
- *Meaningful standards-driven K-12 education programs* that are aligned with the skills needed for success in the workforce, along with the support to ensure that students successfully complete these programs; and
- *Opportunities to explore the full range of potential careers* and to develop students' individual talents and interests for greatest success.

**America's Edge** partners with business leaders to build a competitive workforce through initiatives to

- *Identify the skills, knowledge and attitudes required* for success in the workplace;
- *Work with educators* to integrate those attributes into the learning experiences, curriculum and training of every student;
- *Express support* to legislators, other public officials and opinion leaders for education policies and initiatives that will help build a qualified workforce;
- *Share best practices* in business advocacy and support for education reform, across the full learning spectrum from birth to adulthood.

Based in Washington, DC, **America's Edge** is funded by a combination of national and local foundations, including The Buffett Early Childhood Fund, First Focus, The Horace Hagedorn Foundation, The David and Lucile Packard Foundation, and The Pew Charitable Trusts – Advancing Quality Pre-K for All. America's Edge currently has programs in New York, Illinois and the District of Columbia.

**For more information, please visit [www.AmericasEdge.org](http://www.AmericasEdge.org)**

## ACKNOWLEDGMENTS

We are grateful to the many researchers and authors cited in this paper for the thoroughness, timeliness and quality of their work; the conclusions we have drawn and the recommendations we have made depend substantially on their earlier analysis of the issues and the interests involved.

We owe deep appreciation in particular to Debra van Opstal, Senior Vice President, Programs and Policy of the Council on Competitiveness, whose personal interest, tireless energy and professional expertise have been essential to our ability to address with insight and practicality the issues of productivity and national competitiveness that are at the core of our analysis. Debbie's work on the Council's report "Thrive – The Skills Imperative" informed and supported our analysis and helped us integrate the many different elements the business community faces in this complex transition to competitiveness in the 21<sup>st</sup> Century.

The work of America's Edge is made possible through generous grants from The Buffett Early Childhood Fund, First Focus, The Horace Hagedorn Foundation, The David and Lucile Packard Foundation, and The Pew Charitable Trusts – Advancing Quality Pre-K for All.

---

## NOTES

<sup>1</sup> U.S. Chamber of Commerce. (2008). *Leaders and laggards: A state-by-state report card on educational effectiveness*. Washington, D.C.: U.S. Chamber of Commerce. Retrieved on May 28, 2008 from <http://www.uschamber.com/icw/reportcard/default>

<sup>2</sup> Casner-Lotto, K., & Benner, M.W. (2006). *Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21<sup>st</sup> century U.S. workforce*. Retrieved on May 27, 2008 from [http://www.21stcenturyskills.org/documents/FINAL\\_REPORT\\_PDF09-29-06.pdf](http://www.21stcenturyskills.org/documents/FINAL_REPORT_PDF09-29-06.pdf)

<sup>3</sup> Casner-Lotto, K., & Benner, M.W. (2006). *Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21<sup>st</sup> century U.S. workforce*. Retrieved on May 27, 2008 from [http://www.21stcenturyskills.org/documents/FINAL\\_REPORT\\_PDF09-29-06.pdf](http://www.21stcenturyskills.org/documents/FINAL_REPORT_PDF09-29-06.pdf)

<sup>4</sup> America's Edge. (2007, November). *Albany focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Albany, New York.

<sup>5</sup> America's Edge. (2007, November). *Albany focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Albany, New York.

<sup>6</sup> America's Edge and the Manufacturer's Association of Central New York. (2008, June). *Syracuse focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Syracuse, New York.

<sup>7</sup> America's Edge and the Manufacturer's Association of Central New York. (2008, June). *Syracuse focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Syracuse, New York.

<sup>8</sup> America's Edge and the Manufacturer's Association of Central New York. (2008, June). *Syracuse focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Syracuse, New York.

<sup>9</sup> America's Edge. (2007, November). *Albany focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Albany, New York.

<sup>10</sup> America's Edge. (2007, November). *Albany focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and

---

skills that will help keep businesses competitive in the rapidly changing marketplace, Albany, New York.

<sup>11</sup> Economist's View. (2007). Labor force participation and the prospects for U.S. growth. Retrieved on May 22, 2008 from <http://economistsview.typepad.com/economistsview/2007/11/labor-force-par.html>; Congress of the United States, Congressional Budget Office. (2007). *The budget and economic outlook: An updated*. Retrieved on May 22, 2008 from <http://www.cbo.gov/ftpdocs/85xx/doc8565/08-23-Update07.pdf>

<sup>12</sup> Bureau of Labor Statistics. (2007). *Monthly labor review: The editors' desk*. Washington, D.C.: U.S. Department of Labor. Retrieved on May 27, 2008 from <http://www.bls.gov/opub/ted/2007/jan/wk1/art02.htm>

<sup>13</sup> The Aspen Institute. (n.d.). *Grow faster together. Or grow slowly apart. How will America work in the 21<sup>st</sup> century?* Retrieved on June 9, 2008 from [http://www.aspeninstitute.org/atf/cf/%7BDEB6F227-659B-4EC8-8F84-8DF23CA704F5%7D/DSGBROCHURE\\_FINAL.PDF](http://www.aspeninstitute.org/atf/cf/%7BDEB6F227-659B-4EC8-8F84-8DF23CA704F5%7D/DSGBROCHURE_FINAL.PDF)

<sup>14</sup> Kirsch, I., Braun, H., & Yamamoto, K. (2007). *America's perfect storm: Three forces changing our nation's future*. Princeton, NJ: Educational Testing Services. Retrieved on May 27, 2008 from [http://www.ets.org/Media/Education\\_Topics/pdf/AmericasPerfectStorm.pdf](http://www.ets.org/Media/Education_Topics/pdf/AmericasPerfectStorm.pdf)

<sup>15</sup> Kirsch, I., Braun, H., & Yamamoto, K. (2007). *America's perfect storm: Three forces changing our nation's future*. Princeton, NJ: Educational Testing Services. Retrieved on May 27, 2008 from [http://www.ets.org/Media/Education\\_Topics/pdf/AmericasPerfectStorm.pdf](http://www.ets.org/Media/Education_Topics/pdf/AmericasPerfectStorm.pdf)

<sup>16</sup> The Center for Education Reform. (2006). *The American education diet: Can U.S. students survive on junk food?* Washington, D.C.: The Center for Education Reform. Retrieved on May 22, 2008 from [http://www.edreform.com/\\_upload/CER\\_JunkFoodDiet.pdf](http://www.edreform.com/_upload/CER_JunkFoodDiet.pdf); Roper ASW. (2002). *National Geographic – Roper 2002 Global Geographic Literacy Survey*. Retrieved on May 22, 2008 from <http://www.nationalgeographic.com/geosurvey2002/download/RoperSurvey.pdf>

<sup>17</sup> Kirsch, I., Braun, H., & Yamamoto, K. (2007). *America's perfect storm: Three forces changing our nation's future*. Princeton, NJ: Educational Testing Services. Retrieved on May 27, 2008 from [http://www.ets.org/Media/Education\\_Topics/pdf/AmericasPerfectStorm.pdf](http://www.ets.org/Media/Education_Topics/pdf/AmericasPerfectStorm.pdf)

<sup>18</sup> Kirsch, I., Braun, H., & Yamamoto, K. (2007). *America's perfect storm: Three forces changing our nation's future*. Princeton, NJ: Educational Testing Services. Retrieved on May 27, 2008 from [http://www.ets.org/Media/Education\\_Topics/pdf/AmericasPerfectStorm.pdf](http://www.ets.org/Media/Education_Topics/pdf/AmericasPerfectStorm.pdf)

<sup>19</sup> Lederman, D. (2005). Graduated but not literate. *Inside Higher Ed*. Retrieved on May 22, 2008 from <http://www.insidehighered.com/news/2005/12/16/literacy>

<sup>20</sup> Kirsch, I., Braun, H., & Yamamoto, K. (2007). *America's perfect storm: Three forces changing our nation's future*. Princeton, NJ: Educational Testing Services. Retrieved on May 27, 2008 from [http://www.ets.org/Media/Education\\_Topics/pdf/AmericasPerfectStorm.pdf](http://www.ets.org/Media/Education_Topics/pdf/AmericasPerfectStorm.pdf)

<sup>21</sup> Kirsch, I., Braun, H., & Yamamoto, K. (2007). *America's perfect storm: Three forces changing our nation's future*. Princeton, NJ: Educational Testing Services. Retrieved on May 27, 2008 from [http://www.ets.org/Media/Education\\_Topics/pdf/AmericasPerfectStorm.pdf](http://www.ets.org/Media/Education_Topics/pdf/AmericasPerfectStorm.pdf)

<sup>22</sup> Leith, L. (2006, June). China's changing economy. *Monthly Labor Review*, 56-57. Retrieved on May 27, 2008 from <http://www.bls.gov/opub/mlr/2006/06/intlrpt.pdf>

<sup>23</sup> Business Wire. (2005, August 30). ATS Survey reveals skilled labor shortage threatens American industry: Nation's largest manufacturers predict Spending \$100 million each to recruit, train workers. *Business Wire*. Retrieved on May 28, 2008 from [http://findarticles.com/p/articles/mi\\_m0EIN/is\\_2005\\_August\\_30/ai\\_n14936829](http://findarticles.com/p/articles/mi_m0EIN/is_2005_August_30/ai_n14936829)

<sup>24</sup> Franklin, J.C. (2007, November). Employment outlook: 2006-16. An overview of BLS projections to 2016. *Monthly Labor Review*. Retrieved on June 9, 2008 from <http://www.bls.gov/opub/mlr/2007/11/art1full.pdf>

<sup>25</sup> America's Edge. (2007, November). *Albany focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and

---

skills that will help keep businesses competitive in the rapidly changing marketplace, Albany, New York. For more on this see Manpower Inc. Survey, 2007 and National Association of Manufacturers, 2005.

<sup>26</sup> Leonard, J. (2008). *Musings of a maintenance evangelist*. Washington, D.C.: Council on Competitiveness. Retrieved on May 22, 2008 from <http://www.compete.org/about-us/initiatives/compete2.0/skills/musings-of-a-maintenance-evangelist/>

<sup>27</sup> America's Edge. (2007, November). *Albany focus group*. America's Edge asked participants from a diverse group of businesses representatives to identify and discuss the most important issues that employers are now facing in their efforts to find, hire and retain employees with the knowledge and skills that will help keep businesses competitive in the rapidly changing marketplace, Albany, New York.

<sup>28</sup> Vinas, T. (2005, November 1). Skilled worker shortage: It's time to fix the kitchen sink. *Industry Week*. Retrieved on May 28, 2008 from <http://www.industryweek.com/ReadArticle.aspx?ArticleID=10868>

<sup>29</sup> Holzer, H.J., & Lerman, R. (2007). *America's forgotten middle-skill jobs: Education and training requirements in the next decade and beyond*. Retrieved on May 28, 2008 from [http://www.urban.org/UploadedPDF/411633\\_forgottenjobs.pdf](http://www.urban.org/UploadedPDF/411633_forgottenjobs.pdf)

<sup>30</sup> Bailey, M., Farrell, D., & Remes, J. (2006). The hidden key to growth: How local services stimulate economic expansion. *International Economy, Winter 2006*, 48-55.

<sup>31</sup> Bitner, M.J., & Brown, S.W. (2008). The service imperative. *Business Horizons*, 51(1), 39-46.

<sup>32</sup> National Center on Education and the Economy. (2007). *Tough choices or tough times: The report of the new commission on the skills of the American workforce*. Washington, D.C.: National Center on Education and the Workforce. Retrieved on May 28, 2008 from [http://www.skillscommission.org/pdf/exec\\_sum/ToughChoices\\_EXECSUM.pdf](http://www.skillscommission.org/pdf/exec_sum/ToughChoices_EXECSUM.pdf)

<sup>33</sup> Carnegie Corporation of New York. (2006). *The state of adolescent literacy today*. Retrieved on May 22, 2008 from <http://www.carnegie.org/literacy/why.html>; National Governors Association Center for Best Practices. (2005). *Reading to achieve: A governors guide to adolescent literacy*. Washington, D.C.: National Governors Association. Retrieved on May 28, 2008 from <http://www.nga.org/Files/pdf/0510govguideliteracy.pdf>

<sup>34</sup> The PNC Financial Services Group, Inc. (2003). *PNC Grow Up Great' is \$100 million commitment to tackle school readiness issue*. Retrieved on May 28, 2008 from <http://www.pncgrowupgreat.com/pdfs/09.08.03.pdf>

<sup>35</sup> Brown, B., Ramos, M., & Traill, S.. (2008). *The economic impact of the early care and education industry in Los Angeles County*. Oakland, CA: Insight Center for Community Economic Development.

<sup>36</sup> Bond, J.T., & Galinsky, E. (2006). *How can employers increase the productivity and retention of entry-level, hourly employees?* New York: Families and Work Institute. Retrieved on May 28, 2008 from <http://familiesandwork.org/site/research/reports/brief2.pdf>

<sup>37</sup> National Center on Education and the Economy. (2007). *Tough choices or tough times: The report of the new commission on the skills of the American workforce*. Washington, D.C.: National Center on Education and the Workforce. Retrieved on May 28, 2008 from [http://www.skillscommission.org/pdf/exec\\_sum/ToughChoices\\_EXECSUM.pdf](http://www.skillscommission.org/pdf/exec_sum/ToughChoices_EXECSUM.pdf)

<sup>38</sup> Carnegie Corporation of New York. (2006). *The state of adolescent literacy today*. Retrieved on May 22, 2008 from <http://www.carnegie.org/literacy/why.html>; National Governors Association Center for Best Practices. (2005). *Reading to achieve: A governors guide to adolescent literacy*. Washington, D.C.: National Governors Association. Retrieved on May 28, 2008 from <http://www.nga.org/Files/pdf/0510govguideliteracy.pdf>

<sup>39</sup> Carnegie Corporation of New York. (2006). *The state of adolescent literacy today*. Retrieved on May 22, 2008 from <http://www.carnegie.org/literacy/why.html>; Barton, P. E. (2000). *What jobs require: Literacy, education, and training, 1940–2006*. Washington, D.C.: Educational Testing Service. Retrieved on May 22, 2008 from <http://www.ets.org/Media/Research/pdf/PICJOBS.pdf>

- 
- <sup>40</sup> U.S. Department of Education. (2003). *Students spending longer in remedial education courses at postsecondary institutions, new report finds*. Washington, D.C.: U.S. Department of Education. Retrieved on May 22, 2008 from <http://www.ed.gov/news/pressreleases/2003/11/11252003.html>
- <sup>41</sup> The Business Roundtable. (n.d.). *Early childhood education: A call to action from the business community*. Retrieved on May 28, 2008 from <http://www.businessroundtable.org/pdf/901.pdf>
- <sup>42</sup> The Business Roundtable. (n.d.). *Early childhood education: A call to action from the business community*. Retrieved on May 28, 2008 from <http://www.businessroundtable.org/pdf/901.pdf>
- <sup>43</sup> National Scientific Council on the Developing Child. (2007). *The science of early childhood development: Closing the gap between what we know and what we do*. Retrieved on May 28, 2008 from <http://www.speaker.gov/pdf/Shonkoff.pdf>
- <sup>44</sup> Brown, B., Ramos, M., & Traill, S.. (2008). *The economic impact of the early care and education industry in Los Angeles County*. Oakland, CA: Insight Center for Community Economic Development.
- <sup>45</sup> Cuhna, F., & Heckman, J. (2006). *Investing in our young people*. Retrieved on May 28, 2008 from <http://www-news.uchicago.edu/releases/06/061115.education.pdf>
- <sup>46</sup> Heckman, J. (2000). *The real question is how to use the available funds wisely. The best evidence supports the policy prescription: Invest in the Very Young*. Chicago: University Chicago & The Ounce of Prevention Fund.
- <sup>47</sup> Reynolds, A.J., Temple, J.A., Ou, S., Robertson, D.L., Mersky, J.P., Topitzes, J.W., et al. (2007). Effects of a school-based, early childhood intervention on adult health and well-being. *Archives of Pediatrics and Adolescent Medicine*, 161(8), 730-739; Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High/Scope Perry Preschool study through age 40*. Ypsilanti, MI: High/Scope Press.; Campbell, F.A., Pungello, E.P., Miller-Johnson, S., Burchinal, M., & Ramey, C.T. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology*, 37(2), 231-242.
- <sup>48</sup> Farrell, C. (October 23, 2006). Going beyond Head Start. *Business Week*. Retrieved on May 22, 2008 from [http://www.businessweek.com/magazine/content/06\\_43/b4006099.htm](http://www.businessweek.com/magazine/content/06_43/b4006099.htm); Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High Scope/Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.
- <sup>49</sup> Brown, B., Wohl, J., & Traill, S. (2005). *The economic impact of the child care industry in Riverside County*. Oakland, CA: National Economical Development and Law Center. Retrieved on May 22, 2008 from [http://www.rccfc.org/reports/2005\\_RiversideCCEIRFinal.pdf](http://www.rccfc.org/reports/2005_RiversideCCEIRFinal.pdf); Campbell, F.A., Pungello, E.P., Miller-Johnson, S., Burchinal, M., & Ramey, C.T. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology*, 37(2), 231-242.
- <sup>50</sup> Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest. *Journal of the American Medical Association*, 285(12), 2339-2380.; Reynolds, A. J. (2007, March 31). Paths of influence from preschool intervention to adult well-being: Age 24 findings from the Chicago Longitudinal Study. In A. J. Reynolds (Chair), *Paths of effects of the Child-Parent Center preschool intervention on early adult well-being*. Symposium conducted at the biennial meeting of the Society for Research in Child Development, Boston, Massachusetts.
- <sup>51</sup> Grunewald, R. & Rolnick, A. (2005). *Early childhood development on a large scale*. Retrieved on May 28, 2008 from <http://www.minneapolisfed.org/pubs/region/05-06/ecd.cfm>
- <sup>52</sup> Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High/Scope Perry Preschool study through age 40*. Ypsilanti, MI: High/Scope Press
- <sup>53</sup> Zogby, J., Bruce, J., Wittman, R., & Peck, C. (December, 2005). *America's business leaders' views on publicly funded pre-kindergarten and the advantages to the economy*. Zogby International Poll commissioned by the Committee for Economic Development.