

INFLUENCE OF WORKFORCE EDUCATION AND DEVELOPMENT ON THE GROWTH OF TODAY'S ECONOMY

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Abstract

This study investigates and reports on the status and influence of Workforce Education and Development and its importance on the economy. This report relies almost exclusively on data from the U.S. Department of Labor Statistics. This study also establishes that the skilled workforce depends on career and technical programs for skill training as the recipe to the success of economy growth in the U.S. The report also emerged from analysis of many other studies, especially, the Labor Bureau Statistics on the state of the economy, unemployment rate, the labor force, employment growth, and the importance of education and training as key to promoting economic growth in the country. The report also justifies and validates the author's notion on the importance of workforce education and development in the 21st century as a way of developing economic growth and providing learning to make individuals competitive in the global economy.

Introduction

What is not known to many in our society and academia is that workforce education and development is the key to promoting individual learning and skill training. Career and technical educators throughout the nation are affected by what goes on globally because of new developments, improved communication, faster travel, and increased commerce, which lead to global competition. What makes some nations rich, with their citizens enjoying a high standard of living is commerce; that is, producing, selling, and buying goods and services that lead to jobs, individual wealth, and a high standard of living. For a nation to be competitive in a global economy, its human capital (workers) must be trained and educated to develop its natural resources and able to improve technology (Gray & Herr, 1998; Gordon, 2008, O'Lawrence, 2008).

Natural resources, technology, and human capital workers are important strategic economic advantages. Human capital is the most important of the three; the most important elements in the quest for a competitive advantage in commerce are the skills and initiative of a nation's workforce. Technology is only as good as the ingenuity of those who can both maintain and use it to its fullest potential (Gray & Herr, 1998; Thurow, 1992). According to Gray and Herr (1998):

Those who have a workforce that can use the technology to the fullest will have the advantage over those who cannot and those with the highest skilled labor force will be able to adopt technology faster and use it to produce the best quality at the lowest price. (p. 44)

Lack of workforce education for both professional and nonprofessional workers is a major concern. Even though the United States has the best-educated professionals or salaried workforce in the world still the country lags in global commercial competition. Indicators suggest that the U.S. has the worst-educated unskilled nonprofessional/hourly workforce among the major economic powers because of a lack of investment in workers' training and retraining (Chao, 2006). The postsecondary education system in the nation represents the greatest intangible legacy ever established, which represents a large, productive, and diverse country as America; and higher education has been a principal means of social mobility for many, acculturating immigrants, and empowering minorities (Allen, 2002). Vocational education, increasingly known as career and technical education, is a longstanding program whose place in American education continues to evolve. The broadening of its goals, the ongoing diversity of participants, and the changing education and labor market climate in which it operates suggest vocational education programs are a flexible option for colleges and students (Silverberg, Warner, Fong, & Goodwin, 2004).

The purpose of this study was to identify major factors that influence the nation's economy, how well the unemployment rate is controlled, the labor force, employment growth, and how committed the nation is to educating the labor force. These five areas prove in the analysis that they should be considered seriously, as they lead to global competitiveness. History also tells us that no society dedicated to intemperance can long survive unless the society as a whole becomes aware that meaningful work, done well, and dedication are essential aspects of a worthwhile life. This should be made known in our classrooms and should be one of the major goals of education. It is important in the 21st century to examine, once again, and debate the importance of workforce development education and training have for helping our economy globally, federally, statewide, regionally, and locally. As we continue to review the current status

of the economy, we should be concerned with unemployment, especially why college graduates can only secure mediocre jobs or nothing at all, and why our veterans are on the streets, homeless, jobless, and unwanted (O'Lawrence, 2008).

When thinking about these issues, we ought to consider the importance of workforce skill and retraining programs that will benefit individuals seeking training for employment. As a result of these issues being raised, this research proposes that those in authority and in control of educational policy should anticipate the nation's changing employment needs and facilitate better fits among high school graduates, college graduates, veterans returning from war, and jobs. Workforce development programs allow students to acquire the special competencies associated with a particular vocation after they have learned something about their own special aptitudes and capacities, the range of work specializations available to them, and the requirements and rewards associated with different occupational pursuits.

To make this study more easily understood, the analysis is divided into four different sections: unemployment rate, labor force, employment growth, and the importance of career and technical education programs. Today's generation has realized the impact of information technology on society, the global phenomenon of world of competitiveness brought about by new characteristics of mass communication, and the potential for bringing remote parts of the world to the forefront of economic development. Indeed, the world is becoming flatter every day. The influence of technology on education includes developments designed to provide communication from one geographical area to another. It is a way of social life, frequently linked with communication and motivation for social change (Friedman, 2007). These information technologies tend, in different ways, both to accelerate and retard social change. Information technology has brought rapid transmission of news, and events create consequences that are immediately considered by other nations such as creating business-industrial mechanisms that cannot be reversed.

In international relations, the art of diplomacy has been affected in various ways by the use of the information technology, which has given us exposure to third-world countries and the other parts of the world. The world is overwhelmingly different in this regard from what it was and the universal tool of today—computer technology—is a global tool that has come to stay. If technology does not break us, it will eventually make us a better society. Information technology brought educational reform to a changing society with the anticipation that today's education would be much better than the past. However, there is tremendous concern among both politicians and educators that we may be heading toward the collapse of education structures if precautions are not taken. The question remains whether technology will make us or breaks us in the global economy, help us maintain our status as a superpower, and, of course, make us competitive. What would break us is our refusal to acknowledge the importance of career technical education, skill training, and retraining of citizens (O'Lawrence, 2007).

One must wonder why change occurs so slowly in our attitudes toward the value and necessity of vocational or occupational education, career technical education, and workforce development. Those in this field are held in highest esteem, and their work ethic is fundamental to the value system that prepares us for the meaningful work that our economy, community, and society deserve. Workforce development education trains the mind, inculcates values, and strengthens the individual's capacity for responsible citizenship. It is important to recognize that workforce competence is the ability to use one's talents constructively toward productive ends and is an important aspect of responsible citizenship (O'Lawrence, 2008).

The response of our schools to changing needs and opportunities can be viewed in the

context of today's three fundamental educational tasks: socialization, social mobility, and individual self-realization. Our task is to educate, leading to the ability to participate constructively in the global economy, engage in policy, and advance the social-civic life of society by using information technology to produce a flexible labor force that will react effectively to the labor market. We have to be able to help today's generation identify the things that make its members unique through the education we provide. It is important to continue to find ways to develop curricula appropriate to students with special interests and abilities so that they can succeed. It is important to continue business and government support for higher education to help colleges and universities meet the challenges of a new economy (Barrow, 2000). Higher education administrators also have to agree that curricula need to continue to focus more on areas that are significant to economic growth:

- Symbolic skills (conceptual, mathematical, and visual), not only specialized disciplinary content.
- Research skills, rather than established expertise, and
- Communications skills (oral and written), rather than mere "self-expression" (Barrow, 2000, p. 67).

The only way these can be achieved is when higher education institutions can produce a workforce that is highly educated and trained. Workforce 2000 called attention to the skills gap. As capital becomes globally mobile, the only way for high-wage developed nations to attract private capital investment will be the skills and productivity of its domestic workforce. The 21st century workforce and higher education must be positioned to respond to the global challenge to our economy and human resources. They must ensure that our students identify early their vocations and the type of education and training that goes with such vocations in order to be prepared and competitive. There is a need for articulation agreements among business, government, colleges, and universities to help promote and coordinate coursework that will lead to real jobs and sustainable growth (Barrow, 2000).

The Unemployment Rate

As reported by U.S. Department of Labor, in the first half of 2006, the unemployment rate averaged 4.7%, lower than the 5.1% average of 2005 and a full point lower than the 5.7% average unemployment rate of the 1990s. A comparison of France and Germany shows that both countries have persistent unemployment rates nearly double that of the U.S. and their long-term unemployment of 12 months or more is nearly triple that of the U.. S. By June 2006, the latest month for which data from this report were available, the United States had enjoyed 34 months of uninterrupted job growth. More than 5.4 million net new jobs have been created in the United States since August 2003. This level of job creation reflects the overall economic growth that the country has been experiencing. The U.S. economy grew at an average rate of 3.2% in 2005, and in the first half of 2006 real Gross Domestic Product (GDP) gains averaged a 4.1% annual rate. That is the best record among the major G-7 industrialized nations, and it's remarkable for a mature, industrialized nation (Chao, 2006).

Even though good jobs are still being created in large numbers, the majority of employment growth during the past 5 years was in occupations with above-average compensation. Most of the new jobs projected for the future are expected to be filled by persons with some kind of postsecondary education (Gray & Herr, 1998). Workers who bring to the labor market the knowledge and skills that today's competitive economy demands are finding good

jobs and rising compensation; those who do not keep up in terms of knowledge and skills increasingly lag behind in employment and earnings. Provisions must be provided by the institution of high learning to ensure that all students have access to the information, training, and resources that will help them get the skills they need to access the growing opportunities in our nation's 21st century economy (Chao, 2006). Table 1 indicates that despite the economic problems the nation is facing, the unemployment rate is still lower when compared with other major countries.

Table 1

United States and Selected Other Nation's Unemployment Rates in 2005

Country	Unemployment Rate (%)
France	9.5
Germany	9.5
Spain	9.2
Euro Zone	8.6
Italy	7.7
Canada	6.8
Australia	5.1
United States	5.1
United Kingdom	4.7
Japan	4.4
South Korea	3.7

Source: OECD main Economic Indicators, U.S. Department of Labor, August, 2006.

The May 2008 report of unemployment rates indicated an increase from 5.0% to 5.5% while employment continued to fall in construction, manufacturing, retail trade, and temporary help services, according to the Bureau of Labor Statistics of the U.S. Department of Labor. These are areas of major focus for career and technical education programs to train and retrain. Why this is so important can be answered by looking at the unemployment rates for individuals as recently as May, 2008. Unemployment rates for adult men were (4.9%), adult women (4.8%), teenagers (18.7%), whites (4.9%), and blacks (9.7%); the jobless rate for Hispanics (6.9%), was unchanged, while unemployment rate for Asians was 3.8%. The number of persons who had lost their jobs increased by 260,000 during the month May to 4.3 million, and during the past 12 months, the number of unemployed who had lost their jobs had risen by 907,000 (U.S. Department of Labor, 2008). The questions remaining are: Where are our retraining programs? And where are the career and technical education programs? Why do we still refuse to acknowledge the importance of such programs in this country?

The Labor Force

The U.S. is known as a leader in workforce productivity; however, what distinguishes the United States from other productivity leaders, such as France, is that the U.S. workforce is also a leader in work effort, that is, hours on the job. Hours worked per capita is a single measure of the labor activity across the population—taking into account both the portion of the population that is employed and the number of hours people work. In 2004, per capita hours worked totaled 859 hours, placing the United States in the same neighborhood as Australia and Canada. South Korea easily surpassed these countries by posting 1,122 hours per capita. The gap reflected the 2,394 hours an average South Korean employee worked per year in 2004; in contrast, an average U.S. worker worked 1,808 hours. On the flip side was France's relatively low hours per capita. Here lies the difference between per capita GDP in the United States and France (U.S. Department of Labor, 2006).

In broad terms, the two countries' workers are similarly productive, but the French simply work fewer hours. With respect to the economic indicators just discussed, the United States generally has led most other Organization for Economic Cooperation and Development (OECD) nations during the past 10 years. The same holds true across most labor market measures, and it reflects strength throughout the U.S. labor market. At 5.1%, the U.S. unemployment rate in 2005 was well below that of most of its European peers. Both Japan and South Korea benefited from even lower rates, continuing long-term trends for both countries. The United Kingdom's rate has hovered around 5% for several years, after trending down from more than 10% in 1993. The U.S. unemployment rate edged down further by mid-2006; by May in the same year, it reached a nearly 5-year low of 4.6% (U.S. Department of Labor, 2006).

When we look at the current report in the U.S., we see that the labor force rose by 577,000 to 154.5 million in May 2008 and the labor force participation rate edged up to 66.2%. Total employment was little changed at 146.0 million while the employment population ratio, at 62.6%, also was little changed during the month. The number of persons who worked part-time for economic reasons was 5.2 million in May, which is essentially unchanged over the month, but was up by 764,000 during the past 12 months. These individuals indicated that they were working part-time because their hours had been cut back or they were unable to find full-time jobs (U.S. Department of Labor, 2008).

Employment Growth

The best route to low unemployment is strong employment growth. The labor markets of both the United States and the European Union (EU-15) are quite similar in size and make for interesting comparisons. Between 1990 and 2005, civilian employment in the United States rose 19.3%, while the comparable measure for the EU-15 rose 11.1%. Employment clearly has increased in both areas, but the EU-15 has outpaced the United States in employment growth for only 5 of the past 15 years, most notably during and after the last two U.S. recessions, 1990–1991 and 2001. Since 2003, the United States again has taken the lead, while a number of European countries have seen somewhat stagnant employment growth, most notably France and Germany (U.S. Department of Labor, 2008).

On the surface, Japan's very low unemployment rates belie its employment woes. The number of employed in Japan, in six consecutive years of employment declines between 1997 and 2003, fell by 2.4 million (3.7%). The subsequent recovery in Japan has boosted employment by only 400,000 persons (0.6%). In addition to tepid job growth, a common thread between Japan and Europe is the incidence of long-term unemployment, defined as a spell of

unemployment lasting at least 12 months. In Japan, the long-term unemployed account for one third of the total in 2005; in the European Union, the figure was more than 44%. Even the United Kingdom's share doubled the roughly 12% seen in the United States. Despite its relatively higher unemployment rate, Canada's incidence of long-term unemployment was lower than that of the United States. South Korea enjoyed very low overall unemployment and a very low incidence of long-term unemployment (U.S. Department of Labor, 2006).

A look at the U.S. again thus far in 2008 shows payroll employment declined by 324,000 and job losses continued in construction, manufacturing, retail trade, and temporary services while health care added more 34,000 jobs and job growth during the last 12 months totaled 383,000. Elsewhere in the service-providing sector, food services and drinking places employment continues to trend up, but job growth in the industry has slowed recently. Employment gains averaged 12,000 per month from November through May, compared with 27,000 per month during the first 10 months of 2007 (U.S. Department of Labor, 2008).

Importance of Career and Technical Education

According to the Bureau of Labor Statistics report, many jobs required no more than basic literacy and physical skills largely learned through experience. As recently as 1970, a high school diploma was sufficient for most jobs, and 38.1% of the labor force (23.5 million persons) had completed no education beyond high school (12th grade). In 1970, 36.1% of the labor force (22.3 million persons) had not completed high school. The proportion of persons ages 25 to 64 years old with some college (or an associate degree) more than doubled between 1970 and 2005 (from 11.8% to 27.8%). The share with a bachelor's degree or higher also more than doubled during the period (from 14.1% to 32.3%). In contrast, the share of the labor force with less than a high school diploma declined markedly. In 2005, 32.3% (38.9 million) of labor force members ages 25 to 64 had earned a bachelor's degree or higher, 27.8% (33.4 million) had undertaken some college but had not attained a baccalaureate degree, 30.1% (36.3 million) had attained only a high school diploma (or GED certificate), and 9.8% (11.8 million) had attained less than a complete high school education (no diploma or GED certificate). The number of people ages 25 to 64 in the labor force with less than a complete high school education fell by nearly half (47.1%) since 1970. During that period the number of persons with some postsecondary education (some college, associate degree, bachelor's degree, or higher) increased from 16.0 million (25.9% of the labor force ages 25 to 64) to 72.4 million (60.1% of the labor force ages 25 to 64) (U.S. Department of Labor, 2006).

The relationship between educational attainment and wages is strong and positive. Among workers 25 years and older, median weekly wage and salary earnings among workers who usually work full-time are nearly 2½ times more than those who have not completed high school. The weekly difference of \$604 in 2005 would amount to an annual difference of \$31,408 if extended over a 52-week year. The trend toward higher educational attainment represents more than challenging opportunities and tastes for consuming education services. The trends in educational attainment are closely associated with the trends in the occupational and industrial structure of the labor market, especially the growth in the demand for workers who provide professional, technical, and managerial services (U.S. Department of labor, 2006). This trend is reflected in the demand for persons with at least a college degree compared with those who have not completed high school (See Table 2).

Table 2*2005 Median Weekly Earnings of Full-Time Wage and Salary Workers Ages 25 and Older*

Level of Education	Average Weekly Salary (\$)
Less Than a High School Diploma	409
High School Graduates and no College	583
Some College or Associate Degree	670
Bachelor's Degree and Higher	1,013

Source: OECD main Economic Indicators, U.S. Department of Labor, August, 2006.

Educational attainment is also associated with notable differences in labor force participation. For individuals ages 25 and older, the labor participation rate in 2005 averaged 79.5% for those with advanced degrees (master's degree, first professional degree, or doctoral degree), 77.4% for those whose highest degree was a bachelor's degree, 76.7% for persons with an associate (typically 2-year) degree, 70.2% for those with some college but no degree, 63.2% for those with a high school diploma only, and 45.5% for those without a high school diploma (U.S. Department of Labor, 2006).

To some extent the differences in labor force participation reflect the fact that educational attainment is generally lower among older Americans, whose lower labor force participation is the result of retirement or disability. For example, in 2005 the 35.1 million Americans ages 65 and older included 7.6% with advanced degrees and 11.4% with bachelor's degrees only, compared to 9.7% advanced degree holders and 18.2% bachelor's degree (only) holders for the total population ages 25 and older. At the lower end of the educational attainment range, individuals without high school diplomas accounted for 25.6% of the population ages 65 and older versus 14.7% of the overall population ages 25 and older (U.S. Department of Labor, 2006).

The demand for a highly educated workforce is expected to continue. The Bureau of Labor Statistics projections for 2004 through 2014 indicate that nearly two thirds (63.4%) of the projected 18.9 million new jobs will most likely be filled by workers with some postsecondary education. Prior to 2000, it was also predicted that the majority of jobs would require a postsecondary degree (Farmer & O'Lawrence, 2002; Gray & Herr, 1998). While most of the 18.9 million new job openings will be in occupations for which workers with higher educational attainment will be the most suited, there will also be many jobs available for those with less education. In addition to growth, the Bureau of Labor Statistics projections estimate openings because of net replacement need—replacement of workers who permanently leave occupations because of retirement or other reasons. The beginning of retirement of the baby boom generation throughout the next several years will contribute to replacement openings across occupations all along the spectrum of education requirements.

Between 2004 and 2014, the U.S. Department of Labor (2006) projections show that the number of net replacement openings will total 35.8 million and total openings for both growth and net replacement needs will be 54.7 million. In general, occupations in the high-school-or-less educational requirements cluster will account for a greater share of replacement job openings than growth job openings because many of those occupations have a high turnover, an aging

incumbent workforce, and relatively large replacement needs despite slower relative growth. Within the projected job growth category, the projection for the high-growth, high-wage subgroup is particularly noteworthy. High growth, high-wage jobs are occupations that are in the top half of the 2004 Organization of Economic States (OES) earnings distribution (median annual earnings greater than \$28,770) and are projected to experience higher-than-average job growth throughout the 2004–2014 horizon.

Among the 18.9 million new jobs associated with projected growth by 2014, 8.7 million fall within the high-growth, high-wage group. Among those occupations with high growth and high wages, 87.0% of new jobs are expected to be filled by workers with at least some postsecondary education. Within the high growth, high-wage group, 5.5 million jobs (62.8% of the total) will most likely be filled by workers with at least a bachelor's degree and 2.1 million (24.2%) by those with some postsecondary education, such as a 2-year community college academic program, a vocational certificate, or specialized formal training (U.S. Department of Labor, 2006).

Technology has played a role in spurring the demand for a more highly educated workforce. Many technological innovations require more educated workers to install, operate, and maintain equipment. This is particularly true for information and communications technology, which has led the dramatic rise in productivity during the past 20 years. Technological change has introduced new occupations that require new skills and education in new subjects, and it has changed the educational requirements and skill content of many traditional occupations. Another factor contributing to the growing demand for educational attainment is the pace of change in both technology and in the competitive conditions of global markets. The faster pace of change in the modern economy means that both employers and employees must adapt to new conditions more often than in the past. To remain competitive, employers introduce new products and new processes to produce goods or services. Employees need new knowledge and skills to maintain current jobs or to find new ones. The latest longitudinal survey data show that, in 2002, the average American worker between the ages of 37 and 45 had changed jobs 10.2 times between ages of 18 and 38. For workers who started a new job between the ages of 33 and 38, a total of 39% reported that they changed jobs again within 1 year and 70% changed jobs again within 5 years (Friedman, 2007; O'Lawrence, 2007; U.S. Department of Labor, 2006).

The commitment and investment in education that Americans have made to achieve higher levels of educational attainment reflect their realization of the present and future benefits of education for labor market success. The 101.1 million Americans ages 25 and older who had completed some post-secondary education in 2005 constituted a valuable national asset of knowledge, skill, and experience. Of these, 18.4 million were advance degree holders, 34.5 million had a bachelor's degree, 16.5 million had completed 2-year associate or vocational degree programs, and 31.8 million had some college education but no degree. The 21st century labor market seeks and rewards workers who can offer the educational foundation, technical skills, and creative flexibility that employers need to compete and to adapt to changing needs successfully. Higher educational attainment contributes to a worker's ability to absorb efficiently new knowledge and to learn new skills. Workers who can quickly move up the learning curve of a new job have a competitive advantage for economic success (U.S. Department of Labor, 2006).

Since one of the purposes of the Perkins Act of 2006 is to develop more fully the academic and career and technical skills of secondary education students and postsecondary education students who elect to enroll in career and technical education programs, by building on

the efforts of states and localities to develop challenging academic and technical standards and to assist students in meeting such standards, including preparation for high skill, high wage, or high demand occupations in current or emerging profession; therefore, the Perkins Act of 2006 holds community colleges and their governing agencies accountable for student outcomes. While the full impact of this legislation has yet to be determined, state agencies will continue to be required to develop methods to assess performance outcomes with some flexibility in determining how these indicators are measured (Carl D. Perkins, 2006).

One of the challenges to human capital theory is the philosophy of Karl Marx, which states that education has been taken over by capitalists for the purpose of controlling the labor force and keeping it from striving beyond its designated status in the workforce (Brown, 2001). While there may be some truth to the Marxian philosophy that occupational education keeps individuals in lower levels of education, the 21st century community college is working hard to counter this stigma by providing educational access to many. Community colleges and occupational courses specifically, have provided opportunity for advancement for many who have been unable to obtain access to the higher levels of education. Given that this is a capitalistic society in which class disparity continues, community colleges provide education and training to many individuals to provide economic and personal advancement for many who would be unable to achieve such advancement by other means.

Conclusion and Recommendation

In this new era, strong skills and lifelong learning should be rewarded, and the nature and impact of student experiences in vocational education could have important implications for the nation's workforce and America's place in the global economy. The federal government should continue to ensure efforts to improve the quality and availability of articulated vocational programs such as 2+2+2 and the Carl D. Perkins Vocational and Technical Education Act (Perkins III). These programs reflect both continuity with previous vocational legislation and some substantive departures, specifically in funding and accountability. Given the labor market value of college credentials, lifelong learning, and flexibility in skills, the role of vocational education is increasingly important especially in partnership with community colleges and 4-year institutions with services from which most participating students will benefit. An emphasis on degree completion may be at odds with the shorter-term training emphasized by the Workforce Investment Act (WIA). But, at least so far, integration of decision making and services between Perkins and WIA has been limited in most states but must be nurtured and embraced further by higher institutions in accomplishing the 2+2+2 articulation agreement (Silverberg et al., 2004).

The majority of all students attending community college are considered to be in postsecondary vocational programs. These students vary in age, income, work experience, and previous college activity and have different goals. Some intend getting an associate's degree or certificate and then transfer to 4-year institutions to pursue a bachelor's degree. Others want to enhance their job skills or to engage in personal enrichment activities; while older students are more interested in obtaining job skills, younger students are more likely to aim for a credential and bachelor's degree (O'Lawrence, 2005). The comparable completion rate for students entering 4-year postsecondary programs and seeking bachelor's degrees is 61.9%; that is, almost two thirds of students who enter these longer degree programs actually earn a credential of some kind (including less than a baccalaureate degree), compared with about half of students who enter shorter-term vocational associate degree programs (Silverberg et al., 2004).

The Perkins III suggests that effective technical skills rest on a strong foundation of academic proficiency. For the nation to be competitive in a global economy, institutions of higher learning must continue to be responsive to the needs and demands of our changing society. An excellent education will be required in the future because a complex society such as ours with an influx of immigrants would not exist without workforce education and development. It will be difficult to be productive, competitive, humane, and peaceful if we do not properly educate our citizens. New knowledge, skills, attitudes toward cultural awareness, training, social responsibility, and total commitment to social values are what the nation needs to remain a super power (O'Lawrence, 2007).

To remain an advanced corporate economic power we need the production of high levels of technical knowledge to keep the economic apparatus running effectively and to become more sophisticated in the maximization of opportunities for economic expansion. Globalization and technology change are transforming national economies, and the skills needed in the workforce and the ability to continue a dominant position depend on prepared workers who can learn and adapt to the continually changing demand of the world economy. It is requisite that learners have access to the necessary information, training, and resources needed to help individuals get the skills that will lead to the growing opportunities in our nation's 21st century economy.

Several factors are driving the demand for educated workers: the most recognized in the 21st century is technology. Technology has played a role in spurring the demand for a more highly educated workforce. Many technological innovations require more educated workers to install, operate, and maintain equipment. This is particularly true for information and communications technology, which has led the dramatic rise in productivity throughout the past 20 years. Technological change has introduced new occupations that require new skills and education in new subjects and it has changed the educational requirements and skill content of many traditional occupations. The most important qualitative consideration is that telecommunications, financial, and information services, while inherent parts of the rapid growth in trade and services, constitute key components of the infrastructure for the overall globalization process. That they are growing fast suggests that the current rapid pace of economic globalization may accelerate further during the 21st century (Preeg, 2000).

Another factor contributing to the growing demand for educational attainment is the pace of change in both technology and in the competitive conditions of global markets. The faster pace of change in the modern economy means that both employers and employees must adapt to new conditions more often than in the past. To remain competitive, employers introduce new products and new processes to produce goods or services. Employees need new knowledge and skills to maintain current jobs or to find new ones. An investment in our future is the commitment in career and technical education that Americans have made to achieve higher levels of educational attainment. This reflects Americans' realization of the present and future benefits of education for labor market success. The 101.1 million Americans ages 25 and older who had completed some postsecondary education in 2005 constituted a valuable national asset of knowledge, skill, and experience. Of these, 18.4 million were advanced degree holders, 34.5 million had a bachelor's degree, 16.5 million had completed 2-year associate or vocational degree programs, and 31.8 million had some college education but no degree (U.S. Department of Labor, 2006). The 21st century labor market seeks and rewards workers who can offer the educational foundation, technical skills, and creative flexibility that employers need to compete and adapt to changing needs successfully. Higher educational attainment contributes to a worker's ability to absorb efficiently new knowledge and to learn new skills. Workers who can

quickly move up the learning curve of a new job have a competitive advantage for economic success.

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