K-99: Lifelong Learning in the New Knowledge Economy

Michelle LaPointe Principal / Owner LaPointe Evaluation & Analysis for Decisionmakers

> Jason Wingard Chief Learning Officer Goldman Sachs

Abstract

The rapid changes in technology and communications have dramatically changed the nature of work in the 21st Century. Despite this shift, the US system of education and job training still prepares a majority of youth for middle class, semi-skilled work that has not been widely available since the early 1970s. In the United States, the responsibility for job training falls squarely on the shoulders of individual workers. Our paper examines the impact of several programs that support individuals as they develop the skills need to find secure work that will sustain a good quality of living. Our analysis highlights partnering across different types of organizations to provide meaning experiences that connect both to schooling and the world of work; the variety of organizations successfully implementing partnerships for lifelong learning; and the importance of intermediate agencies to sustain this work.

The rapid changes in technology and communications have dramatically changed the nature of work in the 21st Century. Despite this shift, the US system of education and job training still prepares a majority of youth for middle class, semi-skilled work that has not been widely available since the early 1970s. In the past knowledge and skills learned in youth could insure employment over a lifetime. Now, rapid changes in technology and communications require constant upgrading of skills throughout our careers. (See Figure 1.) The lack of skill is a challenge to individuals and threat to our society and economy.



Figure 1. Gap Between Education and Skills

Source: Authors, 2012

In 1960, manufacturing was responsible for roughly one-quarter of the Gross Domestic Product (GDP). Today, manufacturing has shrunk to 10% of GDP. (See Figures I-1 and I-2) During the same time period, professional services swelled from 6% of GDP to nearly 20%. Professional services include the legal field, business consulting, and scientific and technical consulting – all fields that require considerable education. Despite this shift in the economy, nearly half the workforce has no education beyond high school. (See figures 2-5 and table 1.)



Source: U.S. Census data

Source: U.S. Census data, 2010



Source: U.S. Dept. of Commerce, Bureau of Economic Analysis

Industry	1960	2010
Accommodation and food services	2.20%	2.50%
Agriculture, forestry, fishing, and		
hunting	3.80%	1.00%
Arts, entertainment, and recreation	2.80%	0.80%
Construction	4.40%	3.10%
Educational services	0.40%	1.00%
Finance and insurance	3.70%	7.50%
Health Care + Social Services	2.20%	6.70%
Information	3.30%	3.80%
Manufacturing	25.30%	10.30%
Mining	1.90%	1.50%
Professional services (business &		
technical)	6.30%	18.50%
Real estate and rental and leasing	10.50%	10.70%
Trade (wholesale + retail)	14.50%	10.20%
Transportation and warehousing	4.40%	2.40%
Utilities	2.30%	1.60%
Other services, except government	3.00%	2.20%
Government	13.20%	11.90%

 Table 1: Value-added to US GDP by Sector

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis

The global economic crisis that began in 2008 exposed the fact that many Americans lack the education and skills to participate in the global knowledge economy – and as a society we are not providing the support they need to improve their competence. It is no longer a problem for just the individual. It has become a problem for the entire nation. We can no longer afford a society where roughly half of the workforce has only basic skills. In order to expand, the economy needs a workforce primed for the dynamic workplaces of the 21^{st} century.

How did we get here? Overview of History and Training in the United States

As with most problems, the current mismatch between economic need and the US system for education and workforce development has parallels in history. In the centuries leading up to 1900, the skills learned as a novice were adequate for a life's work. Foundational skills were honed over decades to increase mastery but were essentially the same skills. This changed after the industrial revolution. During the 19th century, the nature of work dramatically evolved in the U.S. Early in the century, the majority of workers still worked on farms or as self-employed tradesmen or artisans. By the end of the 19th century, most people were employed in manufacturing work (Rosenbloom, 2002).

Workforce and skills in the 19th Century

Although industrialization began decades earlier, the nature of work began to change with the Long Depression of 1873, when a dramatic decline in global demand for silver resulted in a series of bank failures and wide-spread unemployment. As the country recovered, the economy dramatically re-structured and became more industrialized. This re-structuring opened up categories of work that barely existed earlier in the century – and certainly not on the scale required to industrialize the nation. Eager for work after the Long Depression, workers moved to the new centers of manufacturing from across the U.S. and Europe. These new jobs were

primarily semi-skilled (Rosenbloom, 2002). Although immigration produced almost an unlimited number of workers, few trained artisans or laborers sought employment in these new types of jobs. Given a limited supply of skilled workers, factory owners further re-organized the work— semi-skilled positions were specialized into specific, routine tasks to allow for the hiring of less skilled workers.

Education and Workforce Development in the 20th Century

As illustrated by Figure 1, there was an initial *decrease* in the typical level of skill required as the economy moved from agrarian to industrialized. During World War I and World War II, as workers were diverted from factories to the armed forces, the value of labor and the power of workers increased. Employers began investing in their workforce by providing pensions, better working conditions, and training for specialized roles within the factory. Through specialization and increases in technology, factories developed semi-skilled positions but the education and training needed to enter manufacturing remained low. During the industrial age, manufacturing jobs were accessible to most citizens and provided a wide door to the middle class.

In addition to job-based training and development, formal education became more relevant in the early 20th century. During the 1920s, comprehensive high schools were built across the United States. Although secondary education was not mandatory during the Great Depression it was strongly encouraged primarily to limit the entry of young workers into the already tight job market (Walters, 1984; Daggett, 2006). After World War II, the US focused on college as a way to expand the middle class and high schools began to focus on preparing students for higher education. The GI Bill is a famous example of a federal US policy to support

college-going. Attitudes shifted to support secondary education programs that emphasized college-readiness over job-readiness (Daggett, 2006).

No System to Develop 21st Century Skills

In the United States, job training, professional development, and adult education have typically been offered by employers to increase organizational capacity or paid for by employees themselves to qualify for positions. The emphasis on private individuals and private companies has impeded the creation of a system for lifelong learning. Employer-sponsored programs have tended to be very job-specific, rather than providing portable skills and credentials or expanding an employee's career path within the organization. Outside of employer-sponsored training, individuals have primarily relied on trade schools and community colleges (Grubb & Lazerson, 2004). Despite an intention to allow the market to provide training for needed skills, the reality is that – given a lack of information for consumers and loose credentialing of the institutions – the market for job training, professional development and adult education in the United States is inefficient and does not meet the needs of workers.

The last decades of the 20th century mark another transition in the economy and shifts in necessary skills. The explosion of the computer and technology industry created many skilled jobs, although not necessarily jobs that require a four-year college education – especially since higher education had not caught up to the rapid changes in technology. Perhaps more than a college diploma, work in the 21st century requires strong skills in communication, collaboration, critical thinking, and creativity. These skills appear to be strong predictors of success in the technology industry and more generally in the Knowledge Economy.

New Skills for a New Economy

The economic crisis that began in 2008 underscores a decades-old discussion of the so-called "Skills Gap" (US Department of Labor, 1991; Grubb & Lazerson, 2004). The skills gap is no longer an issue just for youth entering the workforce but also for workers dislocated by the recession. The recession offered stark reminders that the current education and job-training programs in the U.S. do not foster the skills required for work and citizenship in the 21st century.

Shifting skills

In the past, the 3Rs (reading, writing, and 'rithmetic) –combined with on-the-job training– were adequate for a stable, lifelong career. Today, the Knowledge Economy requires the 4Cs: communication, collaboration, critical thinking, and creativity^{*}. In fact, a recent survey of employers indicated that a lack of technical skills is *not* the biggest problem when they recruit younger workers. The "skills gap" is not primarily about traditional technical and academic skills but with productive and responsible habits and dispositions towards work (Capelli, 2012). Younger workers have not been prepared for the collaborative and dynamic nature of work in the Knowledge Economy.[†] The 4Cs are the foundation of success in the 21st century.

21st Century Learning

Unlike earlier economic eras, basic literacy and numeracy are no longer even a minimum foundation for success at work. Content knowledge is less important since it can be accessed

^{*} See: http://www.p21.org/our-work/p21-framework

[†] Younger workers may be caught in a vicious cycle: because of the downturn in the economy, they were not able to find part-time employment in high school or college. Youth employment appears to be a good predictor of future earnings and employment. Individuals who gain work experience while in high school and college tend to earn more as adults and are less likely to be unemployed. This may be because any kind of job experience is likely to develop the "soft" job skills that employers report are in short supply among new graduates. (Ruhm 1997; Mroz & Savage, 2006).

with a few clicks on a keyboard. In the new economy, everyone but be able to think critically about available information, apply it in new and creative ways, collaborate with a team of coworkers to bring each person's skills to bear on the challenges at hand, and finally, we must be able to communicate what the team has accomplished and why it is important. A system of lifelong learning facilitates not simply learning the 4 Cs, but fosters the ability to adapt to fluid situations. Most importantly, it cultivates the habits of self-motivated learners eager to expand their understanding of their world to better participate in society and the economy.

While education and training provide strong benefits directly to individual workers, the benefits to society are equally important. With outdated skills and dispositions, our economy and our society stagnate in world where geographic borders are increasingly meaningless. Reliance on old models of education and training is dangerous for an economy struggling to expand. U.S. public policy must better integrate policies for education and workforce development to maintain a strong pathway from school to training to successful employment and full participation in society. Across sectors and types of organizations, we must work together to prepare every citizen for life and work in the Knowledge Economy.

Partnerships for Systemic Change

Research indicates that organizational partnerships are essential to developing and maintaining successful programs and initiatives that support lifelong. Effective systems of lifelong learning engage three distinct types of organizations: education providers, employers, and agencies to coordinate the initiative learning (Hoffman and Litow, 2011; Mourshed, Farrell, & Barton, 2012). It may not matter which type of organization takes the lead in creating

supports for lifelong learning but that each has a part in a successful system of lifelong learning.

(See figure 6.)





Source: Authors, 2012

School systems, post-secondary institutions, community organizations, and employers each have a strong role to play in providing systematic supports so individuals can continue developing skills and knowledge to stay abreast of changes in society and the economy. The foundation of such a system remains the pK-12 school system, but it must become a system that fosters the engagement and life skills necessary for youth to develop into adults who are motivated to continue learning throughout their lives. In order to develop active, self-motivated learners, schools must imbed learning in real-world tasks or authentic projects that simulate realworld experience. In high school and college, work-based placements allow students to apply classroom knowledge while gaining an awareness of different careers. At the same time, employers become familiar with potential employees, and can groom them for future positions. In turn, adult learners need support from their employers to maintain the skills and credentials to further their own careers and also benefit the organization's mission. Employers need education providers to ensure employees have proper certification in a trade or profession or to offer intensive learning experiences to allow employees to upgrade their skills.

Education providers and employers are essential to providing learning experiences situated in real experiences, but may not have the capacity to meet their own organizational goals while coordinating the logistics of these authentic experiences. Given the importance of documenting the learning for educational credit or industry certification, there is often a need for a third organizational partner (Hoffman & Litow, 2011). A coordinating agency can take the lead on developing standards for education and training, resolve logistical issues in placing learners in workplace settings, and provide incentives for partnering.

Programs for Lifelong Learning

Although the US lacks a system to support lifelong learning, there exist examples – both small scale in the United States and wider scale in other nations – of partnerships that enable individuals to continue learning across their lives. This study documented a variety of programs to develop lessons and recommendations for leaders in education, business, and government. The intention is to show that this work can be done by different types of organizations in different contexts.

Methods

To investigate best practices, we approached officials who currently or previously lead an initiative for lifelong learning. In order to develop case studies of the programs, we first interviewed officials leading the programs, agencies or implementing the policies discussed in the book. We then drafted a common outline, so that each case study would include similar information. Each case was drafted by program leaders themselves to best reflect the perspective of the program staff.

The cases represent a variety of organizations involved with education and workforce development, including educational institutions, employers, and agencies that coordinate partnerships between them. They serve individuals at various life stages: youth, early career, dislocated workers, mid-career, and leaders. They include private companies, nonprofit organizations, and public agencies and operate on different scales: regional, state, national, and global. (See table 2). These cases represent a range of programs and initiatives and can offer lessons to all types of organizations interested in improving education and workforce development in the United States.

Education Providers	Program
1. JP Morgan Chase Foundation	The Fellowship Initiative was created to develop untapped talent by providing mentoring and academic support for African-American boys in New York City. The program targets boys with average academic experiences and provides support and enrichment to help them reach their potential.
2. Middlesex Community College	MCC offers an expansive definition of what a community college can. They offer programs for students from age 8 to 88: summer programs for children, dual high for high school students, as well as associates degree programs that are articulated with bachelor's degree programs. To maintain an effective education and training program Middlesex works very closely with local employers.
3. World Economic Forum	Most famous for the annual conference in Davos, WEF has developed a program to enhance ongoing learning for leaders from all sectors and around the world. Includes a

Table	2:	Programs	for	Lifelor	ıg L	<i>earning</i>
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	selective Fellowship resulting in an executive master's degree in global leadership.		
4. University of Liverpool	The University of Liverpool is a pioneer not just in online education but also in using the technology to reach students across the globe. Specifically, they offer an online global MBA program with students from dozens of countries.		
5. Joint Council on Thoracic Surgery	This professional association is piloting technology solutions to enhance the residency of aspiring surgeons.		
Employers	Program		
6. JP Morgan Chase	JP Morgan Chase is continually working to expand their pool of qualified workers. In response to an inability to recruit candidates with strong skills in both technology and finance, they partnered with Syracuse University and the University of Delaware.		
7. National Football League	The NFL works with football players at different levels to support them on and off the field. This includes supports for college athletes, to help transition into the life of a professional athlete and mentoring and support as former professional players decide which 2 nd career to pursue.		
8. Aramark	Through the ARAMARK Building Community (ABC) program provides awards/grants to community organizations to support workforce readiness. Since the program began, they have provided solid training in the food service industry and hired many program completers to work at ARAMARK.		
9. Boeing	Boeing is committed to lifelong learning and continuous career development. This profile illustrates how a major corporation has made professional learning the core of everything they do.		
Coordinating Agency	Program		
10. Northern Tier Industry & Education Council	This consortium of large & small businesses, schools, community organizations was created to develop the skills of the potential workforce in this very rural area. Their signature program is a Youth Apprenticeship Program for 11 th and 12 th graders.		
11. National Urban League	The NUL's Urban Youth Empowerment Program delivers academic, career exploration and personal development services to adjudicated young adults and high school drop outs 18-24 years old.		
12. Africa-America Institute	Sponsored by the Coca Cola Foundation this online leadership development program works in conjunction with major universities in the U.S. and African to target leaders and potential leaders in African community. After completing leadership training, participants are expected to work in their communities to provide employment and training to strengthen the capacity of more than one individual who was able to return to school.		

13. Swiss Vocational Education and Training Program	Switzerland has maintained a strong system of workforce development within the Swiss context that emphasized local control, federalism, and capitalism. This case highlights a program that supports individuals completing advanced career training and credentialing.
14. Jobs for the Future	JFF researches best practices in education-to-career initiatives and works with practitioners to implement these practices. The Pathways to Prosperity State Network is adapting and implementing vocational educational and training programs commonly available to youth in the European Union.
15. Carnegie Center for the Advancement of Teaching	The Carnegie Center for the Advancement of Teaching is working with a national network of community colleges and leveraging dramatic improvements in teaching and learning.

The authors helped the contributors develop the case studies through an iterative process: we developed a general outline, program officials customized the outline, we reviewed their outlines and provided guidance on drafting case studies; they drafted the cases; we reviewed cases and provided feedback; program leaders revised case studies to better conform to the common outline; we finally revised cases to insure a similar tone; program officials authorized final drafts of the cases. Analysis was also an iterative process. Throughout the process, we made notes and assessed parallels between programs; met regularly by phone and in person to discuss findings and themes; drafted sections individually and reviewing and revising each other's work.

Findings

The programs we studied all focus on supporting and instilling habits of learning, but each has very different goals and target audiences: mentoring and leadership training so youth can successfully finish high school and ready for college or post-secondary training and work; employers creating programs to develop their employees' careers; businesses supporting workforce development in their communities; as well as more traditional professional and graduate education. Some are first chance programs, targeting youth and young professionals to give them a good start. Others provide a second chance to dislocated workers or youth who have had trouble with drugs or have been incarcerated. Others support people in mid-life, to augment and expand existing careers. The variety offers a rich variety of lessons to inspire leaders to develop systems to support lifelong learning.

Measuring program impact. The programs in this study continuously collect data to ensure they are having a strong impact on participants. Because these programs in this study are so different, they measure impact in different ways. While a few programs hired external evaluators (NUL, AAI) most analyzed their own program data. All programs used multiples measures to determine success. Most programs have been evaluated on both quantitative outcome metrics as well as more qualitative measures of impact on attitudes and awareness. Every program collects administrative data on participants, completion rates, and other program factors. Many programs collect survey data from program participant and alumni and administer assessments to measure changes in attitudes, behavior, and awareness. Table 3 highlights program goals and the types of data used to measure success.

Organization	Goals	Measures
1. JP Morgan Chase Foundation	 Increased high school completion rates Increased college acceptance rates Increased leadership skills 	 Administrative data Assessments of pscychosocial development
1. Middlesex Community College	 Enrollment rates for programs Completion rates for programs. Successful transfer to university Successful completion of credentialing exams. 	 Administrative data Satisfaction of local employers Test scores
2. World Economic Forum	 Develop the skills of rising leaders 	 Administrative data Observations Assessments of personal abilities and character Alumni surveys

Table 2: Measuring the Impact of Programs for Lifelong Learning

3. University of Liverpool	 Competitiveness of admissions, leading to a diverse cohort Increasing completion rates Alumni successful in business careers 	 Administrative data Alumni surveys
4. Joint Council on Thoracic Surgery	 Participation /Engagement of residents Successful completion of board exams 	Data gleaned from digital learning environmentTest scores
5. JP Morgan Chase	 Develop pipeline of well- qualified employees. 	 Pass rates for courses Qualified candidates Retention of new hires
6. National Football League	 Players are prepared for career beyond playing football. Players secure and sustain work after playing football 	 Administrative data High school and college graduate rates
7. Aramark	Develop local workforce	 Program completion data Hiring data
8. Boeing	 Develop talent of existing employees 	Company productivityRetention rates
9. Northern Tier Industry & Education Council Boeing	 Retain youth in Northern Tier by raising awareness of work opportunities Provide work experiences to youth 	 Administrative data Hiring data
10. National Urban League	 Help disadvantaged youth develop job skills and attain job 	 Administrative data Test scores (GED, Literacy, etc.) Job Placement data Recidivism data
11. Africa-America Institute	 Enrollment and completion rates Participant satisfaction 	Administrative dataSurveysInterview
12. Swiss Vocational Education and Training Program	 Provide advanced professional education and training 	 Administrative data Industry credentialing data Return on Investment
13. Jobs for the Future	 Implement rigorous vocational education and training programs to help secondary school students prepare for university and work 	 Administrative data High school completion rates Post-secondary placement data
14. Carnegie Center for the Advancement of Teaching	Develop and support network of community colleges focused on	Administrative dataCourse grades

increasing enrollment and	
mathematics courses.	

Predictors of success. Across the programs, there are a few attributes that stand out as possible predictors of success. These include partnering between organizations, designating an organization to coordinate the learning program, fostering "soft" skills like communication and collaboration, and leveraging technology to increase access to programs.

Partnerships. With few exceptions, these programs partner to provide learning opportunities. Partnerships are led by different kinds of organizations. Chase Bank has taken the lead in working with universities in their regional to develop a workforce with both technology skills and a knowledge of the financial industry. In rural Pennsylvania, a consortium of industry and educational institutions came together to provide work experiences for youth. The Joint Council on Thoracic Surgery brings together credentialing boards for doctors with universities and hospitals to modernize surgical training for newly graduated doctors. These partners recognize the need to work closely to offer authentic experiences to lead both to transformative personal experiences and credentials that certify mastery of professional competences.

Coordinating agencies. In many cases, these partnerships rely on an organization to coordinate the learning experiences. Coordinating agencies (whether public or private non-profit organizations) maximize the benefit of the partners by serving as a bridge in the process from formal development to on-the-job readiness to redevelopment of skills. For example, the National Urban League (NUL) is a non-governmental agency that serves 300 urban communities in 36 states. Among other initiatives, NUL leverages federal funding to help underserved communities provide education and training programs to disadvantaged youth. NUL provides

funding, guidance, and evaluates local efforts to continuously improve services offered by local affiliates. We also highlight a Swiss federal agency that plays the coordinating role between industry and education institutions as they work together to educate and train citizens. In the US, a non-governmental organization called Jobs for the Future has taken on a coordinating role as it helps schools and districts in the United States adapt models common in Europe.

"Soft Skills." Although many of these programs train participants on technical skills, all of them pay close attention to instilling *"soft"* skills like collaboration, communication, and leadership. We saw this in the case study of both the World Economic Forum's fellowship program to groom the globe's next generation of leaders and the National Urban League's efforts to help disadvantaged youth become rehabilitated after drug treatment or being incarcerated. Although the Knowledge Economy needs workers with technical skills, it is more important to be adaptable, to collaborate, and to apply learning to new challenges.

Technology. Technology is at the core of two of the programs in this study: the MBA program at the University of Liverpool and the online supports for surgical residents. The MBA program is entirely online and asynchronous to allow access to students from all over the globe. The surgical residency program is a hybrid: course materials are online and available at any time but residents still have face-to-face seminars with faculty. The hybrid nature of the program led to a shift in how face-to-face time is used. Rather than taking class time for lectures or showing slides of importance medical cases, seminars are used for clarification and discussion. Online programs with digital content can be quickly updated, allowing professionals access to the latest information in their field. In the rapidly changing environment of the Knowledge Economy, online professional education may become the key to staying current with skills and knowledge.

Important external factors. Several external factors shape the success of programs for lifelong learning and workforce development, including: industry standards that define professional qualifications, creative ways to resource programs, and the community context. Industry credentialing standards provide external clarity about what should be included in a program. They have a strong impact on the VET programs in Switzerland, on the thoracic surgery residency, and on the programming at Middlesex Community College. Each of these programs is designed around industry standards to help their participants complete professional certifications.

Finding the necessary resources to sustain the program is also important and many of these programs have found creative ways to fund their work. Programs rely on grants from government and foundations, on direct investment from employers, in-kind contributions from partners, or may even require fees from partner organizations. Most rely on multiple sources of funding. Many spend considerable time raising money to sustain the programs.

Finally, each of these programs is shaped by its community context. NTIEC is the most obvious—the consortium was designed to address the declining population base in the region by raising awareness of existing opportunities and offering supports to develop the professional skills needed to live and work in rural northeastern Pennsylvania. Several JPMorgan Chase took advantage of having offices near the University of Delaware which allowed them to forge a close business-university partnership. Conversely, the Joint Council for Thoracic Surgery Education is not shaped by local context but by its professional community.

Conclusions

Each of the programs we studied is a complex endeavor enhanced by participation of multiple partner organizations, engaged stakeholders, and a deep understanding of the needs of

stakeholders. Taken together, these programs suggest components of a system of lifelong learning. We hope to start a discussion among leaders in the US (and beyond) about how to integrate disconnected programs into a seamless system to support the education and training of all citizens, for the livelihoods of their choosing.

Given dramatic differences in the economy in different regions, states, nations, we encourage a local or regional approach to best serve an economic and societal "ecosystem" – a concentration of industry (with similar or complementary skill needs) and common population base. We recommend pursuing the following six steps to develop a system of lifelong learning:

- 1) Engage employers and community in an audit of education and workforce development needs / skills needs / available resources.
- 2) Confirm existent of necessary partners and supporting sponsorship and engagement
- 3) Select or create a coordinating agency to facilitate system
- 4) Determine goals and program design
- 5) Pilot, evaluate, and refine program
- 6) Take initiative to scale.

This approach is tailored to community needs, develops collaborations to strengthen the initiative, stresses careful implementation, and allows for course correction and reflection throughout the process. Like lifelong learning itself, these initiatives must be dynamic and responsive to changing needs.

References

- Capelli, P. (2012). Why Good People Can't Get Jobs: The Skills Gap and What Companies Can Do About It. Philadelphia, PA: Wharton Digital Press.
- Daggett, E. (2006). *Jobs and the Skills Gap.* Washington, DC: International Center for Leadership in Education.
- Grubb, N. & Lazerson, M. (2004). *The Education Gospel: The Economic Power of Schooling*, Cambridge, MA: Harvard University Press.
- Hoffman, N. & Litow, S. (2011). Schooling in the Workplace: How Six of the World's Best Vocational Education Systems Prepare Young People for Jobs and Life. Cambridge, MA: Harvard University Press.
- Mourshed, M., Farrell, D. & Barton, D. (2012). *Education to Employment: Designing Systems that Work.* London: McKinsey Center for Government, McKinsey & Company.
- Mroz, T. & Savage, T. (2006), "The Long-Term Effects of Youth Unemployment," *Journal of Human Resources*, vol. 41 (Spring), pp. 259-93.
- Rosenbloom, J. (2002). Looking for work, searching for workers: American labor markets during industrialization. New York, NY: Cambridge University Press.
- Ruhm, C. (1997), "Is High School Employment Consumption or Investment?" *Journal of Labor Economics*, vol. 15 (October), pp. 735-76.
- Secretary's Commission on Achieving Necessary Skills (1991). What Work Requires of Schools: A SCANS Report for America 2000. Washington, DC: US Department of Labor;
- Walters, B. (1984) "Occupational and Labor Market Effects on Secondary and Postsecondary Educational Expansion in the United States: 1922 to 1979." *American Sociological Review*, Vol. 49, No. 5 (Oct., 1984), pp. 659-671