INSIDE

Journal for Workforce Education (JWEd)

Volume IV. Issue 1   Winter, 2014

Introductory Issue

Articles

Understanding Technological Literacy

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Abstract

A growing focus in our educational world—both in public education and the workforce—surrounds the concept of technological literacy. With technology being an exponentially increasing factor in our daily lives, our legislators, as well as business and industry professionals, call for a heightened sense of skills and knowledge that accompany such technological growth. Yet when the phrase "technological literacy" is stated, a myriad of perceived definitions come to mind, and rarely are any two exactly the same. This paper focuses on defining technological literacy, as well as providing conceptual strategies on how to infuse technological literacy into the thinking process of learners, both youthful and adult. The concept of technological literacy must first be internalized by those who are cultivating the learning environment. Only then can an educational or workforce setting breed technological literacy through exposure, repetition, and application of science, technology, engineering, and mathematics principles.

Keywords: technological literacy, education, training, technology, technical contexts, socio-cultural contexts, STEM education, workforce training, transfer of learning

Understanding Technological Literacy

A common topic in academic and workforce discussions regards technological literacy. It is examined from a variety of perspectives. We ask questions regarding how to infuse it into early childhood and later in life with our workforce; we want to know how to help citizens transfer technological skills and knowledge from one setting to another; and we examine a multitude of ways to help people internalize such concepts. However, we often gloss over the most foundational question: what is technological literacy? Providing a universal understanding of technological literacy is a critical step toward achieving it. Once it has been internalized by those involved in teaching and training, only then can it be promoted, taught, and infused into the mindsets of learners.

Technology is a broad concept, often perceived differently—even incorrectly—by different groups or individuals. While there are varying definitions of technology, a simplistic definition can be captured with a single statement by Saracevic: "Applications of knowledge to human work" (1995, p. 7). The ability to comprehend these applications of knowledge to human work, to transfer knowledge and skills into a variety of settings, as well as how we interpret the role of technology in our world is known as technological literacy. Technological literacy, as defined by the International Technology Education Association (ITEA, 2003, p. 9) is, "The ability to use, manage, assess, and understand technology."

In part because of its broad perception, the academic community has developed a rationale, structure, standards, and a conceptual framework for the study of technology. This overlying structure guides the educational principles in the study of technology and technological literacy. Within the rationale and structure, technological literacy has been separated into three fundamental concepts: knowledge, processes, and contexts (ITEA, 2003). This paper focuses on defining the two commonly acknowledged contexts to include technical and socio-cultural contexts. These definitions, as well as the concepts underlying them, are addressed within public educational programs and workforce training.

Technical Contexts

The technical context of technological literacy addresses the scientific and methodological aspects of technology. Using an oversimplified phrase, it describes the "how-to's" of technology; how it does what it does. A technologically literate person in the technical context understands how things work, why they work, how different aspects of technology interact with each other, and how the technical aspects of technology fit into the "big picture." In other words, they have a good understanding of the role of scientific and methodological aspects of technology. A technologically literate person, however, does not need to have high levels of technical competence. Technological competence is generally focused on one or more specific areas of expertise (Pearson & Young, 2002), whereas technological literacy lends itself to an understanding of the potential of technology in a technical context. One does not necessarily have to excel in one area in order to excel in the other (Garmire & Pearson, 2006). Volti (2008) identifies two specific ways in which technological literacy is placed into a technical context, dynamic and cumulative.

Dynamic

In a dynamic technological context, technology has not been and never will be perfected; there is always the likelihood of innovative evolution. A technologically literate person in the technical context understands that technology will continue to grow and improve, often in unforeseeable ways. One only needs to look at the evolution across any given technological tool to grasp its dynamic nature. For example, despite what we might perceive as an advanced evolution of the camera from the time of its conception, a technologically literate person understands that it can and will be improved in the future. Cameras may become lighter in weight; they may wirelessly transmit digital images to computers for archiving and printing; they may eventually capture video to be played back as three dimensional holographs; and they may even be implanted into our corneas for instant imaging. The ways we can potentially improve a camera over time are endless, and often unforeseeable. The technologically literate person not only understands this, but knows that advancement will eventually occur.

Cumulative

Another way that technological literacy is identified in a technical context is that it is cumulative (Volti, 2008). Not completely isolated from dynamism, a technologically literate person understands that technology usually evolves based on advances to existing technology. For example, in continuing with the example above, cameras were originally based on the scientific fact that silver nitrate darkened upon exposure to light. Using this scientific principle, subjects had to remain still for minutes at a time before images could be recorded (Bellis, 1997). Each subsequent development of the camera utilized the existing technology, enhanced it, and realized a better camera with greater technological capabilities. Today we have digital cameras built into telephones that are no bigger than a credit card, and are inexpensive enough to be in virtually every household. While this may seem advanced to us today, soon there will be another camera using more advanced technology, and that will lead to a continued progression of imaging tools.

Socio-cultural Contexts

In addition to having the ability to place technology into technical contexts, the technologically literate also have the ability to place technology into socio-cultural contexts. In essence, society-at-large has a tendency to perceive new technology as "progress" without forethought or a comprehensive understanding of exactly how the new technology impacts our society, both positively and negatively. Technical progress and forward moving progress are often multifaceted and are not one and the same (Golden, Veiga, & Dino, 2008). In this context, the technologically literate have a solid vision of how technology impacts society both positively and as a subversive force. In other words, not only can they identify technology for its benefits to society, but they can also envision and identify the potential disruption created by new technology, in that it can lead to the alteration of social roles and values, as well as the economic structure of society (Volti, 2008, pp. 19-20).

To cite a notable example, dynamite was invented by Alfred Nobel in the 1850's for the purpose of rock blasting and mine excavation. While the technology was successfully used for these purposes, tragedy also ensued. In 1864, dynamite was the cause of the Nobel's family factory exploding, killing five, including Nobel's brother. By the 1880's, dynamite was being used for mass murder by some, and Nobel was touted in newspapers as "The Merchant of Death." In retrospect, Nobel greatly regretted what a disruptive and subversive force dynamite had become, and left ninety-four percent of his fortune to the creation of the Nobel Peace Prize (Goldstein, 2009). Dynamite had become a powerful tool, both positive and negative.

In addition to the ability to understand the consequences of technology—both positive and negative—is the ability to discern that technological advances are often the result of political, social, or economic processes (Ritz, 2011). An example of this phenomenon is the widespread use of today's popular iPod. While digital music and video can easily be stored and played on a plethora of digital players, market forces have helped the iPod to dominate the market with a 76% market share (Frommer, 2010). Most, if not all of the features of an iPod—particularly earlier versions—can be found on competing MP3 players. The popularity of early versions of the iPod may not have been predicated on its unique features, but rather due to marketing strategies that created a snowballing appeal for the product. Subsequent versions of the iPod, regardless of features, had a built-in third party influence, prompting its continued market share growth (Ionesco, 2008).

Infusing Technological Literacy in Educational Programs and the Workforce

Educational programs must necessarily promote technological literacy in our technological society. In the public schools and in the workforce, there has been a heavy emphasis on the infusion and implementation of technological usage (Garmire & Pearson, 2006). Technology permeates our world, regardless of however advanced or primitive that technology may be. While many may only consider more contemporary technologies such as computers, lasers, and the like, all types of technology must be considered. For example, technology plays a significant role in our daily lives through transportation, processed and frozen foods, our entertainment, agriculture, and an inordinate number of aspects of our lives that we take for granted. Technological literacy has a place in virtually any educational framework, from pre-school aged children to adult learners, and should be addressed consistently and continuously.

Likely the best way to address technological literacy is through exposure, repetition, and application. Much like the examples described above, learners can grasp the contexts of technological literacy by connecting those concepts with real-world examples. These connections are reinforced by integrating technology with science, mathematics, and engineering principles (STEM). While the concepts themselves are not difficult to grasp, they will only be absorbed and internalized by members of society if and when educational programs and workforce organizations contemplate the urgency of technological literacy, as well as its pervasive role in our society. Through education, training, repeated exposure, and application, a heightened sense of technological literacy can be achieved.

Recent concerns regarding a shortage of scientists, technologists, engineers, and mathematicians provide evidence for the urgency of technological literacy, as does the resulting increased promotion and funding in public school STEM education (National Science Foundation, 2011). It is predicted that a shortage in these career fields will threaten our national security and global prosperity (National Research Council Committee on Science, 2006). The logical place to start infusing technological literacy is in the public schools. However, the United States also needs a workforce with generally higher levels of scientific and technological literacy, regardless of career choice (Bybee & Fuchs, 2006). Technological literacy, then, can be applied and transferred to a myriad of simple and complex tasks, in both our personal and professional lives.

Educational Programs

Ideally technological literacy can become societally widespread at an early age if the concepts are instilled in public schools (Wachira, 2011). One method of doing so is to infuse more

STEM education in our public curricula. While there are many ways to accomplish this, an effective and holistic method of increasing interest in STEM education in the public schools is to utilize a cross-disciplinary approach. For example, lessons focused on teaching students about the science behind Newton's second law, $F = m*a$, may include a project-based component of designing and building a rocket car. Thus, technology is the catalyst for combining science and mathematics through the use of engineering design. The design project adds context to the science content being taught. Students can then begin to understand the interrelationships between disciplines, and hence develop a greater sense of technological literacy. There are an unlimited number of ways to use these concepts across public school curricula.

One challenge in designing this type of integrated curriculum is in understanding the different contexts of technology. Science and mathematics teachers need to be technologically literate and comfortable embedding technology into their instruction. This requires the teachers to be technologically literate in both technical and socio-cultural contexts. The teachers who possess these literacies can breed and cultivate a learning environment needed to pass along the technological literacies to their students in a meaningful, STEM integrated fashion.

Workforce

Developing technological literacy in the workforce poses a similar, yet in many ways unique set of obstacles. As many as 50% of adults are missing some of the technological skills and literacies needed to be proficient in their current vocation (Fletcher, Nicholas, & Davis, 2010). Many adults who have not succeeded in developing technological literacy may experience anxiety and a sense of being defeated when they are introduced to new technologies (Davis, Fletcher, and Absalom, 2010). Yet industry demands that workers be competent in an ever-increasing technological workforce.

As with public schools, adult learners need exposure, training, and application of a variety of technological pursuits. However, technological usage must be more than a routinized process. To fully integrate technological literacy in the workforce, technological knowledge and skills must be internalized for future transfer of learning. Adult learners learning new skills in the workforce must feel that they are in a safe and non-judgmental environment, and must have the ability to explore technological capabilities and make errors. Otherwise they may retract and be otherwise apprehensive about learning new knowledge and skills that may appear to make them feel less competent than their workforce counterparts (Davis, Fletcher, and Absalom, 2010). Until this occurs, systematic technological literacy may not take place.

Conclusion

Technology is a continuously evolving and dynamic process that requires knowledge of its benefits and consequences. It also requires learners, both youthful and adult, to have the ability to see how technological skills and knowledge can be accu-

mulated and transferred into an unlimited number of environments. Individuals need to be technologically literate in order to make informed decisions that affect the use and management of current as well as future technology.

Defining technological literacy requires the perspective of both a technical and a socio-cultural context. In order to create a technologically literate society in both contexts, technological literacy needs to be infused into the public school educational framework, and continued to be entrenched into workforce training and development. The most efficient and effective method of building technological literacy in public schools is through exposure, repetition, and application, as well as the integration of STEM content focused on technological design. The workforce must also take these strategies into consideration while considering the unique needs of adult learners.

References

Bellis, M. (1997). *The art of photography: Timeline of photography, film, and cameras.* Retrieved from http://inventors.about.com/od/pstartinventions/a/Photography.htm

Bybee, R. W. & Fuchs, B. (2006). Preparing the 21st century workforce: A new reform in science and technology education. *Journal of Research in Science Teaching, 43*(4), 349–352.

Davis, N. E., Fletcher, J., & Absalom, I. (2010). *E-learning for adult literacy, language and numeracy: A case study of a polytechnic*. Wellington: New Zealand Ministry of Education.

Fletcher, J., Nicholas, K., & Davis, N. (2010). Supporting adulate to address their literacy needs using e-learning. *Journal of Open, Flexible, and Distance Learning (15)*1, 17-29.

Frommer, D. (2010). Apple iPod still obliterating Microsoft Zune. *Business Insider.* Retrieved from http://www.businessinsider.com/through-may-apples-ipod-had-76-of-the-us-mp3-player-market-while-microsofts-zune-had-1-according-to-npd-gro-2010-7.

Garmire, E. & Pearson, G. (2006). Tech tally: *Approaches to assessing technological literacy.* Washington, D.C.: National Academies Press.

Golden, T. D., Veiga, J. F., & Dino, R. N. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *Journal of Applied Psychology, 93*(6), 1412-1421.

Goldstein, K. (2009). *Six Geniuses Who Saw Their Inventions Go Terribly Wrong*. Retrieved from http://www.cracked.com/article_17186 _p2.html.

Ionesco, D. (2008). Why is iPod so popular? Retrieved online from http://www.articlesbase.com/electronics-articles/why-is-ipod-so-popular-391147.html

ITEA (2003). *Advancing excellence in technological literacy: Student assessment, professional development, and program standards.* Retrieved from http://www.iteaconnect.org/ TAA/PDFs/AETL.pdf/.

Linehan, M., & Sheridan, I. (2009). Workplace learning in Irish third-level colleges. *Journal of Workplace Learning, 21*(6), 496.

National Science Foundation (2011). *Report of the National Science Foundation FY 2011 Budget Request to Congress.* Retrieved from http://www.nsf.gov/about/budget/fy2011/pdf/FY%202011%20Budget%20Request%20to%20Congress.pdf

Pearson, G. & Young, A. T. (2002). *Technically speaking: why all Americans need to know more about technology.* Washington, D. C.: National Academy Press.

Ritz, J. R. (2011). A focus on technological literacy in higher education. *Journal of Technology Studies 37*(1), 31-40.

Saracevic, T. (1995). Interdisciplinary nature of information science. *Information Science, 24*(1).

Volti, R. (2008). *Society and technological change* (6th ed.). New York: St. Martin's Press.

Wachira, P. (2010). Technology Integration Barriers: Urban School Mathematics Teachers Perspectives. *Journal of Science Education and Technology (20)*1, 17-25.

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America's Skilled Workforce Shortage and Disconnected Youth:
A Systemic Policy Strategy

By Leslie S. Block, Ph.D.

Abstract

Changes in the U.S. economy, demographics and labor market have altered the requirements for education, career and technical training. A par-excellent public education system is essential for America's competitiveness in a digitally driven, knowledge-based and global workforce economy where every American youth is competing in a global supply chain!

America's unbridled belief in college-for-all policy inadvertently prevents youth and others from seeing the full range of desirable career options. There is a divide between college preparation and vocational curricula that induce students, parents, teachers and others to see vocational and career education as inferior. This article promotes economic growth with disconnected youth as an intrinsic ingredient to close America's skilled gap, increase high school and college graduation rates.

Public policies are reviewed that provide unintended consequences for disconnected youth, career, technical and industrial training. Specific action step strategies and policy recommendations also are provided.

Introduction

Changes in the U.S. economy, demographics and labor market have altered the requirements for education, career and technical training creating opportunities and pitfalls. A par-excellent public education system is essential for America's competitiveness in a digitally driven, knowledge-based and global workforce economy where every American youth is competing in a global supply chain!

The digital economy and the agile workplace have dramatically increased the skill-level demand of the labor market. This demand, coupled with international competition for skilled human capital, should radically transformed public education policies impacting disconnected youth in America.

America's education system continues to come up conspicuously short as measured by the Organization for Economic Cooperation and Development (OECD). America's high school graduation rate of 78.2% is far behind the over 90% of Greece, Germany, Finland, Japan, South Korea, Norway and Ireland (sidebar: Germany and Japan exceeds 95%). Only eight of the 34 OECD countries have a lower high school graduation rate than the United States.

To reach a 90 percent or better high school graduation rate, America needs a national policy to reengage disconnected youth, especially those near to completion. Reconnecting these youth represents a cost-effective and viable strategy to increase high school graduation rate, achieving postsecondary attain-ment goal as well as closing the workforce high-skills gap.

As the last societal institution attended by almost all young people, high schools must prepare youth for career options, postsecondary credentials and adulthood. Virtually all of OECD's high educational performing countries have a system of gateways marking the transition points from basic education to vocational, technical and workforce job training, or from basic education to upper secondary education to university.

America's unbridled belief in the college-for-all policy inadvertently prevents youth and others from seeing the full range of desirable career options; and accelerates youth under-valuing education as demonstrated by the more than 6.7 million current disconnected youth. Disconnected youth is defined as: Between the ages of 16-24, out-of-school (lacking a diploma), disconnected from social services, faith-based organizations and work.

This article highlights "Another Chance" pathway articulated by countries to integrate academic preparation, career and technical education (CTE), information, communications and technology (ICT), structured apprentice- and intern-ships, service- and work-based learning strategies to reengage disconnected youth to education and the labor market. America's future workforce demographics and disconnected youth are examined. Public policies are reviewed that provide unintended consequences for disconnected youth, career, technical and industrial training. Specific policy recommendations as well as what America might look like in the future also are provided.

The article seeks to initiate a structured dialogue to align policy and data sharing across sectors and stakeholders that intersect disconnected youth, elevating disconnected youth as an underutilized human capital for employers in addition to increasing high school and college graduation rates. Traditionally, American employers, educators, governmental agencies and community-based organizations (NGOs) have addressed disconnected youth in isolation, by their separate silos with different policies, procedures, data sets, financial and accountability systems that resulted in limited data sharing and outcomes oscillating between redundant and contradictory.

Another Chance

The challenges of disconnected youth are not unique to the United States. The United Kingdom's Not in Education, Employment or Training (NEET) provides information on the characteristics, attainment levels and socio-economic status of the almost 14 million young people referred to as the lost generation. NEET also is deployed in Japan and South Korea.

The Nordic countries' "youth guarantee" entitles every youth up

to age 20, an education at the upper secondary level. Denmark's publicly funded "production schools" attracts and trains youth uncertain about their career path, or who have dropped out of other formal schooling. Norway's "new pathways" integrate apprenticeships and co-op programs in secondary schools involving small firms. The Netherlands, Australia and the United Kingdom have programs requiring young job seekers to further their education, while providing them with an allowance to do so.

Several OECD countries—including Germany, Austria, Luxembourg and Switzerland—use a dual system of employer-based apprenticeship and school-based vocational education embedded with recognized occupational credentials and strong linkages with employers. Germany combines work and schooling through a three year apprenticeship leading to qualifications in over 350 occupations. Youth apprentices in Germany are considered employees, paid for attending part-time vocational schools and protected by labor agreements. Germany's "dual system of education" involving over 500,000 youth combining on-the-job training apprenticeships with theory taught in public schools.

Conversely, America has about 1,700 youth involved in apprenticeships. Unlike secondary schools in Germany, American high schools have no responsibility for helping students get jobs after graduation. America's "another chance" initiatives for disconnected youth is isolated, fragmented and small in scale targeting organizational goals, rather than systemic national aims across the entire ecosystem.

Entities have attempted to reengage disconnected youth into the same educational environment they walked away from previously, expecting a different outcome. Encouraging disconnected youth to return to the educational system has not been a high priority in the U.S. as in the Nordic and European countries with their subsidized employment, on-the-job training, participation of school counselors, special follow-up and wrap-around health and welfare services. European countries integrate logical inter-institutional frameworks that include school systems, unions, business, higher education and government agencies (e.g. qualifications authorities, skills councils, career and technical education and training institutions, etc.).

Future Workforce Demographics and Disconnected Youth

America is the only OECD country, where educational attainment levels for those just entering the labor market are lower than those about to leave. For the next 19 years, 10,000--mostly white people--per day will turn 65 years old, and presumably retiring shortly thereafter. By 2030, all of the well-educated Baby Boomers will have turned 65, and complete their exit from the workforce.

America's highly educated labor force advantage since World

War II is about to end as our number of college graduates slip from second place in 1995, to 13th in 2008. America's two-year and four-year college degree attainment rate has remained stagnant at 39%, while other OECD countries continue to rise faster.

Globalization and technology are transforming the skills needed in the workforce. U.S. employers are having unprecedented difficulty in filling skilled jobs that require credentialing beyond high school partially because academic content is not aligned with the skills required in the workplace. By 2016, half of all new jobs will require more than a high school diploma but not a four-year degree. Only 24% will require a four-year degree or higher. By 2018, 63% of all jobs are to require some post-secondary training and America will need to produce one million additional graduates a year by 2020, to meet its skilled worker needs. H-1B visas, designed to bring highly skilled workers to the United States, could fill up to 85,000 annually and green cards another 140,000.

The Census Bureau projects that America's future workforce will come from non-white segments of the population. Minorities accounted for 92 percent of the nation's population growth in the decade that ended in 2010! America's future success depends on increasing in the number, quality and diversity of youth completing high school and obtaining appropriate postsecondary credentials. Because America has a blemished record educating the economically disadvantaged and youth of color, the aforementioned statistics are frightening and have broad workforce and national security policy implications.

The OECD's Program for International Student Assessment provides the most extensive and rigorous set of international surveys assessing the quality of learning, skills and social disparities outcomes. In America, excellence in reading literacy varied widely depending on socioeconomic status at one's local school system (see Exhibit 1).

The average literacy scores in schools where more than 75% of students receive free or reduced lunch (FRL a proxy for income level) are among the lowest in the world. Youth of color are the majority in most of the more than 75% FRL schools. By contrast, students attending schools where less than 10 percent receive FRL have the highest literacy scores in the world.

In PISA's assessment subjects of reading, mathematics and science, countries are able to determine the depth of their future workforce talent pool in a fiercely competitive global market. Approximately 4.1% of 15-year-old students are top performers in all three subjects, i.e., all-rounders. Shanghai-China has the largest share of all-rounders at 14.6%, followed by Singapore 12.3%; New Zealand 9.9%; Finland 8.2%; Hong Kong-China 8.0%; Japan 8.0%. America is ranked 12th with 5.2%, just above the OCED's average of 4.8%.

EXHIBIT 1: AVERAGE LITERACY SCORES BY U.S. SUB-POPULATION	
Source: Program for International Student Assessment, 2009.	
U.S. <10% FRL	552
Korea (Highest)	538
U.S. 10-24.9% FRL	525
U.S. 25-49.9% FRL	502
U.S. Averages	**500**
Average (All Countries)	**495**
U.S. 50-74.9% FRL	470
U.S. 75%>	445
Mexico (Lowest)	425

Disconnected Youth

Transforming failing public schools and dropout prevention programs have not reduced the population of youth becoming disconnected each year, nor changed the education business model. There are at least 6.7 million disconnected youth, with another 1.3 million leaving high school each year without a diploma, disconnected youth will grow to nearly 20 million in ten years. Clearly, for the foreseeable future, a large number of disconnected youth will need ways to navigate "another chance" option related to their interests and labor market growth fields.

Nearly all disconnected youth are confident that they could have successfully completed high school if they had tried, but felt that education was "boring" and lacked relevance to their lives and real-world application. Two-thirds of students who leave high school without a diploma evidentially complete some form of high school.

Careers and pathways that integrate a full range of academic, apprenticeships, technical education, certificates, credentials and work-based training are proven strategies to re-engaging disconnected youth. Disconnected youth should be provided with "another chance."

Succinctly, apprenticeships allow employers to discern the skills youth can possess as well as their non-cognitive behavior, e.g.,

sociability, discipline, leadership and punctuality. The actual conditions, fluid dynamics and inter-personal relationships of career and technical apprenticeships cannot be replicated in a classroom or in on-campus setting. Standardized tests and exit exams hardly ever convey information about students' qualifications for specific jobs.

America's changing demographics and labor market realities dictate that disconnected youth be brought back into the mainstream of education and workforce policy. Disconnected youth represents the low-hanging fruit to closing the high-skilled workforce gap, improving secondary and postsecondary graduation rates.

Rarely has a single problem — disconnected youth — contributed to so many adverse economic circumstances virtually guaranteed a lifetime of low earnings, poor health, criminal activity and a high risk for incarceration. So, will a systemic investment in disconnected youth yield a positive rate of return?

By reconnecting 50%, or 700,000 disconnected youth in the class of 2010, would yield a return on investment of $1.45 to $3.55 for every dollar spent. Each new graduate would confer a net benefit to taxpayers of about $127,000 over their lifetime, nearly $90 billion or close to $1 trillion after 11 years for each year the number of disconnected youth are reduced by 700,000. Reconnecting disconnected youth would reduce crime, welfare and medical costs while providing a boost in state and local taxes via increase wages. CTE and ICT programs reduced dropout and teen pregnancy rates while not precluding college and improving earnings.

In America, technical and vocational training bears a negative stigma among many educators and career counselors, and gives students, parents, family and friends the mistaken impression that a four-year baccalaureate degree is the only way to a bright future, livable wage and becoming productive citizens. Including school-based coursework designed to complement work-site activities and occupations have taken a back seat to college preparation because many educators believe that career-related education reduces college options. The research literature does not support this assumption.

Many students choose the academic curriculum even though they have no aspiration of earning a college degree. Eighty four percent of high-school seniors planned to get a two- or four-year college degree as one study found. However, in 2011, the immediate college enrollment rate of high school completers (including GED recipients) who enroll in two- or four-year colleges in the fall immediately after completing high school was 68%: 26% enrolled in a two-year college and 42% enrolled in a 4-year college. Only 20% complete a post-secondary degree in six year.

There are some 14.9 million students enrolled in public second-

ary schools. The baccalaureate game is right for only 20% of young people: What is right for the 80%? Disconnected youth and non-college bound youth are the forgotten majority. These youth deserve as much attention and assistance as do the 20% postsecondary completers. The proven strategies of CTE and ICT apprenticeships and work-based employment opportunities should systematically available for disconnected youth, in particular, and non-college bound youth, in general.

National Policy Recommendations

Smart public policy matters in education. There are several theoretically sound policies with unintended consequences for disconnected youth. These "one-size-fits-all" policies formulated 45,000 feet above the problem; produce solutions despised by the people who are to implement them but are seldom at the initial policy discussion table. This approach disregards the intact eco-system operating at the ground level, in the neighborhoods, schools, classrooms that cannot be observed and/or legislated through the troposphere's turbulences of wind, rain, time, space, family and culture.

For example, the War on Drugs has made America the world's leader in the number of children with an incarcerated parent disrupting the parent-child relationship, precipitating an anti-social behavior, mental health, drug abuse, difficulty concentrating or learning, a distrust of authority by the child. The Zero Tolerance policy goes against the goal of graduating students, and is a major factor in youth dropping out of school and plunging into the "school-to-jail" pipeline. No Child Left Behind (NCLB) encouraged educators to make little effort to hold onto a potential disconnected youth for fear of not meeting average yearly progress. Also, NCLB penalizes school districts attempting to recover and graduate older disconnected youth, and fails to provide adequate funding for career and technical education to an increasingly diverse youth population.

The American Recovery and Investment Act of 2009, funded initiatives in 12 cities to reengage and put disconnected youth to work, but again was fragmented and limited in scope. This article advocates a national education policy to reclaim former disconnected youth, promote systemic structural change and better use of data to address the needs of disconnected youth including those requiring a low number of credits, non-academic and/or competency requirements, i.e., near completers.

The labor market realities necessitate that a National Disconnected Youth Recovery Act (NDYRA) be designed and implemented. A bold and sustainable national policy must be articulate and synchronize across education (P-K, elementary, middle and high school, post-secondary including community colleges, certificates/credentials, and four-year institutions), workforce employers, health and welfare, criminal justice, child and family support providers and media systems. The NDYA would:

- Ensure resources are not cut off for students seeking to return to complete their diploma and/or certification training;

- Consolidate, collect and supply accurate data on disconnected youth, apprenticeships and work-based learning options. (There are 400 databases collecting demographic data including age, academic age, education attainment, sex, race, marital status, number of children, employment history, job search, job training, mobility, household income, welfare assistance, housing, military discharge status, drug use, inter alias.)

- Provide tax credits to employers and unions to partner with career and technical education programs to expand the skill set of young workers;

- Offer incentives for state departments of education, school districts, schools and community-based educational entities to proactively deploy comprehensive reconnecting strategies and gateways.

- Initiate an annual National Re-Connecting Day for disconnected youth.

"Another Chance" Policy and Action Steps

Action Step: 1) modify the college-for-all-policy so that educators can appropriately assist youth and parents in making choices among alternative apprenticeships and work-based options.

Action Step: 2) correct parents/students' misconceptions about illusory options and help them to understand the steps required to improve their educational and career outcomes.

Action Step: 3) Provide trusted communication channels with employers to ensure curriculum relevance and student skill competency.

Action Step: 4) Integrate academic preparation, CTE, ICT and provide joint planning time to conceptualize real-world curricula while increasing the link and understanding between education and career opportunities for teachers, counselors, social workers, healthcare personnel, youth and parents.

Conclusion and Looking Forward

The aforementioned tectonic demographic and educational shifts are not being addressed in a coherent and systemic way by political, business and education leaders which jeopardize America's future prosperity and economic growth. This represents a potentially national security threat, economic crisis and a virtual collapse of public education!

The focus of the current high school reform movement must go

beyond qualifying students to enter college. Closing the educational attainment of disconnected youth is the key to building the strong workforce and a superior growth model for America's economy. Disconnected youth, in particular, and youth, in general, deserve the opportunity to succeed in their chosen career paths.

What will America look like in 2030, if nothing systemically is done to address the warning signs of disconnected youth and the skill workforce deficit? Will America and its urban cities, resemble the ancient City of Pompeii and its citizens who were told not to worry about the warning signs of minor tremors and columns of smoke belching out of Mount Vesuvius before it erupted on 5 February 62 A.D. burying the city and its inhabitants under 60 feet of ash and volcanic rock?

America's citizens also are being told not to worry about the millions of disconnected youth, the skill deficits of entry employees, young people exposed to and the recipient of violence. As like the City of Pompeii, will future generations similarly marvel as they sift through the ashes and devastations of America's once great cities, and wonder if there were any warning signs that would have allowed for practical and proactive policies to be taken?

Endnotes

1. *Public School Graduates and Dropouts from the Common Core of Data: School Year 2009–10,* National Center for Education Statistics, U.S. Department of Education.

2. OECD (2011), Lessons from PISA for the United States, Strong Performers and Successful Reformers in Education, OECD Publishing. Also see, Education at a Glance 2009 OECD: Paris, 2009.

3. Accelerating the Agenda Washington, DC: National Governors Association, Center for Best Practices, 2009.

4. Center for Labor Market Studies, Northeastern University, Left Behind: The Nation's Dropout Crisis Boston, May 2009. See also, Peter Edelman, Harry Holzer and Paul Offner Reconnecting Disadvantaged Young Men Washington DC: Urban Institute Press, 2006. M. Dynarski, L. Clarke, B. Cobb, J. Finn, R. Rumberger and J Smink Dropout Prevention Washington, DC: National Center for Education Evaluation and Regional Assistance, U.S. Department of Education, 2008. The Economic Value of Opportunity Youth. At: http://www.civicenterprises.net/MediaLibrary/Docs/econ_value_opportunity_youth.pdf.

5. Norman Bowers, Anne Sonnet and Laura Bardone, Giving Young People a Good Start. In Preparing Youth for the 21st Century Paris: OECD, pp. 7-86, 1999; Robert I. Lerman Improving Career Outcomes for Youth: Lessons from the U.S. and OECD Experience Research and Evaluation Monograph Series: U.S. Department of Labor, 2000, Accessed August 10, 2012, http://wdr.doleta.gov/opr/fulltext/01-

6. David Soskice Reconciling Markets and Institutions: The German Apprenticeship System. In Lisa M. Lynch, ed., Warning and the Private Sector Chicago: The University of Chicago Press, 1994, pp. 25-60.

7. John Von Brachel, What Price Apprenticeships? Across the Board Vol. 1, No. 1, 1994, pp. 32-38.

8. Nancy Martin and Samuel Halperin Whatever it Takes American Youth Policy Forum, 2006. Accessed August 10, 2012 from http://www.aypf.org/publications/WhateverItTakes/WITfull.pdf; Also see, Cheryl Almeida, Cassius Johnson and Adria Steinberg Making Good on a Promise Jobs for the Future 2006. Accessed August 10, 2012 from http://www.jff.org/Document/MkingGoodProm.pdf.(P.1); Suhyun Suh and Jingyo Suh Educational Engagement and Degree Attainment Among High School Dropouts Educational Research Quarterly 29:11-20 2006.

9. Education at a Glance 2011 OECD. Accessed August 13, 2012 from http://dx.doi.org/10.1787/eag-2011-en OECD 2011, Table A1.3a.

10. D'Vera Cohn and Paul Taylor, Baby Boomers Approach 65—Glumly Pew Research Center, Social and Demographic Trends, December 20, 2010; See also, Dan Barry, Boomers Hit New Self-Absorption Milestone: Age 65 The New York Times December 31, 2010.

11. Box 1.1 The Pace of Change in Educational Improvement, p. 16. OECD (2011) Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States OECD Publishing.

12. Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills and the Society for Human Resources Management. Are They Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century US Workplace New York, Conference Board, 2006.

13. Anthony Carnevale, Connecting the Dots Between

High School, College, and Careers, Learning Point Associates, a paper given at the Institute of Education Science Conference on Research for Improving High Schools, May 5, 2005.

14. D. Heckler Occupational Employment Projections in 2014 Monthly Labor Review DC: U.S. Dept of Labor, Bureau of Labor Statistics, Nov. 2005.

15. Kenneth C. Gray and Edwin L. Herr, Other Ways To Win: Creating Alternatives for High School Graduates. Second Edition. Corwin Press, 2000.

16. Anthony P. Carnevale, Nicole Smith and Jeff Strohl, Help Wanted: Projection of Jobs and Education Requirements Through 2018, Georgetown University Center on Education and the Workforce, 2010, 2010, Figure 2.1.

17. Anthony B. Carnevale, et al. Help Wanted. Also see, Alex Nowrasteh, Needed: Skilled Immigrants Investor's Business Daily October 6, 2011; Institute for A Competitive Workforce, U.S. Chamber of Commerce: Accessed August 14, 2012 from http://icw.uschamber.com/conference/help-wanted.

18. J. Green and M. Winters Public High School Graduation and College Readiness Rates 1991-2002 Education Working Paper No 8 February 2005, NYC: Manhattan Institute for Policy Research. See also, Casner-Lotto J, Rosenblum E, Wright M. The Ill-Prepared US Workforce Exploring the Challenges of Employer-Provided Workforce Readiness Training. New York, NY: The Conference Board; 2009; House Education and Labor Committee, High School Dropout Crisis Threatens U.S. Economic Growth and Competitiveness May 12, 2009 http// www.edlabor.house.gove/.../05/high-school-dropout-crisis-thr.shtml; U.S. Education Reform and National Security Independent Task Force Report 68, Council on Foreign Relations 2012.

19. OECD (2010), PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science, Volume I, PISA, OECD Publishing, Table I.3.7.

20. Dynarski, et al, 2008.

21. Andrew Sum, et al, The Consequences of Dropping Out of High School, 2009; The Economic Benefits from Halving the Dropout Rate 2010; C. Belfield and H. Levin eds. The Price We Pay: Economic and Social Consequences of Inadequate Education D.C.: The Brookings Institution Press, 2007.

22. C.R. Field and H.M. Levin. (2012). The Economic Value of Opportunity Youth. Available on the Corporation for National and Community Service's website at http://www.civicenterprises.net/MediaLibrary/Docs/econ_value_opportunity_youth.pdf. See also, Peter Edelman, et al., Reconnecting Disadvantaged Young Men, 2006. M. Dynarski, et al., Dropout Prevention, 2008, Economic Value of Opportunity Youth. At: http://www.civicenterprises.net/MediaLibrary/Docs/econ_value_opportunity_youth.pdf

23. The MetLife Survey of the American Teacher 2002: Student Life, School, Home and Community. New York, NY: (2002). Also see, R. W. Rumberger (2004). Why Students Drop Out of School. In Orfield, G. (Ed.) Dropouts in America: Confronting the Graduation Rate Crisis (pp. 131-155). Cambridge, MA: Harvard Education Press; Lake County Regional Office of Education. Student Voices on the Dropout Crisis, Campaign for Youth: Our Youth, our Economy, Our Future—A Community Investment Strategy for Reconnecting Lake County's Youth, May 2011.

24. Suhyun Suh and Jingyo Suh, Focusing on Second Chance Education: High School Completion Among Dropouts Journal of Educational Research & Policy Studies Spring 2004, Volume 4, Number 1; David Hurst, Dan Kelly and Daniel Princiotta Educational Attainment of High School Dropouts 8 Years Later (NCES 2007-019) Washington, DC: National Center for Education Statistics, U.S. Department of Education 2004. Accessed August 9, 2012 http://nces.ed.gov/pubsearch/pubsinfo/asp?pubid=2005026; Also see, Susan Rotermund, Education and Economic Consequences for Students Who Drop Out of High School Statistical Brief 5, Santa Barbara: California Dropout Research Project. University of California, 2007. Accessed August 9, 2012 from http://cdrp.ucsb.edu/dropouts/pubs_Statbriefs.htm#5 (accessed Figure 1; Russell W. Rumberger and Susan Rotermund, What Happened to Dropouts from the High School Class of 2004? Statistical Brief 10, Santa Barbara: CA Dropout Research Project, University of California, 2008.

25. Mala B. Thakur and Kristen Henry, Financing Alternative Education Pathways, Profiles and Policy 2005; Chuang, Hwei-Lin. 1997. High School Youths' Dropout and Re-Enrollment Behavior Economics of Edu-

cation Review 16:171-186; Doris R. Entwisle, Karl L. Alexander, and Linda Steffel Olson Temporary As Compared to Permanent High School Dropouts Social Forces 82:1181, 2004.

26. Leslie Block, Improving American Business Competitiveness Through Work-Based Learning Illinois Business Nov/Dec. 1998, pp.10, 26-27. D. Stern and R. Stearns Evidence and Challenges: Will Multiple Pathways Improve Student Outcomes? In Jeannie Oakes and Marisa Saunders, Beyond Tracking: Multiple Pathways to College, Career and Civic Participation Cambridge, MA: Harvard Education Press, 2008. D. Boesel (2001) The College Movement and Its Critics Phi Delta Kappan, 82, 537-542; D. Boesel, K. Hudson, S. Deich, & C. Masten (1994) National Assessment of Vocational Education (Vol. II): Participation in and Quality of Vocational Education Washington, DC: U.S. Department of Education. 137-139; Digest of Educational Statistics 1991, 1999 Washington, DC: U.S. Government Printing Office.1991, 1999; H. Holzer (1995). What Employers Want: Job Prospects for Less-Educated Workers New York: Russell Sage. M. S. Krei & J.E. Rosenbaum (2001) Career and College Advice to the Forgotten Half: What do Counselors and Vocational Teachers Advise? Teachers College Record, 103, 823-843; J. E. Rosenbaum, S. DeLuca, S. Miller, & K. Roy (19990) Pathways into Work: Short and Long-Term Effects of Personal and Institutional Ties Sociology of Education 72,179-196; D. Shapiro & M. Iannozzi (1999). The Benefits to Bridging Work and School: Results of the 1997 National Employer Survey, Philadelphia: National Center for Postsecondary Education, University of Pennsylvania. 1997; Bonalyn Nelson, (1997). 'Should Social Skills Be in the Vocational Curriculum? Evidence from the Automotive Repair Field', In Alan Lesgold, Michael Feuer, and Allison Black, eds. Transitions in Work and Learning: Implications for Assessment. Washington, DC: National Academy Press, p. 84.

27. The High Cost of High School Dropouts Washington, DC. Alliance for Excellent Education November 1, 2011; Mala B. Thakur and Kristen Henry, Financing Alternative Education Pathways, Profiles and Policy, Washington, DC: National Youth Employment Coalition, 2005; Andrew Sum, et al, The Consequences of Dropping Out of High School Center for Labor Market Studies, Northeastern University, Boston, Ma October 2009; The Economic Benefits from Halving the Dropout Rate Alliance for Excellent Education, January 2010. The American Journal of Public Health found that dropping out of high school was responsible for

245,000 deaths in 2000, more than deaths by heart attack. Abdul El-Sayed, Sandro Galea Only the Poor Die Young? Long-Term Solutions for a Sick Country. Columbia University October 11, 2011.

28. C.J. Mumola, Incarcerated Parents and Their Children Trends 1991-2007 The Sentencing Project Washington, DC: U.S. Department of Justice, February 2009. Accessed August 11, 2012 from http://www.ojp.usdoj.gov/bjs/pub/pdf/iptc.pdf.

29. Henry M. Levin, Cecilia E. Rouse, The True Cost of High School Dropouts The New York Times Op-Ed Contributors, January 25, 2012.

30. Lance Lochner and Enrico Morett The Effect of Education on Crime National Bureau of Economic Research Working Paper No. 8605, Nov. 2001; E. Moretti Crime and the Costs of Criminal Justice In C. Belfield & H. Levin (Eds.) The Price We Pay: Economic and Social Consequences of Inadequate Education (pp. 142-159). Washington, DC: The Brookings Institution, 2007.

31. The Economic Benefits from Halving the Dropout Rate January 2010.

32. D. Boesel, L. Hudson, S. Deich, & C. Masten, (1994). National Assessment of Vocational Education: Final Report to Congress Volume II, Participation in and Quality of Vocational Education. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education, 75.

33. I. Beattie, (2001, August). Learning 'Self-Sufficiency': How High School Experiences Help Women Avoid Welfare. Paper presented at the meeting of the American Sociological Association, Anaheim, CA.

34. Thomas D. Snyder, Charlene M. Hoffman, Digest of Educational Statistics 1991, U.S. Department of Education, National Center for Education Statistics, 1991.

35. Boesel et al., 1994.

36. Thomas D. Snyder, et al., Digest of Educational Statistics 1991. See also, Vickie Choitz, Center for Law and Public Policy, discusses, "Career Pathways Lead Low-Income People Out of Poverty." A Spotlight on Poverty and Opportunity webcast with moderator Jodie Levin-Epstein. Accessed October 26, 2013 at: http://www.spotlightonpoverty.org/news.aspx?

id=618aa7be-2521-4f4b-9ded-9b363a2901a6#sthash.xTF44eWk.dpuf.

37. National Center for Education Statistics, 1992; Digest of Educational Statistics 1999.

38. Condition of Education, 2013. Digest of Education Statistics 2012, Indicator 30, Reference Tables 234, 235, 236, pp. 1332-133.Retrieved October 23, 2103 from http://nces.ed.gov/pubs2013/2013037.pdf

39. National Center for Education Statistics, 1992; Digest of Educational Statistics 1999.

40. National Center for Education Statistics. (2013). The Condition of Education, 2013. Retrieved October 23, 2103, Indicator 8, p. 46 from http://nces.ed.gov/pubs2013/2013037.pdf.

41. Kenneth Gray, "The Baccalaureate Game: Is It Right for Teens? Phi Delta Kappan, Vol. 77, No. 8; Kenneth C. Gray and Edwin L. Herr Other Ways To Win: Creating Alternatives for High School Graduates. Second Edition. Corwin Press, 2000.

42. Bonalyn Nelson, (1997). 'Should Social Skills Be in the Vocational Curriculum? Evidence from the Automotive Repair Field', In Alan Lesgold, Michael Feuer, and Allison Black, eds. Transitions in Work and Learning: Implications for Assessment. Washington, DC: National Academy Press, p. 84.

43. C.J. Mumola, Incarcerated Parents and Their Children Trends 1991-2007.

44. R. W. Rumberger, Why Students Drop Out of School. pp. 131-155, 2004. Also see, R. Balfanz What Your Community Can Do to End Its Drop-Out Crisis presented at the National Summit of America's Silent Epidemic, Washington, DC 2007 May.

45. Eric A. Hanushek, Paul Peterson, Ludger Woessmann, Endangering Prosperity - A Global View of the American School Brookings Institution Press, 2013; Also see, U.S. Education Reform and National Security Independent Task Force Report 68, Council on Foreign Relations 2012.

46. House Education and Labor Committee, High School Dropout Crisis Threatens U.S. Economic Growth and Competitiveness May 12, 2009 http//

www.edlabor.house.gove/…/05/high-school-dropout-crisis-thr.shtml. Also see, U.S. Education Reform and National Security Independent Task Force Report 68, Council on Foreign Relations 2012.

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EMPLOYABILITY ADVANTAGES OF MARKETING EDUCATION INDUSTRY CERTIFICATION EXAMINATIONS

Ashley Elmore, Ph.D.

ABSTRACT

Industry certification of workplace skills is emerging as a key educational movement for career and technical education programs. Many states are now integrating credentialing into their programs with the goal of preparing students with labor market advantages. Randall and Zirkle (2005) suggested that there is a growing trend within secondary and post-secondary institutions to offer certification programs. Cervero (2001) also suggested that industry certification programs are one of the top five trends in education. However, there is little empirical evidence to support the notion that obtaining an industry certification provides students with employability advantages. Castellano, Stone, & Stringfield (2005) stated, "Little research attention has been paid to the use of industry certification in high school, on its perceived value by teachers, administrators, and students" (p. 1). Similarly, Hitchcock (2008) attested that little research into the phenomenon of industry certification can be found in scholarly articles. As a result, the purpose of this study is to collect and analyze empirical data to determine whether obtaining an industry credential can assist a prospective student with job obtainment.

This paper examines the use of the National Retail Foundation (NRF) Customer Service and Sales Certifications for high school marketing education students. The first research objective is to determine if the NRF industry certifications provided marketing students with any employability advantages. Second, the research sought to discover other hiring criteria that were viewed as favorable by retail store managers. Finally, the study also explored to determine if employability advantages of industry certification differed among small and large retailers.

One-hundred ninety hiring managers (n =190) completed a survey identifying the importance of twenty-six hiring criteria, how favorably they viewed the NRF certifications, and their previous knowledge of NRF certifications. Descriptive statistics and factor analysis was used to analysis the data. It was determined that industry certification was not viewed as an important criteria when hiring a prospective employee. The data indicated that the five most important hiring criteria for employers were enthusiasm (3.78), ambition (3.76), oral communication (3.73), self-confidence (3.48), and personal appearance (3.40). The five least important hiring criteria were church/social work (1.65), sports (1.70), industry certification (1.77), GPA (1.87), and participation in professional organizations (1.93). It was also determined that only 10% (n=19) of hiring managers ask about industry certification during the interview process. Finally, it could not be determined if differences in hiring preferences existed between the three different malls or large and small retailers, as the response rate of was not significant for large retailers.

EMPLOYABILITY ADVANTAGES OF MARKETING EDUCATION INDUSTRY CERTIFICATION EXAMINATIONS

A current trend in career and technical education is earning industry certifications. Randall and Zirkle (2005) suggested that there is a growing trend within secondary and post-secondary institutions to offer certification programs. Similarly, Acutt, Kellie, and Miller (2001) suggested that external certification of workplace skills is emerging as a key educational movement in many countries. Cervero (2001) also suggested that industry certification programs are one of the top five trends in education.

Background and Significance

Many states including Florida, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, New York, North Dakota, Ohio, Pennsylvania, Tennessee, Texas, and Virginia offer industry certifications to career and technical education students (Castellano, Stone, & Stringfield, 2005). Of these states, Virginia Department of Education collects and publishes detailed information regarding industry certification information, pass rates, and budget.

Virginia Department of Education has established eight career and technical education program areas. Table 1 shows the program areas.

Table 1

Virginia Department of Education Career and Technical Education Program Areas

Program Areas	
Agricultural Education	Health and Medical Sciences
Business and Information Technology	Marketing
	Technology Education
Career Connections	Trade and Industrial
Family and Consumer Science	

Many industry certification examinations exist within each of these areas. As of January 10, 2008, Virginia Department of Education recognized and supported 151 career and technical education certifications, licenses, and assessments for career and technical education

(Virginia Department of Education, 2008). Virginia Department of Education annually allocates substantial time and financial resources

toward industry certification examinations. In the 2007-2008, 2008-2009, 2008-2009 school years, $1,065,133 was spent by Virginia Department of Education for career and technical education certification examinations (E. Russell, personal communication, July 9, 2008).

Of the numerous career and technical education program areas, marketing education and the corresponding industry certification examinations were the focus of this study. The National Retail Federation is a primary vendor of marketing education certification examinations. Virginia Department of Education utilizes two of the National Retail Foundation's (NRF) certifications: National Professional Certification in Customer Service and National Professional Certification in Sales. In the 2008-2009 and 2009-2010 school years, Virginia Department of Education allocated approximately $503,250 per year toward the National Retail Federation Customer Service and Sales certifications (Virginia Department of Education, 2011). Out of the eight program areas in career and technical education, almost half of the total certification budget was allocated towards marketing education industry certifications. Unlike other programs areas, the goal in marketing education is to test every student who meets the eligibility requirements.

In the 2006-2007 school year, 1,367 Virginia marketing students took the National Professional Certification in Customer Service examination (Virginia Department of Education, 2007). According to Virginia Department of Education (2011), the number of students testing grew significantly in subsequent years. For the 2008-2009 and 2009-2010 school years, a total of 10,065 students took the National Professional Certification in Customer Service examination. Of the 10,065 marketing students tested in Virginia, 28%, or 2,869, were from Fairfax County Public Schools, a large school district located in the northern region of the state (Virginia Department of Education, 2011).

While legislation does encourage educational institutions to utilize industry certification examinations, it is not required. However, showing some type of accountability in their career and technical education programs is mandatory. State departments of education have the ability to dictate their own policies and practices for accountability and industry certifications (Fong, Goodwin, Silverberg, & Warner, 2004).

Despite the increased use of industry certification examinations by states, there is a lack of research data and conflicting views regarding the benefits of certification obtainment. Castellano, Stone, & Stringfield (2005) stated, "Little research attention has been paid to the use of industry certification in high school, on its perceived value by teachers, administrators, and students" (p. 1). Similarly, Hitchcock (2008) attested that little research into the phenomenon of industry certification can be found in scholarly articles. Hitchcock further claims that most literature on credentialing is published by test vendors and possesses a strong marketing bias, thus few sound and unbiased reviews exist. As such, differing opinions on the effectiveness of certification examinations exist. Foster and Pritz (2006) suggested that

employers benefit from utilizing certification examinations as a screening process for prospective employees, and examinations show employers that applicants have a specific skill. Randall and Zirkle (2005) suggested that these examinations provide students with viable skills needed by the workforce, satisfy state skill standards, and prepare students for postsecondary studies. However, Tittel (2003) suggested that simply acquiring a certification and expecting an employment advantage is unrealistic; rather, a candidate must possess other credentials and relevant experience. The purpose of this study is to gather additional information regarding the benefits or merit of industry certification. The study will also determine which hiring criteria are deemed valuable by employers. This information will be beneficial to students, parents, educators, and departments of education.

Problem Statement

This study looked at the employability advantages of industry certification. Virginia Department of Education (2011) suggested that industry certifications add value to students' transcripts, as well as increased opportunities for obtaining an entry-level position.

The problem of this study was to determine to what extent the National Retail Federation (NRF) Customer Service and Sales certifications provided high school students with employability advantages. The research will determine what employability advantages, if any, result from earning a marketing education industry certification. Additionally, the research will also determine other hiring criteria that employers believe are important such as oral communications skills, enthusiasm, initiative, personal appearance, and more.

Research Questions

To answer this problem, the following research questions were developed:

RQ1: Which hiring criteria do employers find most desirable in prospective employees?

RQ2: Do retailers offer hiring preferences to individuals possessing the National Retail Federation Certifications in Customer Service or Sales?

RQ3: Do hiring preferences for candidates with the National Retail Federation Certifications vary among small and large retailers?

RQ4: Do hiring preferences for candidates with the National Retail Federation Certifications vary between regional shopping centers in Northern Virginia?

Population

The purpose of this research was to determine if National Retail Federation certifications in customer service or sales result in hiring benefits. In particular, the research questions sought to discov-

er if employees preferred to hire students who earned the NRF certification.

The population entailed retailers from three shopping centers in Northern Virginia: Fair Oaks Mall, Dulles Town Center, and Manassas Mall. Selecting three shopping areas in different locations allowed the researcher to determine if location or demographics impact labor market advantages. The research population consisted of 238 retail stores from these three centers. Specifically, the total population of retailers at Fair Oaks Mall was 86 stores (N=86). Dulles Town Center had 101 stores (N=101). Manassas Mall had 51 stores (N=51).

Next, the population was categorized by size. It was of interest to determine if a difference existed in hiring practices for certified students among small and large retailers. A large retailer would be a department store, or anything over 25,000 square feet in size. The population of small retailers at Fair Oaks Mall was 80 stores (N=80) and six large stores (N=6). Dulles Town Center had 92 small stores (N=92) and nine large stores (N=9). Manassas Mall had 46 small stores (N=46) and five large stores (N=5).

Methodology

Once the data were collected, they were tabulated and then analyzed using quantitative techniques. First, descriptive statistics were calculated to get a basic understanding of the data. Descriptive statistics allowed the researcher to understand the average starting salaries for certified and uncertified students. Additionally, this information allowed the researcher to see the most common responses for Likert scale types of questions. Factor analysis tests were also used to answer the research questions. Last, the researcher formed conclusions based on the data to answer the research questions, thereby, resulting in a concluding narrative.

The dependent variable for this study was employability advantages. The independent variables were 26 hiring criteria, store size, store location, and NRF industry certification. The 26 hiring criteria were based on the research of Gaedeke, Tootelian, and Schaffer (1983). Many of the same criteria were also utilized in subsequent research studies conducted by Boatwright and Stamps (1988) and also Kelley and Gaedeke (1990). Table 12 illustrates the factors that make up the independent variables of the 26 hiring criteria and NRF industry certifications.

The survey was conducted at Fair Oaks Mall, Dulles Town Center, and Manassas Mall by distributing them to store managers at small and large retail establishments. The total population of small and larger retailers at the three malls was 238. A total of 147 surveys were needed to achieve a confidence level of 0.05 (Creative Research Systems, 2012). The total number of surveys collected was 190. Therefore, the confidence level was exceeded and the results were assumed to be representative of the population. The overall return rate for all retailer was 79.8%. See Table 16 for total retailer response rates.

Table 12

Concept Matrix for Independent Variables

Criteria	Literature Review
Hiring Criteria:	**Criteria 1-25:**
Oral communication skills	Gaedeke, Tootelian, & Schaffer (1983); Boatwright & Stamps (1988); Kelley & Gaedeke (1990)
Enthusiasm/motivation	
Self-confidence	
Initiative	
Entrepreneurship	
Ambition	
Maturity	
Ability to articulate goals	
Assertiveness	
Problem solving skills	
Written skills	
Leadership skills	
Related work experience	
Personal appearance	
Quantitative skills	
Technical skills	
Computer skills	
Grade point average	
Participation in professional organizations	
Honors /awards	
References	
Non-related work experience	
Civic, church, or social work	
Participation in sports	
High school record	
Industry Certification	
	Criteria 26:
	Castellano, Stone, & Stringfield (2005); Hitchcock (2008); Virginia Department of Education (2011); Miller (2001); Randall & Zirkle (2005); Cervero (2001); Foster & Pritz (2006)
Response Rate	

Table 16
Retailer Response Rates

Population and Sample Size	Number of Retailers
Total Population	(*N*)238
Minimum Sample Size to Achieve 0.05 Confidence Level	(*n*)147
Actual Sample Size	(*n*)190

To answer RQ$_3$: Do hiring preferences for candidates with the National Retail Federation Certifications vary among small and large retailers? it was necessary to calculate the number of responses needed from small and large retailers to make it representative of the population. It was determined that for a population of 218 small retailers that 139 responses were needed to achieve a confidence level of 0.05 (Creative Research Systems, 2012). For a population of 20 large retailers 19 responses were needed to achieve a confidence level of 0.05. A total of 180 surveys were collected from small retailers and 10 from large retailers. The return rate for small retailers was 83% and 50% for large retailers. The results cannot be assumed to represent the population because of a non-representative sample size.

To answer RQ$_4$: Do hiring preferences for candidates with the National Retail Federation Certifications vary between regional shopping centers in Northern Virginia? it was necessary to calculate the number of responses needed from Fair Oaks Mall, Dulles Town Center, and Manassas Mall to make it representative of the population. It was determined that for a population of 86 retailers at Fair Oaks Mall that 70 responses were needed, for a population of 101 retailers at Dulles Town Center that 80 responses were needed, and for a population of 51 retailers at Manassas Mall that 45 were needed to achieve a confidence level of 0.05 (Creative Research Systems, 2012). The total sample collected was 66 for Fair Oaks Mall, 93 for Dulles Town Center, and 38 for Manassas Mall. The number of surveys collected did not meet the required 0.05 confidence level for each individual mall. Despite the number of responses for each individual mall being not significant, the total sample was representative and will therefore was reported in aggregate.

Statistical Analyses

Statistical analyses were performed on the data to provide answers to the research questions. To address RQ$_1$ was, Which hiring criteria do employers find most desirable in prospective employees?, Descriptive statistics and factor analysis were computed. Retailers rated the importance of each criterion on a scale of 1 to 5. A response of 1=not applicable; 2=unimportant; 3=somewhat important; 4=important; 5=very important.

The mean scores of the 26 hiring criteria were computed in Table 21.

Table 21

Hiring Criteria	Mean	Hiring Criteria	Mean
1) Oral communication skills	3.73	14) Related work experience	2.62
2) Enthusiasm	3.78	15) Personal appearance	3.40
3) Self-confidence	3.48	16) Quantitative skills	2.63
4) Initiative	3.36	17) Technical skills	2.08
5) Entrepreneurships	2.37	18) Computer skills	2.56
6) Ambition	3.76	19) Grade point average	1.87
7) Non-related work experience	1.94	20) Participation in professional organization	1.93
8) Maturity	3.37	21) References	2.88
9) Ability to articulate goals	3.11	22) Church/social work	1.65
10) Assertiveness	2.84	23) Interpersonal skills	3.20
11) Problem solving skills	3.05	24) Participation in sports	1.70
12) Written skills	2.52	25) High school record	2.08
13) Leadership skills	2.95	26) Industry certification	2.16

Means of Hiring Criteria. The five most important hiring criteria for employers were enthusiasm (3.78), ambition (3.76), oral communication (3.73), self-confidence (3.48), and personal appearance (3.40). The five least important were church/social work (1.65), sports (1.70), industry certification (1.77), GPA (1.87), and participation in professional organizations (1.93). See Table 22 for five most and five least important criteria.

As a data reduction technique, factor analyses were also conducted. Factor analysis allowed the researcher to describe the variability among the observed 26 hiring criteria in terms of a potentially lower number of unobserved variables called factors. Eigenvalues and a scree plot were created to determine the number of significant factors. A three factor solution was selected. The researcher assigned a title to each factor. Titles were created based upon previous research and commonalities of the hiring criteria in each factor. The researcher labeled factor 1 as communication and social skills, factor 2 was extracurricular activities and professional experience, and factor 3 was perceptions about prospective employee. Table 26 shows which hiring criteria belong to each factor.

Table 22
Five Most and Five Least Important Criteria

Five Most Important	Five Least Important Cri-
Enthusiasm (3.78)	Church/social work (1.65)
Ambition (3.76)	Sports (1.70)
Oral communication (3.73)	Industry certification (1.77)
Self-confidence (3.48)	GPA (1.87)
Personal appearance	Participation in professional

Table 26
Hiring Criteria Belonging to Each Factor

Factor 1: Communication and Social Skills	Factor 2: Extracurricular Activities and Professional Experience	Factor 3: Perceptions About Prospective Employee
Oral communication	Entrepreneurships	Maturity
Enthusiasm	Non related work	Personal
Self-confidence	Written skills	
Initiative	Related work experience	
Ambition	GPA	
Ability to articu-	Professional or-	
Assertiveness	References	
Problem solving	Church/social	
Leadership	Interpersonal skills	
Quantitative skills	Sports	
Technical skills	High school record	
Computer skills	Industry certification	

RQ$_2$ was, Do retailers offer hiring preferences to individuals possessing the National Retail Federation Certifications in Customer Service or Sales? Four survey questions were formulated to answer this research question. Descriptive statistics for each of these survey questions will be explained below.

SQ$_4$ was: Possessing an industry certification in marketing, customer service, or sales generally leads to a higher quality employee. Retailers could respond with the following answers 1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree. The mean of SQ$_4$ was 3.27 with 6.3% (n=12) reporting strongly agree, 33.5% (n=64) agree, 41.9% (n=80) neutral, 15.7% (n=30) disagree, and 2.1% (n=4) strongly disagree. Therefore, 41.9% of employers were neutral on whether or not the customer service certification leads to a higher quality employee, and 33.5% agree that certification leads to higher quality employee.

SQ$_5$ read: Possessing an industry certification in marketing, customer service, or sales: *Please select which of the following statements you agree with the most:* 1=makes no difference to hiring decisions; 2=makes a slight difference to hiring decisions; 3=neutral; 4=would be looked upon as favorably when deciding to hire the employee; 5= would definitely make me want to hire the employee. The mean was 3.23. The data indicated that 2.6% (n=5) employers believed that the NRF certification made them want to hire the employee, 45% (n=86) looked upon the certification favorably, 30.9% (n=59) were neutral, the certificated made only a slight to 15.2% (n=28) of employers, and made no difference at all to 6.3% (n=12) of employers. Therefore, 45% of employers looked upon the NRF certification as favorably when deciding to hire the employee.

Next, it was of interest to the researcher to know if retailers asked about industry certification during the interview process. SQ$_6$: was: Do you typically ask about industry certification on a job application or interview? The retailers could respond with 1=no; 2=yes. The mean of SQ$_6$ was 1.10 with 10% (n=19) answering yes and 90% (n=171) answering no, indicating that most employers do not ask about industry certification during the interview process.

Last, to address RQ$_2$, SQ$_7$ was developed. SQ$_7$ read: Have you ever heard of the National Retail Federation Customer Service Certification or the National Retail Federation Certification in Sales? The retailers could respond with 1=no; 2=yes. The mean of SQ$_7$ was 1.27 with 23% (n=43) answering yes and 77% (n=147) no. This indicated that most hiring managers had no prior knowledge of the NRF certifications.

RQ$_3$ was developed to see if a difference existed between hiring preferences of large and small retailers. RQ$_3$ read: Do hiring preferences for candidates with the National Retail Federation Certifications vary among small and large retailers? The sample size for large retailers did not meet the 0.05 confidence level. As such, the sample cannot be deemed as representative of the population. No statistical analysis was completed for this question.

Retailers from three malls in the Northern Virginia Region were surveyed to answer RQ$_4$. RQ$_4$ read: Do hiring preferences for candidates with the National Retail Federation Certifications vary between regional shopping centers in Northern Virginia? The sample size for Fair Oaks Mall and Manassas Mall did not meet the 0.05 confidence level. As such, the sample cannot be

deemed as representative of the large population. No statistical analysis was completed for this question.

Summary

The problem of this study was to determine if students would receive employability advantages from obtaining a NRF customer service or sales industry certification. To address the research questions, a survey was distributed to retailers at Fair Oaks Mall, Dulles Town Center, and Manassas Mall. The number of surveys distributed was 238. The minimum number of surveys needed to make the sample representative was 147. The total number of surveys collected was 190. The overall return rate was 79.8%. Of the 190 surveys collected, 180 were from small retailers, while 10 were from large retailers. The return rate for small retailers was 83% and 50% for large retailers. The total sample size was determined to be representative and therefore the findings for RQ_1 and RQ_2 could be applied to the population. However, the sample was not representative for small and large retailers or mall location, only the aggregate of total retailers. As such, no conclusions could be drawn for RQ_3 and RQ_4.

The data were analyzed as they related to each of the research questions. To address RQ_1, descriptive statistics and factor analysis were utilized. Descriptive statistics were utilized to address RQ_2. No data analysis was completed on RQ_3 and RQ_4, as the sample was not representative.

The data indicated that the five most important hiring criteria for employers were enthusiasm (3.78), ambition (3.76), oral communication (3.73), self-confidence (3.48), and personal appearance (3.40). The five least important hiring criteria were church/social work (1.65), sports (1.70), industry certification (1.77), GPA (1.87), and participation in professional organizations (1.93).

Next, the data indicated that 41.9% of employers were neutral on whether or not the customer service certification leads to a higher quality employee and 33.5% agree that certification leads to higher quality employee. The mean of SQ_4 was 3.27 with 6.3% (n=12) reporting strongly agree, 33.5% (n=64) agree, 41.9% (n=80) neutral, 15.7% (n=30) disagree, and 2.1% (n=4) strongly disagree.

The data indicated that 2.6% (n=5) employers believed that the NRF certification made them want to hire the employee, 45% (n=86) looked upon the certification favorably, 30.9% (n=59) were neutral, the certificated made only a slight (n=28) of employers, and made no difference at all to 6.3% (n=12) of employers. Therefore, 45% of employers looked upon the NRF certification as favorably when deciding to hire the employee.

It was also determined that only 10% of the hiring managers asked about industry certifications during the hiring process and that awareness of the NRF certification is low. The mean of was 1.10 with 10% (n=19) answering yes and 90% (n=171) answering no, indicating that most employers do not ask about industry certification during the interview process.

A factor analysis was also conducted as a data reduction technique. The factor analysis revealed that commonalities existed between the hiring criteria. In particular that hiring variables can be classified into the three categories of communication and social skills, extracurricular activities and professional experience, and perceptions about prospective employee. All of the hiring criteria in factor 1 and factors three were significant at a level exceeding 0.4. Factor 2 contained four hiring criteria that were not significant: written skills, related work experience, references, and interpersonal skills.

Recommendations

The following recommendations for researchers and practitioners are based on the findings and conclusions of this study.

The NRF should use caution when suggesting that their industry certification examination lead to employability advantages as the data in this study found no evidence supporting this. Similarly, departments of education should also use caution from over representing the benefits of using certification to obtain employment, as no evidence exists supporting this claim.

Educators could assist students seeking employment by focusing on criteria deemed important to hiring managers such as oral communication skills, enthusiasm, ambition, self-confidence, and personal appearance. These criteria were rated as most important for prospective employees to possess.

Educators should inform students to emphasize the certification to prospective employers. Though awareness of the NRF certification was low, 45% of employers looked upon the NRF certification as favorably when deciding to hire the employee. Because 45% of employers look at the NRF certification positively, educators should ensure that students verbalize that they have the NRF certification in an interview.

This study was conducted at three malls in the Northern Virginia region. However, conclusions could not be formulated on differences between malls due to a lack of a representative response for each mall. Research similar to this study should be conducted again with these three malls or in different geographic locations. The NRF testing was prevalent in many high schools throughout the United States. Selecting another state or region that also utilized this certification would be appropriate. This information would be useful, as it would reveal if awareness and value on the NRF certification examination is low in other regions. Comparisons could then be made state by state or region to region.

The focus of this study was certification examinations offered by the National Retail Federation. However, hundreds of other certification examinations are utilized in high schools. Research should be conducted on other certification areas to see if results differed based upon the particular certifications being required of career and technical education students. This could help determine if some certifications possess more employability advantages than others.

Conclusions could not be drawn on whether there was a difference in hiring preferences between small and large retailers due to a lack of responses by large retailers. Additional research should be conducted on this topic. Many of the large retailers were only willing to release their data from their corporate headquarters. Therefore, future researchers should attempt this study in a different manner that would allow for responses from a corporate location as opposed to particular store sites.

This study was structured to discover employability advantages for high school students seeking a position in retail. However, college students were also earning certifications. Research should be conducted on what employability advantages exist for college students. The population should be changed for subsequent studies of this nature to investigate more professional jobs, not simply retail positions.

Employability advantages of industry certification was the primary focus of this study. However, many certification vendors believed that students who possessed credentials may earn a hirer salary. Therefore, future research should be conducted on how the starting salary of a certified and non-certified candidate may differ.

The Carl D. Perkins Act of 2006 placed a strong emphasis on accountability; however no specific guidelines were set regarding how to show accountability. With no detailed program in place, many states turned to industry certifications as a method of meeting the Carl D. Perkins Act's accountability measures. Future research should be conducted on accountability in marketing education. Specifically, future researchers should determine if the NRF certifications are an appropriate measure of accountability or teacher effectiveness in marketing education. The marketing education curriculum and teaching benchmarks should be investigated and compared to the questions in the NRF certifications. If the curriculum does not align with the certification questions, it may not be the best measure of accountability or course final grades could replace certification examinations.

Other methods of showing accountability in marketing education should be explored and researched. Many states were using industry certification to show accountability. However, future researchers should investigate other methods of showing accountability and rate the positive and negative aspects of each method such as a capstone project or a curriculum based standardized test. More cost effective methods exist or could be developed.

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2010 Iota Lambda Sigma Editorial Board

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