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A Quantitative Assessment of Skills and Competencies in Graduates of At-Risk High Schools

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COLLEGE OF EDUCATION

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Walden University
2012

Abstract

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

The willingness to work and a high school diploma were once all that was needed to start one's career. The problem is that on the twentieth anniversary of the reports by the Secretary's Commission on Achieving Necessary Skills (SCANS), high school graduates may still lack what business and education leaders require for success in entry-level employment or post-secondary studies. The research question included understanding how prepared graduates from at-risk high schools are for post-secondary work or study. The study used a Likert-scaled survey to assess participant work readiness in 36 skill or competency areas. The sample consisted of recent graduates from three at-risk high schools in one school district. Graduate responses to the survey indicated that 64% were *not* work ready. Statistically, results were consistent with the SCANS report that indicated that 51% of all American high school graduates were underprepared. Pearson correlations were detected between the graduates' level of academic study (i.e., special education, tech-prep, college-prep, or honors) and work-readiness, and between pre-graduation work-experience and work-readiness. Implications for positive social change include improved graduate work readiness.

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Dedication

In loving memory of "Mrs. Ern" (Ernestine Elizabeth Irick), she believed in me when others did not; she encouraged me when others could not; and, she loved me with a motherly devotion that made me a better person, a better pastor, a better teacher, and a better man.

Acknowledgements

It is with utmost gratitude I have reached this point in my life where I can thank those who provided the assistance and support necessary for me to complete this doctoral work. First and foremost, I am grateful to my wife, Carla, and my devoted children, Ashley & Josh, Trey & Morgan, Hope and Scott, and my beloved Sarah. Without their encouragement and support this lofty pursuit would have died a lonely death.

Words along cannot begin to thank Dr. Mike Brophy, my Committee Chair, who truly went above and beyond to answer my questions and encourage me; Dr. Susan Krauss whose counsel was very helpful in increasing my response rate; and of course, Dr. Richard Braley, whose tutelage helped to transform my drafts into a scholarly work. I also want to acknowledge the early contributions of Dr. Matthew Comeau who helped me sort through my statistical needs.

I am deeply grateful to Dr. Kate Swetnam who encouraged my intellectual growth over the past three years. Her tutelage and her simple friendship will live on as I seek to be an inspiration to students, parents, and educators.

I am profoundly grateful to my professors and fellow doctoral students who provided outstanding feedback during the development of the Work-Readiness Assessment Instrument (WAI). Their comments not only helped me but the multitude of students who will use the tool to become more productive citizens.

Most important of all, I am thankful to the high school graduates who took time to provide accurate and honest data. It is for those like yourself that I hope to "lift the veil" and draw attention to the skills gap problem. Last but not least, I am eternally grateful to those who prayed for me and encouraged me in my journey, especially Charlene, Pastor Joel, and Lanette. Without them this dissertation would have proven to be a fruitless effort.

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Chapter 1: Introduction to the Study

Too few students graduate from high school prepared for the demands of college

and careers in an increasingly competitive global economy. (Achieve, 2011, p. 2)

An American high school diploma has long been recognized as a fundamental indicator

that a high school graduate was ready to become a productive member of society (Alliance for

Excellent Education, 2009; McNamara, 2009; Meeder, 2008). That appears to no longer be the

case. Data presented in a 12-month, U.S. sponsored study of business owners, public employers,

managers, union officials, front-line workers, and workers at their desks believe America's high

school graduates lack many of the competencies and skills necessary to not only be successful on

the job but to enjoy a productive, full, and satisfying life (Secretary's Commission on Achieving

Necessary Skills [SCANS], 1991a). Specifically, SCANS concluded that "less than one-half of

our young people possess" the necessary competence, skills, and personal qualities (p. i)

necessary to be successful in entry-level jobs or first year collegiate studies. Other researchers

agree (Achieve, 2005, 2011; Baker, 1996; Casner-Lotto & Barrington, 2006; Gomez & Gomez,

2007; Shin, 2005; Wonacott, 2022). Other researchers agree with SCANS. A study sampling 3

years of high school graduates found significant differences among educational programs in the

thinking skills set and the personal qualities set defined in the SCANS report (Baker, 1996).

More specifically, Wonacott (2002) drew a distinction between the inadequacies of high school

diplomas in favor of career passports, portfolios, and career certificates, concluding that, "the

traditional high school diploma and transcript do not communicate that information well to

employers" (p. 2). Wonacott added that as many as one in two high school graduates in the

United States will enter the working world, or the world of post-secondary education, *under-prepared* (Achieve, 2005, 2011; Casner-Lotto & Barrington, 2006; Gomez & Gomez, 2007; Shin, 2005).

Achieve, Inc., a nonprofit organization for education reform that is independent and bipartisan, helps states raise high school academic standards and graduation requirements. In a recent report, the group concluded, "too few students graduate from high school prepared for the demands of college and careers in an increasingly competitive global economy" (Achieve, 2011, p. 2). Those findings are even worse in southern South Carolina where *work-readiness* has been found to be even lower for graduates from *at-risk* high schools. One researcher suggested that the number of under-prepared graduates may be 70% or more (Bronson & Association for Career and Technical Education, 2007).

As bad as those facts may be, they are made all the worse by inaction. American educators have known about the problem for almost three decades but have yet to reverse the trend (Achieve, 2005). A more detailed discussion regarding this under-prepared high school graduates is offered in chapter 2 via a thorough review of recent literature.

Problem Statement

This study challenged the findings of SCANS (1991a) as it relates to the problem of worker under-preparedness in graduates from three southern South Carolina at-risk high schools. Specifically, the study challenged the estimate that more than half of all American high school graduates leave school without the knowledge or foundation required to advance beyond entry-level jobs or succeed during the first-year of college study (Achieve, 2005; Casner-Lotto & Barrington, 2006; Gomez & Gomez, 2007; SCANS, 1991a; Shin, 2005). Moreover, a total absence of work-readiness data for students within the selected public school district demands

investigation. Thus, using a self-designed survey instrument (Appendix A), this study determined if graduate work-readiness (dependent variable) for graduates of at-risk high schools (independent variable) in the selected school district was higher than the postulated national average. In doing so, the study provided much needed base-line data regarding local work-readiness of an important segment of its employee pool.

The problem of under-prepared high school graduates, that is, a *skills gap* (Wilhelm, 1998), poses a significant impact on a variety of stakeholders, including minority groups for whom English may be a second language, economically challenged learners for whom the struggles of life may get in the way of learning, career educators who are primarily responsible for training America's unskilled workforce, and area employers who need better-skilled workers. Most of all, the skills gap problem impacts the under-prepared graduates. The SCANS Commission noted that under-prepared workers face the "bleak prospects of dead-end work interrupted only by periods of unemployment" (SCANS, 1991b, p. viii). That conclusion is all the more sobering given that four of the five fastest-growing and highest-paying jobs require some post-secondary education (Alliance for Excellent Education, 2009). Clearly, those facts highlight the essential need for all high school graduates—whether they plan to enter the workforce or institutions of post-secondary learning, to receive the same core competencies and have both the knowledge and the skills needed to succeed in life (Barnes, 1998). Notwithstanding that truism, various factors appear to contribute to under-preparedness. This study addressed four factors: (a) a decline in work-skills training of graduates living in urban settings, (b) an increasing number of immigrants for whom English is a second language, (c) the sophistication of the work as information based rather than manufacturing based, and (d) the

relative ease by which students can earn high school equivalency diplomas (Packer & Brainard, 2003; Taylor, 1995; Wilhelm, Logan, Smith, & Szul, 2002).

Nature of the Study

A quantitative approach was employed for this study utilizing a self-designed survey instrument (Appendix A) that generated numerical data (Creswell, 2003) and generalized information about the population from a sample (Creswell, 2009). Most important, the assessment instrument provided a single numerical score for each respondent representing the participant's preparedness for entry-level jobs or first year collegiate studies. Collectively called *work-readiness skills* in this study, they are also referred to as:

- *skills and competencies* (Secretary's Commission on Achieving Necessary Skills, 1991a, 1991b, 1992a, 1992b, 1993),

- *soft skills* (Ivey, 2002; Lewis, 2005; Parese, n.d.; Rosales, 2010; SCANS, 1991a),

- *life skills* (Jackson, 2010; North & Worth, 2004; Packer, 1993a),

- *work skills* (Boykin, Dougherty, & Lummus-Robinson, 2010; Hennemann & Liefner, 2010; Kedraka, 2010; Stieretz, 2008; Wardrope, 2002), or

- *employability skills* (Echternacht & Wen, 1997).

Each term refers to indicators of the knowledge acquired or experiences garnered during a graduate's high school career that employers regard as necessary for success.

The self-designed instrument was preferred in response to several unique needs of this study: (a) be cost manageable, (b) enable graduates to self-assess their own work-readiness, (c) provide a viable replacement for a qualitative interview process, (d) provide a means to demonstrate both knowledge acquired and experiences obtained, (e) be fair to graduates with

either little or no work experiences as well as those with substantial work experiences, and (f) minimize response bias. The instrument used met all of those needs.

Validation of the instrument occurred using content validity. A panel of teachers from various academic disciplines and business leaders in the field of human resources helped ensure the instrument measured employability skills and competencies.

The population for this study consisted of all graduates from *at-risk* rated high schools in the selected South Carolina school district in the 2010/2011 school year. Ultimately, the population comprised three public high schools with 285 graduates from non-charter and non-magnet at-risk high schools (Charleston County Schools, 2010). Letters of Invitation (which also served as informed consent forms) were mailed to everyone in the study population. A more in-depth review of the population and sample is included in chapter 3, the methodology section of this paper.

Research Question, Hypotheses, and Research Variables

How under-prepared for post-secondary work or study are graduates from at-risk high schools in the Charleston County School District? A quantitative research study using a self-assessed survey instrument answered that question by way of rejecting or failing to reject the study's null hypothesis.

Null hypothesis (H_0): There is no significant difference between the percentage of under-prepared graduates from the three at-risk Charleston County high schools and the postulated national average of 51% suggested by SCANS (1991a).

Alternative hypothesis (H_1): There is a significant difference between the percentage of under-prepared graduates from three at-risk Charleston County high schools and the postulated national average of 51% suggested by SCANS (1991a).

Independent variable: At-risk Charleston County high schools in the Charleston County School District, Charleston, South Carolina.

Dependent variable: Student Work-readiness scores as calculated with the Work-Readiness Assessment Inventory [WAI] (Appendix A).

Confounding variables: Confounding variables for this study include: (a) the level of academic studies in which the graduate participated during high school (i.e., Tech-prep, College-prep, etc.), (b) graduate participation in skills building Career and Technology organizations such as DECA (formerly "Distributive Education Clubs of America"), FBLA (Future Business Leaders of America), and others, and (c) acquired part-time or full-time job experience earned while the graduate attended high school. Those variables were addressed via three questions in the survey instrument (questions Z2-Z4).

Population and Sample

The population for this study was recent graduates from the three at-risk high schools in the Charleston County School District—285 graduates (based on contact information provided by the school district). The entire population was invited to participate in the study, and the resulting respondents were accepted as the study's sample.

Statistical Basis

A one-sample Chi-square test was used to compare the derived levels of work-readiness to the postulated national average of 51% suggested by the Secretary's Commission for Achieving Necessary Skills (SCANS, 1991a).

Purpose of the Study

Despite years of research addressing the failure of high schools to fully prepare graduates for post-secondary life, educators have yet to reverse the disturbing trend reported in SCANS (1991a) and similar reports (Achieve, 2005, 2011; Bronson & Association for Career and Technical Education, 2007; Casner-Lotto & Barrington, 2006; Gomez & Gomez, 2007). Academic progress is routinely assessed throughout the school year, but at no time has an investment been made to monitor progress in work-readiness skills and competencies—at least not in the district where I have served. With that in mind, this study (a) determined if graduates from Charleston's at-risk high schools are more or less under-prepared for post-secondary work or study than graduates from other public high schools as reflected in the SCANS report, and (b) filled-in the data gap for the selected high schools by providing a base-line percentage of under-preparedness in recent graduates.

This study contributes to the body of knowledge regarding the skills gap problem (i.e., the problem of under-preparedness for work or study) in high school graduates in the United States and provides much needed data regarding work-readiness levels for high school graduates of at-risk public high schools in the selected southern South Carolina School District (independent variable). The study did that by calculating the work-readiness of the graduates within the selected school district (dependent variable) using a self-assessment survey (Appendix A) and compared those work-readiness estimates to the postulated national average of under-preparedness established in SCANS (1991a)—which for purposes of this study was set at 51% given the Commission's assertion that "more than half" of all graduates in the United States lack the knowledge or foundation required to find and hold a good job (p. viii).

Theoretical Base

Given its position as a world superpower, America has long realized the need to assist in the education of well-trained workers to sustain and advance our economy and promote our goods and services on a global scale (Patterson, 1917). Former President Thomas Jefferson acknowledged that truth via an 1820 letter to American diplomat William Jarvis:

> I know no safe depositary of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education. (Jefferson, 1900)

Likewise, the rebirth of Europe and Japan after World War II demonstrated the real wealth of a nation was no longer gold or resources, but people (Bates & Phelan, 2002; Castro, 2008; Johnston et al., 1987; Packer, 1993a, 1993b). Johnston et al. observed, "As the economies of developed nations move further into the post-industrial era, human capital plays an ever more important role in their progress" (p. 142). Similar conclusions were reached by the National Commission on Excellence in Education (Gardner et al., 1983) which forcefully contended that "knowledge, learning, information, and skilled intelligence are the new raw materials of international commerce and are today spreading throughout the world as vigorously as miracle drugs, synthetic fertilizers, and blue jeans did earlier" (p. 10). More recently, the Alliance for Excellent Education (2009) noted that graduation rates are supposed to be a fundamental indicator of whether or not the nation's public school system is doing what it is intended to do—engage, enroll, engage, and educate youth to be productive members of society.

South Carolina's shift from an agricultural to an industrial based economy, and from an industrial based economy to a complex technological base (Johnston et al., 1987) has managed to

magnify the importance of education to the economic success of an area, and has resulted in a need for a better educated and more skilled workforce (Achieve, 2005; ACT, 2007; Berns & Erickson, 2001; Johnston et al., 1987; SCANS, 1991a; Wilhelm et al., 2002). Indeed, Johnston et al. pointed out that as society becomes more complex, the amount of education and knowledge needed to make a productive contribution to the economy becomes greater. Johnston et al. added, "For the first time in history, a majority of all new jobs will require postsecondary education... even the least skills jobs will require a command of reading, computing, and thinking that was once necessary only for the professions" (p. 142). Nationally, one-third of high school students, approximately 1.3 million each year, leave school without a diploma—at a high cost to themselves and society at large (Alliance for Excellent Education, 2009).

Given those findings, the five U.S. sponsored reports of the 31-member panel comprising SCANS (1991a, 1991b, 1992a, 1992b, 1993) remain the quintessential factor in framing the theoretical base for graduate readiness. Specifically: (a) SCANS (1991a) provided federal acknowledgement of the problem, (b) validated the issue from the standpoint of national employers, and (c) defined three foundational skills (basic, thinking, and personal qualities) and five workplace competencies (resources, interpersonal, information, systems, and technology) essential for success in the workplace or in institutions of higher learning. The Commission considered those skills and competencies to be core values constituting work-readiness after high school. The Commission's second report (SCANS, 1991b) described a process by which educators, parents, students, employers, and others could develop a plan of action to prepare students for post-secondary options: work or school. SCANS (1991b, 1992b) introduced practical suggestions for applying the concepts of SCANS within high-performance high schools and work-based learning centers. Finally, SCANS (1993) added to the information provided in

previous reports with a more detailed roadmap for those charged (educators and employers) with implementation of the Commission's ideals.

Definition of Terms

This study utilizes a plethora of important terms and concepts for which common definitions were applied:

Abstract Thinking (formerly "Seeing things through the Minds Eye"): A measure of the graduate's ability to organize and process symbols, pictures, graphs, objects or other information (SCANS, 1991a).

Acquires and Evaluates Information: Item D1 in the Work-Readiness Assessment Instrument measured a graduate's ability to identify the need for data, obtain it from existing sources or create it, and evaluate its relevance and accuracy (SCANS, 1991a).

ACT: Published by American Collegiate Testing, Inc., this standardized test is used by many colleges to assess prospective students. The test is designed to measure critical thinking skills and an individual's ability to apply knowledge and logic in problem solving (Dulan, 2009).

Allocates Human Resources: Item R4 in the Work-Readiness Assessment Instrument measured a graduate's ability to assess knowledge and skills and distribute work accordingly, evaluate strengths, and provide feedback (SCANS, 1991a).

Allocates Material and Facility Resources: Item R3 in the Work-Readiness Assessment Instrument measured a graduate's ability to acquire, store, and distribute materials, supplies, parts, equipment, space, or final products in order to make the best use of them (SCANS, 1991a).

Allocates Money: Item R2 in the Work-Readiness Assessment Instrument measured a graduate's ability to use or prepare budgets, including making cost and revenue forecasts, keep detailed records to track budget strength, and make appropriate adjustments (SCANS, 1991a).

Allocates Time: Item R1 in the Work-Readiness Assessment Instrument measured a graduate's ability to select relevant, goal-related activities, rank them in order of importance, allocate time to activities, and understand, prepare, and follow schedules (SCANS, 1991a).

Applies Technology to Task: Item T2 in the Work-Readiness Assessment Instrument measured a graduate's ability to understand the overall intent and the proper procedures for setting up and operating machines (including computers and their programming systems) (SCANS, 1991a).

Apprentices: Individuals who is employed to learn a teachable occupation via a registered sponsor in an approved, state-regulated program (Washington State Department of Labor & Industries, n.d.).

Arithmetic: Item B3 in the Work-Readiness Assessment Instrument measured a graduate's ability to perform basic computations; use basic numerical concepts such as whole numbers and percentages in practical situations; make reasonable estimates of arithmetic results without a calculator, and uses tables, graphs, diagrams, and charts to obtain or convey quantitative information (SCANS, 1991a).

At-risk High Schools: Schools rated below average on the South Carolina Annual School Report Card (Casey, Bicard, Bicard, & Cooley Nichols, 2008).

At-risk Students: Students attending public schools rated below average on the state's annual school report card, as well as a classification of students who are prone to academic failure (Casey et al., 2008).

b-score (see bias score).

BASIC SKILLS: Items B1-B5 in the Work-Readiness Assessment Instrument includes: Reading, Writing, Arithmetic, Mathematics, Listening, and Speaking (SCANS, 1991a).

Bias Deduction: As defined by the Work-Readiness Assessment Instrument (WAI, Appendix A), this is a two point deduction on any skill or competency rated "Work-Ready" or "Advanced" without a valid and recent example of the skill or competency from the respondent's class work, life experience, or work experience.

Bias Score (b-score): A numerical score representing an individual's perception of work-readiness based on his/her self-evaluation on the WAI.

Business Professionals of America (BPA): This is a high school organization for students pursuing careers in business management, office administration, information technology and other related career fields (About Business Professional of America, n.d.).

Career certificate: Similar to a career passport, it is a document issued by an educational agency formally attesting that a graduate possesses specific skills (Wonacott, 2002).

Career passport: Similar to a career portfolio, it is a formal product or document in which a graduate presents his or her marketable skills developed through their life experiences (Wonacott, 2002).

Career portfolio: Similar to a career passport, it is a student work product organizing his/her information and documents that attest to career planning and self-assessment (Wonacott, 2002).

College success: Persistence to degree attainment (ACT, 2007).

College-ready: A high school graduate who is prepared to enter credit-bearing college courses with a high likelihood of obtaining a grade of C or better during the ensuing academic semester (ACT, 2007).

Commission, The: This term refers to either the Secretary's Commission on Achieving Necessary Skills (SCANS, 1991a) or to the National Commission on Excellence (Gardner et al., 1983).

Competencies: Also known as "soft skills," this refers to a student's or graduate's acquired knowledge necessary to be successful in entry-level jobs or first year collegiate studies (SCANS, 1991a).

Creative Thinking: Item M1 in the Work-Readiness Assessment Instrument measured a graduate's ability to use imagination freely, combine ideas or information in new ways, make connections between seemingly unrelated ideas, and reshape goals in ways that reveal new possibilities (SCANS, 1991a).

Credentialing: A pre-planning approach to work-readiness training which collects data over multiple years of a graduate's high school career (Lewis, 2005; O'Neil, Jr., Allred, & Baker, 1992; Wagner & Moffett III, 2000) with the purpose of providing graduates "something to present to employers that is valid" (Lewis, p. 6).

Curriculum content: The very *stuff* of education, the curriculum (Gardner et al., 1983).

DATA COMPENTENCIES (SCANS "Information Competencies"): Items D1-D4 in the Work-Readiness Assessment Instrument includes: Acquires and Evaluates Information, Organizes and Maintains Information, Interprets and Communicates Information, and Uses Computers to Process Information (SCANS, 1991a).

DECA: Formerly known as the Distributive Education Clubs of America, this student organization for high and collegiate marketing students "prepares emerging leaders and entrepreneurs in marketing, finance, hospitality and management in high schools and colleges around the globe" (DECA, Inc., 2012).

Decision Making: Item M2 in the Work-Readiness Assessment Instrument measured a graduate's ability to specify goals and constraints, generate alternatives, consider risks, and evaluate and choose best alternatives (SCANS, 1991a).

Employability skills (see Soft Skills).

ESOL: Abbreviation for English for Speakers of Other Languages (Brookhaven National Laboratory, 2011).

Excellence: Gardner et al. (1983) defined excellence for individual learners, schools, and society at large. For the individual learner, it refers to one's "performing on the boundary" of one's ability, which tests and pushes back previously believed limits. For a school, it characterizes high expectations and goals while helping students reach those goals. For a society, it characterizes the necessary policies that empower the equipping of its people to respond to the changing world (p. 14).

Exercises Leadership: Item I4 in the Work-Readiness Assessment Instrument measured a graduate's ability to communicate thoughts, feelings, and ideas to justify a position, encourage, persuade, convince, or otherwise motivate an individual or group, including responsibly challenging existing procedures, policies, or authority (SCANS, 1991a).

Expectations, academic: The level of knowledge, abilities, and skills graduates (at their highest level of study) should possess (Gardner et al., 1983).

Expectations, behavioral: Explicitly stated boundaries with varied opportunities for individuals to practice skills and teachers or employers to recognize success (Casey et al., 2008).

FBLA: Acronym for Future Business Leaders of America. Formed in 1942, the organization provides leadership resources and activities for middle school level, high school and collegiate students, as well as parents and professionals (FBLA-PBL, 2012).

FCCLA: Acronym for Family, Career, and Community Leaders of America; a high school organization promoting personal growth and leadership development for students in the Family and Consumer Sciences career clusters (Family, Career and Community Leaders of America, Inc., 2012).

FFA: Acronym for Future Farmers of America; a high school organization that develops leadership and personal growth for student in agricultural education (National FFA Organization, n.d.).

FOUNDATIONAL SKILLS: Within the Work-Readiness Assessment Instrument, a reference to Basic Skills (Reading, Writing, Arithmetic, Mathematics, Listening, and Speaking), Data (a.k.a. Thinking) Skills (Creative Thinking, Decision Making, Problem Solving, Seeing Things in the Mind's Eye, Knowing How to Learn, and Reasoning), and Personal Qualities (Responsibility, Self-esteem, Sociability, Self-management, and Integrity/Honesty) (SCANS, 1991a).

Foundational Skills: Functional abilities necessary to be successful in entry-level jobs or first-year collegiate studies (SCANS, 1991a); also referred to as "skills" in this study.

Good job: A job that pays a family-sustaining wage, provides benefits, and offers opportunities for advancement (Achieve, 2011).

HOSA: Acronym for Health Occupations Students of America; a high school organization fostering leadership development, motivation, and recognition exclusively for secondary, postsecondary, adult, and collegiate students interested in medical careers (HOSA, n.d.).

Improves and Designs Systems: Item S3 in the Work-Readiness Assessment Instrument measured a graduate's ability to make suggestions to modify existing systems to improve products or services, and develop new or alternative systems (SCANS, 1991a).

Integrity/Honesty: Item P5 in the Work-Readiness Assessment Instrument measured a graduate's ability to be trusted; recognize when faced with making a decision or exhibiting behavior that may break with commonly-held personal or societal values; understand the impact of violating these beliefs and codes on an organization, self, and others; and choose an ethical course of action (SCANS, 1991a).

INTERPERSONAL COMPENTENCIES: Items I1-I6 includes Participates as a Member of a Team, Teachers others, Serves Clients/Customers, and Exercises Leadership (SCANS, 1991a).

Interprets and Communicates Information: Item D3 in the Work-Readiness Assessment Instrument measured a graduate's ability to select and analyze information and communicate the results to others using oral, written, graphic, pictorial, or multimedia methods (SCANS, 1991a).

Journeyman: An individual who has sufficient skills and knowledge of a trade, craft, or occupation, either through formal apprenticeship training or through practical on-the-job work experience, to be recognized by a state or federal registration agency and/or an industry as being fully qualified to perform the work of the trade, craft, or occupation; practical experience equal to or greater than the apprenticeship level (Washington State Department of Labor & Industries, n.d.).

JROTC: Acrostic for Junior Reserve Officer Training Corps; a high school level, student organization providing quality citizenship, character, and leadership development program. By

contrast, ROTC (Reserve Officer Training Corps) is a collegiate program to train potential officers in the United States military.

Knowing How to Learn: Item M5 in the Work-Readiness Assessment Instrument measured a graduate's ability to recognize and use learning techniques to apply and adapt new knowledge and skills in both familiar and changing situations; be aware of learning tools such as personal learning styles (visual, aural, etc.), formal learning strategies (note taking or clustering items that share some characteristics), and informal learning strategies (awareness of unidentified false assumptions that may lead to faulty conclusions) (SCANS, 1991a).

"Less than one-half": Used by SCANS (1991a) to denote the percentage of high school graduates who are prepared for entry-level employment or post-secondary study; for purposes of this study was understood to be 49% of graduates who are prepared.

Life skills (see Soft Skills).

Listening: Item B4 in the Work-Readiness Assessment Instrument measured a graduate's ability to receive, attend to, interpret, and respond to verbal messages and other cues such as body language in ways that are appropriate to the purpose (SCANS, 1991a).

Maintains and Troubleshoots Technology: Item T3 in the Work-Readiness Assessment Instrument measured a graduate's ability to prevent, identify, or solve problems in machines, computers, and other technologies (SCANS, 1991a).

Mathematics: Item B3 in the Work-Readiness Assessment Instrument measured a graduate's ability to approach practical problems by choosing appropriately from a variety of mathematical techniques; use quantitative data to construct logical explanations for real world situations; express mathematical ideas and concepts orally and in writing; and understand the role of chance in the occurrence and prediction of events (SCANS, 1991a).

MENTAL COMPETENCIES (formerly "Thinking Skills."): Items M1-M6 in the Work-Readiness Assessment Instrument includes: Creative Thinking, Decision Making, Problem Solving, Seeing Things in the Mind's Eye; Knowing How to Learn, and Reasoning (SCANS, 1991a).

Monitors and Corrects Strength: Item S2 in the Work-Readiness Assessment Instrument measured a graduate's ability to distinguish trends, predict impact of actions on system operations, diagnose deviations in the function of a system/organization, and take necessary action to correct strengths (SCANS, 1991a).

"More than one-half": For purposes of this study, 51% of high school graduates who are under-prepared for entry-level employment or post-secondary study.

NCEE: Established by former Secretary of Education T. H. Bell in August 1981, the National Commission on Excellence in Education was commissioned to (a) examine the quality of education in the United States, (b) define the problems afflicting American education, propose solutions, and equally important, (c) not search for scapegoats (Gardner et al., 1983).

Negotiates: Item I5 in the Work-Readiness Assessment Instrument measured a graduate's ability to work toward an agreement that may involve exchanging specific resources or resolving divergent interests (SCANS, 1991a).

On-the-job training: Instruction received by co-workers regarding the basic and/or fundamental skills needed to be successful in a given job or career (ACT, 2000).

Organizes and Maintains Information: Item D2 in the Work-Readiness Assessment Instrument measured a graduate's ability to organize, process, and maintain written or computerized records and other forms of information in a systematic fashion (SCANS, 1991a).

Performance Products: Documents, reports, student work-products, tests, and more that educators may use to assess the presence or absence of skills and competencies (Wilhelm, 1998).

PERSONAL QUALITIES (COMPETENCIES): Items P1-P5 in the Work-Readiness Assessment Instrument measured a graduate's ability to be responsible, demonstrate self-esteem, be sociable, practice self-management, and maintain integrity and honesty (SCANS, 1991a).

Problem Solving: Item M3 in the Work-Readiness Assessment Instrument measured a graduate's ability to recognize that a problem exits (i.e., there is a discrepancy between what is and what should or could be), identify possible reasons for the discrepancy, and devise and implement a plan of action to resolve the problem; evaluate and monitor progress, and revise plans as indicated by the findings (SCANS, 1991a).

Raw Score: Formerly used on the scoring guide for the Work-Readiness Assessment Instrument (Appendix B) to describe the participant's self-evaluation score, the term was discontinued with the new scoring guide (also presented in Appendix B). See "Bias Score."

Reading: Item B1 in the Work-Readiness Assessment Instrument measured a graduate's ability to locate, understand, and interpret written information in prose and documents (including manuals, graphs, and schedules) and to perform tasks; learn from text by determining the main idea or essential message; identify relevant details, facts, and specifications; infer or locate the meaning of unknown or technical vocabulary; and judge the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers (SCANS, 1991a).

Reasoning: Item M6 in the Work-Readiness Assessment Instrument measured a graduate's ability to discover a rule or principle underlying the relationship between two or more objects and apply it in solving a problem (SCANS, 1991a).

Recent: In defined by the WAI (Appendix A), it is an example of a skill or competency occurring over the course of an individual's high school studies.

Reporting Bias: As defined by the WAI (Appendix A), this occurs when the survey respondent rates himself or herself as "Work-Ready" or "Advanced" in a skill or competency without providing a valid, recent example from class work, life experience, or work related experience. When considering possible examples, respondents were encouraged to consider what one might say to convince a prospective employer.

RESOURCES COMPENTENCIES: Items R1-R4 in the Work-Readiness Assessment Instrument measured a graduate's ability to allocate time, money, material and facility resources, and allocate human resources (SCANS, 1991a).

Responsibility: Item P1 in the Work-Readiness Assessment Instrument measured a graduate's ability to exert a high level of effort and perseverance to attain goals; work hard to become excellent at doing tasks by setting high standards, paying attention to details, working well, and displaying a high level of concentration even when assigned an unpleasant task; display a high standard of attendance, punctuality, enthusiasm, vitality, and optimism in approaching and completing tasks (SCANS, 1991a).

ROTC (see JROTC).

SAT: Acronym for the Scholastic Aptitude Test; a standardized test required by many colleges to assess prospective students. The test measures reading skills, writing skills, and mathematical reasoning (Green & Wolf, 2008).

SCANS (see Secretary's Commission on Achieving Necessary Skills).

Secretary's Commission on Achieving Necessary Skills: Federally funded Commission established by former Secretary of Education Lamar Alexander in February 1990 to qualitatively

identify the skills and competencies high school graduates need to be successful as entry-level employees or college freshmen. *The Commission* conducted interviews with business owners, public employers, managers, union officials, and on the line workers in stores, offices, factories and government offices across the country. The Commission published five reports: *What Work Requires of Schools* (SCANS, 1991a), *SCANS Blueprint for Action* (SCANS, 1991b), *Skills and Tasks for Jobs* (SCANS, 1992b), *Learning a Living: A blueprint for high performance* (SCANS, 1992a), and *Teaching the SCANS Competencies* (SCANS, 1993).

Selects Technology: Item T1 in the Work-Readiness Assessment Instrument measured a graduate's ability to judge which set of procedures, tools, or machines (including computers and their programs) will produce the desired results (SCANS, 1991a).

Self-Esteem: Item P2 in the Work-Readiness Assessment Instrument measured a graduate's ability to believe in one's own self-worth and maintain a positive view of self; demonstrate knowledge of one's own skills and abilities; be aware of impact on others; and knows one's own emotional capacity and needs and how to address them (SCANS, 1991a).

Self-Management: Item P4 in the Work-Readiness Assessment Instrument measured a graduate's ability to assess one's own knowledge, skills, and abilities accurately; set well-defined and realistic personal goals; monitor progress toward goal attainment and motivate self through goal achievement; exhibit self-control and respond to feedback unemotionally and non-defensively; be a "self-starter" (SCANS, 1991a).

Serves Clients/Customers: Item I3 in the Work-Readiness Assessment Instrument measured a graduate's ability to work and communicate with clients and customers to satisfy their expectations (SCANS, 1991a).

Skills (see Foundational Skills).

Skills gap: The difference between the quantity and quality of a worker's skills and the demands of his or her job requirements (William Joseph Wilhelm, 1998).

Skills USA: Formerly known as VICA (Vocational Industrial Clubs of America), this is a high school organization for students preparing for careers in trade, technical and skilled service occupations, including health occupations (SkillsUSA, n.d.).

Sociability: Item P3 in the Work-Readiness Assessment Instrument measured a graduate's ability to demonstrate understanding, friendliness, adaptability, empathy, and politeness in new and on-going group settings; assert self in familiar and unfamiliar social situations; relate well to others; respond appropriately as a situation requires; and take an interest in what others say and do (SCANS, 1991a).

Soft skills: Also known as "life skills," "work skills," "employability skills," and "competencies," it is used by prospective employers to describe the degree to which an individual has mastered work traits which helps them (a) keep their job, (b) be successful in their job (ACT, 2007), and (c) promote within their job (Foote, 1997); skills for which traditional education may not have specifically addressed but expected graduates to obtain as a necessary product of human growth, such as responsibility, self-esteem, and integrity (Bronson & Association for Career and Technical Education, 2007).

Speaking: Item B5 in the Work-Readiness Assessment Instrument measured a graduate's ability to organize ideas and communicate oral messages appropriate to listeners and situations; participate in conversation, discussion, and group presentations; select an appropriate medium for conveying a message; use verbal language and other cues such as body language appropriate in style, tone, and level of complexity to the audience and the occasion; speak clearly and

communicates a message; understand and responds to listener feedback; and ask questions when needed (SCANS, 1991a).

SYSTEMS COMPETENCIES: Items S1-S3 in the Work-Readiness Assessment Instrument measured a graduate's ability to understand systems, monitor and correct strength, and improve and design systems (SCANS, 1991a).

Teamwork (formerly "Participates as a Member of a Team"): Item I1 in the Work-Readiness Assessment Instrument measured a graduate's ability to work cooperatively with others and contribute to a group with ideas, suggestions, and effort (SCANS, 1991a).

TECHNOLOGY COMPENTENCIES: Items T1-T3 in the Work-Readiness Assessment Instrument measured a graduate's ability to select technology, apply technology to a task, and maintain and troubleshoot technology (SCANS, 1991a).

TSA: Acronym for Technology Students of America; a high school organization devoted to students considering a career in technology (TSA, 2011).

Under-prepared: A graduate who lacks sufficient skills and competencies (also known as work-readiness skills) to retain an entry-level job and promote beyond entry-level status; a quantitative reference to a high school graduate who scores within the range of 0-72 on the Work-Readiness Assessment Instrument (Appendix A).

Understands Systems: Item S1 in the Work-Readiness Assessment Instrument measured a graduate's ability to know how social, organizational, and technological systems work, and how to operate effectively within them (SCANS, 1991a).

Uses Computers to Process Information: Item D4 in the Work-Readiness Assessment Instrument measured a graduate's ability to employ computers to acquire, organize, analyze, and communicate information (SCANS, 1991a).

Valid: In reference to the WAI (Appendix A), it is a satisfactory example that justifies a student or graduate rating themselves as work-ready in a skill or competency.

Vocational education: Curriculum focused on educating students for employment (Foster, 1996). Foster presents two views of the term: (a) those who believe public education should train students for general employment, and (b) those who believe public education should train students for employment in a specific trade. SCANS (1991a) took the former position. Castro (2008) noted a variety of components fall under the vocational education umbrella: agricultural education, business education, family and consumer sciences, health occupations education, marketing education, technical education, technology education, and trade and industrial education. Equally important, Castro noted that vocational education included a combination of classroom instruction, hands-on laboratory work, and on-the-job training augmented by an active network of student organizations.

WAI (see Work-Readiness Assessment Instrument).

Work-Readiness Assessment Instrument (WAI): Appendix A in this report; a 44-item self-assessment survey requiring respondents to rate themselves on thirty-six SCANS skills or competencies. The instrument employs natural numbers (one to four) to represent four work-readiness indicators, "Not Skilled," "Preparatory," "Work Ready," and "Advanced." The indicators where adapted from SCANS (1991a).

Work skills (see Soft Skills).

Work success: Effective performance of a job's required tasks (ACT, 2007).

Work-Readiness Score (Wr-score): A numerical score representing an individual's composite work-readiness evaluation based on responses to the WAI.

Work-readiness: A qualitative or quantitative assessment of an individual's overall ability to retain an entry-level job and promote beyond entry-level status (Foote, 1997); The National Alliance of Education calls work-readiness the *fourth R* of education (National Alliance of Business, 1987)—as opposed to the traditional three R's (i.e., reading, 'riting, and 'rithmetic) (Hymel, Schonert-Reichl, & Miller, 2006; T. H. Peterson, 1992).

Work-ready: A graduate who possess sufficient soft skills and competencies (also known as work-readiness skills) to retain an entry-level job and promote beyond entry-level status; a quantitative reference to a graduate who scores within the range of 73-144 (preferably 85-144) on the Work-Readiness Assessment Instrument (Appendix A). ACT defines this to be an individual who is prepared to learn from training program materials and complete training and/or certification requirements (ACT, 2007).

Works with Cultural Diversity: Item I6 in the Work-Readiness Assessment Instrument measured a graduate's ability to work well with men and women and with a variety of ethnic, social, or educational backgrounds (SCANS, 1991a).

Writing: Item B2 in the Work-Readiness Assessment Instrument measured a graduate's ability to communicate thoughts, ideas, information, and messages in writing; record information completely and accurately; compose and create documents such as letters, directions, manuals, reports, proposals, graphs, flow charts; use language, style, organization, and format appropriate to the subject matter, purpose, and audience. Include supporting documentation and attends to level of detail; check, edit, and revise for correct information, appropriate emphasis, form, grammar, spelling, and punctuation (SCANS, 1991a).

Wr-score (see "Work-readiness Score").

Assumptions

Five assumptions framed this study. First, successfully preparing students to become high school graduates and contributing members of society is the primary goal of educators and education administrators so America can secure its economic and political future (ACT, 2007; Alexander, 1993; Alliance for Excellent Education, 2009; Meeder, 2008; SCANS, 1991a). Second, the basic skills and foundational competencies advanced by the SCANS Commission (SCANS, 1991a, 1991b) are essential to both graduates entering the workforce or training/certification programs immediately after high school, as well as graduates planning to continue their studies via post-secondary institutions (e.g., trade schools, technical college, junior college, or four-year institutions). Third, the percentage of under-prepared graduates identified by SCANS (1991a), and similar studies representing national samples (Achieve, 2005; Bronson & Association for Career and Technical Education, 2007; Casner-Lotto & Barrington, 2006; Gardner et al., 1983; Greene & Foster, 2003; Sum, Harrington, & Goedicke, 1987), constitutes a reliable percentage of the population of under-prepared graduates nationally, and by implication, constitutes a reliable percentage of the population of under-prepared graduates in the state of South Carolina and high school graduates in the Charleston County School District. Fourth, high school graduates possess some level of skills and competencies that can be measured. Finally and perhaps most importantly, work-readiness cannot be defined by attainment of a high school diploma alone, but rather a collage of: (a) academic knowledge and experiences, (b) recollection of one's acquired knowledge and experiences, and (c) the willingness to apply one's knowledge and experiences when called upon by employers or post-secondary educators (A. J. Baker, 1996; Barnes, 1998; Bartlett, Sawma, Statz, & Vela, 1998; Berns & Erickson, 2001; Bronson &

Association for Career and Technical Education, 2007; S. F. Hamilton, Hamilton, & American Youth Policy Forum, 1994; K. R. Hughey & Hughey, 1999; Murphy, 1998).

Limitations, Delimitations, and Scope

The two most significant limitations of this study were the inability to survey prospective graduates (i.e., seniors within a month or two of graduating), which would have provided a much better response rate, and the self-imposed limitation of surveying only graduates of public high schools rated at-risk on the most recent South Carolina Schools Annual Report Card. The latter was a limitation because this pool obviously excludes graduates from high schools rated better than at-risk on the state's annual report card, individuals who graduate with a certificate of education, or those who graduate from private high schools. Less obvious but equally important, this sample did not include high school dropouts or other non-graduates (Charleston County Schools, 2010) who "*leave school* without the knowledge or foundation required to find and hold a good job" (SCANS, 1991a, p. viii, emphasis added). A third limitation was the inability of the study to use commercially available quantitative and qualitative instruments to access graduate work-readiness. This limitation was due to the cost prohibitive pricing of those instruments.

Graduates who participated in the study were limited to a self-evaluation of their own work-readiness without the possible aid of parental assistance, prepared resumes, transcripts, or experiences of others. The delimitation was intended to simulate the graduates' recall of his or her own employment related information much as he or she would if completing an employment application. Parents, teachers, school administrators, or current high school students were not included in the study.

Notwithstanding SCANS (1991a) effort to address the overall preparation of high school graduates for advancement beyond entry-level jobs, or success during the first-year of collegiate

study, this study was limited to an evaluation of high school graduates' work-readiness skills and competencies. The study did not explore the need for, or the presence of, work-skills in college graduates. On that notes, the WAI (Appendix A) was not intended to replace employment applications or college entrance tests such as the ACT or the SAT.

Finally, the scope of the study was bound to all recent graduates from the three at-risk schools in the selected school district because under-preparedness in those graduates may have been under reported. In that regard, following the model provided in SCANS (1991a), the survey utilized in this study intentionally omitted a neutral response. The reason for this omission is obvious. Employers want employees, and colleges want incoming freshman, who are prepared to be successful. A neutral response is as undesirable as an unprepared response.

Significance of the Study

The potential of this study to foster positive social change is significant if the suggestions in chapter 5 are adopted. With that in mind, the study could improve the work-readiness of a significant number of graduates from the at-risk Charleston County high schools represented by this study—schools with historically low performance ratings and low graduation levels (Friedman, 2000). Numerically, the South Carolina Oversight Committee (2010) reported no fewer than 26 *at-risk high schools* across the state with more than 13,000 students. Of those, three at-risk high schools are located within the Charleston County School District with 2,569 students (South Carolina Department of Education, 2010a, 2010b). At the very least, the findings of this study may enhance curriculum discussions by local school district administrators.

This study is also significant for numerous Charleston County parents who pray their children will be ready to find *good jobs* when they graduate, or be accepted into a program of higher learning, and ultimately become self-sustaining, productive citizens. Area employers and

countless post-secondary institutions will benefit by a possible reduction in remedial training programs if a true solution to the crisis is found (Alexander, 1993; A. J. Baker, 1996; Gardner et al., 1983; Massachusetts Elementary and Secondary Education Department & Higher Education Department, 2008). Finally, the study will be significant for local and state government officials by providing them with accurate information regarding graduate under-preparedness, as well as ideas on how to increase the availability of better trained, entry-level workers (Bureau of Labor Statistics, 2008; Hatch & Clinton, 2000; Krantz, Di Natale, & Krolik, 2004).

On August 26, 1981, then Secretary of Education T. H. Bell created the National Commission on Excellence and directed it to examine the quality of education in the United States. *The commission* sought to define the problems afflicting American education and to provide solutions, not search for scapegoats (Gardner et al., 1983). In the end, the Commission reported:

> The problems we have discerned in American education can be both understood and
> corrected if the people of our country, together with those who have public responsibility
> in the matter, care enough and are courageous enough to do what is required. (p. 2)

With that statement in mind, this study collected data that can enable education administrators, teachers, and others to do what is required to help close the gap existing between the needs of employers and the ability of recent high school graduates—especially graduates from at-risk rated high schools.

Those are but just a few of the possible social changes which could result if high school graduates in Charleston County were better prepared—graduates who will otherwise face the "bleak prospects of dead-end work interrupted only by periods of unemployment" (SCANS,

1991a, p. viii). Johnston et al. (1987) provided an excellent predictor of potential social significance of this study when he wrote more than two-decades ago:

> If every child who reaches the age of seventeen… could read sophisticated materials, write clearly, speak articulately, and solve complex problems requiring algebra and statistics, the American economy could easily approach or exceed the 4% growth of the boom scenario. Unconstrained by shortages of competent, well-educated workers, American industry would be able to expand and develop as rapidly as world markets would allow. Boosted by the productivity of a well-qualified workforce, U.S.-based companies would reassert historic American leadership in old and new industries, and American workers would enjoy the rising standards of living they enjoyed in the 1950s and 1960s (p. 142).

In addition to those immediate change possibilities emanating from the findings of the study, I will attempt to articulate a journal article worthy of publication in pertinent journals. Concurrent with authoring that article, I will submit requests to present the findings of the study at pertinent professional meetings after receiving a Call for Presentations.

Summary and Transition

This chapter introduced and described the problem facing Charleston County high school graduates from schools rated at-risk (Achieve, 2005; Bronson & Association for Career and Technical Education, 2007; Casner-Lotto & Barrington, 2006; Gardner et al., 1983; Gomez & Gomez, 2007; Greene & Foster, 2003; Massachusetts Elementary and Secondary Education Department & Higher Education Department, 2008; SCANS, 1991b); it specified the nature of the study, presented the research question, stated the hypotheses framing the study, and explored the purpose of the study as well as the study's guiding theoretical basis. This chapter has

presented operational definitions of key terms and defined this study's guiding assumptions, and limitations and delimitations. Finally, this chapter argued for the significance of the study. In the chapter to follow, existing literature is reviewed regarding the crisis of under-prepared high school graduates and defines it as both a national and international problem, the historical efforts to reform and promote work-readiness training, and it describes a myriad of instruments and programs offering potential benefit to educators, employers, and students. Chapter 3 presents a detailed discussion of the methodology and the process used to gather and analyze data collected from the survey instrument, chapter 4 presents the findings from the study, and chapter 5 presents the conclusions and recommendations based on my analysis of the findings.

Chapter 2: Literature Review

Today, education determines not just which students will succeed, but also which

nations will thrive in a world united in pursuit of freedom in enterprise. (George

H. W. Bush, 1991, p. 1)

The need to educate America's youth with the vocational skills necessary to maintain and

possibly advance American industry is by no means a recent problem. Indeed, the need to

produce high school graduates ready to enter and promote beyond entry-level, technology rich

jobs is only the recent iteration of a long-standing need of all industrialized nations. Rose (2000)

concluded that rising national concern about economic competitiveness necessitates the training

of all prospective graduates in work-readiness skills for the specific purpose of them being able

to enter the workforce (pp. 15-16). Of course, that left one to wonder if today's high school

graduates were ready.

This literary review explored graduate work-readiness via (a) a historical review of

vocational education in America (called *work-readiness training* in this study), (b) an

examination of the academic consensus pointing to the need for work-readiness training, (c) a

review of the issues believed to have brought about the decline in work-readiness skills, (d) an

appraisal of the instruments available to measure work-readiness, and (e) a review of possible

methods which could be used to best approach the research question. To meet those objectives, a

systematic, five-step approach was used to review available literature, inspired in part by

Gfroerer (2000) and modified to suit my particular skill set. The result provided both depth to the

review as well as breadth in understanding the overall research problem and potential.

- Step 1: I organized my electronic bibliographic manager (Zotero®) into subdirectories representing my detailed dissertation rubric.

- Step 2: A list of key words and terms (listed later in text) describing the basic components of this study was compiled. The list was repeatedly expanded over the course of the research and ultimately proved to be an invaluable tool in helping maintain focus on the topic at hand.

- Step 3: The key words and terms were used to conduct scholarly research using a variety of academic databases (listed below) with a heavy emphasis given to peer-reviewed products: completed doctoral dissertations and theses, reports, scholarly papers, official records, books, as well as scholarly websites. Each item was evaluated for its potential value to the study. Those items deemed beneficial were added to the bibliographic manager for later reading.

- Step 4: All items retrieved were read and evaluated; those found beneficial to this study were compared and contrasted with the opinions and research of previously collected works.

- Step 5: Finally, I returned to step 1 and repeated the process using different key words. Doing so allowed the discovery of newly released works associated with previously established key words and topics.

Topical and Sub-Topical Key Words and Terms

The literature was searched using these topical and sub-topical key words and terms: *Secretary's Commission on Achieving Necessary Skills*, SCANS, *Secretarys Comm on Achieving Necessary Skills,* work-readiness, skills gap, apprenticeship, *at-risk students*, career portfolio, college-readiness, on-the-job training, job skills, *What Work Requires of Schools*, *Blueprint for*

Action, *Skills and Tasks for Jobs*, *Learning a Living: A blueprint for high performance*, *Teaching the SCANS Competencies*, soft skills, vocational education; academic ability, academic achievement, educational accountability, achievement gaps, adolescence preparation, career education, CTE, job performance, back to basics, basic skills, business and employee education, worker shortages, career awareness, career development, career planning, No Child Left Behind, NCLB, college and career awareness, entry-level worker qualifications, cultural education, Education standards, education mismatch, education cooperation, education counseling, education evaluation, educational tests, employee selection, employee training, outcomes of education, high school graduates, high school academic achievement, individual competence, worker knowledge, labor supply, learning readiness, life skills, lifelong learning, *Nation at Risk,* school and business partnerships, performance standards, student preparedness, purpose of schooling, school failure, school to work, skill development, skills development, student motivation, students – employment, students – rating of, students – training of, tech prep, twenty-first century classroom, vocational qualifications, work keys, *work environment*, and *work skills*.

Academic Databases Explored

ABI/INFORM Complete, Business Source Complete, ScienceDirect, Emerald Management Journals, Management & Organization Studies: a SAGE full-text collection, ERIC, LexisNexis Academic, Gale Virtual Reference Library, BNA Human Resources Library, Academic Search Complete, Criminal Justice Periodicals, Education Research Complete, Education: a SAGE full-text database, ProQuest Central, Teacher Reference Center, Google Books, Google Scholar, Expanded Academic ASAP, LexisNexis Academic, LexisNexis Statistical Publications and DataSets, Military and Government Collection, Political Science

Complete, Business Source Complete, Political Science: A Sage Full-Text Collection, CQ

Researcher, PolicyFile, Expanded Academic ASAP, Lexis Nexis Academic, LegalTrac,

ProQuest Central, ProQuest Dissertations and Theses database, SAGE Premier 2010, Science

Direct, SocINDEX with Full Text, Web of Knowledge.

Historical Overview

Work-readiness training, what some scholars call the *fourth R* of the traditional role of

education (Hymel et al., 2006; National Alliance of Business, 1987; T. H. Peterson, 1992), has

long been a concern of business and government leaders. A quintessential function of public

education has been universally accepted to prepare self-disciplined students for work (Bear,

1998; Gardner et al., 1983). Bear wrote, "When public education was established in America,

our founding fathers argued that responsible citizenship was to be a primary goal" (p. 15). That

does not mean this is the only purpose of public education. Miller (2001) observed, "School

should do more than prepare students for work" (n.p.). That point was also made by the

Secretary's Commission on Achieving Necessary Skills Commission who wrote:

> Schools do more than simply prepare people to make a living. They prepare
>
> people to live full lives—to participate in their communities, to raise families, and
>
> to enjoy the leisure that is the fruit of their labor. A solid education is its own
>
> reward (SCANS, 1991a, p. i).

Foster (1996) also recognized history's influence upon work-readiness training and the

overall preparation of student. He noted that on four separate occasions, twentieth-century

history has shown that vocational education equipped students with the necessary soft skills to be

successful—an important and urgent objective: during (a) the early 1900s when manual training

prevailed, (b) the 1920-1930s era of the progressive education movement and the emergence of

industrial arts as a reaction against manual training, (c) the post-World War II era, and (d) the

1980s back-to-basics educational reform era. Equally important, Foster recognized that

"criticism of education in 1912, in relation to the lack of vocational education, reads much like

the criticism of the 1970s, in relation to the lack of career education," (p. 132) which now

appears to resemble the criticism of the 2000s in relation to the absence of fully prepared

workers—Barnes (1998) and Lewis (2005) referred to the latter as soft skills development.

Unfortunately, today's students of at-risk public high schools in southern South Carolina (the

independent variable in this study) —schools with historically low performance ratings and low

graduation levels (Friedman, 2000), may not be receiving those soft skills. In fact, many scholars

point to a widespread failure of high schools to provide its graduates' these skills (Achieve,

2005, 2011; Bronson & Association for Career and Technical Education, 2007; Casner-Lotto &

Barrington, 2006; Gomez & Gomez, 2007).

With those facts in mind, and building on the foundation laid by Foster (1996), literature

strongly suggests that practical vocation-oriented education has taken six forms that will be

discussed in this review: (a) apprenticeship, (b) manual training, (c) progressive work-readiness

training, (d) post World War II training, (e) back-to-basics education of the 1980s and 90s, and

(f) new millennium preparation and training.

Apprenticeship Work-Readiness Training (Pre-1900s)

The first formalized work-readiness training occurred during America's colonial era in

the form of apprenticeship agreements (Benavot, 1983; Castro, 2008; Fuller & Unwin, 2003;

Washington State Department of Labor & Industries, n.d.). New England poor laws necessitated

that all children less than 10 years old, and whose parents could not support them, become

indentured to masters who agreed to teach them a trade (Fuller & Unwin, 2003; Washington

State Department of Labor & Industries, n.d.). The practice was also commonly extended to orphans and delinquents. *Apprentices* studied trades that included metal works, leatherworks, carpentry, masonry, tailoring, shoemaking, baking, and printing (Fuller & Unwin, 1998). Unfortunately, the training methods often involved child abuse and dubious practices that would "make today's newspaper headlines about government-sponsored training schemes appear very tame" (Washington State Department of Labor & Industries, n.d.). As a result, the first education law passed in America was the Old Deluder Satan Act of 1647 which required masters to teach academic as well as vocational skills to apprentices (Brimi, 2009; Frager, 2010; Wisconsin Department of Education, n.d.). Brimi noted the particular importance of the period in that the federal government became involved in American education to instill a set of values and knowledge upon students (p. 126).

Notwithstanding its flaws, apprenticeship work training appears to have been highly effective. Apprentices that complete their training, known as a *journeyman,* include American patriot Paul Revere and founding father Benjamin Franklin (Washington State Department of Labor & Industries, n.d.). Revere was a member of a famous family of silversmiths. His skills remain self-evident among the approximately 500 pieces known to exist—including quality pieces of church silver, flagons, christening bowls, tankards, cups, spoons, tea sets, trays, and cast church bells. Similarly, Benjamin Franklin's father indentured him at the age of 12 to his brother, James. In the agreement, their father paid James 10 pounds to teach his brother the printing art and to pay for Benjamin's food, lodging, and other necessaries. However, young Ben quit before completing the 9 years of apprenticeship specified in the indenture (i.e., his contract) because of quarrels with his elder brother whom Ben said, sometimes beat him. Mr. Franklin later wrote, "Thinking my apprenticeship very tedious, I was continuously wishing for some

opportunity of shortening it" (Washington State Department of Labor & Industries, n.d. n.p.). From a more general perspective, the amazing skills and talents inculcated from apprenticeship work training are apparent by the excellent condition of many of the historical buildings erected in America during its first 100+ years of existence (Brimi, 2009) as well as modern testimonials from graduates of modern apprenticeship programs (Gregory, 2007; Stieretz, 2008).

In recent years, apprenticeship has undergone considerable and necessary changes involving advances in machinery, but also in response to new plants and industry (Castro, 2008; Washington State Department of Labor & Industries, n.d.). Apprenticeship wages have also changed—evolving from simple room and board to a graduated wage scale to one providing for the possibility of bonuses (Castro, 2008; Fuller & Unwin, 1998). Changes in wages often lagged behind advances in production, and the advances were often not uniformly applied. Nevertheless, it did effectively lay the foundation for use by modern labor unions as well as set the stage for the first legislation in the United States to promote an organized system of apprenticeship; enacted in Wisconsin in 1911, the law placed apprenticeship under the jurisdiction of an industrial commission and required all apprentices to attend classroom instruction five hours a week (Fuller & Unwin, 1998, 2003).

In 1937, Congress passed the National Apprenticeship Act, popularly known as the Fitzgerald Act, to promote national labor standards of apprenticeship (Riccucci, 1991). The measure established Federal intervention procedures in apprenticeship programs and reorganized the Federal Committee on Apprenticeship by providing equal representation between employers and labor leaders. Moreover, Congress established the Apprentice-Training Service to oversee legislative compliance with the Fitzgerald Act.

Within South Carolina, apprenticeship has experienced resurgence since 2007, thanks in large part to a push from the state's Chamber of Commerce, a $1 million grant from the South Carolina Workforce Investment Board, and by handing control of apprenticeship training over to mostly Technical Colleges (Gonzalez, 2011). The South Carolina initiative, known as Apprenticeship Carolina, recognizes the demand of today's businesses for enhanced "soft skills, as well as advanced industry-specific knowledge," wrote Stieretz in 2008. The success of that program, in a wide range of industries, is viewed as a success for the state's economy (Billett, 2010; Gregory, 2007).

Manual Work-Readiness Training (1900 – 1920)

The emergence of tax-supported public education in the early 1900s, as well as advances in mechanics (Bennett, 1907), introduced manual work-readiness training which became the dominant means of educating workers from 1900-1920. A large populace of informally educated adults with farming experience necessitated worker training within newly constructed manufacturing plants while tax-supported schools trained their children. The results were four discernible benefits: (a) reducing crime and delinquency, (b) reducing poverty, (c) providing social education and basic civil rights, and (d) meeting the needs of a changing society (P. N. Foster, 1996). Concurrently, Bear (1998) believed schools were developing a moral sense in students by modeling just and caring behaviors (p. 15).

Meanwhile, the first Federal effort to direct American education in this period arose from the Vocational Educational Act of 1917, more commonly known as the Smith-Hughes Act (Castro, 2008; P. N. Foster, 1996; Resnick, 1982). It established grants for states to create programs in agriculture, trade and industry, home economics, and teacher training (K. Dougherty, 1979) with a focus on preparing America's youth for entry-level jobs by learning

specific occupational skills (Castro, 2008). Aside from its obvious historical value, the legislation offers a glimpse into American priorities of the time—as would other legislation that followed (Bear, 1998). Moreover, since the Tenth Amendment to the Constitution of the United States is not silent on the matter of public education, and thus necessitates that states mandate and legislate public education, federal mandates can only provide uniformity, priorities, and necessary funding (Dawson & Sheppard, 1998).

Notwithstanding the expected benefit of early vocational legislation upon work-readiness training, the Act had its critics, including American philosopher and educator John Dewey. He argued that specific skill training would unnecessarily narrow and undermine democracy (Castro, 2008). Similarly, Foster (1996) noted that many educators and legislators felt that vocational training had no place in publicly funded education (p. 11).

Progressive Work-Readiness Training (1920 – 1945)

Immediately following World War I, and throughout World War II, progressive work-readiness replaced manual training as an intentional effort to move America forward in response to real and perceived needs (P. N. Foster, 1996). Foster cited at least two factors driving the change: the Vocational Education Act of 1917 which provided needed funds, and World War II which necessitated scientific and educated responses.

The era of progressive work-readiness, summarized by Butts (1955) as "learning by doing" (p. 574), appears to have been strongly promoted by the founding of The Progressive Education Association in 1918. The group spent the next 15 or 20 years advocating the dominant interest in American education, "child-centered school" (p. 571). Foster (1996) however noted that this era of education actually wrestled with "two major rationales for public education" (p. 13): social-efficiency theories (the good that education offers society), and student-centered

theories (the good that education offers the individual student). Federal officials tended to favor the former—especially during the first quarter of the twentieth century when Federal funding was largely secured in response to the promises education offered society and business (Foster). Not surprisingly, Foster concluded that progressive work-readiness training faded during the Great Depression (c 1920s – 1940s)—possibly due to a shortage of funds. Nevertheless, new educational initiatives were on the horizon.

Post-World War II Work-Readiness Training (1945 – 1970s)

The period following World War II provided confidence to American businesses, and more importantly, opportunities for renewed global trade. A new trend referred to as *the essentials* or *career education* (P. N. Foster, 1996) was widely promoted by relatively few Federal vocational programs (K. Dougherty, 1979) intended to reassert American economic prosperity as well as safeguard America from Communist threat. The Federal programs included:

- The Vocational Education Act of 1946, which emphasized distributive vocational education (e.g., sales, marketing, management) (K. Dougherty, 1979; Gysbers, 2004),

- The Health Amendments of 1956, which focused on the education of Health Care workers (Woolley & Peters, n.d.),

- The Fishery Amendment of 1956, which established funding for fishery vocations (K. Dougherty, 1979),

- The National Defense Education Act of 1958, which funded colleges for occupations necessary for the national defense (e.g., scientists, engineers) (Carlson & Williams, 1959; K. Dougherty, 1979)

- The Vocational Education Act of 1963, with its shift from social-efficiency to student-centered theories, broadened the definition of vocational education to include occupational programs in elementary and secondary schools (Castro, 2008; K. Dougherty, 1979; P. N. Foster, 1996; Kennedy, 1966),

- The Vocational Education Amendments of 1968, which expanded on President Kennedy's 1963 Vocational Education Act (Meeder, 2008; Perkins, 1968); and

- The Education Amendments of 1972, 1974, and 1976, which addressed multiple issues of vocational education. The most significant aspect of those acts required that occupational education receive an equal footing as academic education (K. Dougherty, 1979).

The post-World War II period also witnessed initial attempts to identify which workplace skills were essential for effective work performance (Kane, Berryman, Goslin, & Meltzer, 1990). Kane et al. noted that "after enactment of the Great Society measures of the 1960s, the specification of skills became important to the development of bias-free job testing" (p. 1). In addition to job testing, those early efforts to identify needed work skills were initial indications that American workers no longer possessed the skills once held in abundance. In reality, this period ended by igniting a new, back-to-basics emphasis in education.

Back-to-Basics Work-Readiness Emphasis (1980s – 1990s)

The so-called back-to-the-basics movement associated with the 1980s (P. N. Foster, 1996) may best be understood as a period of priorities and programs intended to carry America into the 1990s. Back-to-basics was grounded in the notion that during the 80s and 90s, numerous reports on American education presented, when taken together, convening evidence the nation's education system had failed to prepare America's youth to work (Alexander, 1993; Castro, 2008;

P. N. Foster, 1996; Gardner et al., 1983; Johnston et al., 1987; Joint Economic Committee, 1989; Kane et al., 1990; Resnick, 1982). Comparison of American students' test scores to children of other industrialized nations reinforced that message (Barnes, 1998).

Castro (2008) argued that education reform of the early 1980s, while primarily focused on secondary education, could be summarized with the phrase "work more, try harder, and strive for excellence" (n.p.)—a summary apparently validated by the Congress of the United States during that time. As noted by Sims (1984), no fewer than five federal programs attempted to stimulate basic skills training of disadvantaged youth age 16 – 19:

- The Summer Youth Employment Program of 1983,

- The National Youth Service of 1983,

- The Youth Incentive Employment Act of 1984,

- The Youth Employment Opportunity Wage Act of 1985, and

- The American Conservation Corps Act of 1985.

In short, teenagers had the opportunity to work, but youth unemployment continued to climb due to an absence of basic skills. In response, then Secretary of Education T. H. Bell created the National Commission on Excellence in Education (NCEE) in August 1981. The Secretary directed the NCEE to (a) examine the quality of education in the United States, (b) define the problems afflicting American education, propose solutions, and equally important, (c) not search for scapegoats (Gardner et al., 1983).

The NCEE Commission's 1983 report concluded the United States was a *nation at risk.* Specifically, it surmised how the once unchallenged preeminence of the United States in "commerce, industry, science, and technological innovation is being overtaken by competitors

throughout the world," (*sic*) a condition the Commission insisted "undergirds American prosperity, security, and civility" (Gardner et al., 1983, p. 9).

Surprisingly, the reason the NCEE considered America to be at risk was not a failure of educators but a failing of *parents.* Bell (1993) observed, "A Nation at Risk was to call the attention of the American people to the need to rally around their schools. No one intended for teachers to receive the blame that was heaped upon them" (p. 2, *sic*). Bell was referring to how teachers were being blamed by education administrators for difficulties not of their making. Specifically, school administrators were trying to compensate for failure in the home to nurture and motivate students—something Bell believed could never be accomplished (p. 2).

The NCEE report, while citing justifiable pride in what our schools and colleges had historically accomplished, strongly asserted that society's educational foundations were eroding via a rising tide of mediocrity. More forceful, the Commission stated that if "an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war" (Gardner et al., 1983, p. 9). Fortunately, the Commission felt equally convinced that the problems facing America could be corrected if we, as a nation, return to a few simple basics: "content, expectations, time, and teaching" (p. 17). The Commission's report addressed each of those areas in considerable detail.

The importance of the NCEE's report on the history of educational reform cannot be overstated. Wimpelbert and Ginsberg (1985) suggest Gardner et al. (1983) was a quintessential work that generated tremendous interest in school reform. The authors also noted that after the report, "nearly 250 state-level task forces were created in response" (p. 186). On the other hand, at least one scholar believed that the report, while accurate, may have been an overreaction. Vik (1984) advocated a "milder responses" (p. 53), but Sum et al. (1987), responding to Vik, noted

that in the 4 years following the national economic recession ending around 1982, and despite almost 10 million working age youth (16-19) becoming employed, a large majority of those youth appeared to have been ill prepared for the demands of entry-level labor.

Critics' aside, a series of major initiatives in the 1980s and 90s reflect a level of urgency in the back-to-basic movement never before witnessed in America's history. In 1984, Congress passed the Carl D. Perkins Vocational Education Act of 1984 (Pub. L. 98-524)—also called Perkins I (Meeder, 2008). The Act formalized Congress' affirmation that effective vocational education programs are essential to the nation's future as a free and democratic society. The Act had two interrelated goals, one economic and one social (Castro, 2008). The economic goal was to improve the skills of the labor force and prepare adults for job opportunities—a long-standing goal traceable to the Smith-Hughes Act of almost seventy years earlier. The social goal, Meeder noted, was to ensure that America's high school graduates possess the skills and knowledge they need to be ready for college and careers (p. 3).

Half a decade after the Perkins Act, a report by the Joint Economic Committee (1989) issued a blistering description that indicated Perkins I was not meeting the needs of poverty stricken or minority students. The report noted that those students were (a) coming to school under-prepared, (b) lacked basic skills, and perhaps most troubling of all, (c) could not compete academically (p. 24). Lewan (1990) made similar observations but also suggested three additional basics such as simple leadership, listening and caring. In response, in the summer of 1990 Congress passed the second Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Pub. L. 101-392), also known as Perkins II, that amended and extended the Perkins Act of 1984. The central issue of that measure was to prepare students for work through Vocational, work-readiness training (A. F. Peterson, 1999, p. 42).

Around September 1990, independent of the work being conducted by the SCANS Commission (SCANS, 1991a), the New American Schools Development Corporation (NASDC) moved forward with its own plans to create "break the mold" schools (SCANS, 1992b). Additionally, the American Society for Training and Development (ASTD) also conducted a study where they polled 50,000 practitioners, manager, administrators, educators, and researchers in the field of human development. The task force identified 16 skills required by young American workers (Foote, 1997).

In 1994, and in response to the SCANS Commission's reports, Congress passed the School-to-Work Opportunities Act (STWOA), a bi-partisan, seven-year initiative addressing the national skills shortage by providing a model of highly skilled workforce for the nation's economy (Department of Education & Department of Labor, 1997). Signed into law by President Bill Clinton in May 1994, STWOA provided one-time, five-year venture capital grants enabling states to design, implement, and sustain partnerships between educators and employers (Benz & Kochhar, 1996; Kroll, 2002). The Act also created opportunity systems providing pathways for all young people to make productive transitions from education into high skill, high-paying careers—especially the "forgotten half, the young people who don't go on to further education and training" (Clinton, 1995, n.p.). The central importance of STWOA for this review is found in its provision for a step-by-step approach to work-based learning (Castro, 2008).

Reflectively, the Federal legislative efforts enacted during the back-to-basics movement appeared to have achieved mixed success (Clinton, 1995; Department of Education & Department of Labor, 1997; Levine, 1994; Mendel, 1994; V. Miller, 2001)—possibly the result of advances in computer technology during the 1980s (Stephens, 1995). In fact, Alexander (1993) used excellent statistics to conclude that despite all the programs and money promoting

the need for basic work-readiness training, more needed to be done. He also concluded that (a) employers remained unable to hire enough qualified workers, (b) spent too much money on remedial training, and (c) exported or abandoned projects which required skilled labor. In summary, Alexander wrote, "At best, we are reluctant students in a world that rewards learning" (p. 16). Equally convicting, he believed that the rest of the world was not sitting by idly (p. 15).

Business educators showed widespread agreement with Alexander (1993) (Bartlett et al., 1998; Echternacht & Wen, 1997; Lynn, 1998; Yang, 1994). In fact, employers were clamoring for people who could participate as members of the team (Hull, 1999; Yang, 1994), yet also possessed foundational technical-business skills (i.e., computer skills) (P. N. Foster, 1996; McNabb & Mills, 1995).

New Millennium Work-Readiness (2000 – present)

The advent of a new millennium ushered in a new era for vocational education and "the beginning of the next American century" Johnston et al. (1987). Amid widespread reaffirmation that work-readiness training was still needed (K. R. Hughey & Hughey, 1999), three inaugural acts of the period provided both the visionary leadership and the funding for work-readiness training in the new millennium: the America 2000 strategy of 1991, the Goals 2000: Educate America Act of 1994 (P.L. 103-227), and the Perkins Act of 1998.

America 2000 was not another federal legislative effort, it was a long-term strategy driven by six national education goals (Alexander, 1993). The ambitious goals embraced by then President George H.W. Bush and state governors in a 1989 Education Summit in Charlottesville, Virginia, envisioned a nation by the year 2000 where:

- All children in America will start school ready to learn.

- The high school graduation rate will increase to at least 90%.

- American students will leave grades four, eight, and twelve having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.

- U.S. students are first in the world in science and mathematics achievement.

- Every adult American was literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

- Every school in America was free of drugs and violence and will offer a disciplined environment conducive to learning.

By comparison, the Goals 2000: Educate America Act of 1994 (E. F. King, 1994) was a legislative version of the America 2000 strategy that incorporated all its objectives, and even expanded on some goals (A. J. Baker, 1996; E. F. King, 1994; Paris, 1994). In fact, the National Center for Home Education (2002) cites the same 1989 "coalition of state governors" where America 2000 was born as the birthplace for Goals 2000—conveniently omitting the former President's role. Specifically, Goals 2000 envisioned that by the year 2000:

- All children in America will start school ready to learn (America 2000 #1).

- The high school graduation rate will increase to at least 90% (America 2000 #2).

- All students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, the arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so

they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy (expanded from America 2000 #3).

- United States students are first in the world in mathematics and science achievement (America 2000 #4).

- Every adult American was literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship (America 2000 #5).

- Every school in the United States was free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning (expanded from America 2000 #6).

- The nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.

- Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.

Congress withdrew authorization of Goals 2000 with the passing of the No Child Left Behind Act of 2002 (National Center for Home Education, 2002) while continuing to promote education reform for current students, tomorrow's students, and everyone else who was already out of school (Bush, 1991). In context, Presidents G.H.W. Bush, Clinton, and G.W. Bush all hoped to close America's skill-and-knowledge gap (Alexander, 1993). In the President George W. Bush's own words:

Think about every problem, every challenge we face. The solution to each starts

with education. For the sake of the future, of our children and of the nation's, we

must transform America's schools. The days of the status quo are over (Bush,

1991, p. 6).

Unfortunately, in that same speech, the President also said, "We've made a good beginning by

setting the nation's sights on six ambitious national goals" (p. 8). It was an unfortunate remark

because "a beginning" was about as much progress as both America 2000 and Goals 2000 had on

education. Two decades after the fact, only one of those goals was even partially achieved, the

third goal regarding a demonstrated competency in English, mathematics, science, history, and

geography. It was fulfilled by The No Child Left Behind Act of 2002, albeit not by the year

2000.

The third visionary act of the New Millennium work-readiness training occurred in the

passing of the Carl D. Perkins Vocational and Technical Education Act of 1998 (Pub. L. 105-

332), also known as Perkins III (Meeder, 2008). The Act sought to improve work-readiness of

American secondary and post-secondary graduates but with a greater emphasis on work-bound

youth—particularly those who required less than a baccalaureate education. The Act also urged

for a change in the way stakeholders prepared youth and adults to function in a global economy

(Castro, 2008; Meeder, 2008). Summarizing the purpose of Perkins III, Murphy (1998) wrote:

Students need to acquire interpersonal skills, including the ability to work as a

member of a team, to teach others, and to work well with people from diverse

cultural backgrounds as well as with those with viewpoints different from their

own. Only when we help our students learn these skills are we truly preparing

them to be competitive in the global work place of the 21st century (Abstract).

Three additional pieces of legislation impacting student work-readiness training during the new millennium was (a) the extremely controversial No Child Left Behind Act of 2002 (Pub.L 107-110), (b) the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (Pub.L. 110-69), and (c) the American Reinvestment and Recovery Act of 2009 (Pub.L. 111-5).

The No Child Left Behind Act (NCLB) mandated new accountability standards for student achievement and provided penalties for schools that did not make yearly progress in meeting those standards (Alexander, 1993; Castro, 2008; L. King, 2008; Marshak, 2003; McDonnell, 2005; *No Child Left Behind Act of 2001*, 2002; Sunderman & Kim, 2007). Almost immediately, the Act proved to be so controversial that substantial changes were expected to follow the election of President Barack Obama in 2008. With the nation focused on two ongoing wars, however, and a global preoccupation with economic unrest, those changes have yet to be realized (Castro, 2008).

Congress passed the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (P.L. 110-69) in August 2007. Known as the America COMPETES Act, it was passed in response to concerns about U.S. competitiveness abroad, significantly provided for student work-readiness training and research in the STEM career clusters (i.e., Science, Technology, Engineering, and Mathematics), and enhanced America's potential to be intellectually more competitive in the future (Stine, 2009).

More recent, the American Reinvestment and Recovery Act of 2009 (ARRA) provided nearly $45 Billion to local school districts to prevent teacher layoffs and for school modernization and repair. The Act also provided another $4.35 Billion to induce reform in K-12

education (Castro, 2008). While noteworthy, the effectiveness of that spending has yet to be determined.

SCANS Skills and Competencies

In the midst of the legislative driven back-to-basic reform movement, and as a vital first-step in the New Millennium work-training era, the Secretary's Commission on Achieving Necessary Skills (SCANS) (the inspiration behind this study) was established in February 1990 (SCANS, 1992a). Similar to America 2000, SCANS was not a legislative effort to promote work-readiness training but rather an exploratory means to qualitatively identify the tools students need to be productive workers. SCANS was also President George H. W. Bush's inaugural effort that called upon the nation to set world-class school standards which he insisted "will express what all young Americans must know and be able to do to be prepared for further study and work" (SCANS, 1991b, p. 6).

Former Secretary of Education, Lamar Alexander, charged SCANS to examine the demands of the workplace and determine whether current and future workers possess the skills needed by America's top employers (SCANS, 1991a). In response, six panels were established to examine all manner of jobs from manufacturing to government employment. The Commission spent twelve months conducting in-depth interviews with business owners, public employers, managers, union officials and on the line workers in stores, offices, factories and government offices across the country (William Joseph Wilhelm, 1998). After collecting its data, SCANS reported to the Secretary of Labor and issued an open letter addressed to parents, employers, and educators, with a startling assertion—*more than half of high school graduates leave school without the knowledge or foundation required to find and hold a good job (pp. I, viii).*

In June 1991, the SCANS Commission published "What Work Requires of Schools" (SCANS, 1991a). The report (a) presented the purpose and goals of the commission, (b) defined the focal problem facing American students (i.e., the lack of work-readiness skills and competencies employers and colleges require), (c) presented its own list of three *foundational skills* (basic, thinking, and personal qualities) and five workplace competencies (resources, interpersonal, information, systems, and technology) needed by all entry-level workers and college freshmen. The Commission also developed a list of skills and competencies by analyzing the operation of five industries: manufacturing, health services, retail trade, accommodations and food services, and office services (SCANS, 1991a, 1992b). The five selected industries were not intended to be an exhaustive but rather a representative list. Moreover, basic skills were defined as "the irreducible minimum for anyone who wants to get even a low-skilled job. They will not guarantee a career or access to a college education, but their absence will ensure that the door of opportunity remains closed" (SCANS, 1991a, p. 14), the Commission wrote.

Over the next 2 years, SCANS published four additional reports, each building on the report or reports preceding it. SCANS (1991b), *SCANS Blueprint for Action,* presented its 36-core skills as a guide or *first step* to help educators, parents, students, employers, unions, and others develop a local plan of action to better prepare American students for post-secondary employment or college. The commission's third report, SCANS (1992b), *Skills and Tasks for Jobs,* defined performance standards related to the 36-core skills. The report also reasserted its stunning research conclusion that "more than half of our young people leave school without the basic skills required to find and hold a good job" (p. 17)—an alarm criticized by Hull (1999). He argued that most students who may be considered unskilled are "rarely grounded in observational field research" (p. 381). Notwithstanding that argument, however, Hull did

acknowledge the Commission's information was accurately based on reports, interviews with managers, expert opinions, and frontline workers.

SCANS' final two reports, *Learning a Living: A blueprint for high performance* (1992a) and *Teaching the SCANS Competencies* (1993), refined its foci to educators and employers. SCANS (1992b) targeted educators and employers who may not have realized why change was necessary, and those who could develop a national system of work-readiness assessment. Conversely, SCANS (1993) used six articles to suggest how educators and training practitioners could apply SCANS in classrooms and workplaces by modeling the 10 examples of state and local efforts to strengthen the school/work connection.

In many ways, SCANS was the first example of the United States promoting a "national self-examination about education and training" (SCANS, 1992b, p. 4). Foster (1996) agreed when he observed that the objective of career educators is to answer the question, "What is right and what is wrong with *vocational education* in America today?" (p. 20). Miller (2001) disagreed. While acknowledging that the back-to-back, vocational, career education would provide relevance for students that would "foster in them a desire to achieve greater levels of learning" (n.p.), he feared the result would be a water-downed version of education focused on practical skills to the detriment of a broader academic knowledge. Miller concluded, "The danger of the new education standards is that they may elevate workplace competencies above essential academic knowledge" (n.p.).

Notwithstanding that criticism, President George H. W. Bush exemplified his confidence in the SCANS reports in January 1992 when he introduced the Job Training 2000 initiative to improve the job training system of local Atlanta high school students (SCANS, 1992b). Soon thereafter, the National Council on Education Standards and Testing also endorsed the workplace

competencies defined by SCANS and suggested they be integrated into national standards and assessments of core academic subjects (SCANS, 1992b). Equally important, the American College Testing Corporation (ACT), after a failed effort to create an assessment to measure the skills and competencies defined by SCANS, published the Work Keys Assessment tool which remains moderately popular in many American industries (Foote, 1997).

Early Success of SCANS

Literature reviewed suggests that education administrators, politicians, and business leaders understand the difficulties inherent in implementing new education standards (Pipho, 1996). Nevertheless, the SCANS Commission managed to assemble an impressive resume of accomplishments in the years immediately following its work. A variety of researchers also substantiated the Commission's early success with only minimal opposition (V. Miller, 2001).

Florida educators were among the first to embrace the SCANS message and sought to make education improvement initiatives in response to its reports (Grimes, 1994). Other states, including, Indiana, New York, and Michigan soon followed by trying to clarify the ideas introduced by the SCANS Commission into their states (McNabb & Mills, 1995). Ultimately, they later suggested teaching methods to build high performance workplaces and schools, alternative instructional strategies, and to exemplify the use of the workplace as a learning site.

The SCANS Commission also promoted its own success. In its final report (SCANS, 1993), the Commission presented a plethora of examples within six articles demonstrating how SCANS skills and competencies were being successfully adopted all over the country. The models were exemplars to give education and training practitioners practical suggestions for incorporating SCANS into routine classroom lessons and workplace training opportunities (p. 6).

Less than a year after *Teaching the SCANS Competencies*, additional evidence addressing the seriousness afforded the SCANS's reports surfaced from research conducted by Grimes (1994). She examined three Florida school improvement initiatives in direct response to the SCANS's reports: (a) the Florida Writing Skills Enhancement Program, (b) the Florida Writing Assessment Program, and (c) the Revision of accreditation standards. Ultimately, she concluded that SCANS offers significant hope to reform America's education system. Another study conducted by Wilhelm (1998) made a more extensive effort to validate the conclusions of SCANS utilizing Arizona employers. Employing a modified Delphi inquiry, he collected quantitative and qualitative data in three rounds of questionnaires over a five-month period that surveyed 24 business and non-business employment professionals. That work identified generated performance product ideas that could signal proficiency in each of the SCANS skill and competency. Each performance product was then rated and ranked. Wilhelm also rated the use of traditional proficiency sources (e.g., application forms, transcripts, letters of recommendation, lists of extracurricular activities, resumes) and nontraditional proficiency sources (e.g., written documents, videotaped presentations, electronic media documentation, portfolios, exhibitions). While acknowledging various weaknesses in the SCANS reports, Wilhem wisely observed:

> The SCANS Report identified workplace skills and competencies on a *national*
> level. It did not accomplish this on the local level for each school district in
> America… [and] SCANS did not establish performance assessments to measure
> individual proficiency in the identified skills and competencies (p. 4).

Moving closer to and into the new millennium, Peterson (1999) relied upon qualitative data to identify several applications of SCANS for students working in the hotel industry. The

author found "the appropriateness of having students (interns) apply the SCANS skills within the hotel was evidenced throughout the study" (p. 153). The author also found it was important for students be able to practice and experience the SCANS skills. Similarly, Bidwell (2000) presented SCANS success in the K-12 curriculum of Columbus (Ohio) Public Schools. Their lesson and project plans, loosely organized by grade level, included not only lesson overviews, grade level indications, and background material, but also incorporated and applied SCANS to workplace skills into planning. Moreover, Gfroerer (2000) described the efforts of New Hampshire's educators in developing and implementing a Competency-Based Transcript for secondary education. The instrument was a method of recording the attainment of skills as well as traditional educational learning represented by grades, test scores, and more, and thus providing quantitative and qualitative proof of students' intellectual skills. Among the instruments employed was an assessment model that used portfolios as checklists of skills practiced or attained—which critics such as Miller (2001), who believed a focus on work-readiness skills might lead to the detriment of a broader academic education, appears to have been overlooked.

Finally, Packer and Brainard (2003) presented additional evidence demonstrating the success of SCANS centered on efforts by John Hopkins University to produce a SCANS CD-ROM-based curricula to enhance teachers' abilities to implement SCANS in inner city high schools and community colleges.

The Problem with SCANS

Despite its apparent success, the five SCANS reports were not without their problems or critics. First, as already noted, The SCANS Report identified workplace skills and competencies on a *national* level and not the local level. Thus, it should be understood that the demand for

skills and competencies can vary from locality to locality. Additionally, early critics of SCANS rejected the adoption of the Commission's recommendations on two grounds: (a) the workplace competencies lacked validation, and (b) no usable instrument to assess the skills in workers and students was available—that is, one that assessed more than one skill at a time (ACT, 1995, 2006; Foote, 1997).

Responding to criticisms in validation, a 1995 National Job Analysis Study (NJAS), sponsored by the U.S. Department of Labor, Employment and Training, and the Office of Personnel Management, commissioned the ACT, Inc. to validate the findings of SCANS. Unfortunately, the work was discontinued one year later (ACT, 1995). As planned, Phase I of ACT's two-phase study focused on validating the skills and competencies, and Phase II focused on developing an instrument to assess the skills in workers and students. No definitive conclusions were reached and an instrument was never created with federal funds (Foote, 1997; Holland, 2001; O'Neil, Jr., 1997; O'Neil, Jr. et al., 1992). Notwithstanding ACT's failed effort, other studies were successful in validating the conclusions of SCANS (ACT, 2000; Echternacht & Wen, 1997; Fanno, 1996; Jamieson, Curry, & Martinez, 1999; V. Miller, 2001; O'Neil, Jr., 1997; O'Neil, Jr. et al., 1992; William Joseph Wilhelm, 1998).

More recent critics of SCANS argued that (a) its new definition of education standards places too heavy of an emphasis on the world of work (V. Miller, 2001), and (b) work-readiness training must include real-life/real-world situations (Berns & Erickson, 2001; Gomez & Gomez, 2007; Harrison, 1996; Kendall, 1999)—which Berns and Erickson called contextual teaching and learning (CTL). Miller went on to argue that focusing on practical skills could diminish a broader academic education by elevating workplace competencies above essential academic knowledge. Along those same lines, Wilhelm (1999) noted the emergence of two schools of thought. On one

hand, there were "those who adhere to the 'jobs are changing faster' theory requiring training in the workplace," and on the other hand there were "those who espouse the 'poor graduate skills' theory" advocating education in the schools as a solution (p. 4).

The Unrelenting Need for Work-readiness Training

As demonstrated by the litany of legislative actions, emphases, and/or strategies discussed in this study, the need for work-readiness training has clearly not diminished throughout the history of the United States. A plethora of quantitative and qualitative evidence suggests it has kept pace with advances in technology and economic globalization. Two seminal works summarize that ongoing nature of the problem, Gardner et al. (1983) and SCANS (1991a).

Gardner's group wrote:

Each generation of Americans has outstripped its parents in education, in literacy, and in economic attainment. For the first time in the history of our country, the educational skills of one generation will not surpass, will not equal, will not even approach, those of their parents (p. 12).

SCANS reported:

Literally hundreds of specific recommendations have been put forward by researchers, public leaders, and school officials. Many educators have responded. Most communities in the United States have felt the impact... Yet, despite some promising exceptions, we are unable to demonstrate that things are, on the whole, much better (p. 4).

Quantitative Evidence Advocating Work-Readiness Training

Sum et al. (1987) conducted a study between 1981 to 1985 that found one-fifth (18% - 24%) of the nation's youth, especially among high school dropouts, racial and ethnic minorities, and the economically disadvantaged, suffer from high levels of joblessness. Their findings were even more discouraging for black teenagers whose dropout rate was about twice as bad. As noted earlier, the opportunities were present but youth unemployment continued to climb—and poor work skills were to blame (Sum et al.). Less than a decade later, utilizing the reports issued by the SCANS Commission, President George H. W. Bush reasserted the importance of work-readiness skills which he defined as "what our young people must know and be able to do in order to hold a decent job and earn a decent living" (SCANS, 1991a, p. xii). The President's concerns seem hardly exaggerated. The very report for which he spoke also concluded that "more than half of our young people leave school without the knowledge or foundation required to find and hold a good job" (p. I, viii, xi). This is a tragic reality for a nation that many consider to be the most powerful on Earth.

Lest we forget, my study assumes that work-readiness or college-readiness is the goal for all high school graduates. Supported by Green and Foster (2003), they used data available from the U.S. Department of Education to conclude that a dismal 32% of all public high school graduates leave high school qualified to attend four-year colleges. That means that as much as 68% may be under-qualified. Equally disturbing, only 20% of all black students and 16% of all Hispanic students leave high school *college-ready*. Local to my study, Green and Foster concluded that 68% of high school students in the South were *not minimally ready for college.* Most alarming, given the focus of this study on at-risk Southern high schools with a majority of black students, the authors' findings that "only 9 percent of all college ready graduates are black

and another 9 percent are Hispanic…" is especially noteworthy (p. 1). It should be noted, Green and Foster qualified students as "college ready" if they (a) completed certain courses colleges require, (b) demonstrated basic literacy skills, and (c) they actually graduated.

Achieve (2005) also presented definitive evidence indicating as many as 46% to 49% of recent high school graduates believed there were skill gaps between the education they received in high school and the overall skills, abilities, and work habits expected of them. In high school graduates without a college degree, a majority indicated a gap in at least one crucial subject or skill. College instructors and employers confirmed the assessment. College instructors were especially unsatisfied with the job high schools were doing to prepare students in writing and mathematics. Achieve also concluded that "knowing what they know now about the expectations of college and the work force, a majority of high school graduates would have applied themselves more in high school and chosen to take more difficult classes" (p. 11). Equally poignant, high school graduates, employers, and instructors showed overwhelming support for a broad reform agenda that included measures to raise the expectations for high school students, test them more rigorously, and require students to take more challenging courses.

Additional quantitative evidence supporting the need for work-readiness training emerged from a study by the Massachusetts Elementary and Secondary Education Department and the Higher Education Department (2008). Based on its assumption that participation in remedial college courses indicated a lack of preparation for post-secondary life (an assumption shared by Alexander (1993) and Gardner et al. (1983)), the authors found that 37% of 2005 high school graduates attending college had enrolled in at least one remedial course. The authors also concluded that students who take remedial classes are more likely to drop out of college. Baker (1996) reached similar results. He concluded that 33% of high school graduates did not perceive

their work-readiness development as effective as vocational graduates, particularly in the area of technology skills. More recent studies involving employers have produced far more disturbing news.

Bronson and the Association for Career and Technical Education (2007) surveyed 400 Leading American Corporations and concluded that managers consider 70% of high school graduates they employed lacked professionalism and work ethic skills. Within South Carolina, the Alliance for Excellent Education (2009) concluded that 34% of that state's high school graduates were not prepared for work—resulting not only in a lower earning potential and difficulty in finding stable, well-paying jobs for those graduates, but also imposing an enormous cost to the communities where those graduates lived. Dropouts, the report went on to concluded, will cost state taxpayers almost $7.4 billion in lost wages over their lifetime. Unfortunately, the news may not be much better for students who do graduate. Baker (1996), who's study comprised graduates from three graduating classes in seven school districts from North Central Missouri, concluded that a general education diploma is no longer the ticket to a career that will support a family, but rather a ticket to underemployment (p. 15).

As discussed earlier, long before the advent of A Nation at Risk, SCANS skills, and the No Child Left Behind legislation, tax-supported public education dating back to the early 1900s recognized the need to prepare students for social change (A. J. Baker, 1996). Studies by ACT (1995), Foster (1996), and Bartlett et al. (1998) reached similar conclusions. Nevertheless, ACT's study, sponsored by the U.S. Department of Labor and Training, and the Officer of Personnel Management, found "this [skills] gap has continued to widen, impeding the attainment of meaningful employment for workers and hindering the success and expansion of business" (p. 5). Foster added that vocational training had long served to either train students for general

employment, or train students for employment in a specific trade—a purpose strongly affirmed by Bartlett et al. who wrote, "Industry believes that the schools should serve as their companies training institution" (p. 10). Other scholars agreed with qualitative data in hand.

Qualitative Evidence Advocating Work-Readiness Training

In addition to the aforementioned quantitative evidence, Gardner et al. (1983) is one of many researchers who offered qualitative indicators attesting to the ongoing need for work-readiness training. Those researchers concluded:

1. The amount of homework for high school seniors has decreased (two-thirds reported less than 1 hour a night) and grades have risen as average student achievement has declined.

2. Many 17-year-olds do not possess the "higher order" intellectual skills we should expect of them. Nearly 40% cannot draw inferences from written material; only one-fifth can write a persuasive essay; and only one-third can solve a mathematics problem requiring several steps.

3. In 13 States, 50% or more of the units required for high school graduation may be electives chosen by the student. As a result, many students opt for less demanding personal service courses, such as bachelor living.

4. "Minimum competency" examinations (now required in 37 States) fall short of what is needed, as the "minimum" tends to become the "maximum," thus lowering educational standards for all.

5. One-fifth of all 4-year public colleges in the United States must accept every high school graduate within the State regardless of the courses taken or grades earned, thereby serving notice to high school students that they can expect to attend college

even if they do not follow a demanding course of study in high school or perform well.

6. About 23% of our more selective colleges and universities reported that their general level of selectivity declined during the 1970s, and 29% reported reducing the number of specific high school courses required for admission (usually by dropping foreign language requirements).

7. Foreign language proficiency is now specified as a condition for admission by only one-fifth of U.S. institutions of higher education.

8. Expenditures for textbooks and other instructional materials have declined from the recommend level of 5% to 10% of the operating costs of schools; the budgets for basal texts and related materials are only 0.7% of operating costs.

Slightly more than a decade later, Barnes (1998) continued to highlight the escalating need for our nation's graduates to be better trained. He observed that America's shift from a manufacturing to a service economy has resulted in a decline in high paying but unskilled jobs. That fact is especially alarming when one understands how much America's economic future depends on high-performance work organizations with a highly competitive workforce. Hull (1999) provided an excellent example of that need. Her qualitative work examined weakness in workers occupational literacy skills in a prominent Silicon Valley electronics factory, where the failure of workers to read or follow instructions "narrowly avoided a production mistake that would have had serious repercussions for an important customer" (p. 380). The SCANS Commission had reached similar conclusions years earlier. They insisted "America must take a good look at its job requirements and make them a priority in the nation's schools" (SCANS, 1991b, p. 9). In response, American corporations have been imploring schools to better prepare

graduates for the world of work, especially in the essential "soft skills" including core academics, responsibility, self-esteem, and integrity (SCANS, 1991a).

Gardner et al. (1983) was one of the first to report that business and military leaders complained at having to spend millions of dollars on costly remedial education and training programs involving basic skills like reading, writing, spelling, and computation. The Department of the Navy, for example, reported to the Gardner Commission that one-quarter of its recent recruits could not read at the ninth grade level, the minimum needed simply to understand written safety instructions. Without remedial study, those employees could not begin, much less complete, the sophisticated training required by much of the modern military.

Speaking on behalf of America's largest employer, the U.S. Government, a report by the Hudson Institute (Johnston, Paul, Huang, & Packer, 1988), also foresaw a "slowly emerging crisis of competence" (p. 4) regarding future federal workers. Johnston et al. observes that historically the Federal government has been able to hire and retain highly educated, highly skilled workers, but as labor markets became tighter, hiring qualified workers became much more difficult. The report mused, "Unless steps are taken now to address the problem, the average qualifications and competence of many segments of the Federal workforce will deteriorate, perhaps so much to impair the ability of some agencies to function" (p. 4). In context, that warning was dire indeed considering the Federal government has been a leader in employing both women and minorities (p. 7).

Scholars also argued that Federal employers are not the only ones facing that crisis. Eight years after the National Commission on Excellence in Education declared the United States to be a nation at risk (Gardner et al., 1983), Alexander (1993) noted that as many as 50 million adults were either functionally illiterate or needed to update their skills or knowledge (p. 16). Equally

important, the author strongly argued that no uniform standards measured the skills needed, or

learned, that would ensure them to be competent employees. More to the point, Alexander

asserted it was because America's employers were unable to hire enough qualified workers that

many companies were being forced to export skilled work, or abandon projects requiring skilled

workers (p. 15). Johnston et al. (1987) wrote with similar vigor when calling for improvements

in workers' education and skills, which they asserted to be the real wealth of a nation. "The

rebirth of Europe and Japan after World War II," the authors wrote, "demonstrated that the real

wealth of a nation is no longer gold, or resources, but people, the human capital represented by

their knowledge, skills, organizations, and motivations" (p. 142). Believing education and

training remain the primary system by which the human capital of a nation would be preserved

and advanced, Johnston et al. pointed out that "for the first time in history, a majority of all new

jobs will require post-secondary education... even the least skills jobs will require a command of

reading, computing, and thinking that was once necessary only for the professions" (p. 28).

Moreover, those authors concluded with their own vision of a future where education has solved

problems and restored American greatness:

> If every child who reaches the age of seventeen between now and the year 2000
>
> could read sophisticated materials, write clearly, speak articulately, and solve
>
> complex problems requiring algebra and statistics, the American economy could
>
> easily approach or exceed the 4 percent growth of the boom scenario.
>
> Unconstrained by shortages of competent, well-educated workers, American
>
> industry would be able to expand and develop as rapidly as world markets would
>
> allow. Boosted by the productivity of well-qualified workforce, U.S.-based
>
> companies would reassert historic American leadership in old and new industries,

and American workers would enjoy the rising standards of living they enjoyed in

the 1950s and 1960s (p. 142).

Critics of work-readiness training are relatively few. Hull (1999) believed that federally

sponsored reports may have complicated the notion of skills-poor workers. Hull concedes that

while those reports are based on factual interviews, expert opinions, and frontline workers, he

rejected the notion that so many workers are unskilled simply because the reports were "rarely

grounded in observational field research" (p. 381). Additionally, Miller (2001) argued that a

focus on work-readiness training placed too much relevance on the world of work to the

detriment of broader academic knowledge. America's competitors, represented by leaders and

scholars from around the world, however, continued to embrace the need for work-readiness

training.

International Agreement Regarding the Need for Work-Readiness Training

One potentially motivating finding revealed during this review arose from a series of

works emerging from researchers outside the United States; scholarship which revealed an

international consensus for improving work-readiness training at the secondary school level.

Educators in Australia (Schneeberger, 2006), Greece (Kedraka, 2010), Germany (Hennemann &

Liefner, 2010), as well as the former West Germany, Japan, France, Korea, Singapore, and

Sweden (SCANS, 1992b) realized the need for smarter and better skilled high-school graduates.

Those facts should be motivating to American students given the urgency this places on

their future. Simply said, American high school graduates are competing for jobs with applicants

from all over the world (SCANS, 1992b). In reality, however, the greatest threat facing

American high school graduates rests not in their lack of sufficient work-readiness skills, but

rather the *perception* that international workers are better training and highly skilled. SCANS

(1992b) reported that students must now compete in a "world where routine production and services are up for grabs globally and hundreds of millions of workers overseas are happy to work for less than American workers" (p. 30). Specifically:

> About two-thirds of the employed workers in the former West Germany have completed an apprenticeship program, while the Japanese integrate on-the-job training with day-to-day operations. French, Korean, Singaporean, and Swedish workers benefit from programs unavailable here (p. 33).

By contrast, the 31 representatives from the nation's schools, businesses, unions and government representing the SCANS Commission believed:

> In the United States, the transition from school to work is hit-or-miss, and most work-based training is provided to managers and executives. Less than 10 percent of front-line workers now receive training of any kind (SCANS, 1992a, p. 32).

SCANS (1992b) went on to report, "American companies do much less training than some of our international competitors; in fact, fewer than 10% of front-line American workers now receive training of any kind" (p. 15). The Commission further explained that about two-thirds of former West German workers have completed an apprenticeship program, and the Japanese are renowned for integrating *on-the-job training* with day-to-day operations. French, Korean, Singaporean, and Swedish workers benefit from programs unavailable here (SCANS). Schneeberger (2006) made parallel observations that in other developed countries (a) most recognize the need for well-trained, highly skilled graduates of high school level education, and (b) the highly skilled students of those countries have a lot of opportunities.

The National Commission on Excellence in Education (Gardner et al., 1983) conducted a detailed examination of international work-training and presented more than a dozen indicators

of how other developed countries are training their students—a full 7 years before the first

SCANS report. Among the findings:

- International comparisons of student achievement reveal that on 19 academic tests
American students were never first or second and, in comparison with other
industrialized nations, were last seven times.

- In many other industrialized nations, courses in mathematics (other than arithmetic
or general mathematics), biology, chemistry, physics, and geography start in grade 6
and are required of all students. The time spent on those subjects, based on class
hours, is about three times that spent by even the most science-oriented U.S. student
(i.e., those who complete 4 years of science and mathematics in secondary school).

- Average achievement of high school students on most standardized tests is now
lower than when Sputnik was launched.

- About 13% of all 17-year-olds in the United States can be considered functionally
illiterate. Functional illiteracy among minority youth may run as high as 40%.

- Over half of all gifted and talented students do not match their tested ability with
comparable achievement in school.

- The College Board's Scholastic Aptitude Tests (SAT) reveal consistent declines in
recent years in such subjects as physics and English.

- Both the number and proportion of students demonstrating superior achievement on
the SATs have also dramatically declined.

The international community also recognized that the skills gap was not limited to

students at the secondary level (McNamara, 2009) but college graduates as well (Hennemann &

Liefner, 2010; Jackson, 2010). In fact, Jackson observed that internationally the trend was to hold higher education institutions responsible for the skill gap instead of tertiary schools.

Notwithstanding its apparent shortcomings in work-readiness training, the United States is apparently having some influence on international work-readiness. Opportunity 2000, for example, was adopted as a business-led initiative in Great Britain and renamed "Opportunity Now." Its aim was to improve the quality and quantity of women's participation in the workforce. Organizations from the public and private sectors adopted Opportunity 2000 by making a public commitment to the aims of the initiative, which also meant each member organization would set its own objectives and monitor progress towards their objectives (Heery & Salmon, 2000).

More recently, a study by the University of Central Florida, focusing on poor adolescent literacy skills, affirmed the conclusions of SCANS (Ehren & Murza, 2010). They concluded that, "Today, adolescents must engage in high literacy to achieve in the competitive, 21st century, global marketplace" (Abstract). Similarly, a study by Boykin, Dougherty, and Lummus-Robinson (2010) noted two issues which have hindered student readiness to be academically prepared for career and college immediately following high school graduation: (a) traditional vocational education programs, and (b) the relevance of an academically rigorous curriculum. Regarding the former, Boykin et al. wrote, "Career-bound students were directed into curricular programs with fewer academic demands that did not prepare them well for postsecondary training or their chosen career path" (n.p.). The authors also recognized that high school students often lack concrete connections between what they learned in high school to real-world needs.

Given the foregoing facts, the continued need for work-readiness training is validated by qualitative evidence, quantitative evidence, and various international sources. Supporting this

conclusion, Robelen (2010) reported that while career and college readiness is catching on in many states, only half have adopted high school standards emphasizing readiness for college and work. Both the National Commission on Excellence in Education (Gardner et al., 1983) and the SCANS Commission (SCANS, 1992b) challenged American students to realize that Europe's united currency, its expanding market, along with other newly industrialized Asian nations, was motivating the U.S.'s international competitors to maintain a highly skilled workforce that will guarantee the hiring success of its graduates as employees within American companies. Ultimately, the NCEE Commission concluded that the American education system was "being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people" (p. 9). The NCEE also observed that knowledge, learning, information, and skilled intelligence are the world's new raw materials, and are being traded as surely as miracle drugs, synthetic fertilizers, and blue jeans did earlier (p. 10).

Reasons behind the Decline

How did things become so bad? The following will review a variety of sources, organized into four classifications: (a) forgetting our history, (b) global changes, (c) slow-to-change schools, and (d) student behavioral changes.

Forgetting Our History

Foster (1996) strongly asserted that one of the problems with the American education system is its failure to learn from its past. McNamara (2009) agreed when he suggested the American education system stop being reactionary and start being proactive. Foster correctly observed that criticism of education in 1912, in relation to the lack of vocational education, reads much like the criticism of the 1970s with its lack of career education, and now appears to resemble the criticism of the 2000s in relation to the absence of prepared workers. Leaning on

that history, Foster mused: "If the past is any indication, when the next backlash comes—and it may come as soon as the next presidential election—much of what was gained was lost" (p. 22). Later still, he somberly reflected how the problem has yet to be corrected, or in many cases, even addressed (p. 24).

Foster's (1996) and McNamara's (2009) objectives were interrelated, to examine past educational trends so it could inform action in the present and future, and teach students transferable skills; a view first exposed by SCANS (1991a) which wrote:

A strong back, the willingness to work, and a high school diploma were once all

that was needed to make a start in America. They are no longer. A well-developed

mind, a passion to learn, and the ability to put knowledge to work are the new

keys to the future of our young people, the success of businesses, and the

economic wellbeing of the nation" (p. 1).

SCANS's historical summary was also critical of former education policy makers who appeared unable or unwilling to learn from the past. The Commission insisted:

Literally hundreds of specific recommendations have been put forward by

researchers, public leaders, opinion modern, and school officials. Many educators

have responded. Most communities in the United States have felt the impact...

Yet, despite some promising exceptions, we are unable to demonstrate that things

are, on the whole, much better (SCANS, 1991a, p. 4).

Global Changes

Another widely held explanation for declining levels in graduates' work-skills has been tied to changes in global trade, technology, and even the world-of-work. For example, America's shift from an agricultural to an industrial based economy, and from an industrial based economy

to a technological base (Johnston et al., 1987) has been considered a pivotal factor in the need for a better educated and more skilled workforce (Achieve, 2005; Berns & Erickson, 2001; McNamara, 2009; SCANS, 1991a; Wilhelm et al., 2002)—albeit not the only reason. Literature also supports (a) changes in the number of immigrant workers (William Joseph Wilhelm, 1998), (b) advances in science, engineering, and technology (ACT, 1995; Echternacht & Wen, 1997; P. N. Foster, 1996), and (c) an expanding global market-place (A. F. Peterson, 1999; SCANS, 1991a)—especially changes in the international dependency on oil and computers, and changes in managerial focus (Gardner et al., 1983; O'Neil, Jr. et al., 1992; SCANS, 1991a). Most recently, escalations in the war on terrorism have also created a need for better-prepared workers who can operate and maintain high-tech surveillance equipment as well as create new equipment in response to new threats (Henry, 2002; Keim, Pesik, & Twum-Danso, 2003).

Slow-to-Change Schools

Criticism of the American school system was considered a leading cause in poor student work-readiness. "The world has changed. Work is changing. But despite their best efforts, most schools have not changed fast enough or moved far enough" (SCANS, 1991a, p. 4), lamented the SCANS Commission.

Pointing to the need for schools to do more, Bell (1993) assailed reforms that affect only six hours of children's daily lives while ignoring the other 18 hours of a student's day. He urged parents to be more involved in their child's learning, and urged schools to begin skills training at an earlier age. "Schools must reach out to parents and child-care workers to help them become skilled in incidental teaching. Early learning in homes and in child-care centers was crucial to school reform initiatives in the future" (n.p.), wrote Bell.

It has been already mentioned that the NCEE forcefully suggested that the American education system was being eroded by a lack of progress (Gardner et al., 1983, p. 9). In fact, the Commission presented more than a dozen indicators of how schools have failed to change. Lingg (1996), commenting on performance disparities between minority and white students, similarly noted that schools have generally failed African American students.

Others scholars have also pointed out the failure of schools to (a) address both the cognitive and dispositional dimensions of critical thinking, (b) promote skills and attributes of effective problem solvers (Papadopoulos, 2010), (c) move away from traditional classrooms (A. F. Peterson, 1999), (d) include more school-based learning, work-based learning, and connection activities including job shadowing (Junior Achievement, 2010; A. F. Peterson, 1999; Sum et al., 1987), (e) improve communication between schools and industry (ACT, 2007; SCANS, 1991a), and (f) promote career planning for students (ACT, 2007; P. N. Foster, 1996; Lane, 2000; Lingg, 1996).

Wilhelm (1998), however, made an excellent point that schools may not be primarily to blame for the failure to change. His research with the National Assessment of Educational Progress (NAEP) revealed that academic performance in the United States has not declined since 1969 but has rather increased (p. 5).

Student Behavioral Changes

Scholarship is widespread regarding the possibility that students are partially, if not primarily, to blame for the decline in their own work-readiness. Associated factors include poor motivation—most especially when learning abstract concepts (Bear, 1998; Lane, 2000; Papadopoulos, 2010), disinterest in reading that resulted in below grade reading levels (Hull, 1999), and a widespread belief that students' basic necessities were unfulfilled—including a

motivation to work, self-awareness, effective communication, and a positive sense of the future (Papadopoulos, 2010). The most recurring explanation for the decline in graduates' work-skills, however, rests in disruptive classroom behavior. Specifically, Bear presents convincing evidence claiming a "lack of discipline was cited as the second greatest problem facing our public schools" (p. 17). Years earlier, the NCEE Commission reached a similar conclusion (Gardner et al., 1983).

Scholars draw a fine line of distinction between the discipline problems which have plagued teachers for centuries (e.g., teasing, talking without permission, and getting out of one's seat) and the more serious disruptive behaviors reflecting many of society's burdens: drug abuse, violence/fighting/gang-problems, vandalism, and even arson (Bear, 1998). Problems that Bear believed were "practically unheard of at the turn of the century" (p. 17) are now considered the first and third greatest problems facing America's public schools today; a lack of discipline was cited as the second greatest problem facing our public schools (Elan et al., 1996).

Cameron's (1998) study pointed out that the problem of disruptive behavior in schools has recently resurfaced as a major social and political issue. In response, a number of government initiatives have emerged to help school administrators and teachers work to manage unwanted activities and promote positive pupil behavior. Cameron wrote, "Seriously disruptive behavior is now viewed by the media and the public as a phenomenon which is increasing in frequency and severity, and occurring at a much earlier age in children" (p. 43). In agreement, Casey et al. simply states, "No one can teach, and no one can learn, when everyone's day is disrupted" (2008, p. 594). Critical of administrators for their inaction, the NCEE Commission much earlier insisted that schools should at least consider "alternative classrooms, programs, and

schools to meet the needs of continually disruptive students" (Gardner et al., 1983, pp. 29–30); hereto acknowledging that a long recognized problem leaves much work yet to be done.

Scholars also insist that students are not alone in their culpability. Parents are no longer teaching (i.e., modeling and reinforcing) proper behavior, what many call the "habits of virtue," once directly taught at home, at church, and in the community (Bear, 1998, p. 15; Snyder, Cramer, Afrank, & Patterson, 2005; Sprague et al., 2001). As noted earlier in this review, Bell (1993) forcefully wrote that no school can fully compensate for the failures in the home (p. 2).

Harsh parental discipline, the lack of parental warmth and support, and exposure to aggressive adult values and behavior, family life stressors, and a lack of cognitive stimulation have replaced positive virtues, assert many scholars (Bear, 1998; Snyder et al., 2005). Sprague et al. (2001) referred to students from that type of environment as "socially maladjusted" (p. 197). Bear also noted that educators, parents, and the public at-large are "not pleased with the way schools handle discipline problems" (p. 16). Bell (1993) earlier wrote, "The cataclysmic change in the quality of students' lives outside of school and the steady erosion of parental support and community interest in education made it almost impossible for schools to succeed" (n.p.). Even new millennium initiatives, including the Individual with Disabilities Education Act and No Child Left Behind Act, recognize the need for safer learning and teaching environments (Casey et al., 2008).

Instruments to Measure Work-readiness

Notwithstanding the SCANS Commission's omission of a usable instrument to assess work-readiness in workers and students (the dependent variable in this study), a litany of instruments have surfaced, or been identified. The following is an overview of those instruments

including qualitative approaches, commercial instruments, non-commercial instruments, and my personal favorite, pre-planning solutions.

Qualitative Approaches

For purposes of this literary review, qualitative approaches to assess student work-readiness involve the use of what Wilhelm (1998) called *performance products* (i.e., documents, reports, student work-products, tests, and more) that educators may use to assess the presence or absence of skills and competencies (ACT, 2000; Barnes, 1998; Ivey, 2002; Madaus & O'Dwyer, 1999; William Joseph Wilhelm, 1998). Wilhelm was an exemplar of that type of assessment. He provided a remarkable list of performance products, most of which were generated by employers representing almost two-dozen industries. The ACT Corporation (ACT, 2000) also included a worthwhile annotated list of sources described throughout its report—arranged by the skill or competency needed to be measured.

While arguably unlimited in number and variety, performance products are highly dependent on the skill(s) being evaluated. Wilhelm's (1998) list included (a) observation of the applicant during a hiring interview, (b) senior year projects, (c) role-playing, (d) standardized testing, (e) letter of recommendation, (f) formal reports attesting competency, (g) evaluation and critique of a speech, (h) the traditional diploma, (i) completion of various classes, and (j) membership in certain high school organizations. Madaus and O'Dwyer (1999) referred to those collections as the "three Ps" (p. 688) of employment evaluation—an acronym for performance, portfolios, and products. Comparing Wilhelm's list with the one presented by Ivey (2002) and one finds the "three P's" are far more inclusive than traditional data sources that include (a) interviews, (b) tests, (c) resumes, (d) background check, (e) the employment application, (f) references, and (g) high school transcripts (p. 133)—although those traditional sources may also

be used (Madaus and O'Dwyer). Most intriguing about Ivey's summary was the association of the SCANS skills and competencies that could be assessed by those traditional sources.

Finally, Barnes (1998) utilized a qualitative approach in-between Wilhelm's (1998) and Ivey's (2002) work. That study was grounded on a triangulation of data collected by analyzing catalogs of studies, course curricula, student work, statistical reports, district profiles, policy statements, accreditation reports, budget statements, town records, and memos.

Commercial Assessments

Most of the commercial work-readiness assessments described in this literary review are instruments long utilized by Human Resources officials in selecting new employees. In fact, many predate the work of SCANS in the 1990's. The report from ACT (2000) provided a noteworthy list of 39 published assessments. Of those, however, only 33 are suitable for high school age students, and of that 33, fewer than two-dozen were able to assess work-readiness in more than eight skills at a time. The assessments include (a) eight of the 10 assessments from Industrial Psychology International, Ltd, (b) the four TABE (Table of Adult Basic Education) assessments by CTB/McGraw-Hill, and when combined into a complete battery, (c) the eight Work Keys® instruments by ACT, Inc.

The assessments from Industrial Psychology International, Ltd (1998-99) are formatted into multiple-choice and written responses—two are computer-adaptive multiple-choice instruments. All of them require between 6 and 12 minutes to complete and are hand scored using a key. The assessments can be grouped or administered individually if needed. Most importantly, with the singular exception of the Fluency model, the instruments have been validated and offer a high degree of reliability (between 0.81 – 0.90). The Fluency instrument

reports a still impressive 0.70-degree of reliability. Formal training is not required to administer the assessments.

The four TABE assessments from CTB/McGraw-Hill (revised 1986) are available as a complete, multiple-choice battery requiring 3-hours to complete. Online versions of the instruments are available and all are either self-graded or graded by test administrators. Validity and reliability reports were not available. Test books costs $1.62 each and answer sheets costs $0.43 each (Sticht, 1990). Formal training is not required to administer the assessments.

The complete battery of Work Keys® instruments from ACT, Inc. featured mostly a paper and pencil format, but some models did utilize an audiotape format (i.e., for writing, listening, and observation skills) or VHS/DVD format (i.e., for teamwork skills). Each instrument requires 45 minutes to complete. The math version required a calculator. Validity is assured using content validation and the instruments offer a high degree of reliability (between 0.72 – 0.89). Unlike other assessments, these offer the convenience of scanable answer sheets. Formal training is not required to administer the assessments. Test booklets cost $17 to $21 each, including scoring (ACT, 2010).

Finally, anyone with at least one hundred dollars might consider the one volume work by Harold O'Neil (1997). While intended for professionals involved in assessment, evaluation, and measurement of employees, vocational and technical educators, and educational psychologists, it features an impressive list of 16 papers "examining specifications of work force competencies and assessment of competencies" (n.p.). At the very least, it should be consulted when attempting to develop an assessment.

Non-Commercial Assessments

A.J. Baker (1996) designed his own 21-item work-skills assessment survey, using a Likert scale, to measures the participant's perception of how effective his/her secondary education helped them develop various skills. In addition, the Work Ethic Trait Behavior Indicator Inventory developed by Fox and Grams (2007) is another example of a non-commercial instrument; however, Fox and Grams reported it to have serious limitations. Most notably, the 30-item performance-based instrument limits itself to assessing student work ethics. Aside from that obvious weakness, the authors also admit that the survey's reliability is questionable given it can be difficult to instruct and assess work ethics with adolescents, especially those in middle and early high school who typically are not employed.

In strong contrast to the aforementioned instruments, Blaney's (1996) self-designed survey is a simple but effective 37-item assessment measuring the presence of KSAs—Knowledge, Skills, and Assessments. That survey fulfilled two important purposes: (a) it identifies where workers were likely to acquire soft skills (i.e., school, workplace, or other), and (b) it identifies which soft skills workers feel they currently possess. Unfortunately, the instrument is indented for industrial use and Blaney reported that using that tool in an education environment would require significant modification.

Recently, the Career Development Continuum of Kansas Public Schools developed a beautiful self-assessment form utilizing a rubric format (Career Development Continuum of Kansas Public Schools, 2008a, 2008b). Despite its ease of use, the 23-item instrument provided only four assessment scales instead of the five suggested by SCANS (1991a, 1992a, 1992b), and a scoring guide was not readily available. Nevertheless, its online availability and no cost pricing may make it an instrument to be considered in certain situations.

Pre-Planned Assessments

The assessments previously discussed in this review could be correctly described as *snapshots* of student or worker abilities. While beneficial, one would have to utilize several of those to derive a complete picture or a pattern of development. Alternatively, four long-term assessment tools were found which rely on the pre-planning of educators, students, and parents to collect data over multiple years of a graduate's high school career. Lewis (2005) refers to that practice as "credentialing" which would "give students 'something to present to employers that is valid'" (p. 6). O'Neil et al. (1992) provided a good theoretical model to measure work-readiness after a student has identified his/her interest in a chosen profession. Wagner and Moffett (2000) offered a similar, but arguably more holistic, approach. Their training model utilized an assessment, context, and empowerment (ACE) model, which the authors suggested is a framework for designing courses where students and instructors work as partners to develop students' skills.

Two other pre-planning assessments include a very good model from the Wisconsin Department of Education (WDE) (n.d.), and the excellent career assessment instrument in Wonacott (2002). The WDE model is based on a *portfolio-style* program that tracks student growth in soft skills throughout high school. In addition to its proactive, equipping approach, the WDE model greatly benefits from its partnership with the state's Department of Public Instruction, two professional state associations, and at least one technical college. Even more impressive, Wonacott's tool is based on a true career portfolio product that showcases the students' information and documents in one presentable work-product. It would be most helpful for career planning and on-going self-assessment and benefits from an included *career certificate* issued by an educational agency formally attesting to a student's specific skills set. New

Hampshire's educators utilize a similar approach with their Competency-Based Transcript for secondary education, which recorded the attained skills via quantitative and qualitative evidence (Gfroerer, 2000).

Review of Methods

As exemplified during this literature review, a wide range of either qualitative or quantitative methods exists to assess student work-readiness. Simply said, and as discussed in detail in chapter 3, a qualitative approach for this study is believed to be cost and time prohibitive (Creswell, 2007; Janesick, 2004; H. J. Rubin & Rubin, 2005). Similarly, a thorough mixed-methods approach would also be time and cost prohibitive (Creswell, 2009; Mertler, 2008)—possibly more so than a purely qualitative method. As a result, and as discussed in detail in chapter 3, that leaves only a quantitative approach to consider. With that in mind, several quantitative possibilities were considered:

- An individualized, teacher-prepared evaluation of each student that would require teachers to examine student performance records, work-products, and other academic documents such as attendance records, and require a collaborative effort with other teachers across multiple academic disciplines,

- An individualized administrator-prepared evaluation based on completed student transcripts and other available documents that would no doubt reduce the amount of collaboration necessary to evaluate each student, but would still require an enormous expense of time, and might be less reliable if the data sources employed were not standardized,

- A parent-prepared evaluation of student work-readiness that would possibly satisfy the demand to collaborate with others, and would require far less time than an

approach relying solely on teachers or administrators, but would no doubt be highly

biased, a distortion of facts, and possibly be nominally valid depending on which

parent or guardian completed the evaluation, and on the recall ability of the party

completing the evaluation,

- A student self-evaluation relying either on accumulated work-products or the
  student's recall of strengths and weaknesses that would minimize the time necessary
  to complete such an evaluation but might suffer from personal bias, omissions, and
  distortions of facts,

- A combined parent-student evaluations that would potentially reduce the amount of
  time necessary for a teacher or administrator evaluation process but still suffer from
  the possibility of personal bias and/or distortions of truth. Such an approach may
  also suffer a lower participation rate given that parents and students would have to
  schedule time together to complete the evaluation and/or return it when completed.

Given those overarching alternatives, the student self-evaluation option was selected and

used in this study, where no treatment was administered (Creswell, 2009). As a result, a self-

designed survey instrument to evaluate the dependent variable was created (Appendix A). The

instrument minimized personal bias resulting from an intentional or unintentional distortion of

facts by requiring participants to provide specific examples of strong work-readiness skills and

competencies. Equally important, the survey design produced a single numerical description of

student work-readiness that was easily compared with other students, and when averaged,

generalized the sample.

Moreover, use of the one-sample Chi-square test to analyze the data was made by process

of elimination. Simply said, the Chi-square tested the relatedness of the sample. Burns and Grove

(2005) observed, "One assumption of the test is that only one datum entry is made for each subject in the sample" (p. 518).

Summary and Transition

As indicated by this review, America needs well-prepared high school graduates to meet the expanding needs of employers and maintain or advance America's economic prosperity. The review indicated that historically, federal involvement in educational reform to advance student work-readiness skills has experienced limited success possibly due to changes in science, technology, global economic changes, as well as changes in management amid insufficient changes in the operation of schools. Equally important, escalating disciplinary problems in schools have made implementation of needed changes in schools an affirmed social crisis.

Instruments developed for the purpose of measuring student work-readiness are plentiful but are often cost and/or time prohibitive, limited in scope, or simply unknown to front-line educators positioned to identify weaknesses and record acquired skills. It is that failure to recognize the severity of under-prepared students for post-secondary work or study, and the need to improve work-readiness levels in American high school graduates, as well as the urgency in equipping high school educators to identify work skills in current students, which makes this research significant.

In chapter 3, I present a detailed description of the methodology that guided this study, introduce the unique instrument used to collect the data, and identify the population that led to the sample to be studied.

Chapter 3: Research Design

As seen in chapter 1, and discussed in detail in chapter 2, more than 50% of all U.S. high school graduates are considered to be under-prepared for life after high school. For that reason, the intent of this study was to challenge that estimate for graduates of at-risk high schools in Charleston, S.C. It was feared that a higher percentage of those students are under-prepared for entry-level work or post-secondary studies. Previous chapters detailed the research problem, the hypotheses guiding the study, and presented an introduction to the study's population and sample. In this chapter, the research methodology is explained, including: (a) the study's design and rationale, (b) the population and sample, (c) the instrument and materials which were used to collect the quantitative data, and (d) the plan for data collection and analysis.

Research Design

A quantitative self-assessment survey design was chosen for this study based on four factors noted by Creswell (2009). First, a quantitative approach saved time and money. Observing recent graduates in the workplace would be time and cost prohibitive, as would interviewing a statistically significant number of graduates. Second, the quantitative survey design was much preferred over a qualitative examination of documents (e.g., high school grades, high school work-products, MAP tests, HSAP scores, and performance evaluations). In fact, the sheer number of documents that would have been necessary to derive the needed information would have been exhausting. Third, the survey design produced a single numerical estimate of each respondent's work-readiness. The entire sample was then evaluated against the postulated national average. Finally, a survey design was simply called for given that no treatment was administered during the study (Creswell, 2009).

Setting, Population, and Sample

      Setting. As a former teacher in the Charleston County School District, I often witnessed a disturbing pattern in the students under my tutelage; students who were unable to perform basic computer operations, exercised poor written and verbal communication skills, were often under-prepared for class, possessed short attention spans, lacked the ability to function in groups, failed to worked for the scheduled duration, cheated, or sought excessive restroom breaks. So I was alarmed when I read that the United States Government believed more than half of high school graduates are not ready for life after high school (National Academy of Sciences - National Research Council, 1984; SCANS, 1991a). What I thought to be a local problem was actually a national crisis. At the same time, I was also concerned that the percentage of under-prepared local graduates in the at-risk high schools where I served was being underestimated.

      Charleston County School District encompasses eight neighborhood high schools covering four geographic zones: four county-wide magnet high schools (Charleston County School District, 2011) and two charter high schools (South Carolina Department of Education, 2010c). Of those, five neighborhood high schools, one magnet high school, and one charter high school operate under the Title I School Improvement Status (Charleston County School District, 2011).

      At no time did the SCANS reports (1991a, 1991b, 1992a, 1992b, 1993) discuss the classification of schools that were or were not producing under-prepared graduates. Thus, inclusion or exclusion of at-risk magnet and charter schools in this study was questionable. However, in light of the unique focus of the magnet schools, and the experimental nature of the charter high schools, I limited the focus of this study to only at-risk neighborhood high schools. Future work should focus, however, on other neighborhood high schools that are rated higher

than at-risk schools. Thus, of the eight neighborhood high schools in Charleston County, three are currently rated at-risk (South Carolina Department of Education, 2010d, 2010e, 2010f) from which the study's sample was drawn. The three schools are described in more detail in the following section, Population and Sample.

 Population and sample. Participants for this study were drawn from the three at-risk high schools in the Charleston County School District with 2,580 students and approximately 640 seniors annually (National Center for Education Statistics, 2010; SC Department of Education, 2008). More specific, the population consisted of 285 graduates from those three schools who were invited to participate in the study, and the resulting respondents were accepted as the study's sample. Invitations to participate in the survey were mailed to those graduates based on information provided by the Charleston County School District.

Instrumentation and Materials

 Name of the instrument. The Work-Readiness Assessment Instrument (WAI, Appendix A) was used to assess work-readiness in study respondents.

 Type of instrument. The WAI is a 42-item self-assessment survey requiring respondents to rate themselves on 36 SCANS skills or competencies. The instrument employs natural numbers (one to four) representing four work-readiness descriptors ("Not Skilled," "Preparatory," "Work Ready," and "Advanced"). The descriptors were adapted from SCANS (1991a). When returned and scored, the WAI produced a single numerical score denoting whether the respondent was work-ready or not work-ready—which was the focus of this study. The numerical score was encoded 1 if the work-readiness score was 73 or below (indicating a respondent was not work-ready), or encoded 2 if the score was 74 or above (indicating a

respondent was work-ready). The respondents did not score their assessment. In fact, the scoring guide was not included in the packet that was mailed to the graduates.

Indicators used by the instrument. The four work-readiness indicators employed by the survey instrument where adapted from SCANS (1991a).

The indicator "Not Skilled" was not present in SCANS (1991a) given that the Commission's interviews focused on abilities of employees with some level of skill at the time. Similarly, in this study, the WAI was used to assess work-readiness of high school graduates who should also possess some level of work-readiness, but not necessarily in every skill or competency. Therefore, an indicator to represent graduates with no level of preparation or experience in a given skill or competency was considered essential. Moreover, the WAI was initially intended to assess current high school students who were less likely to have been trained in or posses experience in a number of competencies. For example, in the SCANS report, the "preparatory" indicator for "Time management" (a subset of "Resource Management") indicated that an employee could schedule himself or herself (p. xii). In this study, however, it was possible that some high school graduates had never created a schedule for themselves, never scheduled themselves for classes, and so forth. Therefore, it was necessary that the indicator "not skilled" be included in the WAI.

The indicator "Preparatory" is SCANS (1991a) lowest level of work-readiness and the WAI's second level of work-readiness development. It indicates that an individual is "suitable only for unskilled work" (p. 21) or a developmental level of ability.

"Work Ready" is the second level of work-readiness in SCANS (1991a) and the WAI's third indicator. It generally indicates that an individual has the ability to perform at the preparatory level as well as function as part of a team.

SCANS's (1991a) third indicator level, "Intermediate," represents a higher level of work-readiness from the previous level which is suitable when discussing workers who have been employed for some time but have yet to receive certification. But in the interest of simplifying the WAI, and given this study's focus on graduates being prepared or under-prepared, it was omitted in the WAI.

The indicator "Advanced" is both SCANS (1991a) and the WAI's fourth level of work-readiness. It represented the highest level of work-readiness on the WAI and the second highest in SCANS to indicate that an individual can function without direct supervision (p. 21).

SCANS's (1991a) indicator "Specialist" is the highest level of work-readiness. Similar to the Intermediate indicator, it denotes a higher level of performance from the previous level, in this case "suitable for jobs requiring special expertise" (p. 21). This indicator was also omitted as an option in the WAI given the specific focus of this study—that is, to discover the percentage of graduates who are either prepared or under-prepared for life after high school.

Concepts measured by the instrument. Individual work-readiness is measured using 36 skills and competencies identified by and adapted from SCANS (1991a), and grouped into three foundational skills (Basic Skills, Mental Skills, Personal Qualities Skills) and five operational competencies (Data, Resource Management, Interpersonal, Technology, Systems).

Basic skills were divided into five areas of study (B1-B5): reading, writing, arithmetic and mathematics, speaking, and listening. Reading was a measure of one's ability to locate, understand, and interpret written information in prose, documents, manuals, graphs, and schedules to perform tasks, and determine a main idea or an essential message. Writing was a measure of the ability to communicate thoughts, ideas, and messages in writing; compose letters, directions, reports, and proposals; check, edit, and revise for form, grammar, spelling, and

punctuation. Arithmetic or Mathematics was a measure of the ability to approach problems by choosing a mathematical technique, make estimates without a calculator, and use tables, graphs, diagrams, and charts to obtain information. Speaking was a measure of the ability to organize ideas and communicate oral messages appropriate to listeners and situations. Listening was a measure of the ability to receive, interpret, and respond to verbal messages and other cues; to comprehend, critically evaluate, appreciate, or support a speaker.

Mental Skills (called "Thinking Skills" in SCANS, 1991a) are divided into six educational principles (M1-M6): thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning. The set was renamed merely to create a unique one-letter identifier (M) on the WAI. Thinking creatively was a measure of the ability to use one's imagination, or combine ideas and information in new ways. Making decisions was a measure of the ability to specify goals and constraints, generate alternatives, consider risks, and choose the best alternative. Solving problems was a measure of the ability to recognize a discrepancy, identify possible explanations, and devise or implement a plan of action to resolve. *Abstract Thinking* ("Seeing things in the mind's eye" in SCANS) was a measure of the ability to conceptualize. For example, see a building from a blueprint or the flow of work activities from a narrative description. Knowing how to learn was a measure of the ability to recognize personal learning styles, note-taking strategies, and how to overcome assumptions that may lead to faulty conclusions. Reasoning was a measure of the ability to use logic to draw conclusions from available information, extract rules or principles from a set of objects or text, and determine which conclusions are correct.

Personal Qualities Skills are a collection of five learned behaviors (P1-P5): individual responsibility, self-esteem, sociability, self-management, and integrity. Responsibility

("Individual responsibility" in SCANS (1991a)) was a measure of one's ability to exert a high level of effort to attain goals, work hard; maintain a high standard of attendance, vitality, and optimism in approaching and completing tasks. Self-esteem was a measure of the ability to believe in your own self-worth, maintain a positive view of self, skills, and abilities. Sociability was a measure of the ability to be friendly, adaptable, empathic, and polite in new and on-going group settings. Self-management was a measure of the ability to utilize one's own knowledge, skills, and abilities to set well defined and realistic personal goals, monitor progress, and be self-motivated to achieve goals. Integrity/Honesty ("Integrity" in SCANS) was a measure of the ability to be trusted, or understand the impact of violating commonly held personal beliefs or societal values.

Data competencies (called "Information" in SCANS, 1991a, D1-D4) are competencies that include acquiring and evaluating data, organizing and maintaining files, interpreting and communicating information, and using computers to process information. The set was renamed to improve a respondent's understanding of what was being measured. Acquires and Evaluates ("Acquiring and evaluating data" in SCANS) was a measure of the ability to identify the need for and obtain data, or evaluate relevance or accuracy of data. Organizes and maintains ("Organizing and maintaining files" in SCANS) was a measure of the ability to organize, process, and maintain written or computerized records and information. Interprets and communicates ("Interpreting and communicating" in SCANS) was a measure of the ability to select and analyze data; communicate results via oral, written, graphic or multimedia. Using computers to process ("Using computers to process information" in SCANS) was a measure of the ability to employ computers to acquire, organize, analyze, and communicate information.

Resource Management competencies (called "Resource" in SCANS, 1991a, R1-R4) include five areas in SCANS: allocating time, money, materials, space, and staff. Time ("Allocating time" in SCANS) was a measure of the ability to select goal-relevant activities, rank them, and prepare and follow schedules. Money was a measure of the ability to use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives. Material was a measure of the ability to acquire, store, allocate, and use material- or space-efficiently. Space was a measure of the ability to schedule or use space efficiently. Materials and Space were merged into "Material and Facilities" in the WAI in response to feedback received from the validation committee. Human Resource ("Staff" in SCANS) was a measure of the ability to assess skills and distribute work accordingly, evaluate strength and provide feedback.

Interpersonal competencies (I1-I6) include working on teams, teaching others, serving customers, and leading, negotiating, and working well with people from culturally diverse backgrounds. Teamwork ("Working on teams" in SCANS) was a measure of one's ability to participate as a member of a team, or contribute to group effort. Teaching others new skills ("Teaching others" in SCANS) was a measure of the ability to help others learn. Serving customers was a measure of the ability to work to satisfy customer expectations. Exercising Leadership ("Leading" in the SCANS) was a measure of the ability to communicate ideas, persuade and convince; responsibly challenge procedures and policies. Negotiating was a measure of the ability to work toward agreement involving the exchange of resources. Works with Diversity ("Working well with people from culturally diverse backgrounds" in SCANS) was a measure of the ability to work well with men and women from diverse background.

Technology competencies (T1-T3) include selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies. Selecting

Technology ("Selecting equipping and tools" in SCANS) was a measure of the ability to evaluate the ability of technological tools or machines, including computers and programs, to achieve a desired result. Applies Technology to Task ("Applying technology to specific tasks" in SCANS) was a measure of the ability to understand the intent and the procedure for setting up and using technology to complete a task. Maintaining and Troubleshooting ("Maintaining and troubleshooting technologies" in SCANS) was a measure of the ability to prevent, identify, or solve problems in machines, computers, or printers.

Systems competencies (S1-S3) include understanding social, organizational, and technological systems; monitoring and correcting performance, and designing or improving systems. Understanding Systems ("Understanding social, organizational, and technological systems" in SCANS) was a measure of the ability to know how social, organizational, and technological systems work, or operate effectively with available systems. Monitors and Corrects ("Monitoring and correcting performance" in SCANS) was a measure of the ability to distinguish trends, predict impacts on operations, or diagnose deviations in systems, or identify strength and corrects irregularities in systems. Improve or Design Systems ("Designing or improving systems" in SCANS) was a measure of the ability to suggest modifications to existing systems or develop new/alternative systems, or create ways to improve the strength of systems.

The WAI also included four demographic questions to satisfy scientific curiosity, expose correlations in the data collected, and help in evaluating possible solutions to the skills gap problem addressed in this study. The first question, "How well did your public school education prepare you for life after high school?" (Z1) was inspired by the research question in Achieve (2005). It was included in the WAI to measure the respondent's overall perception of their work preparedness using a Likert scale of natural numbers (0-3). The 0 option was included to indicate

if the respondent was dissatisfied with his or her secondary education and did not prepare him or her for post-secondary work or study.

Three questions (Z2-Z4) were included on the WAI in response to the study's three confounding variables (discussed in chapter 1). Question Z2, "What high school program best describes the last 2 years of high school course work?" addressed the level of academic studies the graduate completed (i.e., Tech-prep, College-prep, etc.). Question Z3, "Which of the following student organizations did you participate in during high school? (circle all that apply)" addressed which, if any, Career and Technology organizations (i.e., skills development organizations) the graduate participated. Finally, question Z4, "Which of the following options best describes your work experience?" addressed any work experienced the graduate received during high school. All of those questions employed a Likert scale using natural numbers; 0 options were included on each question except Z2 to indicate the absence of any experience.

Scoring the WAI. Paper surveys were hand scored to calculate the *bias score* (b-score) based solely on the graduate's self-evaluation of his/her work-readiness. Bias-adjustments, Unbiased Scores, and Wr-scores were also hand calculated. On the electronic version of the WAI, the b-score was computer scored but the Wr-score was manually calculated.

The maximum possible work-readiness score (Wr-score) was 144. The lowest possible Wr-score was 0. As justified below, scores in the range of 37-72 indicated the nominal range for high school students in the preparatory stage of learning work-related knowledge and skills. Similarly, scores in the 73-108 indicated a level of Wr-score for graduates seeking entry-level employment or post-secondary education, and scores above 108 indicated advanced level preparation or training.

A score of 0 could only have occurred if the respondent failed to provide ratings to any of the 36 skills or competencies. Had this occurred (and it did not in this study), the survey would have been treated as if the respondent withdrew consent and it would have been excluded from the study.

If a respondent entered ratings of 1 in all of the 36 skills and competencies, indicating a "Not Skilled" readiness evaluation, he or she would have receive a Wr-score of 36—thus indicating the highest range in the "Not Skilled" work-readiness category. Similarly, if a respondent had entered a rating of 2 in all 36 skills and competencies, indicating a "Preparatory" readiness evaluation, he or she would have received a Wr-score of 72—thus indicating the highest range in the "Preparatory" work-readiness category. Since high school graduates are expected to possess course knowledge acquired to earn a state high school diploma, it was reasonable to expect that graduates would possess at least one skill or competency which they could have rated at least Preparatory—and would have resulted in a Wr-score greater than 0. The same could also be said of current high school students, but this was not the focus of this study. Equally important, since the focus of this study was on graduates who had already completed their high school education, it was expected that they would possess at least a Work-ready rating on most of the skills and competencies being surveyed. At the very least, this is what prospective employers and college administrators expect and desire (ACT, 2007).

If a respondent entered a rating of 3 in all of the 36 skills and competencies, indicating a "Work Ready" readiness evaluation, the respondent would receive a Wr-score in the range of 73 to 108. The Wr-score would fall into the lower end of that scale if the respondent failed to provide the necessary proofs as indicated in the survey's instructions; the Wr-score would fall into the higher end of the scale if the respondent provided *valid* proofs for some or all ratings.

Finally, if a respondent entered a rating of 4 in all of the 36 skills and competencies, indicating an "Advanced" readiness evaluation, the respondent would have received a Wr-score ranging from 109 to 144. Again, the Wr-score would fall into the lower end of that scale if the respondent failed to provide the necessary proofs for those ratings requiring such per the survey's instructions, and the Wr-score would have fallen into the higher end of that scale if the respondent provides valid proofs for some or all ratings.

Reliability. To enhance the study's reliability, I imposed a two-point deduction if a respondent failed to provide a suitable example from his or her high school education, life experience, or work experience for any skill or competency rated as "Work Ready" or "Advanced" (i.e., three or four). The deduction was essential given the ease by which respondents could arbitrarily select a higher work-readiness rating without actually possessing that skill or competency. Viewed from another perspective, employers and educators will demand evidence of one's knowledge or experience. The ACT Corporation agrees. They acknowledged that for graduates entering the workplace, required evidence will consist of effective job evaluations, and for graduates entering college, it is measured by entrance testing, continually passing required courses, and persistence to degree attainment (ACT, 2007, p. 1).

Regarding reliability of the WAI instrument, the Alternate Form reliability test (Lutwin, 1995) was used during the study to measure instrument reliability. This was accomplished by dividing the study sample in half and reordering the response set (Fink & Litwin, 2003). According to Fink and Litwin, doing that eliminated the need for the Cronbach's Alpha test or similar reliability measurements. The Alternate Form reliability test was preferred in this study because any interval of time between a pretest and posttest would substantially alter the results by providing the respondent time to acquire additional skills and/or competencies. Moreover,

given that the WAI was not based on observation, the Alternate Form reliability test effectively eliminated the need for an inter-rater test (Lutwin).

Validity. As part of my prescribed doctoral course work, and under the guidance of Walden University faculty, a panel consisting of an equal number of teachers and Human Resource business leaders were used to provide face and content validity to confirm that the survey relates growth in SCANS skills and competencies. The panel did not qualify the study but the survey instrument. The panel examined the instrument and discussed its specific ability to measure employability skills and competencies. The panel universally praised the survey's requirement to justify work-ready and advanced ratings, thus minimizing thoughtless answers. The panel wrestled with the nomenclature used to define the various work-readiness levels, but understood that those descriptors were adopted from SCANS (1991a). There was universal agreement, however, that each indicator should be defined for the students—especially the rating of the "Preparatory." Suggested changes were incorporated into the revised survey instrument found in Appendix A.

Needed to complete the survey. Respondents needed only a pen or pencil, a complete copy of the survey instrument (Appendix A), and between 35 to 50 minutes of time to complete the survey. Alternatively, for those who chose to complete the online version of the instrument, respondents needed access to the Internet and between 35 to 50 minutes of time to complete the survey. The respondent did not need access to textbooks, high school records, or reference materials. In fact, respondent were encouraged to answer the survey as if he or she were completing an employment application. With that in mind, it was necessary for respondents to recall courses taken or life and work experience earned.

Raw data availability. Returned surveys are being kept securely in a locked file drawer within my home for 5 years, at which time they will be properly disposed. Raw data derived from the study is presented in narrative and table form in chapter 4 of this dissertation.

Data Collection Procedures

Schools included in the study were identified in December 2010 following the publication of the 2009 Annual School Report Card, covering the 2009-10 school year (South Carolina Department of Education, 2010c, 2010d, 2010e, 2010f). Later, around September 2011, and following Walden IRB approval, district officials were asked to provide the names and addresses of all 2010-11 high school graduates from the three identified at-risk high schools. Since the participants had already graduated, district permission to conduct the study was not necessary, nor was it necessary to secure signed letters of cooperation.

Also in September 2011, recent graduates were mailed an invitation to participate in the study via the U.S. Postal Service. The invitation packet included a letter of invitation, which also served as informed consent (Appendix C), a copy of the WAI survey *without* the scoring guide (Appendix B), and a self-addressed, stamped envelope that could be used to return the completed survey. The identity of the respondents was completely anonymous; respondent names were not recorded on the survey, and the stamped, self-addressed return envelope contained only my name and address. As discussed under "Reliability," half of the surveys were distributed with a reordered response set (Fink & Litwin, 2003; Lutwin, 1995).

Respondents who failed to participate were not individually reminded because it was impossible to know who returned surveys and who did not—except for those invitations that were returned undeliverable by the United States Postal Service. However, a postcard (Appendix

E) was mailed one month after the initial mailing in an attempt to improve the study's response rate.

Completed paper surveys were returned via the U.S. Postal Service throughout October and into November 2011. Data compiled by surveys completed online was downloaded into a spreadsheet and processed using word processing mail-merge file (Appendix F).

Analysis of data received, and revisions to chapters 1-3, began in November 2011. Subsequently, results were recorded in chapter 4 and a summary of the study's conclusions were recorded in chapter 5.

Data Analysis and Response Rate

Data Analysis

After scoring each survey, results were converted into binary results (1 or 2) and input into The Statistical Packages for Social Sciences (Statistics GradPack 17.0). The data was analyzed using a one-sample Chi-square test and the resultant levels of under-preparedness and preparedness were evaluated against the postulated national average of 51% (SCANS, 1991a) to either reject or fail to reject the study's null hypothesis. The level of significance was set at $\alpha =$ .05 (95% confidence).

Response Bias

The study's survey (Appendix A) was designed to minimize response bias that would occur if a respondent rated himself or herself as "Work-Ready" or "Advanced" in a skill or competency without actually possessing that level of work-readiness. To reduce that type of impact, respondents were required to not only rate their level of accomplishment on a scale 1 through 4 (corresponding to the four possible work-readiness levels discussed earlier) but also

provide a written example to qualify the two highest ratings. In the absence of a valid, recent example the respondent was assessed a two point *bias deduction* from that skill or competency.

As used in this study, *recent* was defined as an example of a skill or competency occurring over the course of an individual's high school studies; *valid* was defined as an example of a skill or competency directly related to that skill or competency. The process was expected to be most helpful for immature or disinterested graduates who may have superficially rated themselves as strong on concepts they had no academic proficiency or work experience. A list of all responses collected during the study is presented in Appendix G.

Ethical Protection of Participants

Extensive measures were in place to protect the rights of all participants in this study, including my certification by the National Institutes of Health (NIH) in a web-based course "Protecting Human Research Participants" (Appendix D). No students of the researcher were included in the study. Prior to the study, Institutional Review Board (IRB) approval was obtained through Walden University (No. 2011.08.31 21:28:12-05'00').

The list of recent graduates received from the Charleston County School District was intentionally restricted to those who had reached the age of majority (age 18 years or older) and who graduated with a state diploma. A letter of informed consent accompanied the initial contact letter and implicit or participatory consent was assumed for all completed and returned surveys. Participatory consent was acceptable for this study given that the participants were state high school graduates in possession of a state high school diploma (Dye, Hendy, Hare, & Burton, 2004).

It is important to note that the study may have included mentally or emotionally-disabled graduates, as well as those who may have been in the midst of a crisis, pregnant, or were

economically disadvantaged. Those protected groups, however, were not recruited. In fact, the blind, random nature of the study made it impossible to know if an individual in those protected groups participated or not.

In all cases, the names of all participants were not collected or published, and the survey instruments are being securely kept for 5 years before being destroyed. Students' names will not be used in subsequent papers or reports, discussions, or during future presentation of the data collected in the study.

It was believed that participation in this study posed no risk or discomfort on the part of any individuals. Participation was absolutely voluntary and no form of compensation was provided. At the same time, the potential benefit to students, faculty, and administration remains noteworthy: (a) an increase in knowledge concerning student work-readiness, and (b) a renewal of the dialogue regarding the need to improve work-readiness levels in high school graduates.

Summary and Transition

This chapter described the study's research design, setting, population, and sample. The chapter also provided an extended discussion regarding the instrumentation and materials used to collect the data, the concepts that the study measured, and described how the surveys were scored and coded. Data collection procedures were discussed and the methods employed to analyze the data was explained. Finally, the steps used to protect the participants included in this study were expounded in detail.

In the final two chapters of this dissertation, chapter 4 presents the alarming findings resulting from this study and chapter 5 elucidates my interpretations and recommendations based on the analysis of the findings.

Chapter 4: Research Findings

This chapter presents the results of the qualitative research study and includes a summary of descriptive statistics, approach to data collection, and an interpretation of reliability and validity results. Along with the research findings, the chapter also addresses the hypotheses introduced in chapter 1 and answers the study's singular research question. The chapter ends with a summary of the overall significant findings of the research.

Several changes were made to the original plan as the study progressed. The most significant was the addition of an online version of the WAI survey instrument (Appendix A). In the early stages of my course work, my initial intent was to survey second semester seniors prior to their graduating. Unfortunately, time constraints made that impossible. As a result, I was approved to survey recent high school graduates with a paper survey that would be returned via a self-addressed, stamped envelope. To help improve the response rate, an online version of the WAI was eventually created using SurveyDaddy.com™ and, as seen in Appendix C, the letter of invitation and informed consent instructed participants to submit either the paper version or the online version– not both.

A second change to the original plan involved the use of a reminder postcard. One month after mailing the initial invitations, and in an additional effort to improve the study's response rate, I employed the services of VistaPrint.com™ to create and mail a reminder postcard (Appendix D). The postcards were mailed to everyone in the original database of graduates, except those for whom the initial letters of invitation had already been returned undeliverable by the U.S. Postal Service.

The final change in the study occurred in scoring the WAI instruments. As seen in Appendix B, the old scoring guide included a column instructing the administrator to divide the

value in Column D in half. Early versions of the WAI required that mathematical division but that step was no longer necessary, so a new scoring guide was created (also found in Appendix B).

Validity and Reliability

Given that I developed the survey instruments used in the study, the instrument was shared with a small group of experts who confirmed both face validity and content validity (Leedy & Ormrod, 2009) of the instrument. The panel was comprised of two high school teachers and two business leaders in the field of human resources. These individuals provided helpful feedback about nomenclature, directions, and response scaling. Further, these experts ensured the WAI was representative of the pertinent constructs.

Despite the fact that surveys were mailed to 285 graduates, only 49 surveys were returned. Of those, 36 were usable surveys (13 invitations were undeliverable) resulting in a 13% response rate. Although that rate is low, researchers acknowledge "there is no agreed-upon standard for a minimum acceptable response rate" (Fowler, 2009, p. 51). Fortunately, the small sample size ($n = 36$) possessed adequate statistical power (Creswell, 2003) to perform the planned Chi-square analysis. Still, I also employed various descriptive statistic tests to improve internal validity.

Research Tools

The primary data collection instrument for the study was a paper version Work-Readiness Assessment Instrument (WAI, Appendix A), which I designed as part of my doctoral course work under the supervision of Walden University instructors. The instrument is described in detail in chapter 3. Summarized, it is a five page 42-item self-assessment, administrator scored, and rating graduates on thirty-six SCANS skills or competencies. The instrument uses natural

numbers to represent four work-readiness descriptors ("Not Skilled," "Preparatory," "Work Ready," and "Advanced") adapted from SCANS (1991a). The instrument produced a Work-readiness score (Wr-score) between 0-144. Scores of 72 and below indicated under-prepared for work or college and were coded 1 for data analysis; scores of 73 and above indicated a level of readiness for work or college and were coded 2. In addition to the paper version of the WAI, I employed a web-based version created using SurveyDaddy.com™ that was URL mapped to www.WAIsurvey.com. Data received online was exported as a Comma Separated Values (CSV) file and formatted using a word processing mail merge application to produce a work-product similar to the paper-version (a sample is provided in Appendix F).

Using contact information provided by Charleston County School District, 285 graduates from the three public, non-charter, at-risk high schools in the school district, with state school identifiers 1001002 ["HS02"], 1001010 ["HS10"], and 1001022 ["HS22"] (South Carolina Department of Education, 2010a), were invited to complete either the paper or electronic survey to estimate his or her level of work-readiness. In addition to the initial letter of invitation (which also served as informed consent) graduates were later mailed a reminder postcard (Appendix E) using the Vistaprint.com™ mailing services to improve the rate of participation. Ultimately, 49 surveys were returned of which 13 were undeliverable, resulting in 36 valid responses. From this sample, 33% of the participants used the paper version of the WAI to record their responses; 67% recorded their evaluation using the on-line version of the instrument.

The same questions were asked on both the paper and online versions of the instrument and both versions of the instrument asked graduates to justify work-readiness ratings of 3 or 4. Given that the participants in this study were adult high school graduates, it was not unreasonable to expect full compliance. It was not surprising that some graduates either did not

justify some ratings or incorrectly justified the skill or competency in question. I was, however, surprised that some of the graduates justified ratings that did not require comment.

Table 1

Justified Ratings by Instrument

Instrument	Ratings Justified	Ratings Requiring Justification	% Compliance
Paper WAI	16	278	5.8%
On-line WAI	210	403	52.4%
Total (*n* = 36)	226	681	33.3%

As shown in Table 1, graduates who used the online version of the WAI were over nine times more likely to comply with the requirement to justify a work-ready rating than those who completed the paper version of the survey. Overall, the graduates justified one-third of the ratings requiring comment. A complete list of justifications provided appears in Appendix G.

Table 2

Disposition of Justifications Provided

	Justifications			
	Not Required	Rejected	Accepted	% Accepted
Paper WAI	0	2	14	87.5%
On-line WAI	12	36	162	81.8%
Total (*n* = 226)	12	38	176	82.2%

As shown in Table 2, respondents provided 226 justifications (Appendix G) of which a dozen were not required (i.e., they were associated with non-work ready ratings). Slightly less than 2:10 (18%) were rejected and more than 8:10 (82%) were accepted. The graduates clearly

preferred the on-line version of the WAI over the paper version. Equally important, not only were the graduates more likely to provide a justification when using the online version, they were likely to provide justifications where none were required.

Research Results

Building from the problem, the purpose of this study was to estimate the work-readiness of 2010-11 high school graduates from at-risk public high schools in Charleston County, South Carolina, and to compare that estimate to the postulated national average of 51% under-preparedness established in SCANS (1991a). The primary objective of this study was to answer one research question: How under-prepared for post-secondary work or study are graduates from at-risk high schools in the Charleston County School District?

With the work-products from the previous section in hand, b-scores and Wr-scores were calculated for each graduate. The b-score represented the graduate's bias self-evaluation of his/her work-readiness. The Wr-score represented the self-evaluation after justifications were evaluated and possibly applying a two point bias deduction if work-ready or advanced work-ready ratings were either not justified or justified incorrectly (discussed in detail in chapter 3). Both b-scores and Wr-scores were manually calculated for data collected via the paper version, and in the early stages of data analysis, both scores were calculated for the web-based work-products, but the mail merge form was eventually modified to automatically calculate b-scores on-line data.

Including b-scores in this discussion was important to improve validity of the study using data collected from the supplemental questions. Wr-scores were compared to question Z1, which asked the graduates to rate their perception of how well their high school education prepared them for life after graduation, with question Z3, which asked the graduates to identify any extra-

curricular student organizations they participated, and with question Z4 related to how much, if any, work related experience the graduate possessed. Those findings are discussed below under the heading Data Analysis.

After scoring, Wr-scores were converted into a binary result for analysis. Scores were coded 1 if they fell into the under-prepared range of 0-73, and coded 2 if the Wr-score was in the work-ready range of 74-144. Finally, the binary results were tallied, entered into the Statistical Packages for Social Sciences (PASW Statistics GradPack 17.0), and analyzed using a one-sample Chi-square test (discussed below under the heading Data Analysis).

The response rate for the survey was lower than desired, a fact beyond my control. Nevertheless, the returned surveys represented 25% of the graduates from HS02, slightly less than 12% from HS10, and 9% of HS22.

Table 3

Population and Sample by High School

High School	Graduates	Responses	% of Total Responses
HS02	52	13	36.1%
HS10	134	16	44.4%
HS22	99	7	19.4%
UND	-13	—	—
Total	272	36	99.9%

Note. UND = returned undeliverable by U.S. Postal Service.

As shown in Table 3, the 36 responses to the survey invitation yielded a 13.2% overall response rate. HS02 provided 36% of the valid responses, HS10 provided 44%, and HS22 provided 19%. The percentages do not equal 100% due to truncation.

Scoring the responses to the WAI consisted of accepting self-ratings of Not Skilled or Preparatory (1 or 2) without question. Self-ratings of Work Ready or Advanced work-ready (3 or 4), however, were evaluated in light of the required, corresponding justification provided by the graduate. Appendix G reports the responses received in relation to the skill or competency being evaluated, my understanding of the justification, and a determination of whether the statement was accepted or rejected. A two point bias deduction in the graduates' self-evaluation was imposed on the skill or competency where the justification was rejected.

As seen in Appendix H, the lowest recorded b-score on the WAI was 72 and the highest was 144. The lowest recorded Wr-score in the study was 36, the highest recorded was 126. Given this study's focus on the latter, 23 individuals produced Wr-scores in the under-prepared range of 0-72, and 13 individuals produced Wr-scores in the prepared range of 73-144. Noteworthy is that the tails of the results were equal: Two high school graduates scored in the range of 0-36, denoting Not Skilled, and two graduates scored in the range of 109-144, denoting Advanced work-readiness.

Table 4

Work-Readiness Scores by Survey Indicator

Indicator	Wr-score Range	Occurrences	% of Responses
Not skilled	0-36	2	5.6%
Preparatory	37-72	21	58.3%
Work ready	73-108	11	30.5%
Advanced	109-144	2	5.6%
Total ($n = 36$)		36	100.0%

As shown in Table 4, 63.9% of the Wr-scores fell into the Not Skilled or Preparatory skilled level and thus indicated that those graduates were not yet work-ready. The surveys in

those ranges were coded 1 for subsequent analysis. Similarly, 36.2% of the adjusted Wr-scores fell into the Work Ready or Advanced level of work-readiness and thus indicated that those graduates were work-ready. The surveys in those ranges were coded 2 for analysis.

Supplemental Questions

The WAI also included four supplemental questions to address the confounding variables identified in the study (chapter 1). The results of those questions are reported here. Responses to the supplemental questions equal one less than the study's sample because one graduate did not provide a response.

Supplemental question Z1 asked graduates to rate "how well did your public school education prepare you for life after high school?" Responses were rated on a scale 0-3.

Table 5

Graduates' Confidence in Their High School Preparation

Indicator	Responses	% of Total
0=It did not prepare me	1	2.9%
1=Somewhat prepared me	20	57.1%
2=Well prepared me	9	25.7%
3=Very well prepared me	5	14.3%
Total ($n = 35$)	35	99.4%

Table 5 summarizes the result of the first supplemental question. More than 6:10 respondents believed high school either did not prepare them or somewhat prepared them for life after high school. Of the remaining, less than 3:10 believed their public school well-prepared them, and just over 1:10 believed high school very well prepared them. The percentages do not equal 100% due to rounding.

Question Z2 asked respondents to classify the last 2 years of their education. Two respondents classified their studies as special education, three rated their studies as honors level, and an even number of respondents classified their studies as tech-prep and college-prep. One respondent did not answer the supplemental questions. Responses were rated on a scale 1-4.

Table 6

Last 2 Years of Graduates' High School Course Work

Rating	Results	% of Responses	Wr-score<73 [a]
1=Special Education	2	5.7%	2 (100%)
2=Tech Prep	15	42.9%	11 (73%)
3=College Prep	15	42.9%	7 (47%)
4=Honors	3	8.6%	1 (33%)
Total	35	100.1%	21

Note. [a] Number of occurrences where Wr-scores were 0-72 and thus labeled "not work ready."

Table 6 suggests that the results of this study were inclusive of all levels of academic study. The overwhelming majority of participants, 86%, participated in either Tech Prep or College Prep classes. Slightly more than 1:20 (6%) took special education courses and about 1:10 (9%) took honor level courses. An equal number of the 8:10 graduates took either Tech Prep or College Prep courses (43% each). The percentages do not equal 100% due to rounding. It is also interesting to note that while both of the Special Education graduates were found to be under-prepared for work/study, one-third of the Honors graduates were also under-prepared.

Question Z3 asked respondents to identify which, if any, extra-curricular student organizations they participated. Surprisingly, the majority of the respondents, 29, indicated that they did not participate in either of the two organizations offered as options; 0 indicated that they were members of DECA, and 1 indicated that he or she was a member of FBLA. No one

indicated that they were members of both DECA and FBLA. One respondent did not answer that question. Responses were rated on a scale 0-2.

In hindsight, including an "Other" option for question Z3 would have been helpful. Moreover, I realized that the scale on the paper version of the WAI differed from the online version. On the paper version, 0 indicated participation in DECA whereas on the online version, 0 represented no participation in any of the organizations listed. Thus, I had to recode the results of the paper version to align them with the more logically arranged online version.

Table 7

Graduates' Participation in Skills Building Organizations

Rating	Results	% of Responses
0=None	29	83%
1=DECA	5	14%
2=FBLA	1	3%
DECA & FBLA	0	0%
Total	35	100%

Table 7 presents inconclusively which of two student organizations the respondents participated during high school. About 1:10 (14%) participated in DECA and about 1:30 (3%) in FBLA. On the other hand, a full 8:10 (83%) did not participate in either of those organizations. No one reported participating in both DECA and FBLA. These results should be approached with caution, however. While scoring the responses I realized that students indicated participation in other organizations not listed on the WAI that could have improved work skills development (e.g., student counsel, and JROTC [Junior Reserve Officer Training Corps]). Moreover, while one-fourth of the responses to this question indicated participation in either

DECA or FBLA, no one mentioned their participation in these organizations when justifying their ratings.

Finally, supplemental question Z4 asked respondents to summarize how much, if any, work related experience they possessed. Responses were rated on a scale 0-4 with 0 indicating no work experience; options 1 and 2 were related to part-time work experience, and options 3 and 4 were related to full-time employment. Surprisingly, four (4) graduates reported having some form of full-time work experience but the majority reported some form of part-time experience.

Table 8

Work Experience by Graduates

Rating	Results	% of Responses
0=None	8	22.9%
1=Less than 1 year PT	14	40.0%
2=More than 1 year PT	9	25.7%
3=Less than 1 year FT	1	2.9%
4=More than 1 year FT	3	8.6%
Total	35	100.1%

Table 8 summarizes the accumulated work experience of the respondents. The minority of the high school graduates, better than 1:10 (12%), recorded having some measure of *full-time* work experience; twice as many, 2:10 (23%), reported having no work experience. Also surprising, almost 7:10 (66%) reported having part-time work experience. The percentages do not equal 100% due to rounding.

Data Analyses

The singular research question of this study, "how under-prepared for post-secondary work or study are graduates from at-risk high schools in the Charleston County School District?"

was easily answered given the results discussed in Table 4. Simply said, the study found that more than 6:10 of the 36 respondents (64%) were found to be under-prepared for entry-level work or collegiate study.

Table 9

Under-Prepared Respondents by Indicator

Indicator	Wr-score Range	Occurrences	% of Responses
Not skilled	0-36	2	5.6%
Preparatory	37-72	21	58.3%
Total ($n = 36$)		23	63.9%

Table 9 illustrates the answer to the study's research question. The data suggests that virtually 64% of the respondents were Not Skilled and just over 58% of the graduates were still in the Preparatory stage of work-readiness training. Overall, the study suggests that almost 64% of the 2010-11 graduates from the three Charleston County at-risk high schools are still under-prepared with the skills and competencies necessary to retain entry-level employment or succeed in the first year of collegiate study.

Hypotheses testing with Chi-square

I employed a single sample Chi-square test to justify rejecting or retaining the null hypothesis. Accepting the null hypothesis would suggest that there was no significant difference between the percentage of under-prepared graduates from the three at-risk Charleston County high schools and the postulated national average of 51% suggested by SCANS (1991a). Alternatively, rejecting the null hypothesis would suggest that a significant difference exists between the percentage level of under-prepared graduates from three at-risk Charleston County high schools and the postulated national average of 51% suggested by SCANS (1991a).

Table 10

Single Sample Chi-squared Analysis

Comparison Code	Occurrences	Expected Frequency	Occurrences Expected
1=Under-prepared	23	51%	18.4
2=Prepared	13	49%	17.6
	36	100%	36.0

Chi-square (χ^2)	2.393
Df	1
Significance	.122

Table 10 summarizes the results of the parametric data analysis. The single sample or one-sided Chi-squared test, $\chi^2(1,36) = 2.393$, $p = .122$, failed to demonstrate a statistically significant difference between the postulated national average reached by SCANS (1991a) and the respondents in this study who returned Wr-scores < 73 on the WAI, as H_0 predicted. Therefore, I retained H_0 (the null hypothesis).

The null hypothesis presupposed an expectation that 51% of the sample (encoded 1) would be under-prepared, and the remaining 49% of the sample (encoded 2) would be work-ready. Given the study's sample size of 36 graduates, just over 18 respondents would have been found to be under-prepared for entry-level work or college, and slightly less than 18 would have been found prepared. Yet as seen in Table 10, the results of this study indicated that 23 respondents were under-prepared and 13 were prepared. The Chi-square test was performed using 1 degree of freedom and an alpha level of 0.05 (95% confidence).

The implication of the Chi-square in this study is profound—if not confounding. While reserving an extended discussion to chapter 5, it should by no means be thought that this is a favorable evaluation for Charleston County Schools—no more than the 51% suggested in

SCANS (1991a) should be considered acceptable. Nevertheless, from a statistical standpoint, and based in large measure on this study's low rate of return (only 36 responses, 13.2%), there is no significant statistical difference between the 51% postulated national average and the 64% suggested by this study.

Descriptive Statistics

Given that the Wr-codes were encoded into binary results (1 or 2), examining its central tendencies offered only marginal insights, but it was ultimately important in better understanding the dispersion of the Wr-scores.

Table 11

Central Tendencies of Coded Wr-Scores

	N	Mean	Median	Mode	*SD*	Min	Max
Coded Wr-scores	36	1.36	1.5	1	0.49	1	2

As illustrated in Table 11, the mean of the 36 encoded Wr-scores show an expected left-of median distribution, as expected given that the mode was one. Similarly, the standard deviation of 0.49 is also unremarkable—denoting that the encoded figures varied very little from the one-half of one point separating the results.

More germane to this report, I found it helpful to examine the central tendencies of the actual Wr-codes to better understand the dispersion of the data collected. Appendix H contains a complete report of the actual Wr-scores.

Table 12

Central Tendencies of Actual Wr-Scores

	N	Mean	Median	SD	Min	Max
Wr-scores	36	70	70.5	21.7	36	126

As seen in Table 12, the mean and median values of the Wr-scores were very similar, 70

and 70.5 respectively, suggesting that the sample generated few extreme results that would have

skewed the results, and indicating that the data are relatively symmetrical. Standard deviation for

the sample was 21.7, and the minimum and maximum Wr-scores were 36 and 126, respectively.

With this information in hand it was possible to create a bounding table from which the data

could be easily visualized.

Table 13

Standard Deviation Bounds Around Mean Wr-Scores

	-3σ	-2σ	-1σ	Mean	$+1\sigma$	$+2\sigma$	$+3\sigma$
σ bounds	4.9	26.6	48.3	70	91.7	113.4	135.1
z-values	-3.00	-2.00	-1.00		1.00	2.00	3.00

Table 13 illustrates the standard deviation bounds around the mean. The resulting

deviation measured the dispersion of the Wr-scores and provided a way to describe where any

given Wr-score was located with respect to the mean. Converting the bounds to *z*-values made it

easier to understand the actual divergence and probability of the Wr-scores recorded during the

study. The larger the *z*-value the less probable the result was due to chance. For example, a Wr-

score of 73 (the minimum score suggesting work-readiness) would generate a *z*-value of 0.138.

The probability of that value occurring in this study would be 44.5%—or about 1:2. On the other

hand, a Wr-score of 144 (the highest possible value on the WAI) would produce a *z*-value of

3.41—well to the right of +3σ. The probability of any graduate generating that score in this study was zero.

More germane to this discussion, a Wr-score of 36 on the WAI (the lowest Wr-score returned in the study, Appendix H) falls between -1σ and -2σ, specifically $z = -1.62$. The probability of that score occurring (and it occurred twice) was 5.2%, or about 1:19. Conversely, the maximum score recorded in this study, 126 (recorded by one graduate) falls between +2σ and +3σ, or $z = 2.59$. The probability of that occurring was an incredible less-than-one-half of 1%, or about 1:208. Clearly this distribution of Wr-scores in this study was positively skewed.

In addition to the aforementioned, I examined the central tendencies and dispersion of the three essential skills and five work competencies and revealed insightful, albeit consistent information with the results already discussed.

Table 14

Readiness Ratings by Skills and Competencies

Skills / Competencies	Average Wr-Score	Standard Deviation	Work-Ready Factor [a]
Basic	11	4.1	2.1
Mental	12	4.9	2.0
Personal	11	4.5	2.3
Data	7	2.4	1.7
Resources Management	7	2.4	1.8
Interpersonal	12	4.6	2.0
Technology	5	1.7	1.7
Systems	5	2.0	1.7
Average Wr-Score	70		1.9

Note: [a] On the WAI survey scale of 1-4, 3.0 or more denotes work-readiness.

As easily seen in Table 14, arguably the most troublesome fact suggested by this study, the typical graduate of the three at-risk high schools was under-prepared in all skills and competencies—including the basic skills of reading, writing, and arithmetic. In fact, only eight of the 36 respondents scored 15 or higher required to produce a work-readiness factor of 3.0 or higher in Basic skills.

Pearson Analyses of Supplemental Data

Driven by scientific curiosity, and in an effort to improve validity of my study, I performed a Pearson's correlation test to determine if any correlation existed between the derived b-scores on the WAI and the response generated by the survey's supplemental questions. All of the supplemental questions were included in the test but I was specifically interested in learning if a correlation existed between the graduate's Wr-score and his/her response to:

1. Question Z1 regarding the graduate's perception of how well high school prepared them.

2. Question Z3 addressing the graduate's level of extra-curricular student organizations from which they may have acquired work skills and competencies.

3. Question Z4 related to the graduate's acquired work experience prior to graduation.

The four continuous variables used in that test were b-score, Z1, Z3, and Z4. The data was entered into Statistics GradPack 17.0 and analyzed using an alpha level of 0.05. The sample size for all the supplemental questions was 35 instead of 36 given that one graduate did not answer those questions.

Table 15

Pearson Correlation Between Wr-Scores and Supplemental Questions

Correlation to question:	Z1 "How well"	Z2 Program	Z3 Student Orgs	Z4 Work
Correlation	-0.166	0.327	-0.246	0.440
Significance [*]	.170	**.027** [**]	.077	**.004** [†]

Note: [*] one-tailed. [**] *p* < .05. [†] *p* < .01.

The correlation test shown in Table 15 proved surprising. Using a one-tail test, a negative correlation existed between the Wr-scores and the Z1 responses and between Wr-scores and the Z3 responses. Correlations are suggested between the Wr-scores and Z2 and Z4 using an alpha of 0.05. The former is true with a better than 97% confidence interval; the latter is true with a better than 99% confidence interval.

Observations Regarding the Findings

According to SCANS (1991a), 51% of all American high school students will graduate *without* the skills and competencies to hold entry-level jobs or succeed during their first year of collegiate study. This study challenged that assertion fearing that the situation had either not changed (Achieve, 2005, 2011; Casner-Lotto & Barrington, 2006; Gomez & Gomez, 2007; Shin, 2005; Wonacott, 2002) or had become worse (Bronson & Association for Career and Technical Education, 2007).

Data suggests that 64% of the graduates in this study were *not* work ready, but this was not significantly different than the 51% postulated national average. Graduates rated themselves prepared in two of the eight skills or competencies categories but failed to provide sufficient justification to support their evaluation—that is, information that might have been used to convince a prospective employer to hire them. Thus, after bias adjustments were applied, the

average graduate was under-prepared in all skills and competencies. The data further suggests that these results were significantly affected by the level of academic study and part-time or full-time work experience (Table 15). It was unclear if participation in extra-curricular organizations, which could have improved work-skills development, was a factor in work-readiness.

Summary of Findings

This chapter reported the findings related to the research question and the hypotheses of this study by summarizing the research tool and data collection techniques used; a presentation, interpretation, and explanation of a Chi-square data analysis, and a descriptive analysis of supplemental questions as well as a discussion of the findings related to the hypothesis. The null hypothesis was retained in the absence of significant difference between the postulated national average of under-prepared high graduates and those scored under-prepared in this study. In chapter 5, I discuss the results, draw conclusions, and offer recommendations for action and further research.

Chapter 5: Conclusions and Recommendations

Literally hundreds of specific recommendations have been put forward by researchers, public leaders, and school officials. Many educators have responded... Yet, despite some promising exceptions, we are unable to demonstrate that things are, on the whole, much better. (Secretary's Commission on Achieving Necessary Skills, 1991a, p. 4)

Overview

The purpose of this quantitative study was to challenge the postulated conclusions of SCANS (1991a) as it related to the South Carolina School District where I have served. Three motivations drove this work: (a) to establish baseline data regarding graduate work-readiness in the selected South Carolina school district, (b) to confirm or deny fears that the conclusion of SCANS was too low, and (c) to promote positive social change by reopening discussion of graduate under-preparedness in hopes of improving the life and future of graduates of at-risk rated high schools in Charleston County.

The study had one research question, "How under-prepared for post-secondary work or study are graduates from at-risk high schools in the Charleston County School District?" To answer that question, a self-designed survey instrument was shared with 285 graduates for the 2010/2011 school year and representing three at-risk rated high schools in the district. The response rate was low, only 13%, but the data is consistent with results discussed during the literary review in chapter 2. Overall, the data indicates that 64% of the graduates are under-prepared for entry-level work or first-year collegiate study. That figure is alarming but the null

hypothesis was retained in the absence of significant statistical difference, $\chi^2(1,36) = 2.393$, $p =$ .122.

The remainder of this chapter provides an interpretation of the findings within the theoretical framework of the literature presented in chapter 2, discusses the implications for social change, describes suggested actions to state and local education leaders, and finally, expounds my recommendations for further study.

Interpretation of Findings

My interpretation of the findings is organized into nine statements: (a) too many of the graduates from the three schools in this study remain under-prepared for work/college, (b) despite the relatively small sample size, my results are consistent with other studies, (c) much is known about the survey participants in the absence of demographic data, (d) the essential skills of reading and writing are clearly lacking, (e) participation in skill building organizations appears low, (f) this is a crisis that threatens to undermine the foundation of our community and nation, (g) responsibility for under-prepared graduates is shared by many, (h) the graduates in this study may be more prepared than indicated, and finally, (i) it is not too late for some graduates.

Too Many Graduates are *STILL* Under-Prepared

This section of my report could have been labeled, "The gap has widened," because the term skills gap refers to the difference between the quantity and quality of a worker's skills and the demands of his or her job requirements (William Joseph Wilhelm, 1998). Sadly, that gap appears to have widened despite more than 20 years of widespread recognition of graduate under-preparedness.

The results of this study, summarized in Table 4 and emphasized in Table 9, suggests that as much as 64% of graduates from three at-risk high schools in South Carolina's second largest

school district possess serious skills gaps. Even worse, the gap exists in not one, not two, but all eight essential skills and competencies (Table 14).

Translated into numerical terms, this study suggests that as many as 177 young-adults with state high school diplomas in hand now face the dead-end jobs and periods of unemployment that SCANS (1991b) warned. That fact alone is terrible, but it is made all the more troublesome when education leaders realize it is likely to happen again in June 2012, June 2013, June 2014… and on and on, until something is done to narrow the gap.

This is baseline data for the district, so there is no way to truly know if this is better or worse for the three high schools represented in this study. Two things are certain. First, my results are not significantly different than the postulated national average of 51% suggested by SCANS (Table 10). Second, the number is too high either way.

For the sake of argument, even if one were to use SCANS suggestion of 51%, we are talking about 141 human beings for whom the Charleston County public education system has failed to prepare for a full, productive, successful life. Moreover, this level of under-preparedness appears to be true regardless of which level of academic studies the graduate participated during their last 2 years of high school (Table 6). In fact, it is interesting to note that the two lowest Wr-scores were returned not from the Special Education graduates but two Tech-prep graduates.

Equally disturbing, the graduates in this study felt under-prepared. As seen in Table 5, a full 60% believed that their high school education either 'did not prepare' them or only 'somewhat prepared' them for life. This is important because, to coin a phrase, "a little confidence goes a long way"—especially when one is trying to find a good job (Heery & Salmon, 2000; Lingg, 1996). Yet the majority of the graduates in this study indicate a lack of that

critical competitive edge. At the same time, I would also suggest that the grads may be trying to fake it. I say that because 9 out of 10 respondents rated themselves better prepared than they could prove (Appendix H). In many cases, the difference between the b-score and the Wr-score was considerable. That fact is particularly heartbreaking given the fact that 82% of the justifications provided by the respondents were accepted (Table 2). So even if the graduate was better prepared than his or her Wr-score indicated, the failure to even attempt to justify the ratings made it impossible to accept their self-evaluation. That was true on the WAI, but more importantly, it is true in life.

Something must be done. As revealed in chapter 2, we live in a world where four of the five fastest-growing and highest-paying jobs require some post-secondary education (Alliance for Excellent Education, 2009). Proficiency with a computer is no longer reserved to professionals (Barnes, 1998), and America's dependence on technology is increasing. In addition to Barnes, Hull (1999) also realized that America's economic future depends on high-performance work organizations with a highly competitive workforce.

Before moving on to my next interpretation, it is important to note that in the context of this study, it is not necessary for a graduate to be "work-ready" in all 36 skills and competencies addressed on the WAI survey. SCANS (1991b) acknowledged this fact when it encouraged communities, schools, and industry leaders to engage in an ongoing dialogue to select which of the 31 *competencies* are most preferred by industries serviced by local schools. That statement correctly presupposes that Basic skills (reading, writing, arithmetic/mathematics, listening, and speaking) are required by everyone. In fact, to achieve the minimum work-ready score on the current WAI, an individual need only achieve a Work-ready evaluation on 25 of the 36 skills and competencies.

That means a graduate could rate less than work-ready in (or a community or industry eliminate the need to assess) any eight competencies and still be employable. For example, the lowest Wr-scores were recorded in System Competencies, Technology Competencies, and Data Competencies (Table 14). All of these could be eliminated from a version of the WAI tailored for Charleston area industries and the results of this study would have remained unchanged. But what is really important is that with the arrival of Boeing Aeronautics into the Charleston area, at least two of those competencies (Systems and Technology) should be included.

My Results are Consistent with Other Recent Works

This study has discussed at length the battery of scholarship suggesting a national decline in work skills among high school graduates. The Chi-square analysis summarized in Table 10 concluded that no significant difference existed between my results and the 51% postulated in SCANS (1991a). Thus, the data from this study is consistent with SCANS conclusions at a 95% level of confidence. The report by SCANS is only one example. The result of this study is also consistent with studies more germane to the Southern United States and to South Carolina.

A study by Green and Foster (2003) concluded that 68% of high schools in the South were not minimally ready for college. Those results are not significantly different, $\chi^2(1,36) = 0.12$, $p = .729$. The same is true of a 2007 study suggesting that under-preparedness among South Carolina graduates could be as high as 70% (Bronson & Association for Career and Technical Education, 2007), $\chi^2(1,36) = 0.38$, $p = .538$). In fact, the data from at least two other sources show similarity (Achieve, 2011; Casner-Lotto & Barrington, 2006). Conclusions reached by older studies were not compared (Foote, 1997; Sum et al., 1987). Moreover, the conclusions reached in a remarkable study by Green & Foster (2003) were not compared given that its focus was on college preparedness.

Table 16

Similarity of the Results in this Study to Select Studies

Study	Geographic Area	% Unprepared	χ^2	p [a]
SCANS (1991a)	U.S.	51%	2.39	.122
Green & Foster (2003)	South	68%	0.12	.729
Achieve (2005)	U.S.	46-49% [b]	3.25	.071
Casner-Lotto (2006)	U.S.	42.4%	**5.96** [c]	**.015**
Bronson & Association (2007)	S.C.	70%	0.38	.538

Notes: [a] p is non-directional. [b] Note: χ^2 calculation is based on 47.5% unprepared. A significant difference was detected when 46% was used, $\chi^2=3.95$ $p = .047$. No significant difference was detected using 49%, $\chi^2=2.63$ $p = .105.$ [c] $p < .05$.

As reflected in Table 16, the 64% under-preparedness indicated by this study is consistent (i.e., no significant difference exists) with all but one recent, regional and national, study. A significant difference was detected between this study and Casner-Lotto & Barrington (2006), which suggests that more than 57% of high school graduates are ready for entry-level work or college. That same study also suggested that high school graduates were *adequate* in applied skills: Information Technology Application, Diversity, and Teamwork/Collaboration. The graduates in this study were under-prepared in both Technology and Interpersonal competencies (Table 14).

Two exceptions to the forgoing observations should be noted. Achieve (2005) presented definitive evidence suggesting that as many as 39% of recent high school graduates believed there were skill gaps between the education they received in high school and the overall skills. Although significant, a perception of gaps does not denote under-preparedness. So those results cannot be compared to this study. Notwithstanding that fact, supplemental question Z1 on the

WAI, addressing the graduate's evaluation of how well high school prepared him or her for life, was motivated by the findings in Achieve (2005). That study suggested that as many as 39% of recent high school graduates believed there were skill gaps between the education they received in high school and their overall skill needs. Admittedly, the question Z1 may not have captured the essence of the former study, but I was nonetheless curious if my results were similar to that study's results. Thus, I grouped the 21 responses indicating that high school either did not "prepare" them or had "somewhat prepared" the graduate to represent Achieve's conclusion, and I grouped the 14 responses indicating high school either "well prepared" or "very well prepared" the graduate to represents the alternate position. I then conducted another single-sample Chi-square analysis with the expected frequencies set to 39% and 61%. The result produced a significant difference between the two samples, $\chi^2(1,35) = 0.5.64$, $p = .0176$. This is interesting but not definitive; the difference may simply mean that the two data sets are improperly matched.

Another exception is found in a study by Casner-Lotto & Barrington (2006). They found that new workforce entrants with only a high school diploma were deficient in the essential basic skills, which "employers expect young people to arrive in the workplace with…" (p. 10). In fact, the study concluded that new employees were deficient in all 10 basic skills. Their list of 10 basic skills included four of the five Basic skills included in the WAI (reading, writing, mathematics, and speaking) as well as science, government/economics, humanities/arts, foreign languages, and history/geography. So, comparing my results was impossible.

Notwithstanding the need for a higher response rate in this study, a side-by-side comparison with studies previously presented in the literature review raises the validity of this work and sounds an alarming gong that a serious problem exists within the at-risk schools in this

school district. The most frightening aspect of all is that the problem is likely not to be isolated to these three at-risk high schools—or to one South Carolina school district.

The Survey Participants are Real People

While this study intentionally omitted demographic information on the graduates (i.e., gender, race, etc.) much was nevertheless learned about the participants, aside from the fact that they were all high school graduates. The justifications provided contained a great deal of information that reminded me that we are talking about real people.

- One graduate had previously attended Charleston's renowned School of the Arts. I could only speculate as to why the participant did not graduate from that school. Did he/she experience a financial setback that impacted transportation, or necessitated a move? Did he/she experience a disciplinary problem? Either way, his/her experience was interesting because it was this individual who returned the highest Wr-score.

- Two graduates participated in dual credit or AP level courses in partnership with a local Technical College. That experience may have contributed to the graduates' higher order thinking skills (Mental competencies on the WAI).

- Three grads benefited from participation in organizations/groups, which may have improved their overall work-readiness. The organizations included student counsel, Destination Imagination, JROTC, and a school newspaper. It is interesting to note that no one mentioned participating in DECA or FBLA, but participation was indicated on a supplemental question.

- Three grads indicated participation in various sports, which may have also contributed to overall work-skills development: football, baseball, and soccer.

- One graduate indicated a work-skills weakness when it was reported that he/she had been in attendance trouble. This relates to the Personal Qualities on the WAI.

- One grad indicated he/she had taken the SAT, which demonstrates preparation for college. Another graduate indicated plans to attend college in the near future. This may or may not relate to specific areas on the WAI, but it was an interesting observation of aspiration.

- One grad indicated having a baby; parental responsibility may be a contributing factor to the development of some Personal Qualities.

- Three grads indicated specific work experience; two had experience in the food service industry (waiter and waitress) and one had experience as a grocer. Those facts relate to several competencies on the WAI (Mental, Personal Qualities, Resource Management, Interpersonal, and possibly Technical and Systems).

- One graduate indicated having a professor, suggesting that he/she was in college. This fact was interesting because, as discussed below, I was concerned that participation in the study by college ready graduates may have been low.

- One grad indicated prior experience in an ELA (English Language Acquisition) course. This suggests that at least one participant was a minority student.

It should also be noted that graduates of the three high schools in this study who went on to attend college may not be properly represented in this study because they may have been away at school. However, one student did indicate having a professor and another indicated plans to attend technical college.

As a final note, it is extremely important to understand that my results do not include students who dropped out of high school and therefore will not meet the minimum requirements for most entry-level jobs (Alliance for Excellent Education, 2009; Sum et al., 1987).

The Essential Skills of Reading and Writing are Clearly Lacking

As noted earlier (Table 14), the best work-readiness scores recorded in this study, Wr = 2.29, were found in Personal Qualities competencies (responsibility, self-esteem, sociability, self-management, and integrity) followed by Wr = 2.12 in Basic skills (reading, writing, arithmetic, listening, and speaking). The good news is that Basic skills ranked in the top two; the bad news, Basic skills is ranked second, and even in second place the rating denotes a gap in preparation.

It is beyond the scope of this study to quantify the respondents' under-preparedness in arithmetic, listening, and speaking. However, it is possible to quantify, to some extent, how poorly the graduates reading and writing skills were represented. First of all, an examination of why justifications provided by the graduates were rejected (Appendix G) illustrates that an almost equal number of responses were rejected because they were either *not specific* (47%) or it was *not related to the definition* provided on the WAI (53%). In addition, some graduates responded with "I don't understand this question," or some variation, on several ratings. Better reading skills could reduce those events and thereby improve Wr-scores. Those same scores would have been improved if the graduates had simply followed instructions and provided some form of justification to ratings of 3 or 4. Aside from the fact that 82% of the justifications provided were accepted (Table 2), failing to fully comply with employer demands, or course requirements, is a prelude for failure in life. The indicator measuring that aspect of work-

readiness was Responsibility, a component of Personal competencies, which graduates achieved the highest Wr-scores, but its average was still below work-ready.

A second means of better understanding poor basic skills by participants can be found in an examination of the actual justification responses provided during the study (Appendix G). It reveals spelling, grammar, or syntax issues in 55% of the responses. No English or Grammar teacher should be satisfied with a less-than-half success rate, yet the respondents in this study hold state high school diplomas. The graduates Wr-scores were not affected by those weaknesses in spelling and grammar, but it supports scholarship suggesting widespread, basic work-readiness deficiencies.

In the 1990s, Echternacht and Wen (1997) encouraged high school business teachers to stress the importance of basic skills because employers expect graduates to arrive to work possessing them. Casner-Lotto and Benner (2006) strongly agreed. They concluded that new employees were deficient in not only reading comprehension (English), grammar, and spelling, but also in writing and verbal communication skills. Ehren and Murza (2010) also recognized poor adolescent literacy skills as a serious impediment to the United States maintaining its position in a competitive, global marketplace.

Politics aside, the importance of reading and writing, mentioned time and time again in my research review, cannot be overstated. I most strongly agree with Gomez and Gomez (2007) who recognized that the simple act of reading is the doorway by which one can not only address one's educational shortcomings but also open the door of opportunity in a high school graduate's life. Despite that truth, the graduates in this study appear to lack that skill.

Participation in Skill Building Organizations Appears Low

Over the course of an individual's high school education, students are exposed to language and grammar, mathematics, science, literature, history, and so much more. These subjects are essential—as is learning to cooperate, punctuality, integrity, and other soft skills not necessarily specified in course titles or standards. That is most especially true in today's ever-changing social and global economic society (Bartlett, 1998; K.R. Hughey & Hughey, 1999; Hymel, et al., 2006).

Professional student organizations such as DECA (an association for Marketing students), FBLA (Future Business Leaders of America), BPA (Business Professionals of America), FCCLA (Family, Career, and Community Leaders of America), HOSA (Health Occupations Students of America), FFA (Future Farmers of America), Skills USA, and TSA (Technology Students of America) add value to a student's education and provide graduate's with much needed, real-world, job skills which set new employees/college freshmen apart. Unfortunately, Table 7 *hints* that 80% of the graduates in this study were not participating in the two most commonly offered student organizations in the high schools included in this study, DECA and FBLA. In fact, both organizations were offered as extra-curricular options for students in all three of the at-risk schools included in this study.

I suggest that the data merely "hints" here because, as mentioned before, other organizations were cited that may have improved work-readiness: student counsel, JROTC, and "Destination Imagination"—an organization previously unknown to this former high school teacher. Two other organizations that may have contributed to work-readiness were the school newspaper and extra-curricular sports. The inclusion of a free-formatted 'Other' option would have made that question much more reliable. However, the fact that no one cited participation in

DECA or FBLA when justifying their rating suggests that even among its members these organizations are not impacting work-readiness.

One highly effective means of improving work-readiness soft skills that was validated by this study was on-the-job training (Castro, 2008). As seen in the correlation analysis between Wr-scores and accumulated work experience of the respondents (Table 15), graduates were far more likely to be work-ready if he/she worked during high school, $r(2,35) = .440$, p = .004. The fact that so many graduates possessed part-time or full-time job experience in high school, 78% according to Table 8, may be a result of the current downtrodden United States economy. Nevertheless, professional student organizations should be a priority to minimize the number of students who have to work and help students/graduates be as prepared as possible so they can be as successful as possible (Hymel et al., 2006).

This is a Community, State, and National Crisis

The issue of under-prepared high school graduates is not merely a local problem but is, in fact, a national crisis which threatens America's global competitiveness (Barnes, 1998; Ehren & Murza, 2010), military readiness (Garner et al., 1983), individual job safety (Garner et al., 1983), agricultural food safety (Hull, 1999); high-tech equipment development and maintenance and public information production and interpretation (Johnston et al., 1988).

Alexander (1993) points out that states are already feeling the impact of the skills gap crisis. As many as 50 million adults were either functionally illiterate or needed to update their skills or knowledge. More to the point, Alexander suggested that under-preparedness results in higher state unemployment rates resulting from the absence of enough qualified workers to supply business needs. Within South Carolina, the Alliance for Excellent Education (2009) concluded that under-preparedness results not only in a lower earning potential and difficulty in

finding stable, well-paying jobs, but imposed an enormous cost to themselves and society at large.

On a slightly positive note, high school level graduate under-preparedness is a problem not limited to the United States. As a recognized international problem (Hennemann & Liefner, 2010; Kedraka, 2010; Schneeberger, 2006; SCANS, 1992a), it can also be an *opportunity* in which American high school graduates can capitalize (Jackson, 2010).

We're All Responsible

Scholarship generally recognizes that someone must eventually stand accountable for the woes of society—including the problem of skills gaps among high school graduates. Scholarship has also generally held teachers responsible for high school grads not being ready for entry-level jobs or college study. It is my opinion that the answer is a bit more complicated: we are responsible and they are responsible.

"We" are responsible. The first-person plural pronoun in this statement refers to anyone in the business of educating K-12 students. That is, those whom business and industry depend upon to prepare students to become productive workers (P. N. Foster, 1996). At the very least, the "we" here includes teachers, administrators, and district officials.

Teachers are responsible because *we* are on the front-line of student preparation (Barnes, 1998; Blozen, 2010; Echternacht & Wen, 1997), *we* are in the best position to motivate our students (Bear, 1998; Lane, 2000; Papadopoulos, 2010), *we* are positioned to model a love for reading and learning (Hull, 1999), and *we* are often the first to recognize the need for basic necessities that include self-awareness, effective communication, and a positive sense of the future in which hard work and determination are rewarded (Papadopoulos, 2010).

Administrators are responsible because *we* hire, evaluate, and ultimately decide whether to retain teachers, and *we* are the chief enforcers of school discipline. Recalling that which was mentioned earlier, disruptive classroom behavior is the most recurring explanation for the decline in graduates' work-skills (Bear, 1998)—not the immature infractions which are to be expected with adolescence (e.g., teasing, talking without permission, and getting out of one's seat) but the disruptive behaviors that were once unheard: drug abuse, violence/fighting/gang-problems, vandalism, and even arson (Bear).

Additionally, district officials are responsible because their customers are the administrators and teachers on the front line. No army in the world can fight for long without support and the same can be said of teachers and administrators. The challenge for district administrators is to inform and empower (Cohn, 2010), and bring career information and advising, high academic standards, career majors, and work-based learning together as a coherent whole to serve the needs of all high school graduates (A. J. Baker, 1996; Barnes, 1998; Bartlett et al., 1998; Berns & Erickson, 2001; Bronson & Association for Career and Technical Education, 2007; S. F. Hamilton et al., 1994; K. R. Hughey & Hughey, 1999; Murphy, 1998)—most especially the graduates represented by this study.

Only time can tell how much could improve if every *"we"* were to accept their responsibility and respond as if every child's education depends solely on us. At the same time, Bell (1993), Wilhelm (1998), and Cameron (1998) recognize that others are responsible too.

"They" are responsible. The third person plural in this statement is a reference to the individuals who are principally responsible for the decline in graduate work-readiness—parents and students.

Teachers, in general, and high school educators, in particular, have long been blamed by education administrators for difficulties not of their making (Bell, 1993). As long ago as 1981, former Secretary of Education Terrel Bell considered America to be a nation at risk not because of a failure of educators but the failure of *parents*. Bell insisted, "No one intended for teachers to receive the blame that was heaped upon them" (p. 2). Equally forceful, Bell also wrote, "The cataclysmic change in the quality of students' lives outside of school and the steady erosion of parental support and community interest in education made it almost impossible for schools to succeed" (n.p.). I strongly agree.

Having raised four children to adulthood while employed in a career which tends to under compensate, I understand the pressures, heartbreaks, and joys faced by parents. Equally important, I practiced corporal punishment with love. Thus, I speak both from experience and from scholarship when I encourage parents to become more responsible for the growth and discipline of their high school students. Harsh parental discipline, the lack of parental warmth and support, and exposure to aggressive adult behavior adversely impact students (Bear, 1998; Snyder et al., 2005). Regrettably, family life stressors, demanding schedules, and a lack of cognitive stimulation have replaced positive virtues. Sprague et al. (2001) referred to students from that type of environment as "socially maladjusted" with good reason. A study by Snyder et al. (2005) suggested that conduct problems at school were predicted by growth in conduct problems at home and by the interaction of ineffective discipline and hostile attribution. That study was isolated to first grade children but the implications for misbehaving high school students is profound.

Educators can and should do what they can for students living in difficult family situations because human decency invites action, but parents themselves must enact corrective

measures if they desire genuine, lasting improvement in their students. Frankly speaking, no school can fully compensate for the failures in the home (Bell, 1993). Moreover, parents must seek out help when help is needed—from literature, clergy, support groups, and professional family counselors. Notwithstanding the culpability of parents, scholarship is widespread regarding the need for students to accept partial, if not primary, responsibility for the decline in their own work-readiness (Cameron, 1998; Casey et al., 2008; Gardner et al., 1983; Snyder et al., 2005; Sprague et al., 2001). Regardless of one's emotional and/or physical circumstances, students must rise above the sum of their circumstances and be better learners so they can become better employees. It can be done, and as much as possible, it begins by students learning to leave their problems at the doors to the schoolhouse.

From the scholarly perspective, seriously disruptive behavior is frequently in the news and appears to be increasing in severity, and at a much earlier age (Cameron, 1998). With some exceptions, students themselves are legally, morally, and emotionally responsible for their behavior. "No one can teach, and no one can learn, when everyone's day is disrupted," writes Cameron (2008, p. 594). This is just as true for major acts of school violence as well as minor classroom infractions. Once again, the solution begins within and in the home. As we have said before, no school can fully compensate for the failures in the home (Bell, 1993).

Graduates May Be More Prepared Than Indicated

Perhaps the most frightening aspect of this study is that it characterizes a group of people who may actually be more work-ready than indicated by their response to the WAI. It is possible that those who participated in the study simply failed to recall some of the training he or she received and successfully completed during high school. With that in mind, and as discussed below, I believe it is imperative that Charleston County Schools adopt some form of academic

credentialing that can remind and encourage graduates when searching for jobs. At the same time, it is ultimately the graduate's responsibility to recall such information, and if available, to use transcripts, portfolios, or career certificates when one is having his or her readiness for work or study challenged. It is not a matter of *if* that will occur in today's highly competitive global economy, but *when* it will occur. The bottom line is simple, self-promotion is sometimes necessary, and completing this study was one of those times.

Finger pointing aside, the fortunate reality is that it is not too late to help some of the graduates represented by this study.

It's Not Too Late

If there is a central theme to this report it is that employers want and need employees who possess basic work skills and necessary competencies (Casner-Lotto & Barrington, 2006; Fanno, 1996; Harrison, 1996; Holland, 2001; Ivey, 2002; Joint Economic Committee, 1989; National Academy of Sciences - National Research Council, 1984; Secretary's Commission on Achieving Necessary Skills, 1991a)—but the majority of high school graduates lack those skills and competencies. What students, teachers, administrators, parents, and graduates should take away from this is that we know what employers want. Moreover, Wr-scores can be improved with additional education, work experience, and maturity. For graduates, vocational training can fill-in the skills gaps. Current students, however, should not wait! They should be encouraged to take advantage of the time they have to learn and experience as much as possible.

Scholars including Bartlett et al. (1998) recognize that "industry believes that the schools should serve as their companies training institution" (p. 10). But in light of the fact that a great many individuals are leaving high school under-prepared for the world which awaits them, responsible parties must carefully consider what can be done for those in the majority.

Vocational institutions may be the best option. These schools have long served to equip students with the knowledge and skills necessary for either general employment or for employment in a specific trade (P. N. Foster, 1996). Friedman (2000) is especially poignant that vocational training can help, especially in educating those who need additional job training and job placement assistance, or who lack the financial or academic requirements for a four-year college. For many, vocational training may be the doorway to learn the necessary transferable skills and competencies (McNamara, 2009) that lead to meaningful, well-paying jobs (Friedman).

For graduates who cannot afford additional education, or who simply don't want more education, some form of part-time or full-time work also offers hope to correct under-preparedness. As seen in Table 15, graduates with either part-time or full-time work experience were significantly more likely to be work-ready, which suggests that finding a job, any job, even if it is part-time position outside one's field of interest, can help prepare one for the future.

Implications for Social Change

It would be a brazen statement indeed if I were to suggest that this study has the potential of improving most of the economic and social problems facing Charleston. However, it is at least possible that it can. In the words of President George W. Bush:

> Think about *every* problem, *every challenge we face.* The solution to each starts
> with education. For the sake of the future, of our children and of the nation's, we
> must transform America's schools. The days of the status quo are over (Bush,
> 1991, p. 6, emphasis added).

The possibilities suggested by the President's remarks are mind boggling—if not politically exaggerated. Nevertheless, it is my intention to make a difference in the lives of young men and

women within Charleston County. Equally important, I feel this study can do that if it is properly disseminated, accepted, and enacted by the right people.

Notwithstanding my dissatisfaction with the response rate of this doctoral-level research study, I am nonetheless confident that the results are socially significant in at least four ways:

- The data adds to the body of knowledge regarding graduate work-readiness and it will better inform local and state education leaders, and local and state political leaders.

- The data establishes a baseline for the three Charleston County Schools and can thus help evaluate current and future district programs.

- The survey instrument used in this study can provide education researchers and classroom educators a cost effective means of assessing all 36 SCANS skills and competencies important to employers from a wide-array of industries.

- The data can help stimulate discussion regarding work-readiness gaps, thus increasing the possibility of finding lasting solutions for this long-standing and very serious issue affecting the lives of hundreds of graduates every year.

The Charleston County School District is not alone when it spends a great deal of time and money to collect data on a wide-range of issues. A cursory examination of the district's web site (www.ccsdschools.com/Reports_Statistics/index.php) reveals data related to assessments, student progress, ESOL, No Child Left Behind, annual school report cards, graduation and dropout rates, and discipline reports. The district also collects data regarding program evaluations including acceleration programs, common assessment programs, child development programs, and teacher surveys. Researchers and education executives can benefit by this baseline of quantitative data regarding the well-established problem of work-skills gaps. The information

can also inspire ongoing, periodic evaluation and review by school administrators, state

education leaders, local political officials, as well as parents, teachers, and students/graduates.

Local political leaders can also benefit from this information as it relates to the

availability (or lack thereof) of a prepared local workforce. A well-trained, skills rich workforce

is important when attracting new business and industry to an area. This particular report raises

concern about the availability of entry-level workers emerging from three at-risk high schools.

Expanding the study to include other high schools, with a larger sampling, could accurately

inform political leaders and decision makers regarding the availability of quality workers. That

knowledge, if the trend is corrected, could potentially create new jobs, lower unemployment

rates in the area, and raise the quality of life for countless individuals and families.

Finally, the WAI survey instrument used in this study (Appendix A) may help education

leaders, teachers, and other researchers by providing a cost-effective means of periodically

assessing student progress toward employment-readiness. The chief weakness of the WAI may

also be its strength—the justifications provided for the two highest work ratings must be

manually read and evaluated, and the Wr-score must be manually calculated. Nevertheless, as

seen from the Interpretation of Findings, much can be learned from those brief justification

comments.

Recommendations for Action

The wisdom of former Secretary of Education Lamar Alexander continues to ring true

after 25 years: we still haven't turned things around in education. It is for this reason that I am

delighted to finally reach the point where I can suggest a few inductive actions for elected and

local education leaders, classroom educators, and parents. I include classroom teachers and

parents because they are on the front-line (so to speak) in the battle to meet the educational needs of our youth.

As the seminal works behind this study, SCANS (1991a) imposed a single, well-defined focus that I pray will become engrained on the minds of my audience: "America must take a good look at its job requirements and make them a priority in the nation's schools" (p. 9). The meaning behind "America" in that statement is important, and it was defined previously in the section "Who's Responsible" (i.e., parents and students, teachers, administrators, and district officials). Indeed, "America" must take this study to heart and act responsibly to close the skills gap in Charleston County and beyond. The following are my humble recommendations.

No New Legislation or National Goals

First of all, I recommend no more legislation or national goals; simply and frankly speaking, they have not resolved the problem. McNamara (2009) carefully described the interwoven relationship between workforce readiness, business and industrial development, and schools. Over the last two decades, however, that relationship became a focus in light of the reality that America's future employees are not prepared to enter demanding workplaces despite a plethora of legislation and celebrated national achievement goals; deficiencies in transferable workplace skills continue to exist. While I applaud the efforts of zealous lawmakers to do what they can, their efforts have fallen short. Something else must be done, and someone else must do it.

Periodically Test Work-Readiness Progress

As noted in chapter 1 and despite years of research addressing the failure of high schools to fully prepare graduates for post-secondary life, Charleston County education administrators have yet to reverse the disturbing trend reported in SCANS (1991a) and similar reports (Achieve,

2005, 2011; Bronson & Association for Career and Technical Education, 2007; Casner-Lotto & Barrington, 2006; Gomez & Gomez, 2007). One reason for this failure is the simple fact that student progress towards work-readiness is not being periodically measured—possibly because a cost effective means has not been available—however the development of the WAI nullifies that possibility.

Simply said, the results expounded in this study highlight a skills gap problem that has existed for at least 20 years. It must be reduced and ultimately corrected, and the only way to ensure that it has is to periodically test future workers.

Discuss the Problem and Enlist Parental Support

The bibliography provided in this study is evidentiary of the deficiencies in transferable workplace skills (McNamara, 2009). They have been discussed and discussed and discussed—but apparently not enough. Otherwise the problem would not continue to exist after more than 20 years. That must change for the sake of the graduates and for the sake of the nation. In the section to follow, I contend that in addition to political leaders, scholars, and business and education leaders, there is an urgent need to draw teachers, students, and graduates into the skills gaps discussion.

Community forums focused on a simple exchange of information related to the skills deficiencies may be the easiest and most profound means of helping to close the gaps. Having talked to countless people about my research, I am convinced that people (especially parents and students) simply need to be informed. Many adults seem to be aware of the skills gap problem but fail to realize how bad the problem has become. Students have not yet made the connection between on-time attendance to class and on-time attendance to work. Parents have not vocalized how responsibility learned by doing one's household chores relates to the responsibility

demanded by employers. Moreover, many parents have yet to understand how most school rules teach and reinforce work-places competencies. Discussing these issues and others may open eyes and unify invested parties to curtail, if not solve, this plaguing problem.

Reinforce the Basics and Test More Rigorously

I want to most strongly reinforce the fact that America's high school graduates need the classical three-R's (i.e., reading, 'riting, and 'rithmetic; (Hymel et al., 2006; T. H. Peterson, 1992). In fact, the need for improvements in reading and writing cannot be overstated—a shortcoming readily apparent from the graduates' responses presented in this study. Equally important, however, those basics must also be augmented with the fourth-R—readiness (National Alliance of Business, 1987). At the very least, readiness means the graduate or student be able to (a) report on time, (b) dress appropriately, (c) work the full time assigned, (d) stay off cell phones, (e) avoid profanity, and (f) treat those in authority with respect. Equally important, students must be tested more rigorously regarding the simple act of following directions. This recommendation must be enacted early in a child's academic development—in middle school at the very least and in elementary school if possible.

Augment Classroom Instruction with Online Learning

In the past two decades, learning activities have morphed from the traditional classroom to online or multimedia presentations. Employers are moving toward such technologies at an accelerating rate because educational technology is finally good enough to reduce training costs while measurably improving its effectiveness. In response, traditional classroom-based instruction must be augmented by technology to provide students with hands-on mastery of basic skills as well as improve their higher-order analytical and thinking competencies, force reading

comprehension, and improve writing and communication skills. This is the fourth-R in application—and it is urgently needed.

An added bonus, augmenting basic classroom instruction with online learning will familiarize both students and graduates with advances in the methods being used to deliver business instruction. Moreover, online instructional programs can offer hope to current graduates in the form of remedial help to improve their weakened work-readiness posture. The bottom line is that students (before they become graduates) need to "practice and experience" their skills (Peterson, 1999) and online learning courses can help.

Set World-Class Classroom Goals

Closely connected to the previous recommendation, teachers and supervising administrators must learn to set and fulfill world-class classroom goals that intentionally apply basic skills and work-place competencies. This recommendation should not be confused with President G.H.W. Bush's AMERICA 2000 goals. Remember point one in this section—no more new legislation or national goals. This recommendation favors classroom goals specifically tailored to the course being taught and the skills and competencies of each student. This is most especially important for Career and Technology Education (CTE) courses. An example will suffice.

Veteran teacher and classroom educator Eva Rutiri of the West Ashley High School in Charleston, S.C. guides her Marketing and Computer Technology students to select the best social change proposals, and then enact a response to the proposal by lobbing political leaders, creating fully developed business plans for local business leaders, and even writing and publishing full length books using an online INDIE publishing website. Former students have

actually gone on to become local celebrities, start businesses, and win various state and national recognition.

Mrs. Rutiri's results should be the norm, not the exception. There are no doubt countless ways that local high school educators can set goals that promote individual and group thinking, foster creativity, refine technology skills, and stir the entrepreneurial spirit in future employees. Education leaders should seek out those ideas and discuss them during professional development training, business leaders should suggest them, and classroom educators should embrace them individually and in cooperation with other CTE teachers.

Credential Graduates

This may be the most aggressive and potentially beneficial recommendation in this paper for at-risk high schools in Charleston County Schools. The district should investigate and adopt a system to credential high school graduates via a *career certificate* or *career passport*.

As discussed in the paper (specifically the section on "Pre-planned assessments" in chapter 2), credentialing refers to a process which collects data regarding a graduate's work-readiness accomplishments over multiple years of a graduate's high school career (Lewis, 2005; O'Neil, Jr. et al., 1992; S. L. Wagner & Moffett III, 2000) and provides the graduate with "something to present to employers that is valid" (Lewis, p. 6). Think of it like an academic transcript, but instead of focusing on the various courses taken, and the grade earned, this document or work-product would tangibly certify that the student was equipped with specific talents, certifiable experiences, and so on. See O'Neil et al. (1992) for a good theoretical model to measure work-readiness after a student has identified his/her interest in a chosen profession, career path, or academic major. Charleston County Schools are already working with students

and parents to assign students' academic majors. Actually credentialing the graduate, therefore, would seem to be a logical extension of that existing program.

One worthwhile model to consider to fulfill this recommendation would be the career portfolio model currently in use by the Wisconsin Department of Education (WDE) (n.d.) as described in Wonacott (2002). The WDE model is based on a *portfolio-style* program that tracks student growth in soft skills throughout high school. In addition to being proactive in its preparation of graduates for life after high school, its equipping approach benefits from its partnership with at least one state agency, two professional state associations, and at least one technical college. The end product showcases a graduate's abilities in a presentable work-product.

Regardless if the district were to adopt a career portfolio or some other form of career certificate, the end goal should be the same, to provide graduates with a work-product that not only summarizes their skills and accomplishments for prospective employers but could be used to aid and encourage the graduate when searching for a job. I cannot help but believe that if the graduates who completed the WAI during this study had possessed such a document, many would have provided better justifications, possibly raised their ratings, and been considered more work-ready than they were. Similarly, it would help these graduates when applying for jobs or college.

Graduates are not the only ones who would benefit from credentialing. It would no doubt prove to be of enormous benefit to state leaders in their efforts to attract big business to the state, and a huge enticement for employers seeking to hire highly qualified workers.

Recommendations for Further Study

In the absence of local research regarding overall graduate work-readiness in Charleston County, this field remains ripe with opportunity for ongoing research. Indeed, additional studies should be conducted to refine baseline values regarding the skills gap problem. This study was inclusive of the three at-risk high schools in the district. A key suggestion for future research is to conduct a similar study that is more inclusive of district graduates, or soon-to-be graduates, of those schools. Including high school seniors within a month or two of graduation would very likely provide the best source of objective data. Moreover, similar studies should be conducted across the other high schools in the district, up to and including the elite schools with national reputations. The focus of this study was on a single evaluation of work-readiness of recent high school graduates. A future study could incorporate a longitudinal research design to assess changes in graduate work-readiness over time.

Based on the needs of employers discussed in this study, future editions of the WAI assessment instrument should require work-ready ratings in all five basic skills and at least 23 competencies. While it may seem harsh to declare a graduate under-prepared because he or she is rated less than three in any of the five basic skills, employers and institutions of high learning demand no less.

Even though this information was not intentionally collected for this study, a great deal of demographic information was gleaned. In future studies, additional supplemental questions could explore how socio-economic status possibly relates to work-readiness.

Scientific curiosity drives me to further recommend a quantitative study to determine the number of freshmen taking remedial courses at area community colleges and 4-year universities. The results of such a study could prove most informative and help to generalize a wider cross

section of high school graduates. The Charleston area is home to almost a dozen institutions of higher learning so it would be a meaningful and possibly very informative study indeed. In addition, it would be most interesting to use the WAI instrument to evaluate the 16 career clusters recognized by the Department of Education. The purpose of that study could determine target Wr-scores for various career interests of prospective graduates. The modern ASVAB exam used to assess candidates for service in the United States Armed Forces performs a similar function. Along those same lines, a study could be conducted to compare Wr-scores with the results of ASVAB, SAT, and ACT scores.

Conclusion

The possibility—even a remote possibility, that 64% of the graduates from three schools in South Carolina's second largest school district are not work-ready should be a personal and professional embarrassment to everyone in the field of education, the parents who raised those graduates to adulthood, and most significant of all, an embarrassment to the graduates who were ultimately responsible for their own life preparation. The fact that no statistical difference was found between the conclusions reached in this study and that postulated by the SCANS Commission two decades ago should offer no consolation. The possibility—even a remote possibility, that 51% of the graduates are not work-ready means that as many as 144 of the adults represented in this study now face the "bleak prospects of dead-end work interrupted only by periods of unemployment" (SCANS, 1991b, p. viii).

I most strongly contend that the brunt of the responsibility for the skills gap problem rests *not* with teachers and administrators but with the *graduates*. Having served in at-risk high schools, I know firsthand how much sacrifice and dedication is invested by educators into lessons and lives. I am also convinced that the professional district administrators are giving their

best each and every day. But highly skilled, well-qualified, compassionate educators with high standards is not enough, would-be graduates must do their part. Marshall Frady (2006) relates a story about former president hopeful Jesse Jackson that illustrates this symbiotic relationship:

> "First day in the sixth grade, I'll never forget it. Teacher was Miz Shelton, and she began writing these long words on the blackboard we never even heard of before. We all looked around and started whispering to each other, 'She got the wrong class. She thinks we're the *eight-grade* class.' Somebody finally called out, 'Uh, Miz Shelton? Those are eighth-grade words. We only the sixth grade here.' She turned around. 'I know what grade you are. I work here. I know what grade I'm teaching. And you'll learn every one of these words, and a lot more like 'em 'fore this year is over. I will *not* teach down to you. One of you little brats just might be mayor or governor or even president someday, and I'm gonna make sure you'll be ready' (pp. 104-105).

Whether you agree or disagree with Jesse Jackson's political position, most would agree that he is a gifted communicator. Today's teachers and students must work together so would-be graduate's may be equally gifted. Borrowing from Casner-Lotto and Barrington (2006), a simply prescription that may help direct our steps in achieving that goal is this: let everyone ask "Are they/we ready for work?"

In the popular 2001 movie, "The Lord of the Rings," there appears a scene where torches are systematically lit upon the tops of mountains to spread the news that war had arrived. In a similar way, educators who read this report are earnestly encouraged to spread the word regarding the dangers of under-prepared high school graduates, and once the message is

received, to take appropriate action to join forces so we can dispel the skills gap problem once

and for all.

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Appendix A

Work-Readiness Assessment Instrument

The self-generated Work-Readiness Assessment Instrument (WAI) used in this study is presented beginning on the next page. The instrument requires students to self-evaluate their own work-readiness using a Likert scale (1-4). *Reporting bias* is minimized by mimicking the interview process during which prospective employees are asked to verbalize various experiences. The WAI accomplishes that by requiring students to provide written proofs of work-readiness for all ratings of two or three. Moreover, a neutral option is not provided given that prospective employees are either ready to enter the work force or not.

The current version of the WAI has undergone numerous changes and modification in response to faculty and peer feedback received during doctoral course work.

Work-Readiness Assessment Inventory

This survey instrument will evaluate your strength in 36 work skills and competencies essential to success after high school (as defined by the Secretary's Commission on Achieving Necessary Skills in 1991). Results from the survey will help determine if graduates from CCSD high schools rated "at-risk" on the Annual South Carolina School Report Cards are more or less prepared to enter the workforce or enter college than seniors from other high school graduates.

Your participation in this study is strictly voluntary. You may withdraw at any time confident that any data received will not be used.

Please, return the paper survey via the self-addressed, stamped envelope provided.

You may also complete the survey ONLINE at:

http://www.WAIsurvey.com

The online surveys were automatically emailed to me.

Thank you!

High School Attended: ☐ Burke HS ☐ N. Chas HS ☐ R.B. Stall HS **Date:** _____

Are you 18 years old or older? _____ **Have you read and understand the invitation letter?** _____

DIRECTIONS: *Rate your proficiency for each item by circling one number (1-4).* <u>*For all ratings of 3 or 4*</u>*, provide an example from your classes, life, or work of the strength. When considering an example, consider what you might say to convince a prospective employer. Expanded definitions of each skill/competency follow the survey.*

	Skill/Competency	Rate Your Proficiency in this Area
		(Not Skilled) (Preparatory) (Work Ready) (Advance)
Basic	^{B1} Reading Locates, understands, and interprets written information in prose, documents, manuals, graphs, and schedules to perform tasks; can determine main idea or essential message	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{B2} Writing Communicates thoughts, ideas, and messages in writing; composes letters, directions, reports, proposals; checks, edits, and revises for form, grammar, spelling, and punctuation	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{B3} Arithmetic/Mathematics Approaches problems by choosing a mathematical technique; makes estimates without a calculator, and uses tables, graphs, diagrams, and charts to obtain information	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{B4} Listening Receives, interprets, and responds to verbal messages and other cues; to comprehend, critically evaluate, appreciate, or support a speaker	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{B5} Speaking Organizes ideas and communicates oral messages appropriate to listeners and situations	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	Basic Skills Subtotal (5-20)	
Mental	^{M1} Creative Thinking Uses imagination, combines ideas and information in new ways	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{M2} Decision Making Specifies goals and constraints, generates alternatives, considers risks, and chooses best alternatives	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{M3} Problem Solving Recognizes a discrepancy, identifies possible explanations, and devises or implements a plan of action to resolve	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{M4} Abstract Thinking Seeing a building from a blueprint, the flow of work activities from narrative descriptions, etc.	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	^{M5} Knowing How to Learn Recognizes personal learning styles, note taking strategies, and assumptions that may lead to faulty conclusions	1 .... 2 .... 3 ....4 Example from your classes, life, or work:

	Skill/Competency	Rate Your Proficiency in this Area			
		(Not Skilled)	(Preparatory)	(Work Ready)	(Advance)
	M6 Reasoning Uses logic to draw conclusions from available information; extracts rules or principles from a set of objects or text; determines which conclusions are correct	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	Mental Skills Subtotal (6-24)				
Personal Qualities	P1 Responsibility Exerts a high level of effort to attain goals; works hard; high standards of attendance, vitality, and optimism in approaching and completing tasks.	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	P2 Self-Esteem Believes in your own self-worth; maintains a positive view of self, skills, and abilities	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	P3 Sociability Friendly, adaptable, empathic, and polite in new and on-going group settings	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	P4 Self-Management Utilizes own knowledge, skills, and abilities to set well-defined and realistic personal goals, monitors progress, and motivates self to achieve goals	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	P5 Integrity/Honesty Can be trusted; understands the impact of violating commonly-held personal beliefs or societal values	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	Personal Qualities (Skills) Subtotal (5-20)				
Data	D1 Acquires and Evaluates Identifies need for and obtains data; evaluates relevance of accuracy of data	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	D2 Organizes and Maintains Organizes, processes, and maintains written or computerized records and information	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	D3 Interprets and Communicates Selects and analyzes data; communicates results via oral, written, graphic or multimedia methods	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	D4 Uses Computers to Process Employs computers to acquire, organize, analyze, and communicate information	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:			
	Data Subtotal (4-16)				
Resource Management	R1 Time Selects goal-relevant activities, ranks them, and prepares and follows schedules	1 .... 2 .... 3 4			

	Skill/Competency	Rate Your Proficiency in this Area
		Example from your classes, life, or work:
	R2 Money Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	R3 Material and Facilities Acquires, stores, allocates, and uses materials or space efficiently	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	R4 Human Resources Assesses skills and distributes work accordingly, evaluates Strength and provides feedback	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	Resource Management Subtotal (4-16)	

	Skill/Competency	Rate Your Proficiency in this Area (Not Skilled) (Preparatory) (Work Ready) (Advance)
Interpersonal	I1 Teamwork Participates as a member of a team; contributes to group effort	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	I2 Teaches Others New Skills Helps others learn	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	I3 Serves Clients/Customers Works to satisfy customer expectations	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	I4 Exercises Leadership Communicates ideas, persuades and convinces; responsibly challenges procedures and policies	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	I5 Negotiates Works toward agreements involving exchange of resources	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	I6 Works with Diversity Works well with men and women from diverse backgrounds	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:
	Interpersonal Subtotal (6-24)	
Technology	T1 Selects Technology Evaluates ability of technological tools, or machines, including computers and programs, to achieve a desired result	1 .... 2 .... 3 .... 4 Example from your classes, life, or work:

	T2 Applies Technology to Task Understands the intent and the procedures for setting up and using technology to complete a task	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	T3 Maintains and Troubleshoots Prevents, identifies, or solves problems in machines, computers, printers, etc.	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	Technology Subtotal (3-`1)	
Systems	S1 Understands Systems Knows how social, organizational, and technological systems work; operates effectively with available systems	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	S2 Monitors and Corrects Distinguishes trends, predicts impacts on operations, diagnoses deviations in systems' Strength and corrects irregularities	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	S3 Improve or Design Systems Suggests modifications to existing systems or develops new/alternative systems to improve Strength	1 .... 2 .... 3 ....4 Example from your classes, life, or work:
	Systems Subtotal (3-12)	

	Demographic Data	Possible Responses (circle only one)
	Z1 How well did your public school education prepare you for life after high school?	0 = It did not prepare me 1 = Somewhat prepared 2 = Well prepared 3 = Very well prepared
	Z2 What high school program best describes the last 2 years of high school course work?	0 = Special Ed 1 = Tech Prep 2 = College Prep 3 = Honors Study
	Z3 Which of the following student organizations did you participate in during high school? (circle all that apply)	0 = DECA 1 = FBLA 2 = None of these

	[Z4] Which of the following options best describes your work experience?	0 = No work experience 1 = Less than 1 year PART-TIME experience 2 = More than 1 year PART-TIME experience 3 = Less than 1 year FULL-TIME experience 4 = More than 1 year FULL-TIME experience

Thank you for taking this survey.

Please return the survey using the stamped, self-addressed envelope provided.

DEFINITIONS: SKILLS AND COMPETENCIES

Abstract Thinking [M4]**.** Organizes and processes symbols, pictures, graphs, objects or other information; for Example from your classes, life, or work, sees a building from a blueprint, a system's operation from schematics, the flow of work activities from narrative descriptions, or the taste of food from reading a recipe.

Acquires and Evaluates Information [D1]**.** Identifies need for data, obtains it from existing sources or creates it, and evaluates its relevance and accuracy.

Allocates Human Resources [R4]**.** Assesses knowledge and skills and distributes work accordingly, evaluates Strength, and provides feedback.

Allocates Material and Facility Resources [R3]**.** Acquires, stores, and distributes materials, supplies, parts, equipment, space, or final products in order to make the best use of them.

Allocates Money [R2]**.** Uses or prepares budgets, including making cost and revenue forecasts, keeps detailed records to track budget Strength, and makes appropriate adjustments.

Allocates Time [R1]**.** Selects relevant, goal-related activities, ranks them in order of importance, allocates time to activities, and understands, prepares, and follows schedules.

Applies Technology to Task [T2]**.** Understands the overall intent and the proper procedures for setting up and operating machines, including computers and their programming systems.

Arithmetic [B3]. Performs basic computations; uses basic numerical concepts such as whole numbers and percentages in practical situations; makes reasonable estimates of arithmetic results without a calculator, and uses tables, graphs, diagrams, and charts to obtain or convey quantitative information.

BASIC SKILLS [B1-B5]**:** Reading, Writing, Arithmetic, Mathematics, Listening, and Speaking.

Creative Thinking [M1]**.** Uses imagination freely, combines ideas or information in new ways, makes connections between seemingly unrelated ideas, and reshapes goals in ways that reveal new possibilities.

DATA COMPENTENCIES [D1-D4]**:** Formerly "Information Competencies." Acquires and Evaluates Information, Organizes and Maintains Information, Interprets and Communicates Information, and Uses Computers to Process Information.

Decision Making [M2]**.** Specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternatives.

Exercises Leadership [I4]**.** Communicates thoughts, feelings, and ideas to justify a position, encourages, persuades, convinces, or otherwise motivates an individual or groups, including responsibly challenging existing procedures, policies, or authority.

FOUNDATIONAL SKILLS: Includes *Basic Skills* (Reading, Writing, Arithmetic, Mathematics, Listening, and Speaking), *Data (a.k.a. Thinking) Skills* (Creative Thinking, Decision Making, Problem Solving, Seeing Things in the Mind's Eye, Knowing How to Learn, and Reasoning), and *Personal Qualities* (Responsibility, Self-esteem, Sociability, Self-management, and Integrity/Honesty).

Human Resources [R4]**.** *See "Allocates Human Resources"*

Improves and Designs Systems [S3]**.** Makes suggestions to modify existing systems to improve products or services, and develops new or alternative systems.

Integrity/Honesty [P5]. Can be trusted; recognizes when faced with making a decision or exhibiting behavior that may break with commonly-held personal or societal values; understands the impact of violating these beliefs and codes on an organization, self, and others; and chooses an ethical course of action.

INTERPERSONAL COMPENTENCIES [I1-I6]**:** Participates as a Member of a Team, Teachers others, Serves Clients/Customers, and Exercises Leadership.

Interprets and Communicates Information [D3]**.** Selects and analyzes information and communicates the results to others using oral, written, graphic, pictorial, or multimedia methods.

Knowing How to Learn [M5]**.** Recognizes and can use learning techniques to apply and adapt new knowledge and skills in both familiar and changing situations. Involves being aware of learning tools such as personal learning styles (visual, aural, etc.), formal learning strategies (note taking or clustering items that share some characteristics), and informal learning strategies (awareness of unidentified false assumptions that may lead to faulty conclusions).

Listening [B4]. Receives, attends to, interprets, and responds to verbal messages and other cues such as body language in ways that are appropriate to the purpose; for Example from your classes, life, or work, to comprehend; to learn; to critically evaluate; to appreciate; or to support the speaker.

Maintains and Troubleshoots Technology [T3]**.** Prevents, identifies, or solves problems in machines, computers, and other technologies.

Material and Facility Resources [R3]**.** *See "Allocates Material and Facility Resources"*

Mathematics [B3]. Approaches practical problems by choosing appropriately from a variety of mathematical techniques; uses quantitative data to construct logical explanations for real world situations; expresses mathematical ideas and concepts orally and in writing; and understands the role of chance in the occurrence and prediction of events.

MENTAL SKILLS [M1-M6]**:** Formerly "Thinking Skills." Creative Thinking, Decision Making, Problem Solving, Seeing Things in the Mind's Eye; Knowing How to Learn, and Reasoning.

Money [R2]**.** *See "Allocates Money"*

Monitors and Corrects Strength [S2]**.** Distinguishes trends, predicts impact of actions on system operations, diagnoses deviations in the function of a system/organization, and takes necessary action to correct Strength.

Negotiates [I5]. Works toward an agreement that may involve exchanging specific resources or resolving divergent interests.

Organizes and Maintains Information [D2]**.** Organizes, processes, and maintains written or computerized records and other forms of information in a systematic fashion.

PERSONAL QUALITIES (SKILLS) [P1-P5]**:** Responsibility, Self-esteem, Sociability, Self-management, and Integrity/Honesty.

Problem Solving [M3]**.** Recognizes that a problem exits (i.e., there is a discrepancy between what is and what should or could be), identifies possible reasons for the discrepancy, and devises and implements a plan of action to resolve it. Evaluates and monitors progress, and revises plan as indicated by findings.

Reading [B1]. Locates, understands, and interprets written information in prose and documents & including manuals, graphs, and schedules & to perform tasks; learns from text by determining the main idea or essential message; identifies relevant details, facts, and specifications; infers or locates the meaning of unknown or technical vocabulary; and judges the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers.

Reasoning [M6]**.** Discovers a rule or principle underlying the relationship between two or more objects and applies it in solving a problem. For Example from your classes, life, or work, uses logic to draw conclusions from available information, extracts rules or principles from a set of objects or written text; applies rules and principles to a new situation, or determines which conclusions are correct when given a set of facts and a set of conclusions.

RESOURCES COMPENTENCIES [R1-R4]**:** Allocates Time, Allocates Money, Allocates Material and Facility Resources, and Allocates Human Resources.

Responsibility [P1]. Exerts a high level of effort and perseverance to attain goals; works hard to become excellent at doing tasks by setting high standards, paying attention to details, working well, and displaying a high level of concentration even when assigned an unpleasant task; displays high standards of attendance, punctuality, enthusiasm, vitality, and optimism in approaching and completing tasks.

Selects Technology [T1]**.** Judges, which set of procedures, tools, or machines, including computers and their programs, will produce the desired results.

Self-Esteem [P2]**.** Believes in own self-worth and maintains a positive view of self; demonstrates knowledge of own skills and abilities; is aware of impact on others; and knows own emotional capacity and needs and how to address them.

Self-Management [P4]. Assesses own knowledge, skills, and abilities accurately; set well-defined and realistic personal goals; monitors progress toward goal attainment and motivates self through goal achievement; exhibits self-control and responds to feedback unemotionally and non-defensively; is a "self-starter."

Serves Clients/Customers [I3]**.** Works and Communicates with clients and customers to satisfy their expectations.

Sociability [P3]**.** Demonstrates understanding, friendliness, adaptability, empathy, and politeness in new and on-going group settings; asserts self in familiar and unfamiliar social situations; relates well to others; responds appropriately as the situation requires; and takes an interest in what others say and do.

Speaking [B5]**.** Organizes ideas and communicates oral messages appropriate to listeners and situations; participates in conversation, discussion, and group presentations; selects an appropriate medium for conveying a message; uses verbal language and other cues such as body language appropriate in style, tone, and level of complexity to the

audience and the occasion; speaks clearly and communicates a message; understands and responds to listener feedback; and asks questions when needed.

SYSTEMS COMPENTENCIES [S1-S3]**:** Understands Systems, Monitors and Corrects Strength, and Improves and Designs Systems.

Teaches others [I2]**.** Helps others learn.

Teamwork [I1]**.** Formerly "Participates as a Member of a Team." Works cooperatively with others and contributes to group with ideas, suggestions, and effort.

TECHNOLOGY COMPENTENCIES [T1-T3]**:** Selects Technology, Applies Technology to Task, and Maintains and Troubleshoots Technology.

Time [R1]**.** *See "Allocates Time"*

Understands Systems [S1]**.** Knows how social, organizational, and technological systems work and operates effectively within them**.**

Uses Computers to Process Information [D4]**.** Employs computers to acquire, organize, analyze, and communicate information.

Works with Cultural Diversity [I6]**.** Works well with men and women and with a variety of ethnic, social, or educational backgrounds.

Writing [B2]. Communicates thoughts, ideas, information, and messages in writing; records information completely and accurately; composes and creates documents such as letters, directions, manuals, reports, proposals, graphs, flow charts; uses language, style, organization, and format appropriate to the subject matter, purpose, and audience. Includes supporting documentation and attends to level of detail; checks, edits, and revises for correct information, appropriate emphasis, form, grammar, spelling, and punctuation.

Appendix B

WAI Scoring Guides (Old Version and New Version)

Two WAI scoring guides are presented here. The Old Scoring Guide includes a column instructing the facilitator or monitor to divide the value in column D by 2. Early versions of the WAI required that mathematical division but that was no longer the case. Thus, the new scoring guide was created which removed column E and modified the instructions accordingly.

OLD SCORING GUIDE
FACILITATORS / MONITORS ONLY

1. Subtotal the individual ratings within each section in the survey and transfer these subtotals into column A. This is the student's "Raw Score."
2. Review each rating in the survey. Write an "I" (incomplete) beside every skill or competency rating of 3 or 4 (a) WITHOUT a specific and recent Example from your classes, life, or work, or (b) with an INCORRECT Example from your classes, life, or work.
3. Tally the number of incompletes in each section above and write that number in column B.
4. Multiply the number of incompletes by 2 and write this number in column C. This is the "Bias Adjustments."
5. Subtract the values in column C from the b-score values in column A. Write this number in column D. This is the "Adjusted Raw Score."
6. Divide the values in column D by 3 and write the whole number integer (i.e. 0, 1, 2, 3, etc.) in column E. This is the "Comparison Score."
7. Sum the comparison scores in column E and record in the space provided.
8. Multiply the sum comparison score by 2 and record in the space provided. This is the student's **Work-readiness Score (Wr-Score)**.

	A	B	C	D	E
	b-score	**Incompletes** ("2" or "3" ratings WITHOUT a specific, recent proof or an INCORRECT Example from your classes, life, or work)	**Bias Adjustment** (Incompletes * 2)	**Unbiased Raw Score** (Raw Score - Adjustment)	**Comparison Score** (Unbiased b-score / 2) whole integer only
Basic Skills Subtotal (5-20)					
Mental Skills Subtotal (6-24)					
Personal Qualities (Skills) Subtotal (5-20)					
Data Subtotal (4-16)					
Resource Management Subtotal (4-16)					
Interpersonal Subtotal (6-24)					
Technology Subtotal (3-12)					
Systems Subtotal (3-12)					
Total Comparative Score					
WORK-READINESS INDEX (Wr-score) **(Sum Unbiased Raw Score)**					

	Not Skilled	Preparatory			Work Ready			Advance
		Low		High	Low		High	
Wr-Score	0-36	37-48	49-60	61-72	73-84	85-96	97-108	109-144
Analysis	□ Not Work-ready (code 1)				□ Work-ready (code 2)			

NEW WAI SCORING GUIDE

FACILITATORS / MONITORS ONLY

1. If you have not already done so, subtotal the individual ratings within each section in the survey and transfer these subtotals into column A. This is the student's b-score or bias-score.
2. Review each rating in the survey. Write an "I" (incomplete) beside a skill or competency rating of 3 or 4 either (a) WITHOUT a specific and recent example from the respondent's education, life, or work; or (b) with an INCOMPLETE example from the respondent's education, life, or work.
3. Tally the number of incompletes in each section above and write that number in B.
4. Multiply column B by -2 and write this number in column C. This is the "Bias Adjustments."
5. Sum the value in C with the b-score in A. Write this number in D. This is the "Unbiased Score."
6. Sum the comparison scores in column D and record in the space provided. This is the participant's **Work-readiness Score (Wr-Score)**.

	A	**B**	**C**	**D**
	Bias Score	**Incompletes** ("3" or "4" ratings WITHOUT a specific, recent proof or an INCORRECT Example from your classes, life, or work)	**Bias Adjustment** (Incompletes * -2)	**Unbiased Score** (b-Score – Bias Adjustment)
Basic Skills Subtotal (5-20)				
Mental Skills Subtotal (6-24)				
Personal Qualities (Skills) Subtotal (5-20)				
Data Subtotal (4-16)				
Resource Management Subtotal (4-16)				
Interpersonal Subtotal (6-24)				
Technology Subtotal (3-12)				
Systems Subtotal (3-12)				
WORK-READINESS INDEX (Wr-score) (Sum Unbiased Raw Score)				

	Not Skilled	Preparatory			Work Ready			Advance
		Low		High	Low		High	
Wr-Score	0-36	37-48	49-60	61-72	73-84	85-96	97-108	109-144
Analysis	☐ Not Work-ready (code 1)				☐ Work-ready (code 2)			

Appendix C

Letter of Invitation and Informed Consent

The following letter of invitation and informed consent was mailed to all recent high school graduates from the three Charleston County at-risk high schools, 18 years old or older. The list was acquired from the Charleston County School District.

Given the study's focus on minorities, the informed consent portion of the letter was intentionally developed to emphasis "more clarification during the informed consent process to ensure that participants have a clear understanding of potential risks, benefits, rights, purpose, and process of the study" (Hsin-hsin Huang & Coker, 2010, p. 632).

Data obtain from the School District was entered into a Microsoft Access database and mail merged with the letter to create a custom letter for each graduate. Letters were mailed along with a full copy of the WAI assessment instrument as well as a self-addressed, stamped envelope that was used by the respondent to return the completed survey to me. The name of the respondent will NOT be recorded on the survey or the return envelope.

Letter of Invitation and Informed Consent

[date]

Dear [name of graduate],

      Congratulations! Your graduation is a milestone in your life. Now that your high school education is behind you, I am sure you are busy finding a job or considering ways to continue your education via some form of higher education.

      My name is Charles Williams**.** I am conducting a research study to measure how "work-ready" or "college-ready" you are following your high school education. **I want you to be a part of this study** because:

1. You are a recent graduate from one of the three at-risk Charleston County High Schools (Burke High, N. Charleston High, or Stall High),
2. You graduated with a South Carolina diploma (not a certificate),
3. You are at least 18 years old, and
4. You have a valid postal address on record with the District.

Before you decide to participate, however, please read the following information about my study. *I want you to be completely informed to what you were doing.*

About Me

      Again, my name is Charles Williams. I am a doctoral student at Walden University (Minneapolis, MN) am working on my doctorate in Education with an emphasis in Teacher Leadership. I was once a high school teacher in Charleston County but I am not teaching right now so I can complete my professional education goals.

Purpose of the Study

      In 1991, before you may have been born, a U.S. Government study concluded *"more than half of our young people leave school without the knowledge or foundation required to find and hold a good job"* (p. viii). My study will challenge that conclusion as it applies to graduates from at-risk high schools in Charleston County, and hopefully determine if those schools are graduating students who are more or less prepared for life after graduation.

Benefits of the Study

Simply said, this study could potentially help other graduates who need to be better prepared to get and hold a good job, and it may help education leaders make better education decisions. In fact, it may help you realize some of your strengths which you may want to highlight in a resume. That's why it is important for you to participate. *You will not be paid* if you decide to be in this study.

Your Rights

You have the right **to NOT PARTICIPATE** in this study. Your participation is absolutely voluntary. No one will force you to participate, and you may elect to not participate at any time prior to mailing the completed survey to me (using the stamped, self-addressed return envelope provided).

You have **to PRIVACY -** everything you write on the survey was kept private. That means that no one else will know your name or what answers you gave. I will not know who completed the survey because your name will not be recorded.

You have the right **to ASK QUESTION** before you decide. If you have questions about your rights as participants, you can call Dr. Leilani Endicott at Walden University. Her phone number is 1-800-925-3368, extension 1210.

You have the right **to KEEP THIS LETTER** informing you of about this study.

Potential Risks

Being in this study will NOT harm your chances in getting a job nor will it damage your reputation since no one will know who participated and who did not.

What I Am Asking You to Do

If you agree to participate in this study, you were asked to:

1. Complete either the paper survey enclosed <u>OR</u> complete the online version of the survey at: **www.WAIsurvey.com**. *Complete the survey only once.* This will require approximately 35-45 minutes of our time.

2. Return the completed paper survey using the enclosed self-addressed, stamped envelope. The online version of the survey was automatically emailed to me.

www.WAIsurvey.com

Thank you for your consideration. I look forward to hearing from you,

This has been approved by the Institutional Review Board of WALDEN UNIVERSITY as acceptable documentation of the informed consent process and is valid for one year after the stamped date.

2011.08.31 21:28:12 -05'00'

CHARLES J. WILLIAMS, JR.

Walden University
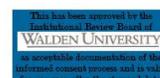
Appendix D

National Institutes of Health (NIH) Certificate

The following certifies my completion of a web-based course from the National Institutes

of Health course "Protecting Human Research Participants."
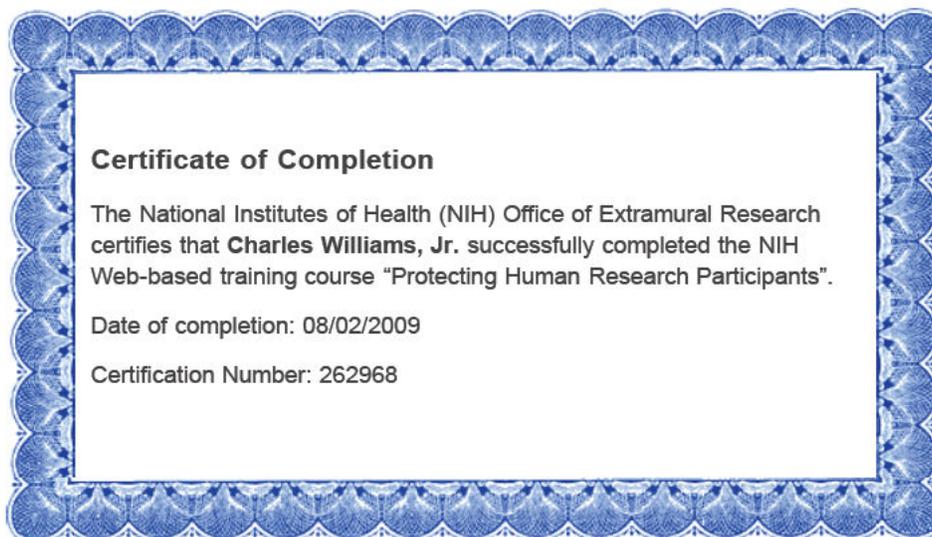
Appendix E

Reminder Postcard

The following postcard was mailed to respondents two weeks after the initial letter of invitation.
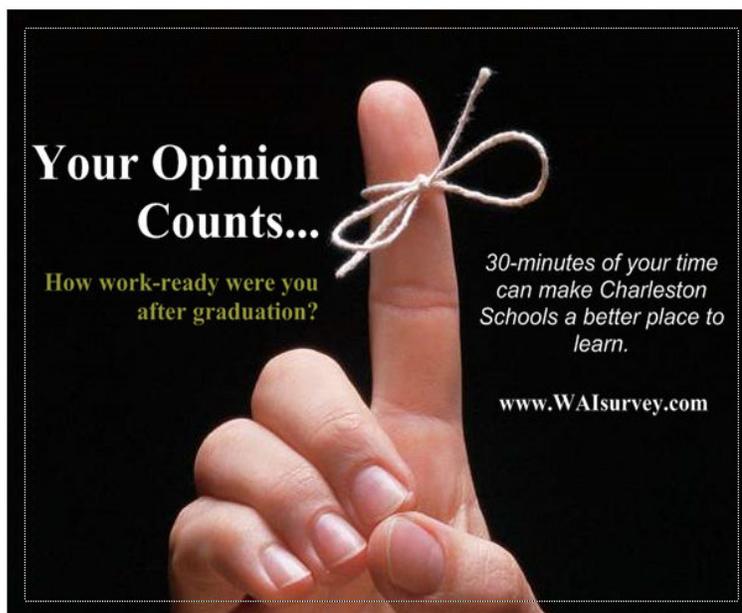
Front of Postcard
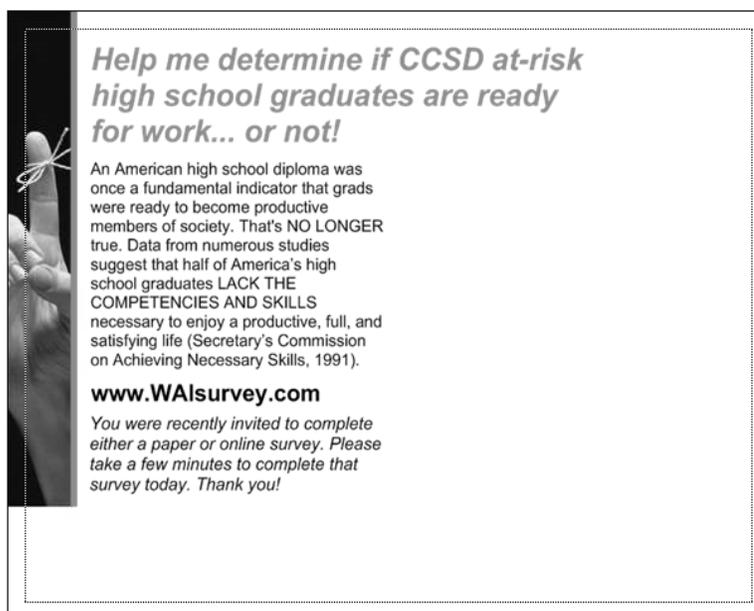
Back of Postcard

Appendix F

Sample Results from the Online WAI Survey

Data collected from the online version of the WAI was exported as a Comma Separated

Values (CSV) file and formatted using a word processing mail merge application to produce a

work-product similar to the paper-version of the WAI (Appendix A). The following is an actual

survey response. The name of the high school has been redacted.

Sample Work-Readiness Assessment Inventory

(ONLINE RESULTS)

High School Attended: xxxxxxx High School   **18 years old or older?**   **Yes**

Read and understand invitation letter? Yes

SKILL / COMPETENCY	RATING	JUSTIFICATION (minus 2 if required and missing)	SCORE
1. Reading	4. Advanced (justification required)	I read the newspaper every day	4
2. Writing	3. Work ready (justification required)	I don't write two much but I'm okay at it	3
3. Arithmetic/Mathematics	3. Work ready (justification required)	I keep up with my money good	3
4. Listening	4. Advanced (justification required)	Real good hearing	4
5. Speaking	4. Advanced (justification required)	English	4
		Total Basic Skills	**18**
6. Creative Thinking	2. Basic		2
7. Decision Making	3. Work ready (justification required)	This is part of life I make lots of them every day	3
8. Problem Solving	3. Work ready (justification required)	I tend to avoid arguing	3
9. Abstract Thinking	1. Not Skilled		1
10. Knowing How to Learn	2. Basic		2
11. Reasoning	3. Work ready (justification required)	I can come up with come backs quick	3
		Total Mental Skills	**14**
12. Responsibility	4. Advanced (justification required)	I never miss meetings with my po	4
13. Self-Esteem	4. Advanced (justification required)	People know not to mess with me	4
14. Sociability	4. Advanced (justification required)	I may be weak in a lot of subjects but making fiends ant one	4
15. Self-Management	3. Work ready (justification required)	I set goals	3
16. Integrity/Honesty	3. Work ready (justification required)	I'm working on this	3
		Total Personal Qualities Skills	**18**
17. Acquires and Evals Data	1. Not Skilled		1
18. Organizes and Maintains Data	1. Not Skilled		1
19. Interprets/Communicates Data	1. Not Skilled		1
20. Uses Computers to Process Data	1. Not Skilled		1
		Total Data Skills	**4**

21. Time	3. Work ready (justification required)	I show up on time and stay till it's over	3
22. Money	4. Advanced (justification required)	Done that for a while	4
23. Material and Facilities	1. Not Skilled		1
24. Human Resources	1. Not Skilled		1
Total Resource Management Skills			**9**
25. Teamwork	3. Work ready (justification required)		3
26. Teaches Others New Skills	3. Work ready (justification required)		3
27. Serves Clients/Customers	2. Basic		2
28. Exercises Leadership	1. Not Skilled		1
29. Negotiates	4. Advanced (justification required)	I can deal	4
30. Works with Diversity	2. Basic		2
Total Interpersonal Skills			**15**
31. Selects Technology	4. Advanced (justification required)	Bought new phone and laptop	4
32. Applies Technology to Task	2. Basic		2
33. Maintains/Troubleshoots Tech	1. Not Skilled		1
Total Technology Competencies			**7**
34. Understands Systems	1. Not Skilled		1
35. Monitors and Corrects Sys	1. Not Skilled		1
36. Improve or Design Systems	1. Not Skilled		1
Total Systems Competencies			**3**
WORK-READINESS INDEX (Wr-score)			88

Demographic Data	**Possible Responses**
[Z1] How well did your public school education prepare you for life after high school?	1. High School SOMEWHAT prepared me for life after school
[Z2] What high school program best describes the last 2 years of high school course work?	2. Tech Prep
[Z3] Which of the following student organizations did you participate in during high school? (circle all that apply)	0. I did not participate in any student organization
[Z4] Which of the following options best describes your work experience?	1. Less than 1 year PART-TIME experience

	Not Skilled	Preparatory			Work Ready			Advance
		Low		High	Low		High	
Wr-Score	0-36	37-48	49-60	61-72	73-84	85-96	97-108	109-144
Analysis	☐ Not Work-ready (code 1)				☐ Work-ready (code 2)			

NOTES:

Appendix G

Justification Provided on the WAI

In addition to rating their proficiency in 36 skills and competencies, participants were instructed to provide justifications when they used the two highest work ratings (Work Ready and Advanced). The requirement had two purposes: to reduce misrepresentation of abilities, and simulate the conditions by which graduates would find oneself if actually interviewing for a job.

The following are actual justification responses provided on the WAI survey (including spelling, grammar, and punctuation) along with its associated skill or competency, my understanding of what was being reported (when necessary), and my final determination to accept or reject the response as valid. Rejected responses were assessed a two point bias deduction for the skill or competency.

WAI Question Code	Rating	Actual Justification Submitted	Interpreted meaning	Accepted / Rejected	Reasoning
Abstract Thinking	1	I never used a blueprint or anything like that.		N/A	
	2	I need to have more visuals		Accepted	
	4	I attended S.O.A. or School of the Arts, specializing in visual arts. I am wholly able to visualize and conceptualize a sitution.		Accepted	
Acquires and Evaluate Data	1	I don't understand this question.		N/A	
	4	think all problems through		Rejected	Not specific
	2	I don't use computers and stuff in my work.		Accepted	
	3	I have experience with technology in a work place.		Accepted	I gave the graduate the benefit of the doubt.
Arithmetic/Math	3	i have passed all my math classes in math with an 80 or above		Accepted	
	3	Math		Rejected	Not specific
	3	I have completed Pre-Calculus at Trident Technical College with a B letter grade. I believe my education will allow me to fulfill any mathematical requirements a career asks of me.		Accepted	
	4	I earned As on math tets and in Algebra.		Accepted	
	4	Ue calculator		Rejected	Not related to the definition provided.

	4	I make Bs in high school math and geometry	Accepted	
	4	I finished all of my classes with good grades and I earned an A in Algebra.	Accepted	
	4	I always do math in my head	Rejected	Not specific
Creative Thinking	3	Art	Rejected	Not specific
	3	I wrote stories in school and was priased for them	Accepted	
	3	In general, I am a pretty creative person.	Accepted	
	4	Received A in class ads	Accepted	He/she used Creative Thinking to create marketing ads and earned an A
	4	I was in an academic organization called DI, short for Destination Imagination, which helped young adults cultivate their creative skills. My team placed 22nd, out of the rest of the world.	Accepted	
	4	I worked on the school newspaper and had t5o think cre3atively	Accepted	
	4	I did the comics for the school newspaper of a city to Maybomb in a book called To Kill a Mockingbird.	Accepted	
	4	I fixed my vacuum cleaner	Rejected	Not related to the definition provided.
Decision Making	3	i always think before i do everyting	Accepted	
	3	When I went to school I choose to not talk, obey the rules, and be a better person.	Accepted	

	3	I have experienced as the captain of a soccer team, which requires one to make decisions as well as have a basic regard for the team mates one is making the decisions about.		Accepted	
	3	I make decisions regarding my baby all the time and I believe I would be a good child care worker.		Accepted	
	3	I look at my decisions and see which ones have a short term and a long term affect on me.		Accepted	
	3	I was always on time to practices and I continue to go to class on time		Accepted	
	4	I think things through before I put myself at a challenge	He/she uses good decision making skills when faced with challenges	Accepted	
	4	I had to find out which friends to hang out with and which ones to avoid		Accepted	
	4	Instead of standing around in the hall between classes I went to class.		Accepted	
	4	I decided to ask principal to erase 4 absences so I could graduate high school and she did		Rejected	Not related to the definition provided.
Exercises Leadership	2	tried to use it during soccer and other team sports		N/A	
	3	I remember telling other students to be quiet to help the teacher and keep them out of trouble		Accepted	
	3	If a task is given to me and I have others under my command I can utilize their strengths to help get the job done.		Accepted	
	3	I always convince my friends to do the right things		Accepted	
	4	I'm a good leader now and I was a good leader on the basketball team.		Accepted	

	4	Always in CHARGE		Accepted	
Human Resources	3	I pretty much do this already at my work.		Accepted	
	4	I manage stock clerks all the time.		Accepted	
Improve or Design Systems	1	Don't understand.		N/A	
Integrity/Honesty	3	i always try to be honest		Accepted	
	3	Being an honest person is something my parents taught me. Honesty is the best policy.		Accepted	
	3	I don't cheat myself with lifting weights		Accepted	
	3	Don't believe in telling lies		Accepted	
	4	When something happened between me and my best friend.		Rejected	Neither specific or job related
	4	I did not cheat in school and teachers believed in me being honest		Accepted	
	4	I haven't taken a course in honesty, but they do say that honesty is the best policy.		Accepted	I gave the graduate the benefit of the doubt.
	4	I am very trustworthy. I keep children all the time and I have never had an accidetn with them.		Accepted	
	4	im loyal; people trust me with secrets		Accepted	
	4	I told the truth even when I know I was in trouble.		Accepted	
Interprets/Communicates	3	i work well with others. communication is the key to success		Accepted	

Category	#	Response		Status	Notes
	3	I used graphs in math and science classes to answer question and on the SAT I used them to anwer questions		Accepted	
	3	I am able to communicate orally, graphically, and through writing.		Accepted	
	3	Same as last question.	He/she previously wrote, "I take printouts and put new prices on the shelf. I did this in high school and now."	Rejected	Not related to the definition provided.
	3	I can break things down for Jasmine to understand		Rejected	Not specific
Knowing How to Learn	3	At the beginning of each year I had trouble knowing how my teachers taught but over time I learned how each one taught in different ways.		Accepted	
Knowing How to Learn	3	I graduated high school		Rejected	Not specific
	3	Over the years, I have learned many ways to grasp what is being taught. There are many ways to do this. It's all about skill and paying attention.		Accepted	
	3	had to learn how to drive a car		Accepted	
	3	i learn very well once i practice		Accepted	
	4	I have been in school for 12 years now .		Rejected	Not specific
	4	Being a studetn my whole life, I have learned how to learn. Over the past year I have studied my own working patterns, and what I must do in order to succeed.		Accepted	
	4	I know that I am better at learning visually than reading but I can read good. I took lots of notes in my classes and like to use fill in the blank papers from my teachers.		Accepted	

	4	realized I understand hands on activities better	Accepted	
Listening	3	i listen to what i really need to know about anything.	Accepted	
	3	My teachers and my parents often praised me for listening.	Accepted	
	3	I have worked as a waiter, which, taught me how to listen	Accepted	
	3	I have good hearing.	Rejected	Not related to the definition provided.
	3	I am rather well at paying attention when someone is talking or giving directions.	Accepted	
	3	I have to listen to make directions clear so I can follow	Accepted	
	3	I listen attentively to people	Accepted	
	4	I listen to what people have to say.	Accepted	
	4	I listened to my teachers in school and paid attention. I did not get into trouble and obeyed rules.	Accepted	
	4	I had to create a list of questions after my professor gives a speech	Accepted	
Maintains/ Troubleshoots Tech	1	I don't do much of that.	N/A	
	3	fixed the printer	Accepted	
Material and Facilities	3	I'm pretty confident that I can store things well.	Accepted	I gave the graduate the benefit of the doubt.
	3	I set up displays at the store and I setup and take down conveyors when trucks comes in.	Accepted	

Category	Rating	Statement	Note	Result	Not specific
	3	I know my limit		Rejected	
Money	3	save some in a bank account ot Bank of America		Rejected	Not related to the definition provided.
	4	I have managed the budgets of a micro-economy. I have used quickbooks to count cash flow and savings.		Accepted	
	4	I budget my pay check and have money left over		Accepted	
	4	I saved up a lot of money for my birthday and other stuff in high school. I have a check account now and I don't bounce checks.		Accepted	
	4	can create budgets to save money		Accepted	
Monitors and Corrects Sys	1	I don't understand that.		N/A	
	2	I can understand systems and organizations very well especially because I'm good at math which requires an understanding of systems.		N/A	
Negotiates	1	I don't exchange stuff b/c I buy things I want.		N/A	
	3	If there is a disagreement, I'm willing to find a happy-medium.		Accepted	
	3	I can agree if i feel it's the right thing		Accepted	
	4	did so with a debate during high school		Accepted	
	4	got some referrals erased with a deal	Graduate managed to negotiate a work detail or some other form of punishment in lieu of suspension	Accepted	
Organizes and Maintains Data	3	I'm well versed in most forms of data recording, using computers.		Accepted	

Category	Rating	Response	Note	Decision	Comment
	3	I have to keep my side of the room neat and clean		Rejected	Not related to the definition provided.
	3	i have a habit of organizing		Rejected	Not specific
	3	I take printoutsand put new prices on the shelf. I did this in high school and now.	He/she works for a grocery store where he/she changes prices	Accepted	I gave the graduate the benefit of the doubt.
	4	stay organized		Rejected	Not specific
Problem Solving	2	Im not really good at solving problems		N/A	
	2	Ds in math		N/A	
	3	I have solved family problems, money problems, and I am good at it.		Accepted	
	3	I am always trying to find ways to fix things.		Accepted	
	3	used to solve to keep airinative	???	Rejected	Not specific
	3	all problem solving has a reason which I always give		Accepted	
	3	I stepped in when friends were in trouble and to break up fights.		Accepted	
	4	Again I must pull on my experience with Destination Imagination. Besdies performing a skit and building a structure, my team also participated in weekly "puzzles" designed to improve one's problem solving skills.		Accepted	
	4	I found the source of my drama and resolved it	????	Accepted	I gave the graduate the benefit of my doubt.
Reading	3	English		Rejected	Not specific
	3	When I read a book in school I was able to understand what I read and answer questions in class		Accepted	

Category	Level	Response	Note	Decision	Comment
	3	I have always enjoyed reading books, I can read 700 page book in a week		Accepted	
	3	I have completed English 102 at Trident Technical College with an A letter grade. I also have experience managing financial accounts.		Accepted	
	3	Im not good at reading out loud but I enjoy reading. Reading was required a lot in high school.		Accepted	
	3	I read all the time		Accepted	
	3	I read to my little sister and on my own time		Accepted	
	3	Read and answered questions on books all the time		Accepted	
	4	I had high Asinside essentials of reading through high school.	He/she earned A's in reading class	Accepted	
	4	I'm exceptionally smart! :)		Rejected	Not related to the definition provided.
	4	I read a lot of school like To Kill a Mockingbird and in other classes too. I'm a good reader.		Accepted	
Reasoning	3	I remember playing in a mock trial and I was the attorney		Accepted	I gave the graduate the benefit of the doubt.
	3	Reasoning plays a key roll in life ever since I was young, I have been taught to do this.		Accepted	
	4	I have read many books and I am able to reason within a given constraint.		Accepted	
	4	I don't argue with people or or my parents.		Rejected	Not related to the definition provided.
	4	determined if I try I can get more accomplished than quitting		Accepted	

Category	#	Statement	Comment	Decision	Note
Responsibility	3	i take full responsibility for all of my actions, if i am responsible for someone i make sure to do the right things		Accepted	
	3	I was in ROTC and got the highest earnings medal	Reference to JROTC and not ROTC which is for college students.	Accepted	
	3	I am responsible, and able to fulfill what is required of me.		Accepted	
	3	I am very responsible. I hold down a job and go to school. Making sure I get all my work done is responsibility.		Accepted	
	3	I hvaee to keep up with house keys		Accepted	I gave the graduate the benefit of the doubt.
	4	At my job I have responsibilities to take care of but not only at work, at home.	The graduate is responsible at work and at home.	Accepted	
	4	When I had to take tests an I had to have my notes and I kept them where I could find them.	He/she demonstrated responsibility to take and keep classroom notes.	Accepted	
	4	I am very responsible. I am a mother and the oldest of my brothers and sisters. I have held jobs before and I was good worker. I only quite be I had a baby.		Accepted	
	4	i do chores around the house without mom asking me		Rejected	Not specific
	4	I remembered to do my chores at home and I went to work even when I didn't feel like going.		Accepted	
	4	I always take responsibility for me		Rejected	Not specific
Selects Technology	3	I have a high teach phone		Rejected	Not related to the definition provided.

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Category	Rating	Response	Status	Comment
	3	I use the computer at home to play games but I don't use it at work.	Accepted	
Self-esteem	3	I'm happy just the way I am.	Accepted	
	3	I am very self confident	Accepted	
	4	i have very high self-esteem	Accepted	
	4	I keep positive view on life no matter what the situation is.	Accepted	
	4	I am always uplifting myself by giving myself compliments.	Accepted	I gave the graduate the benefit of the doubt.
	4	I ignored people who called me fat	Accepted	
	4	I have a relatively high self esteem.	Accepted	I gave the graduate the benefit of the doubt.
	4	I believe in myself and the plan God has for me.	Accepted	
	4	I believed I could graduate high school and I did.	Accepted	
	4	always believe in myself	Accepted	
Self-Management	1	I don't understand this question.	N/A	
	3	i manage and acarry myself very well	Accepted	
	3	I have awesome self management.	Rejected	Not specific
	3	I am able to manage myself and get cetain goals completed within a certain time frame.	Accepted	
	3	I want to work for the state and I am going to Trident next semester.	Rejected	Futuristic goals, not evidentiary.

	3	I have my priorites in line and I have in order to keep it like that, I need self-management.		Accepted	
	4	I keep myself well cleaned		Rejected	Not related to the definition provided.
	4	i set my goals and try to strive for them		Accepted	
	4	I understand my abilities and use them.		Accepted	
Serves Clients/Customers	3	I can organize my ideas to get my point across.		Accepted	Accepted but in retrospect I should have rejected this one for not being specific.
	3	My job requires me to do this everyday.		Accepted	
	3	when go to BlackBaud Stadium	???	Rejected	Not specific
	3	I don't serve customers directly so I'm giving myself a 3 but I'm a good worker and I leave products for customers to find during the day.		Accepted	
	3	comply with other needs		Accepted	
	4	I worked as a waitress.		Accepted	
Sociability	3	I made friends in school with people others would not talk to or do anything with		Accepted	
	3	Althought I can have a social relationship with many people, I am in my essence an introvert; however, I am able to have a relationship with strangers.		Accepted	
	3	I'm good with people and get along with just about anyone.		Accepted	
	3	I make new friends easily		Accepted	
	3	I have a friendly personalty		Accepted	

	4	i am very social. I am always up for meeting new people		Accepted
	4	I talk to my friends everyday.		Accepted
	4	I make friends easy and I keep up with my friends.		Accepted
	4	i have many friends!!!		Accepted
	4	I am very friendly and have lots of friends. Most of my friends are still my friends.		Accepted
Speaking	3	i speak proper English when necessary		Accepted
	3	I had to do presentations in school and received Bs		Accepted
	3	I work with the public so I am always working with everyone. I know when and not when to ay something.		Accepted
	3	I try to correct myself when Im incorrect		Accepted
	4	I talk a lot.	I questioned the meaning of this remark… did the graduate mean he/she talks excessively, or is often engaged in public speaking.	Accepted I gave the graduate the benefit of the doubt.
	4	I am able to speak on a level that anyone can understand. I can speak with a main goal in mind, while keeping my words short and to the point. I have been in many plays and I have made a few speeches to large groups of people.		Accepted
	4	I created a book project in my senior year and presented it to the class. My teacher and friends in class gave me high praise.		Accepted
	4	I soon gave a wedding presentation	He/she once create and presented a project regarding weddings.	Accepted

Teaches Others New Skills	3	I was often asked by friends to help them with math problems and one of my teachers let me try to explain problems when other students didn't get it		Accepted	
	3	I like helping people and I feel like I can connect with them. In order to teach something, I need to fully understand the material.		Accepted	
	3	taught my dad how to play pitty pat		Accepted	
	4	I regularly teach new students, at the dojo I attend, how to perform a technique correctly which involves my learning how to teach.		Accepted	
	4	I taught my brother how to tell time by breaking the time down and I teach new employees how to unload a truck without getting hurt.		Accepted	
	4	always helping Jasmine		Accepted	
Teamwork	3	i work well with others, most of the time things are done faster when you work with someone else		Accepted	
	3	Several classes used team based activities that I really enjoyed, and I was active in ROTC	ROTC should be JROTC	Accepted	
	3	I have worked as a team, I've also worked with 50 students to run a farm which definitely involves teamwork.		Accepted	
	3	I get along well with others and I know how to work with them.		Accepted	
	4	Im willing to work with anyone.		Rejected	Not specific
	4	played soccer, basketball, and football		Accepted	

Category	Rating	Response	Status	Note
	4	I know how to work a team in high school and work. I played basketball in high school and I manage a night stock team now.	Accepted	
	4	works-well with others	Accepted	
Time	3	I showed up to class and to school on time	Accepted	
	3	I HAVE to be on time. I can't stand being late.	Accepted	
	3	use it wisely when doing something important	Accepted	
	4	i have a all day schedu8le I set every week	Rejected	Not related to the definition provided.
	4	I set an alarm clock and got up all by myself.	Rejected	Not related to the definition provided.
Understands Systems	1	I don't understand this question.	N/A	
	3	I can understand systems and organizations very well especially because I'm good at math which requires an understanding of systems.	Accepted	
	3	figure out how to work computers	Rejected	Not related to the definition provided.
Uses Computer to Process Data	3	i have experience with Microsoft word, excell, power point, and publisher	Accepted	
	3	I used the computer to make resumes and to complete Compuer classes with A averages	Accepted	
	3	I can use most programs to organize data, as well as, send and share that data.	Accepted	
	3	I use computer a lot to keep up friends on Facebook and to apply for jobs. I can type and I passed keyboarding and Computer Apps in high school.	Accepted	

Category	Score	Response	He/she used the computer for school newspaper	Decision	Reason
	3	to make newspaper ad and do my papers	He/she used the computer for school newspaper	Accepted	
	3	i spend hours on a computer at time		Rejected	Not related to the definition provided.
	3	I use an order gun to reorder products out of stock.		Rejected	Not related to the definition provided.
	3	put all info. in my laptop		Accepted	I gave the graduate the benefit of the doubt.
	4	I changed printer ink cartridge and copier toner		Rejected	Doesn't satisfy the definition provided
Works with Diversity	3	JROTC taught me to work with other people to complete taks and write reports		Accepted	
	3	I can get along with pretty much anyone. I can over look a lot of things.		Accepted	
	4	worked on a co-ed soccer team		Accepted	
	4	I have a best friend that is caucasion		Rejected	Not related to the definition provided.
	4	Most everyone I work with are black to but I get along with all of them if they are mean or not.		Accepted	
	4	work well with others		Accepted	
Writing	3	English		Rejected	Not specific
	3	As stated above I have completed sufficient academic criteria, thus, bestowing in me the ability to communicate my thoughts, ideas, and messages in writing.		Accepted	

3	I can write (and type) but I hate writing papers. I can write instructions and have do that before when people asked me computer questions.	Accepted	
3	I've taken Honors and Advanced Placement classes where writing is key.	Accepted	
3	I wrote an essay on how I felt about English 4	Accepted	
4	I received high A's on research papers and book reports.	Accepted	
4	I wrote numerous essays in my classes and got a 100% on most	Accepted	
4	Wish!	Rejected	Not related to the definition provided.
4	I've written essays, poems, research papers	Accepted	
4	I keep a journal	Accepted	I gave the graduate the benefit of the doubt.
4	I wrote a lot of papers in school like a tall tale in my ELA class.	Accepted	

Appendix H

Wr-scores and b-scores

While the WAI is designed to return a single number estimate of an individual's word-readiness (Wr-score) it was possible to calculate each graduate's perception of work-readiness based on his/her bias self-evaluation (b-score). The following summarizes that data.

	b-score	Wr-score	Δ	
			Numerical	Percentage
HS02	108	36	72	67%
	86	56	30	35%
	111	58	53	48%
	86	58	28	33%
	87	71	16	18%
	72	72	0	0%
	90	75	15	17%
	95	75	20	21%
	101	79	22	22%
	94	82	12	13%
	92	90	2	2%
	111	103	8	7%
	124	106	18	15%
HS10	108	36	72	67%
	108	38	70	65%
	79	47	32	41%
	119	47	72	61%
	98	50	48	49%

	86	52	34	40%
	95	95	0	0%
	82	56	26	32%
	116	62	54	47%
	123	63	60	49%
	136	71	65	48%
	144	72	72	50%
	72	72	0	0%
	91	87	4	4%
	93	55	38	41%
	113	113	0	0%
HS22	74	58	16	22%
	88	66	22	25%
	98	70	28	29%
	119	93	26	22%
	136	126	10	7%
	107	43	64	60%
	73	73	0	0%
Average	100	70	31	31%
Std Deviation	18.7	21.7		
Work readiness rating	Work-ready (High)	Preparatory (High)		

Curriculum Vitae

Charles Jerry Williams, Jr., Ed.D.

Education

2012   Doctor of Education
      Walden University, Minneapolis, Minnesota
      Specialization in Teacher Education, Graduate Work Readiness (Skills Gaps)
      Dissertation: *A Quantitative Assessment of Skills and Competencies in Graduates of At-Risk High Schools*

1997   Master of Divinity
      The Southern Baptist Theological Seminary, Louisville, Kentucky
      Emphasis in Systematic Theology and Biblical Studies

1985   Bachelors of Science in Business Administration
      The Citadel, The Military College of South Carolina, Charleston, South Carolina

Teaching Experience

2007-Present Charleston County School District, Charleston, South Carolina
      CTE Educator / College and Career Guidance

2005-2007 Charleston County School District, Charleston, South Carolina
      Substitute Teacher

1994-2009 Southern Baptist Pastor / Teacher (Kentucky and South Carolina)
      Theology, Biblical Studies, Evangelism, Christian Philosophy

Earlier Experience

1990-1994 MicroSolutions Computer Services
      Senior Computer Consultant / Corporate Trainer

1985-1990 United States Navy
      Decorated Surface Warfare Officer (Electrical and Operations)

Presentations

2012   "Charleston County Grads – Majoring In Under-preparedness," Transforming Theory into Action Education Symposium, Charleston Civic Center, Charleston, S.C., June 1012

2012   Dissertation Oral Defense, Walden University
      Michael Brophy, Ed.D., Doctoral Chair

2010   "Are High School Graduates Ready for the Real World," Charleston County School District's High School Learning Community Forum, West Ashley High School, Charleston, S.C., January 15, 2010

Published Works

2012   *A Quantitative Assessment of Skills and Competencies in Graduates of At-Risk High Schools* (Ed.D. dissertation). Walden University, Minneapolis, MN.

2011   *In His Very Steps: What Does the Bible Say?* Seattle, WA: Author.

2005   Finding future leaders. LeaderLife, Summer 2005.

2004   Effective administration in small churches" Church Administration, Winter, 2004.

2003   How big is the God you worship? Proclaim! Summer, 2003.

2002   "Who Do We Worship?" Proclaim, Spring 2003.

            "Handling Adversity," Proclaim, Fall 2002.

            "Survivor," Proclaim, Summer 2002.

            "Touched By An Angel!" Proclaim, Spring 2002.

1999   "Lessons from the Master Teacher," The Baptist Courier (1999, September – November).

1997   "November 22: Christ the king crucified." The Ministers Manual, James W. Cox, ed. San Francisco: Jossey-Bass, 1997, pp. 225-226.

            "December 20: Christmas – Dispelling any doubts." The Ministers Manual, James W. Cox, ed. San Francisco: Jossey-Bass, 1997, pp. 244-246.

            "December 27: New Years expectations." The Ministers Manual, James W. Cox, ed. San Francisco: Jossey-Bass, 1997, pp. 249-251.

1996   Teachers as leaders. Sunday School Leader, April 1996.

1995   The Climb. Parent Life, August 1995.

1995   Williams, C.J., & Burnette, R. Applications of the Baptist Faith & Message. Louisville, KY: MidSouth Printing.

1995   (April 1995). In the name of God. Living with Teenagers, April 1995.

Grants Received

2009   Teen-Lead Education Advancement Grant, South Carolina Department of Education - $3,000

Professional Positions

2008-09   DECA advisor, West Ashley High School

2009-10   BETA Club advisor, North Charleston High School

                 FBLA advisor, North Charleston High School

                 Member of Leadership Team, North Charleston High School

                 Member of HSTW Preparation Team, North Charleston High School

                 Member of Leadership and Curriculum Support Group, North Charleston High School

Professional Associations

2009-present   Alpha Epsilon Xi Section of Phi Delta Kappa, the International Honor Society in Education, Walden University

2008-10   South Carolina Education Association

2008-09   National Education Association

1985-present   The Association of Citadel Graduates