

WORK ETHIC OF HIGH SCHOOL SENIORS IN CAREER AND TECHNICAL EDUCATION

by

BARBARA MINTON WALL

(Under the direction of Roger B. Hill)

ABSTRACT

Variables associated with the work ethic of career and technical education (CTE) high school seniors were analyzed, including gender, race, work-based learning, socioeconomic status, applied mathematics, reading for information, and locating information. Dependent variables were the work ethic constructs of interpersonal skills, initiative, and dependability as measured by the three subscale scores from the Occupational Work Ethic Inventory.

A convenience sample consisting of 533 CTE students with complete data sets were used. Archival data were retrieved and multiple regression analysis was used to answer the following questions:

1. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills?

2. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of initiative?

3. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of dependability?

Three of seven independent variables showed significance. Socioeconomic status (SES) was significant in the work ethic construct of initiative. Reading for information was significant in the work ethic construct of initiative and dependability. Work-based learning (WBL) was significant in all three work ethic constructs including interpersonal skills, initiative, and dependability.

INDEX WORDS: Work Ethic, Work-based Learning, Career Technical Education, Socioeconomic Status, Reading for Information, Social Cognitive Learning Theory, Self-efficacy

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EDUCATION

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Dedication

This dissertation is dedicated to my wonderful family, who has provided support and encouragement as I have worked to complete this degree. Each of you is special to me in your own way, and each of you has taught me important lessons about life through experiences we have shared. I love each of you more than you can ever imagine.

To my parents, Bobby and Willene Minton, I could not have asked for better parents than you; I cannot think of one of you without thinking of the other. Daddy, after reading my dissertation, you e-mailed me and asked, “Can you really teach someone work ethic?” My answer is yes, Daddy, you really can. Most work ethic traits are character and personality traits shaped during childhood, and you both taught me work ethic by the examples you set and by the values you instilled.

Not only were you one of my first work ethic teachers by being one of my parents, but you also hired me for my first real job as cashier at Piggly Wiggly. So, I was able to witness your work ethic both at home and at work. I remember beliefs you relayed to your employees, such as “The customer is always right,” and how you valued being fair to other employees by not letting me take off during the summer months—though you did let me submit my resignation so I could attend summer camp.

Mama, when I think of you I think of the virtuous woman described in Proverbs 31:10-31. The examples you set for me by living the life of a virtuous woman have certainly helped to shape my values and beliefs, thus impacting my own work ethic. Even though you have no formal education beyond high school, you are one of the smartest and best teachers I know. The

research skills you have developed by studying the Bible and teaching Sunday school and Bible study classes are phenomenal. I admire you so.

As for my sister, Deborah Williams, you are the best. We grew up together and are alike in the important ways, yet different in others. I liked walking to the little school house in The Great Smokey Mountains; you did not. I liked playing school; you did not. When I tried to help you understand “dangling modifiers”, you dangled your arms and legs over the dining room chairs. I liked school and have gone to school most of my life, but did not have perfect attendance; you did not care for school and certainly did not choose to beyond 12th grade, yet you never missed class. While I’ve been working on my dissertation for the past several years, you’ve been learning about *Facebook*, *Twitter*, and how to text. I know you think you have the common sense and I have the book knowledge. Will you teach me now?

Psalms 127:3 states that children are a gift from God. To my children, Talisha (age 35) and J.T. (age 32), you are truly my gifts from God and I treasure you more each day. The two of you are different yet alike in many ways. Both of you are driven and have always strived to be the best at whatever you’ve tried. I’m amazed at the self-efficacy you two have developed over the years, which has allowed you to accomplish goals I would have never attempted. The drive, determination, and work ethic that you two have and use in order to reach goals are incredible.

Talisha, I am proud of you for pursuing your dreams by opening your *A + Gymnastics* business and for overcoming obstacles along the way. You’ve maintained a strong work ethic and applied Christian principles to your business venture, which, I believe, have led to your success.

J.T., I will always remember sitting on a curve after a football game with you in Missouri when you said, “Mama, I know this may have been the last college football game I will ever

play, but I've got to try walking on at the University of Georgia. I can't look back years from now and wonder if I could've made it." Son, I am proud of you. Partly due to your good work ethic and self-efficacy, you made the team at UGA and went on to be drafted by the Pittsburgh Steelers. It's also encouraging to see you instilling that work ethic in the football players you currently coach at your high school alma mater.

Yes, Talisha and J.T., you are both driven and determined, and each of you has a good work ethic and self-efficacy. I do caution you, however, to keep your priorities straight; do not become so driven that you neglect the people most important to you. Talisha, you have provided me with the best son-in-law, Chad Alligood, and J.T., you have provided me with the best daughter-in-law, April Hartley Wall. I know that football season is especially busy, J.T. and Chad, and the responsibilities of coaching high school football throughout the year are demanding, but be sure to set aside time for your families. When I was a child, your granddaddy worked hard all year long, but every summer he, Granny, Aunt Deborah, and I never missed a two-week family vacation in The Great Smokey Mountains.

Talisha and J.T., I know you have missed your daddy for the past several years. He would be so proud of the woman you have become, Talisha, and the man you have become, J.T. Your daddy had a lot of good qualities. Johnny was a hard worker, and I am grateful to him for always encouraging me to continue my education.

Thanks to J.T. and April, my crowning gift from God is my grandson, Asa Thomas Wall. Asa turned two years old on September 28, 2011. I am amazed at how much he has learned during this short time. Working on this dissertation has reminded me of the importance of observing, modeling, and self-efficacy in the learning process. As Asa socializes with others, he will observe and model their behaviors, the outcomes of which will shape his attitudes and work

ethic. He will be determining if he thinks he can behave in certain ways. Working on this dissertation has also reminded me that we need to work with Asa so that he will have a well-developed vocabulary and advanced math skills. More importantly, though, we should heed Proverbs 22:6: “Train a child in the way he should go, and when he is old he will not turn from it.”

My children grew up thinking that going to college was an everyday occurrence. When Talisha was three, someone asked her where she went to school, and she promptly told them Georgia College—she was in the pre-school program there. About a year ago, I was taking my last statistics course for my doctorate degree at the University of Georgia and was in class with Clay, a friend of J.T.’s. It seems like I’ve been in college most of my children’s lives. Well, this is it: no more degrees and no more formal college classes. I do believe that learning is a lifelong process, and I plan to continue learning in other ways, such as going to Italy to take cooking classes, and attending Bible study at church.

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Table of Contents

	Page
Acknowledgements	viii
List of Tables	xiii
Chapter	
I Introduction.....	1
Purpose of the Study	7
Research Questions	8
Theoretical Framework	8
Importance of the Study	19
II Review of Related Literature and Research.....	23
Theories Related to Work Ethic and Work-based Learning	23
Historical Context of Work Ethic	28
Teaching Work Ethic	39
High School Work-Based Learning Programs and Work Ethic	49
III Research Method	62
Purpose of the Study	62
Research Questions	62
Research Design.....	63
Participants.....	64
Data Collection	67

Survey Instruments	72
Procedure	75
Data Analysis	76
IV Analysis Of Data.....	79
Purpose of Study	79
Background Information	80
OWEI Reliability	85
Regression Analysis.....	87
V Summary, Conclusions, and Recommendations.....	108
Summary of Research Study.....	108
Summary of Findings.....	112
Conclusions.....	114
Recommendations for Further Research.....	118
Contributions of the Study	119
References.....	123
Appendices.....	137
A 164-4-8.08 Career Education	138
B CTAE Foundation Skills.....	141
C SCANS Workplace Know-How: Competencies and a Foundation.....	143
D The Partnership for 21 Century Skills	146
E Permission to Use OWEI.....	150
F Human Research Curriculum Completion Report.....	152
G Research Approval by School System.....	154

H	Exit Survey for 2011 Graduates.....	156
I	IRB Approval.....	163

List of Tables

	Page
Table 1: Missing Data Points and Number of Students	65
Table 2: Description of Predictor Variables Impacting Work Ethic Scores of CTE Students	69
Table 3: Description of Criterion Variables Impacting Work Ethic Scores of CTE Student	69
Table 4: Analysis Strategy	78
Table 5: Means and Standard Deviations for Continuous and Interval Variables.....	81
Table 6: Variables Categorized by Descriptor, Number and Percentage of Participant.....	81
Table 7: Count and Percentage of Participants with Each Assessment Score.....	81
Table 8: Variables Categorized by Descriptor, Number and Percentage of the 106 Eliminated Participants.....	83
Table 9: Variables Categorized by Descriptor, Number and Percentage of the 29 Eliminated Participants due to Administrative Error.....	84
Table 10: Variables Categorized by Descriptor, Number and Percentage of the 77 Eliminated Participants due to Student Carelessness	85
Table 11: Means and Standard Deviations for Work Ethic Constructs.....	86
Table 12: Full Regression Analysis for Interpersonal Skills.....	89
Table 13: Process of Removing Predictor Variables with Low Beta Weight for Interpersonal Skills.....	91
Table 14: Interpersonal Skills: Progression of Variable Removal and Determination of Significant R^2 Change.....	92

Table 15: Full Regression Analysis for Initiative.....	95
Table 16: Process of Removing Predictor Variables with Low Beta Weight for Initiative.....	97
Table 17: Initiative: Progression of Variable Removal and Determination of Significant R^2 Change.....	98
Table 18: Full Regression Analysis for Dependability	100
Table 19: Process of Removing Predictor Variables with Low Beta Weight for Dependability	102
Table 20: Dependability: Progression of Variable Removal and Determination of Significant R^2 Change	103
Table 21: Two-Sample T-Test and CI: Initiative – SES.....	105
Table 22: Two-Sample T-Test and CI: Dependability – WBL.....	106
Table 23: Two-Sample T-Test and CI: Initiative – WBL.....	106
Table 24: Two-Sample T-Test and CI: Interpersonal Skills– WBL.....	107

List of Figures

	Page
Figure 1: Triadic Reciprocal Interaction for Interpersonal Skills.....	11
Figure 2: Triadic Reciprocal Interaction for Initiative.....	11
Figure 3: Triadic Reciprocal Interaction for Dependability.....	12
Figure 4: Residual Plot of Full Regression Model for Interpersonal Skill.....	90
Figure 5: Residual Plot with WBL Hours Model for Interpersonal Skill.....	93
Figure 6: Scatter Plot of Interpersonal Skill versus WBL.....	94
Figure 7: Residual Plot of Full Regression Model for Initiative.....	96
Figure 8: Residual Plot of Initiative versus WBL and Reading for Information.....	99
Figure 9: Residual Plot of Full Regression Model for Dependability.....	101
Figure 10: Residual Plot of Dependability versus WBL and Reading for Information.....	104

Chapter I

Introduction

Lack of a strong work ethic is an ongoing problem in the United States (Curry, 2003; Gregson & Bettis, 1992). One of the difficulties employers face is finding persons with good interpersonal skills who can work well with others in the workplace. Employers also struggle to find persons with initiative and dependability in their jobs (Tydings, 2003). When employees lack a strong work ethic and display negative behaviors and attitudes, such as arriving late to work, being rude to customers, or waiting for instructions after each job task is completed, their employers struggle to maintain a productive workforce. Understanding the affective attributes of interpersonal skills, initiative, and dependability, as well as identifying factors that influence them, can significantly inform instruction for those involved in workforce preparation.

For the past 20 years, much of the school-related research cited in this study portrayed continuous complaints by employers of deficiencies in student's academic skills and in their work ethic (Achieve, 2004; Secretary's Commission [SCANS], 1991). Recent federal and state legislation addressed deficiencies in both academic skills and soft skills—i.e., attitudes and behaviors that contribute to success or lack of success both at school and in the workplace (Georgia House Bill 186, 2011; Perkins, 2006).

Because employers expect all employees to enter the workforce with a strong work ethic, such a work ethic is not considered a competitive edge for initial employment. However, maintaining a strong work ethic is necessary for success on the job. Gregson and Bettis (1992)

found that the majority of people who lose their jobs or fail to be promoted do so because of poor work attitudes.

Work Ethic vs. Work Ethics

Gray and Herr (1998) made a distinction between *work ethic* and *work ethics*. They described *work ethic* as an employee giving a day's work for a day's pay. Work ethic originated from the 1800s United States Protestant belief that workers have a moral obligation to work hard and strive for excellence and, furthermore, that being nonproductive is evil. *Work ethics* is defined differently, depending on whether the occupation is professional or nonprofessional. Gray and Herr (1998) defined work ethics among professional occupations as behaviors that are consistent with the profession as described by its code of ethics; they defined work ethics among nonprofessional occupations as a group of behaviors and attitudes that are appropriate to the workplace. Factors such as good attendance, punctuality, follows directions and demonstrates tact describe, in part, appropriate work behaviors; honesty, cooperation, dependability, and willingness to learn describe work attitudes or habits suitable to the workplace.

While Brauchle and Azam (2004b) defined work ethic as being related to desirable work attitudes expected of employees, the Technical College System of Georgia (2008) defined work ethic as desirable job performance skills, as well as attitudes, that directly influence an employee's ability to maintain employment or advance in a job. Hill (2004) explained that work ethic falls within the larger context of ethics.

Work ethic is not job-specific (Azam & Brauchle, 2004; Hill, 1997; Hill & Fouts, 2005; Petty, 1995). According to the Secretary's Commission on Achieving Necessary Skills (SCANS) Report for America 2000 (1991), interpersonal skills and personal qualities are two of eight essential characteristics needed for all jobs. SCANS (1991) described interpersonal skills

as working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds. Personal qualities as described by SCANS (1991) include individual responsibility, self-esteem, sociability, self-management, and integrity. According to Petty (1995), the descriptions of interpersonal skills and personal qualities are similar to the descriptions of work ethic on the Occupational Work Ethic Inventory (OWEI), which is a valid and reliable survey for measuring work ethic used in this study.

Work ethic is based on the employee's personal values and beliefs, and it is displayed in the employee's work behavior and attitudes (Hill, 1992, 1997; Petty, 1995; Siegel, 1983). Work behavior and attitudes are generally related to ethical or non-ethical decisions made by a worker. Because of this relationship and the overlap explained by Hill (2004), the terms *work ethic* and *work ethics* are often used interchangeably. In this study, work ethic is defined as work attitudes and behaviors that contribute to success at work.

Payne (2005) defined a strong work ethic as a set of hidden rules belonging to the middle class group of people. Hidden rules are unspoken cues and habits held by different groups of people. She further stated that schools and businesses operate from middle-class norms and use the hidden rules of the middle class, which schools and businesses do not teach directly. Unless students grow up in a middle class family that teaches work ethic, they may lack a strong work ethic, thus preventing them from being hired in the first place or keeping them from advancing in a career.

Measuring Work Ethic

Work ethic in this study will be measured by the Occupational Work Ethic Inventory (OWEI), which contains three constructs used to measure work ethic: interpersonal skills, initiative, and dependability. Hatcher (1995) described interpersonal skills as those related to

working relationships and to personal characteristics that support interpersonal relations and contribute to individual success in team or cooperative work environments. Azam and Brauchle (2004) used the term *teamwork* to describe interpersonal skills. Hatcher (1995) described *initiative* as characteristics that promote change and an aversion for satisfaction with the *status quo*. Azam and Brauchle (2004) used the term *ambition* as a description for initiative. According to Hatcher (1995), *dependability* included items that imply one's ability to meet an employment contract and provide reliable performance. Brauchle and Azam (2004b) used the term dependability for the factor being dependable.

Teaching Work Ethic

Work ethic is based on an individual's moral code or personal values; therefore, work ethic and moral development go hand in hand. Work ethic traits that employers expect workers to possess prior to being hired are, to a large extent, character and personality traits traditionally shaped during the formative years of childhood (Hill & Rojewski, 1999). According to Kohlberg (1975), Jean Piaget's work shows that the moral development of children is connected to cognitive developmental stages (Mead, 1976). Piaget observed that morals are taught very early in life, mainly by example.

Kohlberg (1975) also observed that John Dewey's goal of education was intellectual and moral development. Jensen (2009) cautioned school administrators not to dismiss the importance of soft skills because of the complex interplay between cognition and emotions. He also stated that humans are hardwired in their DNA with certain emotions, but other emotions must be taught, five of which are often used to describe interpersonal skills related to work ethic: humility, patience, cooperation, compassion, and gratitude. Children generally learn these emotions early through strong and secure relationships with family members (Jensen, 2009).

Nevertheless, many children are not taught the traits they will need to be successful in the workplace, and CTE teachers must often try to fill this void. CTE teachers have a responsibility to familiarize students with work ethic and with the expectation of the business community so that, when students go to work, they will enter the workplace with behaviors employers expect.

The need for improved work ethic in the workplace indicated by CTE advisory committee members, legislators, and the attention drawn to lack of work ethic in more than half of students as cited in education reform literature, suggests that CTE curricula should include strategies to improve student work ethic (Achieve, 2004; Georgia House Bill 186, 2011; SCANS, 1991; School-to-Work Opportunities Act, 1994). Per Georgia's state board of education rule number 160-4-8-.08 for Career Education, the local school system is required to provide opportunities for students to develop a work ethic and appreciation for the dignity of all work (see Appendix A). The newly revised CTE curriculum for the State of Georgia contains eleven foundation skills that are to be taught within every CTE course (see Appendix B). One of these skills includes *ethics* but not *work ethic*. Even though work ethic is not listed as a foundation skill, components of work ethic could and may be taught within these foundation skills.

The Georgia Department of Education (GDOE, 2008) also revealed that the eleven necessary foundation skills were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. These eleven foundation skills provide learners with a foundation for managing lifelong learning and career transitions in a rapidly changing economy (2008). These same foundation skills are related to the essential skills needed by all students identified by SCANS (1991) as work-place know how (see Appendix C).

Work Ethic Factors

Empirical research on work ethic contains these themes:

- females tend to score higher than males
- older workers score higher on work ethic than younger workers
- work ethic varies with level of education

Previous research has indicated that males and females score differently on the OWEI.

(Boatwright & Slate, 2002; Harvell, 2009; Hill, 1994, 1996b; Hill & Rojewski, 1999).

According to Bandura (1986), certain gender attributes and roles are influenced by the value society places on them. Different societal expectations for males and females could be one reason females score higher on the OWEI. As described by Bandura (1986), males are usually depicted as directive, venturesome, and enterprising, whereas women are generally portrayed as subordinate, rule followers, and people pleasers. Women's societal expectations coincide with the descriptions of interpersonal skills, initiative, and dependability on the OWEI.

The work ethic of older and younger generations is different. Older workers tend to score higher on the OWEI than younger workers (Harvell, 2009; Hatcher, 1995; Hill, 1996b). This could be because older workers have different attitudes towards work than younger workers, or it could be that older workers have had a longer time to develop desirable traits. The participants in this study were all relatively the same age; all were around seventeen years old and seniors in high school on track to graduate at the same time. Even though participants were the same age, they had different amounts of work-based learning (WBL) experiences. The number of hours the students in this study participated in WBL ranged from zero hours to 1,409 hours. Perhaps older workers score higher than younger workers because they have had a longer time to develop

work ethic traits, and students' work ethic scores may increase as their number of hours of participation in WBL increases.

Work ethic studies often examine a student's level of education. Hill's 1997 study revealed that education was not a strong indicator of one's work ethic; however, Harvell's 2009 study revealed the opposite. Attitudes toward work have changed over the decades. Lipset (1992) attributed this change to the increase of middle-class jobs being associated with educational achievement. He further stated that the association may have been responsible for reducing the work ethic of unskilled workers who are mostly immigrants and minorities. Level of education in this study was represented by participant scores on the three assessments, which include applied mathematics, reading for information, and locating information.

According to Cherrington (1980), work ethic is influenced by work experiences and socialization processes. Factors representing work experiences and socialization process in this study include formalized work-based learning experience and socioeconomic status. Other factors under study as possible influences of work ethic among high school CTE seniors include gender, race, and scores in the areas of applied math, locating information, and reading for information. These factors alone or in combination may be used to explain the variance in work ethic scores of high school CTE seniors.

Purpose of Study

The purpose of this study was to investigate variables associated with work ethic of high school Career and Technical Education (CTE) seniors from a central Georgia school district and to determine which of these variables explained the variance in work ethic scores. The identified variables were selected based on Bandura's social learning theory (1986) and are supported by previous work ethic research (Boatwright & Slate 2002; Cokley, et al., 2007; Harvell, 2009; Hill

1997; Hill & Fouts, 2005; Hughes, Bailey, & Mechur, 2001; Payne, 2005). Independent variables included gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information. Dependent variables were the work ethic constructs of interpersonal skills, initiative, and dependability.

Research Questions

This research examined the following three questions:

1. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills?
2. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of initiative?
3. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of dependability?

Theoretical Framework

Work ethic, based on an employee's personal values and beliefs, is displayed in the employee's work behavior and attitudes (Hill, 1992, Hill, 1997; Petty, 1995; Siegel, 1983). According to Cherrington (1980), work ethic can be taught and is influenced by work experiences and socialization processes. Work ethic is measured by one's social behaviors in three categories: interpersonal skills, initiative, and dependability (Petty, 1995).

Through an exploratory factor analytic procedure Hill and Petty (1995) determined that there are three categories of work ethic that are intentionally comprised of three distinct themes

or constructs. Brauchle and Azam (2004a) concluded that the constructs developed by Hill and Petty (1995) were replicable in different populations, and others can use these factors with confidence and without concern of population bias. The theme of the work ethic construct of interpersonal skills relates to working relationships with other people, so all of the descriptors for interpersonal skills deal with job performance where cooperation is important. Initiative depicts the theme of workers not being satisfied with “status quo” job performance; therefore, the descriptors for initiative describe characteristics which assist workers with “moving up the ladder”. Meeting minimum expectations but not going “beyond the call of duty” is the theme of dependability; descriptors for dependability portray this theme. The descriptors are the social behaviors that workers exhibit in each of these distinct categories.

The social cognitive theory provides an explanation of how people obtain competencies, values, and styles of behavior. It also explains the ability of humans to motivate and regulate their own behavior. Recognizing that humans are complex beings, Bandura’s social cognitive theory challenged the view of human behavior being a result of people driven by inner forces or automatically shaped and controlled by external stimuli (Bandura 1977, 1986). The social cognitive theory explains human functioning as a continuous triadic reciprocal interaction between personal factors (cognitive, affective, and biological), behavioral and environmental factors (Bandura, 1986). Each of these factors is capable of producing varying amounts of change to the other under different circumstances and in different situations. These three factors are neither static nor independent (Boyce, 2011).

In this study, interpersonal skills, initiative, and dependability were viewed as human functioning. The personal factors addressed in this study included the variables of gender and race. Variables considered environmental factors include socioeconomic status and the number

of work-based learning hours worked during the 11th and 12th grades. Applied math, reading for information, and locating information scores were variables that were considered behavioral factors. Additional behavioral factors that were characteristic for interpersonal skills were appreciative, patient, likeable, helpful, pleasant, cooperative, hardworking, cheerful, devoted, courteous, considerate, well groomed, friendly, loyal, and modest. Additional behavioral factors that distinctly described initiative included: independent, ambitious, effective, initiating, perceptive, efficient, adaptable, accurate, conscientious, persevering, orderly, enthusiastic, persistent, dedicated, productive, and resourceful. Additional behavioral factors that were behaviors representative of dependability were dependable, following regulations, following directions, reliable, honest, careful, and punctual.

Being that the three categories of work ethic are intentionally comprised of three distinct themes or constructs because they contain unique representations of different facets of work ethic, the triadic reciprocal interaction is depicted in three different tables. Figure 1 illustrates the triadic reciprocal interaction for interpersonal skills as researched in this study. The triadic reciprocal interaction for initiative is depicted in figure 2. Figure 3 is the triadic reciprocal interaction for dependability.

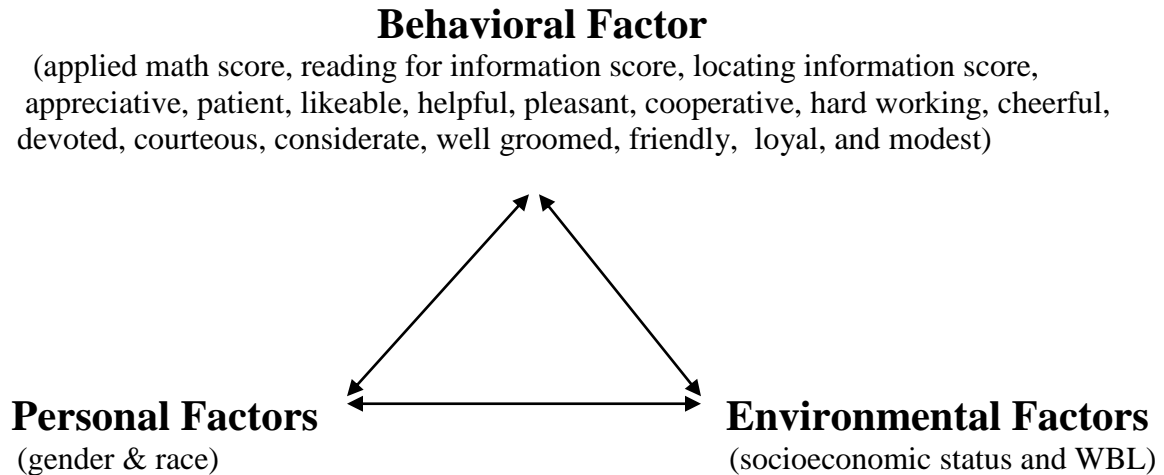


Figure 1
Triadic Reciprocal Interaction for Interpersonal Skills

The social cognitive theory explains human functioning as a continuous triadic reciprocal interaction between personal factors (cognitive, affective, and biological), behavioral and environmental factors (Bandura, 1986).

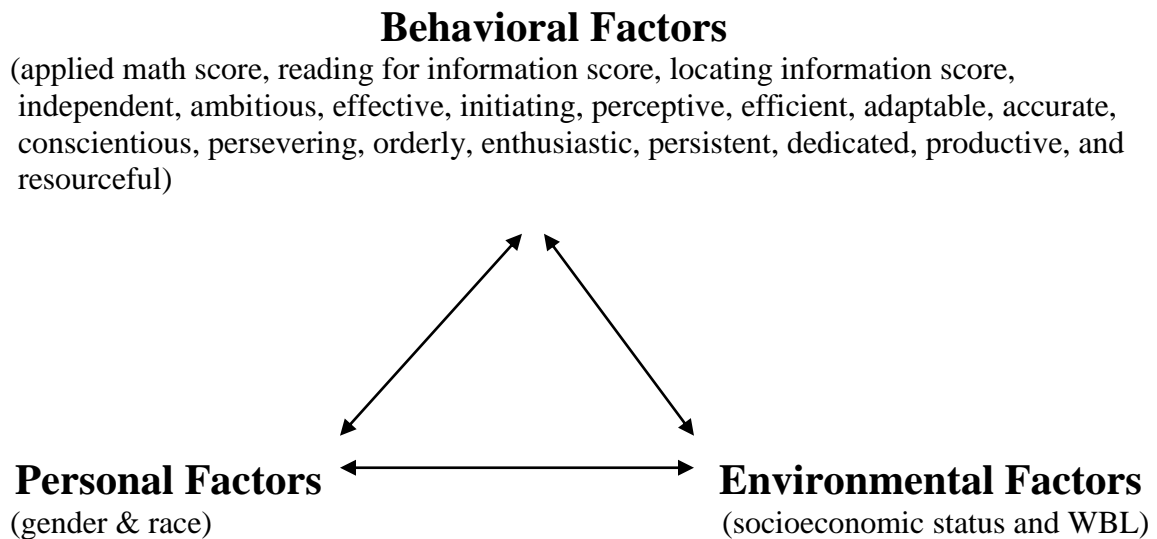


Figure 2
Triadic Reciprocal Interaction for Initiative

The social cognitive theory explains human functioning as a continuous triadic reciprocal interaction between personal factors (cognitive, affective, and biological), behavioral and environmental factors (Bandura, 1986).

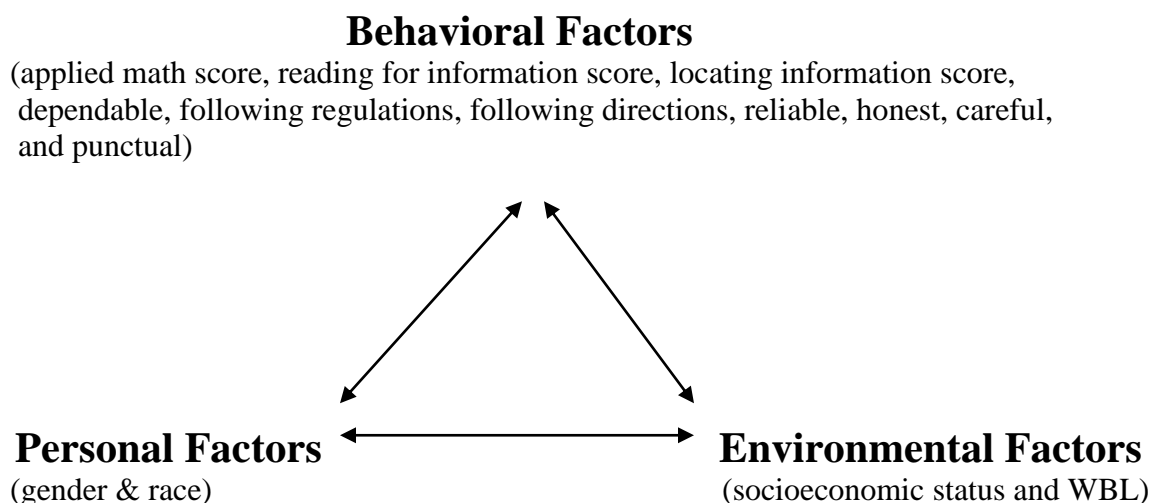


Figure 3
Triadic Reciprocal Interaction for Dependability

The social cognitive theory explains human functioning as a continuous triadic reciprocal interaction between personal factors (cognitive, affective, and biological), behavioral and environmental factors (Bandura, 1986).

Gender

Female workers scored significantly higher than males on the OWEI (Boatwright & Slate, 2000, 2002; Harvell, 2009; Hill, 1994, 1996b; Hill & Rojewski, 1999; Sullivan, 1999). According to the US Bureau of Labor Statistics (2011), women comprised 46.8 percent of the total U.S. labor force in 2009 and are projected to account for 51.2 percent of the total U.S. labor force by 2018. Because of the different perspectives toward work that men and women bring with them to the workforce, Hill (1996b) stated that any study on work ethic should include possible gender differences. According to Lyson (1984), men tended to be more concerned with earning a good living, having freedom from close supervision, having leadership opportunities, and having jobs that enhanced their social status. Women are inclined to seek job characteristics which allow them to help others, to be original and creative, to progress steadily in their work, and to work with people rather than with things. Bridges (1989) stated that women tend to seek

personal benefits, such as enjoyment, pride, fulfillment, and personal challenge, more so than men.

The social cognitive theory explains that a child's gender identity is derived from the cognitive processing of direct and vicarious experiences. Through these experiences, knowledge of sex roles and expectations of behavior appropriate for one's own sex are acquired. Certain gender attributes and roles, in turn, are influenced by the value society places on them (Bandura, 1986).

Gender is a variable that tends to drive work ethic research. Both males and females participated in the CTE program in the Central Georgia school district, and gender proved to be a factor.

Race

In most research, race is one of the demographic variables collected and is most often used as one of the descriptors of participants. In this study race was also used as a predictor variable.

Work ethic research results differed based on race. Some studies revealed no difference in work ethic based on race (Boatwright & Slate, 2000). Other studies indicated that white participants tend to score higher than black participants on work ethic (Boatwright & Slate, 2002; Cokley et al., 2007). The study conducted by Kegans (2009) revealed that Asian nursing students scored significantly lower on work ethic compared to black, white, and Hispanic nursing students. Black college students scored significantly lower than white college students on work ethic and appeared to be less likely to subscribe to the belief that a person who works hard will succeed (Cokley, et al., 2007). The study indicated that the lack of this belief could be

attributed to life experiences that these black students, their family members, or their friends had involving other uncontrollable social factors like racism or discrimination.

The social cognitive theory may also explain the attitude that hard work does not equal success among black students. People receive different reactions from their social environments based solely on physical characteristics like race or based on their conferred roles and status like power and prestige (Bandura, 1986.) The *whiteness theory* uses power, privilege, and oppression to explain ethnic and racial differences (Burton, 2009; Niemonen, 2010). Right or wrong, whiteness is an indicator used to gauge other races and ethnicities (Frankenberg, 1993).

Level of Education: Assessment Scores

As previously stated, employees level of education is often viewed in work ethic studies. Level of education in this study was represented by participant scores on the three WorkKeys® assessments, which include applied mathematics, reading for information, and locating information. Questions in the three assessment areas were asked from a work-related perspective. Students obtained the Georgia Work Ready Certificate by achieving passing scores in three assessment areas: applied mathematics, locating information, and reading for information. The Georgia Work Ready Certificate is a registered National Career Readiness Certificate issued by ACT. According to ACT (2011), “The National Career Readiness Certificate is a portable, evidence-based credential that measures essential workplace skills and is a reliable predictor of workplace success.” The level scores are used by employers to determine whom to hire and whom to promote (ACT, 2011). These scores are based on WorkKeys® job profiles, considered snapshots of the skills needed for a particular job.

The Georgia Work Ready Certificate initiative launched in 2006 was a joint effort between the Governor’s Office of Workforce Development and the Georgia Chamber of

Commerce. The world's largest soft drink and beer carton manufacturer is located in the Central Georgia school district's county. It is one of several businesses in the Central Georgia area that now requires an applicant to possess a Georgia Work Ready Certificate at a particular level.

Human Resource Manager K. Davis stated that applicants need not apply if they do not have a silver, gold, or platinum certificate. In addition to the Work Ready certificate, other assessments in reading are required at the manufacturing company. The company is considering eliminating these additional assessment requirements and only accepting gold or platinum Work Ready certificates in the near future.

The Work Ready certificate requirement has proven to provide industry with workers who have the skills necessary for success at the manufacturing company. According to K. Davis, the company needs workers who are productive and require little supervision, who are able to read and follow directions, who are proficient in math (especially with fractions), and who are good troubleshooters. The low turnover rate at the manufacturing company is partly attributed to the Work Ready Certificate requirement.

Effective workplace performance requires all workers to have foundational skills that include basic skills, thinking skills, and personal qualities (SCANS, 1991). The WorkKeys® assessment areas of applied mathematics, locating information, and reading for information directly relate to basic skills and thinking skills required of SCANS. These same three assessment areas indirectly relate to personal qualities which include work ethic. SCANS also stated that basic skills, thinking skills, and personal qualities are all intertwined.

More than 60 percent of employers surveyed for The American Diploma Project (Achieve, Inc. 2004) rated high school graduates' skills in grammar, spelling, writing, and basic math as only fair or poor. In the same report, descriptions of a variety of jobs available in the

near future included requirements for skills in applied math, locating information, and reading for information. The Georgia Work Ready Certificate can validate that a student possesses these essential workplace skills and predict job success.

Seniors in the Central Georgia school district were provided an opportunity to exit high school with a minimum of two credentials: a high school diploma and a Georgia Work Ready Certificate. The participants in this study took the three work ready assessments required for obtaining the Georgia Work Ready Certificate. Four-hundred-and-forty participants in this study obtained a passing score on each assessment to earn a Work Ready Certificate while 94 did not.

It is noted that applied mathematics, reading for information, and locating information are the three assessments required for the Georgia Work Ready Certificate. Three additional assessments offered by ACT measure a potential employee's work attitudes and behaviors. These assessments include performance, talent, and fit. Seniors in the central Georgia school district did not take these assessments, but future seniors may be required to take them.

Socioeconomic Status

Socioeconomic status was easily identified and was used as a variable in this study. Students participating in the free and reduced-price lunch programs were considered economically disadvantaged. Students eligible to receive free lunch came from families with incomes at or below 130 percent of the poverty level; reduced lunch recipients' family income was between 130 percent and 185 percent of the poverty level (U.S. Department of Agriculture, 2008).

Research by Payne (2005) indicated that economically disadvantaged students have limited knowledge of hidden rules of the middle class. She further stated that schools and businesses operate from middle-class norms and use the hidden rules of middle class, which are

not directly taught in schools or in businesses. Work ethic is considered a set of hidden rules belonging to the middle class. Payne stated that expecting economically disadvantaged students to display a good work ethic without exposure to these hidden rules may be unreasonable.

Payne (2005) stated that the socioeconomic status of economically disadvantaged students also limits their access to a variety of resources, such as emotional, mental, spiritual, physical, support systems, and relationships/role models. All of these resources could provide assistance in improving a student's work ethic, if only the student had access to them.

Social cognitive theory posits that socioeconomic status affects work ethic not directly but indirectly. Socioeconomic status can affect self-regulatory influences like people's aspirations, self-efficacy beliefs, personal standards, and emotional states, thus affecting work ethic (Pajares, 2002).

Work-based Learning

In previous work ethic research, the number of years of full-time work experience was considered a variable. Hill stated that his findings related to full-time work experience were consistent with other studies that revealed that young workers enter the workforce having a higher work ethic score than they do two to eight years later. Hill's findings further revealed that after eight years of full-time work experience, the full-time worker's work ethic score increased (Hill, 1997; Hill & Petty, 1995).

The workplace is an environment conducive to teaching work ethic because socialization that occurs there is one significant factor attributed to shaping an employee's work attitudes (Braude, 1975; Stasz & Kaganoff, 1997). According to SCANS (1991), workplaces have begun fundamental changes in the nature of work for the twenty-first century and are being restructured into high discretionary jobs. These changes require workers with strong work ethics, and,

together, businesses, schools, and parents can prepare students for high discretionary jobs. One way to work together is to provide formalized work-based learning opportunities for students. Through the CTE work-based learning program, eligible 11th-grade students were released from school to participate in formalized work-based learning (WBL) opportunities including co-op, internships, and/or youth apprenticeships.

A formalized WBL opportunity provides a student with more than just a job during high school. WBL programs provide students with access to caring adults and are an effective way of bringing youth and adults together (Hughes et al., 2001). Evanciew and Rojewski (1999) stated that in apprenticeship programs, the WBL component was a social activity based on a relationship between mentors and learners, and this relationship contributed to students' educational and social development.

Even though early family life experiences impact the shaping of a child's values, Furnham (1990) found that school experiences play an important role as well. Dose (1997) and Hill (1996b) both believed that WBL programs can help improve student work ethic. According to Hill (1996b), helping students in WBL programs identify effective work attributes and helping them to become aware of the importance of work ethic for job success could result in a change in students' attitudes and a display of appropriate work behavior. Clear norms about appropriate behavior shape values and help individuals judge what is appropriate in a given situation. Dose (1997) stated that mentors can model values included in a formal code of ethics, which can, in turn, influence the workers' ethical values.

WBL experiences themselves can help to improve work ethic. Goldberger and Kazis (1995) stated that WBL experiences play a pivotal role in students' intellectual and social development. Hughes et al. (2001) stated that students participating in WBL programs become

prepared for the world of work by learning how to act on the job and learning job-readiness skills. What's more, Freudenberg, Cameron, and Brimble (2011) demonstrated that college students participating in work integrated learning improved their self-efficacy, and, according to Bandura (1986), a worker's perceived self-efficacy in dealing with social realities of work situations can help or hinder career success.

Through a work integrated learning program, Freudenberg et al. (2011) concluded that first time university students improved their self-efficacy via participation in modeling, social persuasion, and physiological awareness. Bandura's social cognitive theory provides a sound basis for efforts to facilitate work ethic development among high school CTE seniors through the WBL program. Social cognitive theory allows for WBL mentors to model appropriate work ethic behaviors and to provide encouragement to the student worker, indicating approval or disapproval in the student's displayed work ethic.

For this study, the number of full-time years of work experience was altered to the number of hours of part-time formalized WBL experience. This study should reveal if the amount of part-time WBL experience during high school possibly impacts the variance of scores on the work ethic constructs. Since students were still in school and were not working full-time, more hours worked up to a point may correlate with higher initiative scores than fewer hours worked.

Importance of the Study

Local CTE advisory committee members—mostly local employers—have stated that the lack of work ethic is a problem in the central Georgia area. These committee members have echoed findings of the research by stating that workers with a strong work ethic, though greatly needed, can be very difficult to find (Curry, 2003; Gregson & Bettis, 1992; Naylor et al. 1996;

Tydings, 2003). Their statements may prove valid, or they may indicate that advisory committee members have and expect a stronger work ethic than their potential employees. This concept was supported by Tydings (2003), who found that advisory committee members scored significantly higher in all constructs of work ethic than did a group of technical school teachers and technical school students in the Central Georgia area.

As stated by Gall, Gall, and Borg (2007), people have individual variances, and these variances produce major personal and social consequences. By developing a regression model utilizing the stated variables, Lewis (2001) concluded that educators will be able to explain what combination of these variables provides the best model for explaining the variance in work ethic scores for a group of students. Educators can use the results of this study to develop strategies that target specific identified variables having the greatest impact on work ethic, and then implement those strategies to improve work ethic of future CTE students in the Central Georgia school district.

If a significant difference in work ethic by gender is revealed by the study, specific courses that the students have taken should be analyzed to determine if any of these courses are considered nontraditional courses as defined by The Perkins Career and Technical Education Act of 2006 (Perkins IV). As required by Perkins IV, an increase in the core indicator of nontraditional course participation and completion is required annually. Being in a nontraditional course could be a benefit or a problem for a student of a particular gender. As noted by Hill (1994), job expectations are influenced by the work ethic of the typical workers, and if gender differences exist in work ethic, jobs primarily held by a particular gender will differ in expectations to work ethic.

If the study shows that race has significance on work ethic scores, strategies to address the differences will be explored. Best practice strategies for teaching students of different races could be a topic to consider for professional learning.

Additional justification for applying literacy standards in CTE courses will be acquired if the assessment scores, including applied mathematics, reading for information, and locating information, show significance on work ethic scores. This justification could supplement the professional training for CTE teachers on the topic of implementing the literacy standards in CTE courses.

If the results of this study reveal that work ethic scores among students receiving free or reduced-price lunch score lower on work ethic, strategies to address these differences will need to be expanded in the school system. Several schools in the Central Georgia school district have begun book studies that address specific strategies for teaching students from poverty. A recent report from the school district's food service director indicated a 2% increase in students qualifying for free and reduced-price lunches within the last year. With the current down-turn in the economy, the increase may continue.

Value of the WBL program would be noted if the results of this study reveal that participants in the WBL program yield higher work ethic scores than non-participants. If the reverse is revealed and participants in the WBL program yield neutral or lower work ethic scores than non-participants, the value of the WBL program may be questioned and the quality of the WBL program may need to be reviewed.

If the results of this study indicate that CTE seniors who participate in more hours of WBL score higher on work ethic than students who participate with fewer hours, releasing students a longer portion of the school day for WBL activities could be considered. CTE seniors

participating in fewer hours and scoring the same or higher on work ethic could indicate that the amount of WBL experience has little or no impact on improving work ethic. The participation of high school students in WBL may need to be reexamined and the quality of the WBL program may need to be reviewed.

Chapter II

Review of Related Literature and Research

Theories Related to Work Ethic and Work-Based Learning

The workplace is an environment conducive to teaching work ethic because, as Braude (1975) stated, the socialization that occurs in the workplace is one significant factor attributed to shaping people's work attitudes. Several learning theories related to work ethic and work-based learning (WBL) have surfaced.

Social Cognitive Theory

Bandura's social cognitive theory assumes that, for the most part, people learn social behaviors from others by observing and modeling the behavior and attitudes of others and by observing the outcomes of those behaviors (1977). From watching others, one forms an idea of how new behavior should be performed and remembers that information for future use.

A principle of the social cognitive theory is the view of human agency. Human agency can be explained by the ability that humans have to proactively engage in their own development and to make things happen by their actions (Pajares, 2002). Self-beliefs, one of several personal factors, enable humans to control their thoughts, feelings, and actions. Bandura (1986) stated, "What people think, believe, and feel affects how they behave" (p. 25). This statement lends support to the teaching of work ethic. In this study, work ethic is defined as work attitudes and behaviors that contribute to success at work.

Another principal of the social cognitive viewpoint is that humans possess certain fundamental human capabilities that define what it is to be human (Pajares, 2002). These

capabilities provide cognitive means that can be used to help determine one's destiny. Included in the list of fundamental human capabilities is the ability to symbolize, engage in self-directedness and forethought, learn through vicarious experience, and self-regulate and self-reflect. Self-reflection, according to Bandura (1986), is the characteristic that is "distinctively human" (p. 21). The process of self-reflection can be powerful; self-reflection can be used to make sense of experiences, explore cognitions and beliefs, engage in self-evaluation, and alter thinking and behavior.

Self-efficacy Theory

Within social cognitive theory is self-efficacy theory, which provides the foundation for motivation, well-being, and personal accomplishment. Self-efficacy is the belief that one can successfully execute behavior required to produce a given outcome. The focus of self-efficacy is not on actual skills, but on beliefs of what one can do with those skills. In short, skills must be present but are not self-efficacy's primary focus (Bandura, 1977, 1986).

Self-efficacy can be high or low and can impact daily life in a variety of ways. Self-efficacy influences people's choices and actions, which are generally selected based on a feeling of competence and confidence. Self-efficacy helps determine how much effort one puts forth, how resilient one is, and how long one will persevere when confronting obstacles. People possessing higher self-efficacy put forth greater effort, are more resilient, and are more persistence. Thought patterns and emotional patterns are also influenced by self-efficacy. High self-efficacy creates calmness and reassurance in approaching difficult tasks, while low self-efficacy tends to make tasks appear harder than they are.

Bandura (1986) identified four major sources of self-efficacy information:

(a) performance attainments, (b) vicarious experience, (c) verbal persuasion, and

(d) physiological state. The most dependable source of self-efficacy expectations is performance attainments because they are based on authentic mastery experiences. Success with performance attainments raises self-efficacy, while repeat failures lower self-efficacy.

Pajares (2002) stated that vicarious experiences are weaker than master experiences in creating self-efficacy; they are helpful, however, when people are uncertain of their own abilities or when they have limited prior experiences. The power of the vicarious experience increases when the observer sees similarities in the model. When a model similar to the observer successfully performs a task, the observer generally thinks, “If they can do it, so can I.” The opposite is generally true when a model similar to the observer fails: The observer often thinks, “If they can’t do it, neither can I.”

Bandura (1986) cautioned that verbal persuasion can contribute to successful performance only if the appraisal is realistic. Positive persuasions, said Pajares (2002), may encourage and empower, while negative persuasions may defeat and weaken self-efficacy. Physiological states such as anxiety, stress, and depression, for instance, tend to yield people with a low self-efficacy. Bandura (1986) also stated that people have the ability to alter their own thinking and feeling, which can enhance their self-efficacy and positively influence their physiological states.

The Protestant Work Ethic Theory

The Protestant Work Ethic (PWE) Theory is synonymous to work ethic in the United States of America (Hill, 2004) and is credited to Max Weber, a German political philosopher and economic sociologist (Furnham, 1984; Hill, 2004). Weber used PWE to describe the early settlers in the United States who have been regarded as hardworking Protestant people. Hill and Petty (1995) stated that the work ethic we reference today is a secularized construct taken from

Weber's PWE theory; it is now a norm of our society and is not necessarily considered to be part of a religious group. This theory has been cited in numerous national and international work ethic studies (Dose, 1997; Furnham, 1984; Harvell, 2009; Hill & Petty, 1995; Sullivan, 1999). PWE is also a well-known theory contained in historical publications concerning work ethic (Hill, 1996a, 2004). The PWE Theory has been in existence since 1905 and continues to be validated in current research dealing with work ethic among different groups of people.

PWE is a well-respected code of behaviors based on thrift, discipline, hard work, and individualism. In its beginning, it was tied to spiritual convictions related to Calvinism. Believers submitted to a calling of hard work, thrift, and self-discipline. In return they were in God's good grace and assured of blessings while on earth and in the afterlife (Hill, 2004).

Several self-report survey instruments have been created to measure PWE beliefs of various individuals. According to Furnham (1984, 1990), some of these instruments included The Protestant Ethic Scale developed by Goldstein and Eichorn (1961), The Pro-Protestant Ethic Scale by Blood (1969), The Survey of Work Values scale by Wollack et al. (1971), The Work and Leisure Ethic Sub-scale by Buchholz (1976), and The Eclectic Protestant Ethic Scale developed by Ray (1982). The Protestant Ethic Scale by Mirels and Garrett (1971) and The Occupational Work Ethic Instrument (1991) by Petty are other popular work ethic instruments (Boatwright & Slate, 2002). Furnham (1984) stated that one problem is consistent with each of these scales: They are all inconsistent interpretations of Weber's original works.

The Protestant Ethic Scale (1961) was a self-report survey using a scale ranging from 1-4 that measured work and occupational values, such as "Even if I were financially able, I couldn't stop working" (Furnham, 1990). There was no recorded reliability for this instrument.

The Pro-Protestant Ethic Scale (1969) used a scale ranging from 1-6 and reported the Spearson-Brown reliability at .70. Items on this instrument alternated between reverse items and items consistent with work ethic. The purpose of this instrument was to measure individual differences in work values. The first two items were “(1) When the work day is finished, a person should forget his job and enjoy himself (R). (2) Hard work makes a man a better person” (Furnham, 1990, p. 81). Blood (1969) believed that people who agreed with the Protestant ethic ideals would experience greater job satisfaction than those who did not agree (Boatwright & Slate, 2002).

The Survey of Work Values (1971) was the longest and least used of work ethic instruments (Furnham, 1990). It contains 54 items that measured both intrinsic and extrinsic aspects of work ethic. The intrinsic aspect of work was reflected by responses to the items related to an individual's attitude about work in general. Questions related to rewards measured extrinsic aspects of work (Harvell, 2009).

The Protestant Ethic Scale (1971) contained items with a scale range of 1-7 (strongly disagree to strongly agree) and reported reliability of Kuder-Richardson of .79, Spearman-Brown of .67, and Cronbach's Alpha of .70. This instrument has been used often. According to Harvell (2009), however, a problem reported with this instrument was that a total overall score was provided rather than considering the multidimensional construct of Weber's PWE.

The Work and Leisure Ethic Sub-scale (1976) contained both items for work ethic and leisure ethic with a scale range of 1-5 (strongly disagree to strongly agree). Some of the items in the leisure ethic section are reversed items, but not in the work ethic section. The reliability of this instrument was not recorded by Furnham (1990).

The Eclectic Protestant Ethic Scale (1982) contained 18 items ranked on a scale of 1-5 (strongly disagree to strongly agree). Of the 18 items, 10 are reversed items. Reliability reported was Cronbach's Alpha .82, .78 (Furnham, 1990).

The Occupational Work Ethic Instrument (OWEI, 1991) contained 50 items that began with the strand "At work I can describe myself as. . ." A one-word description is available for each item and is ranked on a 1-7 scale (never to always). The OWEI contained descriptors that are categorized into one of three subscales: interpersonal skills, initiative, and dependability. Descriptors are relevant to the workplace of the twenty-first century. Reliability coefficient alphas ranging from .90 (Hatcher, 1995) to .95 (Azam & Brauchle, 2004) have been reported for OWEI.

The instrument used to measure the work ethic of the CTE students in this study is Petty's OWEI. All instruments reviewed except the OWEI contained items that were all stated differently, while the OWEI used the same strand for each item and a one-word descriptor. The OWEI was selected due to its brevity and ease of understanding for high school students, as well as, the high reliability as compared to other work ethic instruments. Of the work ethic instruments reviewed, the Eclectic Protestant Ethic Scale (Ray, 1982) was reported as having reliability coefficient alphas closest to the OWEI with .82 and .78 (Furnham, 1990).

Historical Context of Work Ethic

Every culture has a unique history and set of conditions that influence the value given to work in people's lives (Porter-O'Grady, 2010). Even though the value placed on work throughout history has changed, it appears that as high discretionary workplaces become the norm, the importance of a strong work ethic for workers will remain.

The Beginning Perspective of Work Ethic

According to the Biblical account in Genesis 2-3, work began for mankind in the Garden of Eden but became negative when man sinned against God. From that pre-historic time until the time of the early Christian church and even into the Middle Ages, work was seen as hard, necessary for survival, a punishment, and a curse. The perspective of work held from the time of ancient Hebrews through the medieval period was that work held no intrinsic value of its own (Hill, 1996a). Numerous negative words are synonymous with work: The word *labor* comes from a Latin word meaning trouble, distress, or difficulty; *work* and *trouble* are the same in Greek; and *work* is synonymous with *slavery* in Biblical Hebrew (Braude, 1975). According to Hill (1996a), Anthony (1977) stated that both the Greeks and Romans believed that manual labor was to be done by slaves.

The view of work by early Christians was not as negative as that of the Hebrews, or even as that of the Greeks and Romans. The apostle Paul made a point of earning his own living during his many missionary journeys, setting an example for the value of manual labor (Acts 20:33-35). Indeed, having wealth became acceptable, and sharing with others in need was understood as one of the purposes of work and benefits of wealth. And, although early Christians viewed work as a calling from God, a man was expected to remain in the work class in which he was born (Braude, 1975).

The Protestant Work Ethic Perspective

A new perspective of work began during the sixteenth century with the Protestant Reformation of Western Europe which included influences from key religious leaders, Martin Luther and John Calvin. Luther and Calvin agreed that it was God's will for people to work and

that working hard would have its rewards. The teachings of Luther and Calvin gave value to work (Lipset, 1992).

Three characteristics of the Protestant work ethic were hard work, thrift, and discipline, and accepted concepts within the Protestant work ethic differed among Luther and Calvin (Hill, 2004). Cherrington (1980) summarized Luther's view of work as a calling from God but that all work was equally valued in God's sight. As noted by Hill (1992), this view was significant because it affirmed manual labor. Like the early Christians, Luther believed that the worker was to remain in his work class and particular work was to be passed from father to son (Lipset, 1992). Luther believed each person should earn enough money to meet his family's basic needs and share with others in need, but accumulating wealth was considered a sin (Hill, 1992).

Calvin's view of work slightly differed from Luther's. Calvin believed that it was God's will for all men to work, but it was also God's will to reinvest his profits until the end of time. He did not believe that using these profits to help less fortunate people was God's will. Calvin taught that one should select an occupation that would yield the greatest earning potential even if it meant leaving the family trade or profession (Lipset, 1992).

The beliefs concerning work from both Luther and Calvin during the Protestant Reformation changed past views of work. Hard work and acquiring wealth that stems from hard work became a religious imperative. Wealth was considered a sign of God's blessing for hard work. The Protestant Work Ethic perspective gave value to work and dignity to workers in Europe (Braude, 1975).

The American Work Ethic Perspective

The American perspective of work began with Weber's PWE theory, which included hard work, thrift, and discipline. As Europeans first visited America in the early 1800s, they

were complimentary towards the industrious pace that existed, but they complained about the lack of social activities and amusement. Weber used PWE to describe the early settlers in the United States, who were regarded as hardworking Protestant people (Rodgers, 1978).

Industrial management.

The American work ethic has been described differently throughout our history. During the industrial revolution in the mid-nineteenth century, schools taught that it was a disgrace not to work and that effort towards work would pay off. Gilbert noted that the work ethic was threatened during this time because working in factories was not intellectually stimulating, and a control over one's destiny was missing (Gilbert, 1977).

Scientific management.

The industrial management era did not acknowledge the work ethic and described the average worker as being lazy and motivated mostly by money (Draft & Steers, 1986). As a result, industry changed to the scientific management style in which workers had to increase production as a way of receiving an increase in pay. Scientific management was widespread by the early 1900s, and, according to Draft and Steers, factors other than pay increases were important to workers. They stated that many workers did not respond well to close supervision, and some workers did not trust management because improved production did not always culminate with pay increases.

Behaviorist management.

The scientific management style was considered obsolete by the end of World War II, and the next ideas for management came from behaviorists (Jaggi, 1988). Behaviorists advocated that workers were not intrinsically lazy but needed an environment that would aide them in being creative and motivated. Managers responded by finding ways to make jobs more

fulfilling for workers, such as employee awards and company social events. In spite of these efforts, employees and employers remained at odds with each other (Draft & Steers, 1986).

Participatory management.

In the late 1950s, sizable improvements were made in relationships between employees and employers. These improvements were a result of the job enrichment theories that focused on intrinsic factors to motivate workers. Some of these factors include achievement, recognition, responsibility, advancement, and personal growth (Hill 1992). Theory X and Theory Y management styles were introduced in the 1960s. Theory Y was a participatory management style in which workers and managers worked together to make decisions. Managers received valuable input from their workers with this style, and, according to Jaggi (1988), workers' morale and job satisfaction were enhanced. Yankelovick and Immerwahr (1984) agreed, stating that the work ethic is a powerful resource in a participatory management system.

Information age.

The late twentieth century marks the beginning of the information age jobs, which are now high-discretion jobs that require considerable thinking and decision making on the part of workers (Miller, 1986). High-discretion jobs are part of the high performance workplaces described by The SCANS Report for America 2000 (1991) as work settings relentlessly committed to the goals of excellence, product quality, and customer satisfaction. Jobs during this era require higher levels of education along with problem solving skills, people managing skills, and the ability to apply new information to various tasks (Hill 1992). Hill also noted that workers have longed for control over their work and have desired a sense of empowerment. With high-discretion jobs of the information age meeting these needs, Hill further stated that the

work ethic has not been abandoned in America, but transformed to a state of relevance not found in most industrial age jobs.

Concept of Work Ethic Changed in the Workplace

The SCANS (1991) report acknowledging that the workforce is changing made this major observation: “More than half of our young people leave school without the knowledge or foundation required to find and hold a good job” (p. i). This knowledge or foundation has to do with work ethic and more. In 2004, more than 60 percent of employers surveyed for the American Diploma Project rated high school graduates’ skills in grammar, spelling, writing and basic math as only fair or poor (Achieve, Inc., 2004). The SCANS report and the American Diploma Project (Achieve, Inc.) research both indicated that the workplace has changed because the world has changed.

Work ethic includes more than interpersonal skills and personal qualities.

A quick look at SCANS (1991) may lead one to believe that one of the competencies, interpersonal skills, needed by workers relates to work ethic and one of the foundation skills, personal qualities, relate to work ethic. Looking closer at SCANS revealed that workers possessing only interpersonal skills and personal qualities lacked success in relation to work ethic. Interpersonal skills and personal qualities must be used in unison with six other components: resources, information, systems, technology, basic skills, and thinking skills. SCANS (1991) stated that all eight components are highly integrated and most job tasks require workers to draw on several of these at the same time. All employees, regardless of their specific occupation, will need to enter the workforce possessing and being able to use all eight components in unison for workplace success.

Change of work ethic due to globalization and technology.

As stated in SCANS (1991),

A strong back, the willingness to work, and a high school diploma were once all that was needed to make a start in America. 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 business, and the economic well-being of a nation. (p. 2)

Globalization of commerce and industry and the growth of technology have contributed to this change.

Globalization of commerce and industry produced both benefits and concerns for our society. Some of the benefits included providing equal opportunities for all countries to compete, resulting in more competitive prices on products and services. Friedman (2005) referenced globalization as the flattening of the world because, through technology, we were able to communicate, purchase, and sell products and services world-wide. Flattening of the world also means that competition for jobs is extended beyond the United States. Students in the United States and students in other countries are often competing for the same jobs.

Technology in the workplace has impacted work ethic both negatively and positively since it has a tendency to increase or decrease job discretion. Yankelovich and Immerwahr (1984) found that job discretion is decreased by allowing managers to monitor employees work closely via technology. Workers unable to use technology will face a lifetime of menial work, and low-discretion jobs are often found among those with a low work ethic (SCANS, 1991). Yankelovich and Immerwahr (1984) also found that workers who had experienced technological change said that it has made their jobs freer and more interesting, which described jobs that give

employees high discretion, a factor that generally impacts work ethic positively. The way technology is used often involves ethical decisions, especially in such areas as medical technology, and Hill concluded that educators are responsible for equipping students to use technology in an ethical manner (Hill, 2004).

As America moves into the twenty-first century, the workforce will be part of a society based on instant communication and global competition. Some people wondered if the PWE will still be applicable (Petty & Brewer, 2008). Others believed that work ethic will be transformed to a state of relevance (Hill, 1996a).

Work Ethic is based on the employee's personal values and beliefs; it is displayed in the employee's work behavior and attitudes (Hill, 1992, 1997; Petty, 1995; Siegel, 1983). With global competition, numerous values and beliefs abound. What is valued or believed in one part of the world may not be valued or believed in another part, and trust will have to be displayed in order for global competition to be most effective. Just as Kidder (1994) interviewed 24 individuals in 16 nations to develop eight common values that they could all agree on regardless of their individual differences, global leaders of the twenty-first century may need to do likewise.

High performance workplaces.

Because of globalization and technology, demands on business and workers have necessitated a world class of standards that must be met. High performance workplaces are necessary, and they are different from traditional workplaces. Characteristics of high performance workplace environments included work that is problem-oriented, flexible, and organized in teams and in which labor is considered an investment instead of a cost. Workers are empowered to make decisions as a product is processed in an effort to produce higher quality end

products and save money for the workplace. Commitment to excellence, to product quality, and to customer service were indications of high performance workplaces (SCANS, 1991).

Yankelovich and Immerwahr (1984) stated that establishing and enforcing the highest possible standards of quality are necessary for mobilizing the work ethic. They further stated that employers and managers who are indifferent to quality corrode the work ethic.

Even though businesses differed in numerous aspects, and even though employers from different industry types require different skill sets from their employees, SCANS (1991) revealed that all high performance workplaces have in common the need for five competencies and a three-part foundation of intellectual skills and personal qualities. The competencies and foundation of skills may differ in application at different workplaces, but they all remain in demand at all high performance workplaces. In the SCANS report, scenarios were described from five different sectors of the economy to demonstrate how competencies and skills are a standard part of work performance in manufacturing, health services, retail trade, accommodations, food services, and office services.

The five competencies considered the basis of all high performance workplaces are: (a) resources, (b) interpersonal skills, (c) information, (d) systems, and (e) technology. A three-part foundation of skills also needed include: (a) basic skills, (b) thinking skills, and (c) personal qualities (SCANS, 1991). The descriptions of interpersonal skills and personal qualities were similar descriptions of work ethic on the OWEI (Petty, 1995).

When employers say that a worker with a strong work ethic is very difficult to find, they may be looking for employees who have all five of the above competencies and the three above foundation skills. According to SCANS, employers of high-performance workplaces required that their employees effectively perform in all three parts of the foundation intertwined with the

five competencies. People who cannot read, write, and communicate cannot be trusted to complete necessary job tasks. Rude people who alienate customers, thereby preventing sales, are of no value. Workers who cannot solve problems threaten success (1991).

Workplaces have begun fundamental changes in the nature of work for the twenty-first century (SCANS, 1991). These changes, according to Yankelovich and Immerwahr (1984), require workers with a strong work ethic, and restructuring the workplace into high discretionary jobs necessitates a widespread commitment to the work ethic. Together, businesses, schools, and parents can prepare students for the high discretionary jobs of the twenty-first century (1991).

Work Ethic Models in the Workplace

Work ethic violations can be costly for companies. Paine (1994) stated that according to the Federal Sentencing Guidelines of 1991, fines for convicted organizations varied from 5% to 200% of the loss suffered by customers, partly based on whether or not the company has implemented an effective program to prevent and detect such behavior. Companies without a work ethic model for their employees have often been motivated to adopt one in compliance with sentencing guidelines.

Two basic work ethic models adopted in the workplace are compliance-based ethics and integrity or values-based ethics. According to Paine, compliance-based ethics programs emphasized legal compliance, control, and discipline; values-based ethics programs emphasized values, counseling, and responsible conduct. Values-based ethics programs have more desirable and long-lasting impacts than do programs based on rule-compliance. The two work ethic models shared common structural features: a code of conduct, training in relevant areas of law, mechanisms for reporting and investigating potential misconduct, and audits and controls to insure laws that company standards are being met (1994).

In addition to these common features, a well-designed values-based model contains a means for seeking legal benefits accessible under the sentencing guidelines in case of criminal wrongdoing (Paine, 1994). The Weaver and Trevino (1999) study revealed that establishing and enforcing rules is not the most desired work ethic model for the workplace; managers creating a sense of shared values with their employees identify an ethical role for the employees and provide organizational support.

Baggett (2007) presented seven criteria for determining the effectiveness of ethics training programs, which are based on Bandura's self-efficacy theory. First, specific behavior must be targeted by ethics training programs. Most ethics training programs teach general ethical concepts; however, targeting a specific behavior like changing a computer password could help to strengthen ethics training programs. As the second criteria, Baggett stated that systems and procedures should be in place that would encourage people to do the right thing—i.e., a system of checks and balances. These two criteria focus on the employee's sense of self-efficacy to encourage specific positive actions.

Role playing, the third criterion, was suggested for training participants to perform specific behavior to correct ethical problems. Role playing was recommended as a nonthreatening way for participants to deal with unusual situations by simulating reality and a good example of Bandura's performance accomplishment, which can provide a person with confidence for having actually done something. Baggett's fourth criterion, that trainers demonstrating behavior should be similar to the participants, is based on the premise that people are more likely to learn through vicarious experiences when they can relate to the model delivering the action. And, as Bandura (1986) found, using verbal persuasion to positively reinforce behaviors learned by participants was listed as the final characteristic of self-efficacy.

A good ethics training program allowed participants an opportunity to experience and learn to cope with stress involved with ethical behavior by assessing their emotional and physical states. This could be accomplished by providing participants with situations that arouse their attention and opportunities to discuss ways of dealing with those situations. According to Bandura, this source of learning behavior was self-appraisal. Role play was also recommended as the ideal method of self-appraisal, and the final criterion for determining effective ethic training programs was to include general principles in codes of conduct as part of the strategic planning process.

Teaching Work Ethic

Mentors of high school youth apprenticeship workers fired their students due to a lack work ethic (Evanciew & Rojewski, 1999), and employers expect workers to enter the workplace with work ethic skills intact (Achieve, Inc., 2004; Georgia House Bill 186, 2011; SCANS, 1991). Many educators and non-educators believe that work ethic can and should be taught to ensure that workers are ready to enter the workforce. This is evident by reviewing the following: CTE curriculum for Georgia (Georgia Department of Education, 2010); the SCANS Report (1991); the School-to-Work-Opportunity Act (STWOA, 1994); the Are They Really Ready to Work report (Conference Board, Partnership. for twenty-first century Skills, 2006); the American Diploma Project (2004); and Georgia House Bill 186 (2011). According to Hull (2005), the best place to learn soft skills or work ethic is at real worksites.

Described or presented in this study are: the responsibility of teaching work ethic and identifying morals to teach; an overview of the pedagogy of teaching work ethic; various instructional work ethic models, OWEI, and other resources; and work ethic curriculum in three Southern states.

Work Ethic Responsibility of Parents, Employers, and Educators

The SCANS report (1991) provided evidence that President Bush believed schools have a responsibility to prepare young people for work. As he introduced the new strategy, Bush (1991) stated, “Think about every problem, every challenge, we face. The solution to each problem or challenge starts with education” (p. 2). Schools are expected to provide solutions; the Commission’s report, however, expressed the statement, “Unless all of us work to turn this situation [students not being prepared for work] around, these young people and those who employ them will pay a very high price” (p. i). The phrase *all of us* here applied to three different groups specifically addressed to perform certain tasks to aide in the Commission’s focus, which consisted of parents, employers, and educators. Even though the task of each group was different, the message was the same: “Good jobs will increasingly depend on people who can put knowledge to work” (p. i).

In the report by Conference Board (2006), Corporate Voices for Working Families, and Society for Human Resource Management (2006), 80.3% of the surveyed employers stated that work ethic is a very important skill needed by high school graduates entering the workplace. However, they found that 70.3% of high school graduates entering the workforce were deficient in work ethic. Employers in this study agreed that businesses may find opportunities for young people to practice job related skills necessary for successful employment, and they suggested WBL experiences as a solution. Even though employers stated that they could help young people improve necessary job-related skills including work ethic, 75.6% of the respondents stated that the K-12 schools should be responsible for providing the necessary basic knowledge and applied skills for entry level workers.

Basic knowledge/skills and applied skills needed in the twenty-first century workforce identified by the respondents in this report are similar to the list of SCANS workplace know-how competencies and a foundation. Applied skills on this list include work ethic; however, both basic knowledge/skills and applied skills are required in tandem, and a worker will not be successful with one and not the other (See Appendix D).

Teachers often interpret students' emotional and social deficits as a lack of respect or a lack of manners, or as an attitude problem or a lack of a strong work ethic, but as Jensen (2009) explained, students may enter school with a narrower range of appropriate emotional responses than educators expected. As previously stated, at least five of the emotions that must be taught are often used to describe interpersonal skills related to work ethic; they included humility, patience, cooperation, compassion and gratitude. According to Jensen, children raised in poverty often come to school with fewer appropriate emotional responses. He explained that the primary caregiver's responsibility is to teach the child when and how to display these emotional responses, so the school is obligated to teach these behaviors to prepare students for the workplace.

Pedagogy of Teaching Work Ethic

Echoed in today's numerous school reform initiatives is the belief that the most effective way of teaching skills is in context. Stated in several of these initiatives was a WBL component provided for all students (Hull, 2005; Career Related Education Manual, 2007; SCANS, 1991; STWOA, 1994). Contextual Teaching and Learning (CTL) is defined as:

A conception of teaching and learning that helps teachers relate subject matter content to real world situations; and motivates students to make connections between knowledge and its applications to their lives as family members,

citizens, and workers, and engage in the hard work that learning requires.

(Lynch, Harnish, Smith & Dewey, 2001, p. 8)

WBL programs place students in the work environment in real world situations. Strategies used by WBL coordinators to assist in developing work ethic include modeling, coaching, scaffolding, fading, articulation, reflection, and/or exploration (Ford & Herren, 1995).

Gregson (1995) stated that contextual learning reflects John Dewey's view of education, that teaching and learning through occupational studies is the most powerful way to obtain practical knowledge, apply academic content, and examine industrial and societal values. According to Kohlberg (1975), John Dewey's goal of education was intellectual and moral developmental. Kohlberg (1975) validated the Dewey-Piaget levels and stages of moral development. An understanding of how adolescents transition from one stage of moral development to the next may help equip teachers and employers striving to teach work ethic to high school students.

Whenever possible, learning should occur within a specific context and should mirror as closely as possible the practices used in that context. When students deal with real-world problems and learning occurs in the context in which it is actually used, students learn more and retain that knowledge longer. This concept was observed by Stasz and Kaganoff (1997) with students learning different skills and work attitudes while in WBL opportunities. Through WBL programs, students were placed at a job site, and experienced workers were able to model different skills and work attitudes. For a reasonable timeframe, the experienced worker coached students until they displayed appropriate skills and attitudes. Students are required to exhibit a good work ethic early in the WBL experience in order to be successful in the program.

Teaching work ethic through student involvement.

WBL opportunities are not always available for students. There are several effective strategies for teaching work ethic when a worksite is not available, but the key to successful work ethic instruction, as Predmore (2005) discovered, is student involvement. Hill (2004) validated Predmore's conclusion by stating that teaching separate lessons is not the best approach for teaching work ethic. Instead, he recommended using strategies within the context of the course content. Some of the strategies Hill (2004) recommended include case studies and group discussions within the context of CTE courses, and Petty and Hill (1995) proposed student involvement in extracurricular activities to improve work ethic.

Rather than telling students to "be courteous" on the jobsite, Jenson (2009) believed that educators should demonstrate appropriate emotional responses, as well as appropriate workplace circumstances in which to use them. When introducing a new skill, role models should also allow students to practice applying the identified emotional responses to workplace situations in a variety of ways—i.e., role playing. Embedding opportunities in class for students to practice necessary work ethic skills throughout a course of study allows additional practice time.

The role playing and modeling in ethic training courses, as suggested by Bagget (2007), could also be incorporated into the classroom as strategies for teaching work ethic. Hill and Rojewski (1999) recommended that counselors direct students to role models to assist with work ethic development. Since people are most likely to learn through vicarious experiences when the model delivering the action is similar to them, Bandura (1986) proposed matching students with role models—available to students at school and through outside agencies—with common interests.

Instructional work ethic models.

Three instructional work ethic models that educators currently use include *Character Counts*, *The Technical College System of Georgia Work Ethic Module*, and *Work Ethic and Employability Skills: A Unit of Instruction*. Each defines work ethic somewhat differently and explains behaviors to reflect work ethic in its own manner.

Character counts.

Character Counts is one of the values-based ethics services designed by the Josephson Institute of Ethics for students in grades K-12. It offers an educational framework for teaching a set of universal values known as the Six Pillars of Character. The belief of the Josephson Institute of Ethics is that the best way to develop character is to weave it into the fabric of a school's curriculum and programs (Josephson, 2011).

The Six Pillars of Character are implemented in unlimited ways. Louisiana's 4-H coordinator created a workplace ethic program by relating the pillars to work ethic and required students to exhibit the following six behaviors: working with little supervision; treating supervisors, co-workers and customers with courtesy and honor; showing initiative; understanding and respecting customer-supplier relationships; showing kindness and sensitivity to others; and following company policies, regulations, and procedures (Josephson, 2011).

The Technical college system of Georgia work ethic module.

The Technical College System of Georgia (TCSG, 2008), which defines work ethic as "job retention and advancement competency areas consisting of desirable job performance skills and attitudes that directly influence the employee's ability to maintain employment or advance," was the only state technical college system that provides a state-wide unified work ethic curriculum (Hill, 2003). Currently, the curriculum consists of the following 10 modules:

attendance, character, teamwork, appearance, attitude, productivity, organization, communication, cooperation, and respect. Behaviors within TCSG's work ethic definition include those like arriving for classes or meetings on time, completing work satisfactorily and on time, responding positively to supervision, following directions correctly, adhering to policies/regulations, using tools and resources properly, observing safety provisions, and working effectively as part of a team. Also, specific standards are in place for implementing the TCSG work ethic model, one of which includes issuing a separate grade for work ethic (2008).

Most career academies in Georgia place a strong emphasis on work ethic, and many, such as the career academies in Northwest Georgia and South Georgia, adopted the work ethic curriculum from TCSG (R. Gornto, personal communication, June 26, 2010; M. Whitlock, personal communication, June 26, 2010). The career academy in Northwest Georgia utilizes the TCSG rubric because it captures the desired traits identified by local businesses prior to the opening of the school 10 years ago (M. Whitlock, personal communication, June 26, 2010).

Work ethic and employability skills: a unit of instruction.

Hill created *Work Ethic and Employability Skills: a Unit of Instruction*. This set of instructional material, along with other resources, is located on *The Work Ethic Site* for use by educators and human resource professionals (Hill, 2000). Hill stated that the curriculum utilized student involvement rather than lecture (Predamore, 2005). According to Hill (1997), many have defined work ethic as “. . . a cultural norm that advocates being personally accountable and responsible for the work that one does and is based on a belief that work has intrinsic value” (Cherrington, 1980; Yankelovich & Immerwahr, 1984). He further stated that work ethic is usually associated with people who work hard and do a good job. Behaviors reflecting this

definition of work ethic are categorized as *interpersonal skills*, *initiative*, and *dependability* and are disclosed through the completion of the OWEI located on this same website.

To teach work ethic, many high school educators have utilized the *The Work Ethic Site's* resources, many of which include an on-line version of the OWEI and a teaching unit (Hill, 2000). The researcher of this study sent a short informal e-mail questionnaire to 300 contacts from Hill's database (July 2010), and contacts who appeared to be CTE high schools educators received the questionnaire via email. The findings based on this questionnaire from CTE educators are as follows: I. Jones, former career development counselor in Page, Arizona, recently utilized the OWEI, as well as teaching materials, from *The Work Ethic Site* for the purpose of meeting state standards for CTE in the area of soft skills (personal communication, July 6, 2010). High School business teachers have often used OWEI. C. Kemp. from Keokuk, Iowa; S. McDill from Collinsville, Mississippi; and B. Kilmer from Enumclaw, Washington, have administered the OWEI to CTE students while teaching work ethic (personal communications, July 7, 2010).

Some teachers administered the OWEI annually as a supplement for teaching work ethic. I. Flores from Ft. Myers, Florida, has not administered the OWEI but has used other resources from the web site (personal communication, July 7, 2010). The OWEI and other resources on the Work Ethic Site helped students consider right choices (I. Flores, personal communication, July 7, 2010; C. Kemp, personal communication, July 7, 2010; B. Kilmer, personal communication, July 7, 2010; S. McDill, personal communication, July 7, 2010).

Occupational work ethic instrument (owei).

The OWEI developed by Petty (1991) is a survey instrument that has produced valid and reliable scores in numerous work ethic studies (Brauchle & Azam, 2004a; Hatcher, 1995; Hill,

1996b). It has been administered in North America and other countries to measure work ethic in both industrial and CTE settings (Azam & Brauchle, 2004). Hill and Petty (1995) suggested using the OWEI with students to encourage them to consider their own work ethic, and they believe scores from the OWEI should serve as a beginning point for work ethic discussions and not for test grades.

The OWEI has been used with high school students to conduct research and teach work ethic. Hill and Rojewski (1999) used the OWEI to determine if work ethic differed in at-risk 9th graders in a Midwestern metropolitan high school. Hill (1996b) used the OWEI to compare work ethic attributes of selected adolescent high school vocational students with working adults from the same community in the Southeastern United States.

Work Ethic Curriculum in Southeastern States of Georgia, Florida, and Texas

A review of the newly revised CTE curriculum for Georgia revealed eleven foundation skills to be taught within every CTE course (Georgia Department of Education, 2008). The eleven skills are listed at the end of each CTE course and as a separate document on the website. Georgia's website states that these skills are critical competencies for the success of CTE students pursuing career pathways. It further states that these skills link CTE to Georgia's academic performance standards. According to the Georgia Department of Education (GDOE), these foundation skills were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. Ethics and legal responsibilities are listed as one of the skills.

In Georgia, although the teaching of work ethic is to be integrated into each existing CTE course, it is left to each teacher's discretion as to how and where within the course work ethic will be taught. GDOE provides instructional units for CTE teachers in all areas of the

curriculum including the eleven foundation skills (Georgia Department of Education [GDOE], 2002). Georgia acknowledges that foundation skills are an important part of each pathway of the Georgia Performance Standards (GPS), and teachers are informed that the lessons are intended to supplement the teaching of the foundational skills.

Georgia lists work ethic very broadly by stating in the standard for ethics and legal responsibilities, “Learners commit to work ethics, behavior, and legal responsibilities in the workplace” (GDOE, 2002). Florida expects students to evaluate and justify decisions based on ethical reasoning (Florida Department of Education, 2010). They require students to evaluate alternative responses to workplace situations and identify and explain consequences of unethical workplace behavior. Students also interpret and explain written organizational policies and procedures. Terms used to describe work ethic in the Texas curriculum include self-discipline, self-worth, positive attitude, integrity, flexibility, and willingness to learn new knowledge and skills (Texas Department of Education, 2010). Other terms included commitment, cultural diversity, communication strategies, managing resources, positive work-qualities, balancing work with other life roles, customer service, harassment, and response to legal/ethical infractions in the workplace.

Georgia lists technical skills as the eleventh skill, which Florida and Texas do not list. The other 10 skills are the same in all three states. One of these skills designed to be embedded in the curriculum in all three states is Ethics and Legal Responsibilities. As cited previously, Petty indicated that teaching work ethic is generally left up to individual teachers yielding mixed work ethic results with students (Predmore, 2005). Ford and Herren (1995) found that most WBL coordinators taught work ethics unintentionally and that many WBL coordinators taught work ethic only when a situation arose that called for such teaching.

In Georgia, Florida, and Texas public schools, CTE students have an opportunity to learn work ethic in class as part of the embedded CTE curriculum or at the workplace through the WBL programs.

High School Work-Based Learning Programs and Work Ethic

Since WBL opportunities are referenced in numerous school improvement initiatives (Achieve, Inc., 2004; Hull, 2005; SCANS 1991; STWOA, 1994; Perkins CTE Act of 2006), and since WBL positively impacts work ethic (Brooks, MacAllum & McMahon, 2005; Dose, 1997; Eraut, 2004; Hill, 1996b; Kazis & Kopp, 1997; Linnehan, 2004), a discussion of WBL programs is presented. First, WBL is defined and high quality WBL programs are described, and both the positive impacts and negative implications of WBL programs on high school students are reviewed.

Work-based Learning Defined

WBL is defined as:

. . . an educational approach that uses workplaces to structure learning experiences that contribute to the intellectual, social, academic, and career development of students and supplements these with school activities that apply, reinforce, refine, or extend the learning that occurs at a work site. By so doing, students develop attitudes, knowledge, skills, insights, habits, and associations from both work and school experiences and are able to connect learning with real-life work activities.

(Lynch, 2000, p. 67)

WBL was first referenced and supported by federal education programs in the Morrill Act of 1862 and was modeled in the early 1900s by engineering colleges (Lynch, 2000). Lynch

further stated that cooperative education programs were introduced in public high schools in the late 1800s in an effort to keep students in school and to prepare them for work. Since this time, eight models of WBL experiences available to public education students K-12 have been identified: field trips, job shadowing, service learning and unpaid internships, youth-run or school-sponsored enterprises, youth jobs, subsidized employment training, cooperative education and paid internships, and apprenticeships (Hamilton & Hamilton 1997).

High Quality Work-Based Learning Programs

Efforts to identify high quality WBL programs have been made by several researchers (Bailey & Hughes, 1999; Goldberger & Kazis, 1995; Goldberger, Kazis & O'Flanagan, 1994; Gray & Herr, 1998; Kazis & Kopp, 1997; Steinberg, 1998). Their findings include: (a) student learning at the workplace progress according to a structured plan, (b) student learning at the worksite is documented and assessed, (c) mechanisms exist to assure quality of students' WBL experiences, (d) there is active and experiential pedagogy, (e) rigorous standards are established and respected by educators and employers, (f) educators and employers identify and solve problems, (g) students use mathematical ideas and techniques, (h) students learn and teach on an ongoing basis, and (i) students spend time learning and completing a relevant senior year project.

Jobs for the Future and the Manpower Corporation joined forces to conduct a two year study on sixteen of the most successful WBL programs in America. The most common characteristic of these sites was the strong buy-in from school personnel and employers (Goldberger et al., 1994). Goldberger et al. further identified six monitoring techniques implemented by these 16 sites to ensure continued success. This study also revealed that both social skills and cognitive skills were being taught. Social skills emphasized in these programs

included teamwork, communication, and others. One of the sixteen most successful programs was Little Rock Metropolitan Vocational Center. Students in the Heating, Ventilation, and Air Conditioning Youth Apprenticeship Program at the center were given assignments to intensify their social and cognitive skills. These students went on service calls and learned how to handle customer questions and complaints. Placing WBL students in training positions in professional work environments and giving them responsibility for carrying out complex work projects are examples used by the most successful WBL sites.

The long term implementation of WBL programs indicates that these programs are successful; however, they are so multifaceted that it is nearly impossible to identify exactly why they are successful. Their success must be attributed to more than simply attainment of a full-time job. In a study of 18 states that offer registered pre-apprenticeships, Cantor (1997) determined that policy mandates are the primary reasons most of the pre-apprenticeships are offered. In spite of the mandates, Cantor determined several key elements for program success: a structured program involving schools, students, parents, and employers; formal agreements signed by all; and job incentives for students after completing high school.

Impact of Work-based Learning on High School Students

Reoccurring themes prevalent in the empirical research on WBL are: WBL programs serve a variety of students; they have positive impacts on high school students related to better attendance (Hughes et al., 2001) and better grades (Brooks, MacAllum, & McMahon, 2005; Brown, 1996); the workplace is conducive to learning work ethic and academic skills (Eraut, 2004; Gray & Herr, 1998); WBL programs bring youth and adults together through the mentoring component (STWOA, 1994); and negative implications occur on adolescents who work over 20 hours per week (Steinberg, Greenberger, Garduque, & McAuliffe, 1982).

Variety of students served in work-based learning programs.

As stated by Villeneuve and Grubb (1996), employers acknowledged that they wanted good academic students participating in the WBL programs, but emphasized that the “softer” personal competencies were desired even more. These competencies are reflected in one’s work ethic attributes of interpersonal skills, initiative, and dependability. WBL programs serve a broad cross section of students, and often less successful and less college-oriented students are attracted to the WBL programs (Hughes et al., 2001).

Stone and Aliaga (2003) utilized data from the *National Longitudinal Survey of Youth, 1997* to examine the characteristics of students who chose to enroll in these CTE WBL models: cooperative education, job shadowing, mentoring, school-sponsored enterprise, and internship/apprenticeship. They analyzed socioeconomic, gender, race, geographic location, and academic ability as CTE-related variables that could be predictors of participation in WBL. They also analyzed risky behaviors exhibited by these students. Findings from the study revealed that among students who choose to participate in identified WBL programs: (a) over 75% are as likely male than female—Bottoms and Presson’s 1997 study, however, showed more females; (b) most are as likely black than white; (c) significantly fewer are likely to be general concentrators, and more are likely to be CTE or dual concentrators; and (d) significantly more are taking math and CTE coursework than the general population—Bottoms and Presson’s study, however, showed fewer WBL participants taking math.

Risky behaviors for this study are defined as having engaged in sex, smoking, drinking, and marijuana use. The study showed that students who participated in WBL opportunities were 1.5 times as likely to smoke and 1.3 times as likely to drink as those who did not participate. These findings concur with Greenberger and Steinberg’s (1986) study showing that working

youth are more likely to engage in adult-like behavior, though these researchers did not distinguish between youth who just worked while in high school from students who worked through a formalized WBL experience.

Better attendance and better academic grades.

Overall, WBL programs have proven effective for motivation of CTE students; have pleased employers; and have signified small positive effects on grades, graduation rates, and post-secondary enrollments (Brown, 1996). Lynch (2000) stated that there appears to be a correlation between positive student outcomes and the structure of the work experience.

Warren, LePore, and Mare (2000) analyzed data collected from 1,000 student interviews containing information from parents, school administrators, teachers, and student transcripts in an effort to determine the short and long-term effects of adolescent employment. They also considered the influence academic grades had on employment activities. No evidence was found that high school employment had either short or long-term effects on grades in academic courses. There was also no evidence found that grades in academic courses influence employment activities. Warren et al. (2000) concluded that pre-existing differences between more and less intensively employed students account for the association between employment intensity and grades in academic courses. However, this study did not distinguish between high school students working as part of a school WBL program and high school students working in general.

A positive association between working a moderate number (1-10) of hours per week and school outcomes is found in most studies. Among students who worked a moderate number of hours per week, D'Amico (1984) found a better class rank for white males and a lower probability of dropping out of school for white males and females. Steinberg, Fegley, and

Dornbusch (1993) showed a slightly better grade for students working 1-10 hours per week than non-workers.

In 1995, Johnson & Johnson initiated WBL programs in the area of health services through The Bridge to Employment (BTE) Initiative. BTE had a two-fold purpose: (a) help meet the demands of workers in health services and (b) help public schools meet the challenge to increase graduation rates. Student success for BTE was measured by: academic achievement, academic engagement, post-secondary opportunities, focus on career development in health care careers, granting of credentials and certificates, and positive youth development (Brooks, MacAllum, & McMahon, 2005).

Research completed by Hughes et al. (2001) revealed that students in WBL programs had better attendance than comparable students and that they were less likely to drop out. The study also revealed that these students were more likely than comparable students to complete graduation requirements and graduate on time. Other findings showed that WBL students are able to define their career interests and set goals.

Learning and working are often perceived as separate events occurring in two different locations. High quality co-ops are beneficial to students, in part, by the motivation students gain when they understand the relevance of education to work, which is a factor that tends to keep students from dropping out of school (U.S. General Accounting Office, 1991).

Eraut (2004) found that workplace learning occurs on the job rather than off the job and that the nature of this learning is informal. He identified eight skills learned on the job through informal learning: (a) task performance, (b) awareness and understanding, (c) personal development, (d) teamwork, (e) role performance, (f) academic knowledge and skills, (g) decision making and problem solving, and (h) judgment. Eraut found four types of work activity

utilized for this learning to occur: participation in group activities, working alongside others, tackling challenging tasks, and working with clients.

Workplace conducive to learning work ethic and academic skills.

Formalized WBL experience is an important variable that may impact high school CTE students' work ethic and also provides a way for businesses, schools and parents to collaborate to prepare students for high discretionary jobs as required of SCANS (1991). Gray and Herr (1998) described WBL as environments that allow students to connect abstract knowledge and hands-on activities. Students are able to see the relevance of academic courses and how academic knowledge is applied in the workplace.

When Congress passed the Perkins Vocational and Applied Technology Education Act of 1990/Perkins II prior to the SCANS report, Congress emphasized the development of academic skills along with occupational skills. This was the first time that Congress had emphasized academic as well as occupational skill development in Career Technical Education legislation. Each time Perkins has been reauthorized, since Perkins II through the present Perkins Career and Technical Education Act of 2006/Perkins IV, academic skill development continues to be emphasized along with occupational skill development (Stone & Aliaga, 2003).

Even though the SCANS Report of 1991 is currently a twenty year-old document, the findings are relevant for today's workforce and the future workforce. The importance of equipping high school students with both knowledge and technical skills needed to prepare for the twenty-first century workplace of high skill, high wage, and high demand jobs was clearly emphasized in the SCANS Report (1991) and in the American Diploma Project (Achieve, Inc., 2004). Schools' accountability on both academic knowledge and technical skills is also highlighted throughout Perkins IV (2006).

Four years after the SCANS report was presented, the School-to-Work Opportunities Act of 1994 was enacted by the United States Congress. The purpose of this act was to establish a national framework for states to use in creating statewide School-to-Work Opportunities (STWOA). The one focused implication for the changing workforce brought to light by the SCANS Commission report, that graduates were not prepared for the workforce, was also addressed in STWOA. The WBL component is among many of the mandates outlined in the act. STWOA specified that schools and employers are to integrate school-based and WBL opportunities, as well as integrate academic and occupational learning, into the program.

Learning basic academic and work ethic at the workplace is most often accomplished through informal learning and occurs with interaction among beginning workers and experienced workers (Eraut, 2004). Eraut identified factors that affect informal learning in the workplace, some of which related to the work itself, others of which applied to relationships at work, and still others of which related to the individual. According to Eraut, three factors that affect workplace learning are confidence, challenge, and support. A worker develops confidence by successfully meeting work challenges, and conversely, the confidence to take on the work depends on the extent of employer support. Without challenge or sufficient support to take on the challenge, confidence declines as does the motivation to learn (2004).

Bandura's triadic reciprocal interaction between environmental factors, personal factors, and behavior can be used to explain Eraut's three factors of confidence, challenge, and support. The support provided from the mentor would be a part of the environment impacting the personal factor of belief in accomplishing a given task, and then carrying out the task. Successfully carrying out the task would increase the workers self-efficacy. As explained by Bandura (1986), all three—environment, personal factors, and behavior—impact each other.

Eraut (2004) noted that even though informal learning of basic academic and work ethic takes place at the workplace, rarely are tasks at work structured with learning in mind. In an effort for students to acquire basic academic skills and work ethic during WBL time, educators and employers working together could strategically plan ways to ensure that specific academic skills and work ethic are taught. Doing so may benefit the student, the employer, and the school.

Hill (1996b) and Dose (1997) both believed that WBL programs can help teens improve their work ethic. Hill proposed that helping students in WBL programs identify effective work attributes and helping them become aware of the importance of work ethic for job success could result in a change in students' attitudes and work behavior. Dose suggested that clear norms about appropriate behavior shape values and help individuals judge what is appropriate in a given situation. A formal code of ethics can serve as the clear norm and can influence the ethical values held by employees. Dose also stated that mentors can model values. Work ethic may be positively impacted even in short term WBL experiences like job shadowing (Linnehan, 2004). Kopp, Kazis, and Churchill (1995) indicated that one positive outcome of a WBL program is the maturity level that students develop.

WBL programs bring youth and adults together through mentoring.

As previously stated, formalized WBL programs are more than a student working at a job during high school. WBL programs provide students with access to caring adults and are an effective way to bring youth and adults together (Hughes et al., 2001). Evanciew and Rojewski (1999) stated that, in apprenticeship programs, the WBL component was a social activity based on a relationship between mentors and learners, which contributed to students' educational and social development.

Mentoring is a structured, one-to-one relationship, or partnership, between a young person and an adult (STWOA, 1994). As one of its principles, STWOA requires that young people connect with supportive adults, mentors, and other role models. Mentors have been required in WBL programs since before the passing of the STWOA, and providing mentors to WBL students helps an adult guide and encourage the WBL student and teach the student how to perform work tasks (GDOE, 2007). Mentors are important in WBL experiences because they provide guidance about social and personal aspects of work as well as instruction on how to perform job tasks (Stern, Raby & Dayton, 1992). Students learn key aspects about a job through the modeling of mentors. Although becoming a good mentor for a WBL student takes time and effort, proper work habits and work ethic are areas often learned through the modeling process (Predmore, 2005).

Eraut (2004) identified four main types of work activity involving relationships which increase the potential of learning: participation in group activities, working alongside others, tackling challenging tasks, and working with clients. Eraut further stated that the success of these learning activities depends on the quality of relationships in the workplace. As Evanciew and Rojewski (1999) observed, the types of interactions and teaching methods most often used by mentors included modeling, coaching, and scaffolding. Students described the following instructional interaction times as very helpful: being shown how to perform certain job tasks, and then being given hints and encouragement until they could complete the task.

Seventy-five percent of students surveyed in the Jobs for the Future study rated the mentoring relationship as the most positive program component (Kopp, Kazis, & Churchill, 1995). For students to thrive in a WBL experience, Goldberger et al. (1994) indicated that four forms of support should be present: ongoing support for the student to deal with formal and

informal workplace culture, career counseling, assistance in handling problems at work, and support for coping with personal situations. The support developed from student-adult relationships tends to be consistent and effective over time. In some of the WBL sites, adults remained in contact with the students for two years after their departure (Kazis & Kopp, 1997).

One of the purposes of mentors was to provide solid connections to employment opportunities (Goldberger & Kazis, 1995). These solid connections helped students develop a network of people who they trusted, who assisted them in securing jobs, who assisted them with needs like transportation or childcare, and who provided counseling.

Results from Linnehan's (2004) study suggest that even a short-term student-adult relationship may be instrumental in directing or enhancing a student's career and may be related to student confidence to be successful in a job. Official mentors assigned prior to job placement can evolve early. In addition to the official mentor, on-the-job support is provided through other adults in the workplace from high school teachers, program staff, peers, and post-secondary employees (Kazis & Kopp, 1997).

According to Feldman et al. (1991), the best predictor of children's or youth's behavioral outcomes was the social relationships among family members. When family members failed to make critical connections, the children or youth often sought support from non-familial adults—for example, teachers, coaches, work supervisors, or other mentors.

At least three lines of research support success for mentoring from non-familial adults. One is that children do well in spite of deprived childhoods if they have access to just one caring, attentive adult (Rutter & Giller, 1983). Another is that prominent, effective people tend to have mentors, whereas unsuccessful people do not (Kanter, 1977). The third is that the distinguishing

features of successful at-risk programs are intensive individualized attention by one or more adults and community-wide prevention support services (Dryfoos, 1990).

A mentor in the WBL program can provide needed connections for youth who are missing the connection with their immediate family members. Having that mentor in the WBL programs is one variable that may keep many students in school and provide them with encouragement to try other activities, such as careers of interest and post-secondary education opportunities. That mentor can also help the WBL student improve work ethic attributes of interpersonal skills, initiative, and dependability.

Negative implications of work-based learning programs on high school students.

Even though both academic skills and soft skills may be learned through WBL experiences, there is concern that participants may suffer both short and long-term consequences. Most of this concern and research is in the area of work being associated with a decline in academic performance. Additional areas of concern deal with problem behavior and negative psychosocial development. The majority of the research done in these areas did not distinguish between students working as part of a WBL experience designed by the school and students working at a job with no connection to the school. The findings in many studies revealed negative short-term consequences. Lower academic success and school involvement was associated with adolescences who work in excess of 15 or 20 hours per week during the school year (Steinberg et al., 1982). Higher rates of drug and alcohol use were also associated with adolescences who work these same hours during the school year (Mortimer, Finch, Ryu, Shanahan, & Call, 1996).

Long-term consequences associated with employment during high school were revealed by Carr, Wright, and Brody (1996). They demonstrated a negative relationship between

employment intensity during high school and the probability of attending and completing college. The total hours worked while in high school produced long-term consequences, including social and academic self-concept, educational aspirations, post-high school employment, and college attendance (Marsh, 1991). The controlling factors used for background measures did not matter; long-term term consequences remained significant regardless of race, gender, ability, and socioeconomic status.

Bottoms and Presson (1997) did distinguish between high school seniors earning CTE credit by working in school WBL programs and those who “just had a job.” The students earning CTE credit did have a higher-quality worksite experience and worked more weekly hours. Compared to the seniors who “just had a job,” the WBL students earning credit had lower academic achievement and fewer took math and science as seniors and males had lower reading, math, and science achievement than females and were enrolled in more business and marketing classes. The lower performance of these students in the CTE WBL program reflects the image of high school CTE programs as a “dumping ground” for students who will not attend college and who need extensive job training to enter the workforce upon high school graduation (Lynch, 2000). This image also portrays these students as being placed in the CTE programs as a last-ditch effort to prevent their dropping out before graduation (Lynch, 2000).

Many studies of part-time employment of youth revealed that work in excess of 15 or 20 hours per week during the school year was associated with academic and social problems (Steinberg, Fegley, & Dornbusch, 1993; Steinberg, et al., 1982). Steinberg et al. (1993) indicated that, once a young person worked an excess of 20 hours per week during the school year, dropping out of the labor force led to improved grades but did not decrease drug or alcohol use.

Chapter III

Research Method

Purpose of the Study

The purpose of this study was to investigate variables associated with work ethic of high school Career and Technical Education (CTE) seniors from a Central Georgia school district and to determine whether one or more of these variables were more likely to explain the variance in work ethic scores. The identified variables were selected based on Bandura's (1986) social learning theory and are supported by previous work ethic research (Boatwright & Slate 2002; Cokley et al., 2007; Harvell, 2009; Hill 1997; Hill & Fouts, 2005; Hughes et al., 2001; Payne, 2005). Independent or predictor variables included gender, race, number of WBL hours worked during 11th and 12th grades, socioeconomic status, applied mathematics score, locating information score, and reading for information score. Dependent variables were the work ethic constructs of interpersonal skills, initiative, and dependability.

Research Questions

This research answered the following three questions:

1. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills?
2. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of initiative?

3. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of dependability?

Research Design

The research design of this study was correlational utilizing existing data retrieved from databases for high school CTE seniors who graduated in May 2011. Databases used to gather the information were the student information local database, a senior exit survey conducted at the local school level, the state's Career Technical Agricultural Education Resource Network (CTAERN), and the national ACT WorkKeys® Official Skills Report. The following data were gleaned from the databases: (a) gender, (b) race, (c) number of WBL hours worked during high school, (d) socioeconomic status, (f) applied mathematics score, (g) locating information score, (h) reading for information score, (i) score for interpersonal skills, (j) score for initiative, and (k) score for dependability.

Lewis (2001) stated that correlational designs are based on the strength of relationships between two or more variables. Correlational designs are used for two main reasons: (a) to establish relationships between variables or (b) to use relationships to make predictions or to explain variance (Gay & Airasian, 2000). They are also often used for educational research, and the main advantage of correlational designs over causal-comparative studies is the fact that they allow researchers to analyze the relationships among a large number of variables in a single study (Gall, Gall, & Borg, 2007). As stated by Gall et al., often in education situations involving several variables impacting behavior are encountered. Correlational research designs also allow educators to analyze how variables, either alone or in combination, affect a pattern of behavior (2007).

For this study, the correlational design was used to explain the variance. The researcher determined which independent variable or group of variables was more likely to explain the variance in work ethic scores of CTE seniors graduating in 2011. Independent or predictor variables included gender, race, number of WBL hours worked during 11th and 12th grades, socioeconomic status, applied mathematics score, locating information score, and reading for information score. Dependent variables were the work ethic constructs of interpersonal skills, initiative, and dependability.

Participants

The participants in the study were 2010-2011 Career Technical Education (CTE) seniors who graduated in May 2011. Gall et al. (2007) stated that it is important to select participants from the specific population most pertinent to the study. CTE seniors were chosen as the population of interest for the following reasons. All seniors are administered the WorkKeys® assessments in three areas: applied math, locating information, and reading for information in an effort to earn a Georgia Work Ready Certificate. These assessments were selected as variables representing the seniors' level of education. Per state guidelines, WorkKeys® assessments may only be given to high school seniors, which is why seniors were targeted.

Participation in WBL programs is a variable that could positively impact work ethic, and only CTE students may participate in WBL for a semester or longer. Even though CTE students may begin WBL as a junior, selecting seniors in the WBL program would allow for a longer participation time, and this study sought to determine if more time spent in the WBL program impacted work ethic. CTE seniors who graduated in May 2011 comprised the group most pertinent to the purpose of the study (Dose, 1997; Hill 1996b).

As stated by Huberty and Petoskey (1999), the best sample population for any study is one that is most representative of the target population, and the selection should be based on professional judgment and common sense. The selected group of participants from the Central Georgia school district represented the accessible population and was used as a convenience sample in the study. The total potential population for the central Georgia school district was 639 senior CTE students. One hundred six students were missing one or more data points and were eliminated from the study. Table 1 illustrates missing data points and the number of students missing these data points.

Table 1

Missing Data Points and Number of Students

Missing Data Points	Number of Students
Incomplete WRA	2
Did not take WRA	25
Expired WRA	29
Omitted one or more questions on senior survey	17
Did not take senior survey	23
Did not take WRA and senior survey	5
Did not take WRA and omitted question(s) on senior survey	3
Expired WRA and did not take senior survey	2
Total Students with Missing Data Points	106

Note. WRA=Work Ready Assessment.

After eliminating students with missing data points, the usable sample consisted of 533 CTE seniors with usable responses from the databases at 83% of the original number of students. These 533 CTE seniors had data for all seven independent variables and the three constructs of work ethic. Of the 533 seniors, 49.9% were male and 50.1% were female, 311 were white and 201 were black, and only 3.9% was neither white nor black. For purposes of data collection and

reporting, participants that were neither white nor black were combined with the black participants and categorized as *non-white*. Thus the usable sample included races of 58.3% white and 41.7% non-white.

Two-hundred and fourteen, or 40.2%, of the usable sample had participated in the formalized WBL program, and three-hundred and nineteen, or 59.8%, had not. The total number of formalized WBL hours worked by the usable sample during high school varied from 0 hours to 1,409 hours per participant. Forty-two percent of the usable sample was considered economically disadvantaged due to participation in the free or reduced-price lunch program; 58% was not considered economically disadvantaged. The three parts of the WorkKeys® assessments taken by these students resulted in Work Ready certificates being earned by 82% of the participants; 18% tested but did not score high enough to earn a certificate.

Sample Size

There were 639 CTE seniors in the class of 2011 from the Central Georgia school district. This group of seniors was considered a convenience sample because existing data was available on this group (Creswell, 2008). The school system had usable data sets for all seven independent variables and the three work ethic constructs for 533 or 83% of the CTE seniors from 2010-2011, and this group provided the sample for this study.

Multiple regression analysis is often used with correlational research designs as a control (Lewis, 2001). Brace, Kemp, and Snelgar (2009) stated that multiple regressions require a large number of observations and that the number of participants must substantially exceed the number of predictor (or independent) variables being used in the regression. They further stated that five times as many participants as predictor variables are required as a minimum, but the more acceptable ratio is 10:1, with some people arguing that it should be as high as 40:1. In this study,

the number of participants was 533 CTE seniors. Based on information provided, a minimum of 35 participants were required since this study consisted of seven independent variables. Using the more acceptable ratio of 10:1 would have required 70 participants, while the high ratio of 40:1 would have required 280 participants. The sample size for this study was 533 CTE seniors, almost twice as many participants required of the high ratio of 40:1.

External Validity

In general, external validity can be improved by securing the largest possible sample size representative of the overall population (Schenker & Rumrill, 2004); however, Huberty and Petoskey (1999) stated that beyond a certain number of participants, the increase in size may be negligible. In an effort to increase the external validity of this study, data from the largest sample size possible was considered. *External validity* refers to the generalizability and representativeness of research results to other individuals and settings beyond the participants studied (Lewis, 2001). With the convenience sample of 533 CTE seniors who graduated in 2011, generalizations may be made to future CTE seniors in the central Georgia school district, but not beyond. Generalizations may be made to these groups as long as the future groups are similar to participants in this study.

Data Collection

Gall et al. (2007) provided a list of sources that could be used to measure both predictor and criterion variables: self-report measures, standardized tests, questionnaires, interviews, or observational techniques. The central Georgia school district maintained several databases and had access to others; existing data available from the databases were utilized for this study. Access to the databases was restricted to school system employees, and the databases included the following: student information database, a CTE senior exit survey conducted at the local

level, the state's Career Technical Agricultural Education Resource Network (CTAERN), and the national ACT WorkKeys® Official Skills Report.

The data was secure and participants remained anonymous. Participants' data were not labeled with any individually-identifiable information or coded in a manner so that the researcher could link to individually-identifiable information.

Independent or Predictor Variables

The predictor variables investigated included gender, race, number of WBL hours worked during high school, socioeconomic status, scores on applied mathematics, locating information, and reading for information assessments. Predictor variables were measured before the criterion behavior occurred in order to claim that the behavior was actually predicted by these variables (Gall et al., 2007). Predictor variables were measured using interval or ratio scales, although other scales could have been used (Brace, Kemp & Snelgar, 2009). A nominal predictor is acceptable only if it is dichotomous (Brace et al., 2009).

Tables 2 and 3 include the variable classification as well as the coding measurements for each variable. Data from the school system's database and other accessible databases were retrieved and analyzed for the seven independent variables and three criterion variables studied.

Table 2

Description of Predictor Variables Impacting Work Ethic Scores of CTE Students

Predictor Variable	Variable Type	Measurement	Measurement Scale
Gender	Dichotomous	0 = Female 1 = Male	Nominal
Race	Dichotomous	0 = Non-white 1 = White	Nominal
Formalized WBL hours worked	Dichotomous	No. between 0-1,409	Scale
SES	Dichotomous	0 = Not free or not reduced lunch 1 = Free or reduced lunch	Nominal
applied mathematics	Interval	Levels 3-6	Scale
reading for information	Interval	Levels 3-7	Scale
locating information	Interval	Levels 2-6	Scale

Note. WBL=work-based learning. SES=socioeconomic status. No. between 1-1409=WBL hours worked retrieved from C-Net which is state of Georgia CTE database for WBL on the internet. WorkKeys® assessments are multiple choice measurements that included questions with five answer choices, and they assessed based on up to six levels of difficulty, with level 2 as the least complex and level 7 as the most complex: 2=<level 3 score; 3=level 3 score; 4=level 4 score; 5=level 5 score; 6=level 6 score; 7=level 7 score.

Table 3

Description of Criterion Variables Impacting Work Ethic Scores of CTE Students

Criterion Variable	Variable Type	Measurement	Measurement Scale
Interpersonal skills	Interval	15 SRDs	Scale
Initiative	Interval	16 SRDs	Scale
Dependable	Interval	7 SRDs	Scale

Note. SRDs=self-reporting descriptions (on OWEI, 50 total). SRD answer options were as follows: 1=Never; 2=Almost Never; 3=Seldom; 4=Sometimes; 5=Usually; 6=Almost always; 7=Always.

The pool of respondents was identified in the fall of 2010 by high school counselors at each school and included CTE seniors on track to graduate in May 2011. The definition of a CTE senior in this study was the same one used in the Perkins CTE Act of 2006 for a program completer. Students completing a minimum of three units in a particular CTE program were defined as CTE program completers (Perkins, 2006). Each high school counselor created a

refreshable *Excel* file which provided the most accurate, up-to-date data pertaining to the potential participants. The *Excel* file was created from Open Database Connectivity (ODBC) connecting with the school system's database management system (DBMS). Data for the first and second independent variables, gender and race, were included in each counselor's file.

For each of the respondents previously identified by counselors, data from the state of Georgia's Career Technical and Agricultural Education Resource Network (CTAERN) were retrieved to identify the third predictor variable, number of formalized WBL hours obtained during high school. C-Net was the section of CTAERN that contained this information. Throughout the school year, WBL teachers from each school entered a variety of data for each WBL student in the program, and some of that data entered were the number of hours a student worked as part of the WBL program.

The fourth independent variable was the socioeconomic status of each participant. Participation in the free or reduced-price lunch program was an accepted measure of socioeconomic status and was used to identify the socioeconomic status of participants. Data needed for this variable were retrieved from the school system's student information database.

Scores of the three assessments, including applied mathematics, locating information, and reading for information, were the fifth, sixth, and seventh variables. Scores on these three assessments ranged from level 3 (least complex) to level 7 (most complex). Data were retrieved from the ACT WorkKeys® Official Skill Report indicating the level scored on each assessment for each potential participant.

The applied mathematics assessment contained 33 multiple choice items with five possible answers. The assessment contained five levels of difficulty which included level 3 as the least complex and level 7 as the most complex level. Each level builds on the other. The

applied mathematics assessment score was a continuous variable and was measured by 2=< level 3 score; 3=level 3 score; 4=level 4 score; 5=level 5 score; 6=level 6 score; and 7=level 7 score.

The reading for information assessment score contained 33 multiple choice items with five possible answers. The assessment contained 5 levels of difficulty, which included level 3 as the least complex and level 7 as the most complex level. Each level builds on the other. The reading for information assessment score was a continuous variable and was measured by 2=< level 3 score; 3=level 3 score; 4=level 4 score; 5=level 5 score; 6=level 6 score; and 7=level 7 score.

The locating information assessment contained 38 multiple choice items with five possible answers. The assessment contained 4 levels of difficulty, which included level 3 as the least complex and level 6 as the most complex. Each level builds on the other. Locating information assessment score was a continuous variable and was measured by 2=<level 3 score; 3=level 3 score; 4=level 4 score; 5=level 5 score; and 6=level 6 score.

Dependent or Criterion Variables

The dependent (or criterion) variables in this study were the work ethic constructs of interpersonal skills, initiative, and dependability as measured by the three subscale scores from the OWEI. Criterion variables should be measured using interval, or ratio, scales (Brace et al., 2009). As described in Tables 2 and 3, criterion variables selected for this study were measured using interval scales. Data for the criterion variables were obtained from the responses to part IV – OWEI section of the Exit Survey for 2011 Graduates (see Appendix H).

Every year in May, CTE seniors in the Central Georgia school district completed an annual senior exit survey administered by WBL teachers at each of the four comprehensive high schools and the school system's youth apprenticeship facilitator. The facilitator collected all

annual senior exit surveys and organized them for compilation by a retired educator. Results from the survey became part of the school system's database and were used to follow up with graduates as required by industry certification standards and Perkins IV guidelines. The results were also analyzed by the school system and advisory committee members to make improvements to the CTE program.

The annual senior exit survey consisted of six parts: general information, extracurricular membership, work ethic – OWEI, credentials earned in high school, and contacts for future needs (see Appendix H). Data retrieved from the CTE senior exit survey included student responses to all 50 questions in Part IV of the OWEI (Petty, 2005).

Survey Instruments

Survey instruments are often used to collect data for research associated with theses and dissertations (Hill, 2001). Advantages of using surveys included generally low cost, relative ease of managing and collecting data, ease of reaching populations that are removed from the researcher, and participant comfort when dealing with sensitive topics. The disadvantages explored include the limitation to types of data collected, possible negative attitudes of participants towards divulging information for the survey, the fact that follow-up questions are not allowed, and complex information is difficult to acquire with a questionnaire. Using existing data collected from Part IV of the locally administered survey instrument was the best method to retrieve work ethic data from the large number of CTE seniors in this study.

Occupational Work Ethic Inventory

The Occupational Work Ethic Instrument (OWEI) was Part IV of the annual CTE senior exit survey for the central Georgia school district. The existing work ethic data from this survey was utilized for the study. Other instruments for measuring work ethic exist and were

considered; however the OWEI was selected due to its brevity and ease of understanding for high school students, as well as, the high reliability of the OWEI as compared to other work ethic instruments (Petty, 1993).

The OWEI has reported reliability coefficient alphas ranging from .90 (Hatcher, 1995) to .95 (Azam & Brauchle, 2004). Of the work ethic instruments reviewed, the Eclectic Protestant Ethic Scale was reported as having reliability coefficient alphas closest to the OWEI with .82 and .78 (Furnham, 1990; Ray, 1982). The OWEI has been administered in North America and other countries for the purpose of collecting data related to work ethic in both industrial and vocational education settings (Azam & Brauchle, 2004). It is an existing instrument that has produced valid and reliable scores in numerous prior research studies (Brauchle & Azam, 2004a; Hatcher, 1995; Hill, 1996b).

The OWEI consisted of 50 self-reporting one-word descriptors and measured an individual's occupational work ethic based on three factors: interpersonal skills, initiative, and dependability. These factors, as well as a fourth category of *reversed items*, were identified by Hill and Petty (1995) as a means of categorizing the descriptors. The purpose of the fourth category was to ensure that participants actually read each descriptor and did not make random selections. It was not considered a construct of work ethic and was not used as a factor in this study.

Descriptions used on the OWEI for the factor of *interpersonal skills* included: appreciative, patient, likeable, helpful, pleasant, cooperative, hard-working, cheerful, devoted, courteous, considerate, well groomed, friendly, loyal, and modest. *Initiative* on the OWEI was described as independent, ambitious, effective, initiating, perceptive, efficient, adaptable, accurate, conscientious, persevering, orderly, enthusiastic, persistent, dedicated, productive, and

resourceful. The OWEI described *dependability* as dependable, following regulations, following directions, reliable, honest, careful, and punctual. The *reversed items* category was described in part as stubborn, tardy, irresponsible, depressed, hostile, and negligent.

The OWEI used a Likert-type scale consisting of seven items, including 1=Never, 2=Almost never, 3=Seldom, 4= Sometimes, 5=Usually, 6=Almost always, and 7=Always. These items were preceded by the stem phrase *at work I can describe myself as*. The OWEI consisted of 50 items containing one word descriptions, and participants were asked to select the corresponding number on the scale that best described them at work for each item. The OWEI was appropriate for this study and was selected for three reasons:

1. It is brief (administered in 15-20 minutes) and measures occupational work ethic using simple one-word descriptions.
2. It is easy to understand with minimal instructions to high school students.
3. Having been used in numerous work ethic studies, it has high reliability compared to other instruments—(e.g., Azam & Brauchle, 2004; Brauchle & Azam , 2004b; Harvell, 2009; Hatcher, 1995; Hill & Petty, 1995; Petty, 1995; Petty & Hill, 2005).

Original items for this instrument were selected from reviews of literature concerning work habits, work values, and work attitudes. A panel of experts reviewed the items, determined the appropriateness of each item, and established descriptors for each item. The descriptors included in the final instrument were listed alphabetically, and the items were sorted in random order (Hill, 1997; Petty, 1993). The OWEI was further clarified to include the factors of interpersonal skills, initiative, and dependability (Hill & Petty, 1995; Petty & Hill, 2005).

Criterion validity was partially addressed with the construction of the instrument. However, Hill (1997) indicated that further research was needed to establish additional evidence for validity. Brauchle and Azam (2004a) provided further evidence of construct validity for the OWEI. They concluded that the OWEI constructs developed by Hill and Petty (1995) were replicable in different populations, and others can use these factors with confidence and without concern of population bias (2004a).

The OWEI was considered highly reliable and had recorded overall coefficient alphas ranging from .90 (Hatcher, 1995) to .95 (Azam & Brauchle, 2004). As noted by Brauchle and Azam (2004a), the internal consistency of the OWEI factors was high. Calculations of internal consistency as a means to assess the reliability of a survey instrument were performed as suggested by Hill (2001). Internal consistency was determined by using data resulting from a single administration of the survey (Gloeckner et al., 2001). Cronbach's alpha for the three factors, interpersonal skills, initiative, and being dependable, were reported for this study as a means of determining the reliability of the OWEI as recommended by Gloeckner et al. (2001) and Hill (2001). The alpha coefficients for the subscales were reported at .80 for *interpersonal skills*, .88 for *initiative*, and .90 for *dependability*.

Procedure

Several steps were involved in order to obtain permission from University of Georgia's IRB to conduct this study. On October 13, 2008, permission was granted by Dr. Gregory Petty to use the OWEI instrument (see Appendix E). IRB training was completed on October 25, 2008, and a completion report is included (see Appendix F). A request for a written letter of authorization from the central Georgia school district on their letterhead was requested of and

received from Assistant Superintendent for School Operations, Dr. Robin Hines (see Appendix G).

In the fall of 2010, high school counselors identified all CTE seniors who were on track to graduate in May 2011. Students completing a minimum of three units in a particular CTE program were defined as CTE program completers and, in this study, were considered CTE seniors (Perkins, 2006). This group of students was administered the annual CTE senior exit survey (see Appendix H).

During a span of two weeks, May 9-20, 2011, the senior exit survey was administered to the identified CTE students at the four high schools in the central Georgia school system. Assistance in answering questions concerning aspects of completing the survey was provided by the WBL teachers and the YAP facilitator, who served as survey administrators.

The Institutional Review Board (IRB) application was submitted to the Office of Human Subjects and approval was granted on February 6, 2012 (see Appendix I). Data were retrieved by the system's youth apprenticeship facilitator from these databases: the student information database, CTAERN, and the ACT Work Keys Official Skills Report. A retired educator extracted data from Part IV of the OWEI of the annual senior exit survey, and data were analyzed (see Appendix H).

Data Analysis

Work ethic, like all human behavior, is influenced by combinations of several factors; therefore, seven predictor variables and combinations of these variables were analyzed (Brace et al., 2009). Predictor variables showing lesser impact on the criterion variables were individually removed from the model and the model was re-run. Correlational designs contain a dependent or criterion variable and one or more independent or predictor variables (Lewis, 2001).

Data analysis for correlation designs included multiple regression analysis (MRA) or multiple correlation analysis (MCA). Use of MRA or MCA is determined by the research question: If the research question relates to relationship, MCA is used; if the research question relates to prediction, MRA is used (Huberty & Petoskey 1999). Lewis (2001) stated that multiple regression analysis (MRA) can be used to calculate the correlation between multiple independent variables and one dependent variable. He also stated that multiple regression analysis can be used to isolate the contribution of each independent variable to the dependent variable.

This study attempted to explain the variance in work ethic scores of high school CTE students in a Central Georgia school district. The first question constructed for this study:

What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills? ...reveals the exploratory nature of the question. The study's other two questions are constructed like the first question with the exceptions of the variance in scores being the constructs of initiative and dependability. Due to the exploratory nature of the three research questions, MRA was used. MRA was used also to calculate the correlation between the seven predictor variables and the three subscale scores of the criterion variable for each question. The contribution of each predictor variable to the subscale scores of the criterion variable was isolated with MRA in this study as well.

Descriptive statistics were run on the data for the purpose of providing the reader with some information about the participants and describing the data. Brace et al. (2009) stated that counts or frequencies and percentages are the only summary descriptive suitable for nominal

data. Frequencies and percentages were run for the nominal data collected for gender, race, and socioeconomic status. Once the descriptive statistics were run, a search for any previously overlooked missing entries on the data matrix, and a search for potential outliers was conducted (Huberty & Petoskey, 1999). Data analysis was conducted using the stepdown variation of multiple regression. After completing multiple regression, two-sample T-tests were conducted to determine significant difference in participants' scores on the constructs of work ethic between demographic groups of gender, race, SES, and WBL.

An overview of the data analysis used in this study is available in Table 4. The alpha level for this study was set at 0.05 to establish significance. Setting the alpha level at 0.05 was done in an effort to be consistent with prior work on work ethic by Azam and Brauchle (2004), Brauchle and Azam (2004a; 2004b), Hatcher (1995), Hill and Fouts (2005), and Petty (1995). Minitab version 15 was used for the statistical analysis of this study.

Table 4

Analysis Strategy

Independent Variables	Dependent Variable	Statistical Procedures
Gender	Interpersonal skills	Search for potential outliers Stepdown variation of multiple regression analysis
Race	Initiative	
Total WBL hours	Dependability	
Socioeconomic status		
Applied math score		
Reading for information score		
Locating information score		
Gender	Interpersonal skills	Two-Sample T-Test
Race	Initiative	
SES	Dependability	
WBL participation		

Note. WBL=work-based learning. All three dependent variables are based on subscale scores on the OWEL.

Chapter IV

Analysis of Data

Purpose of the Study

The purpose of this study was to investigate variables associated with work ethic of high school Career and Technical Education (CTE) seniors from a Central Georgia school district and to determine which of these variables were more likely to explain the variance in work ethic scores. Identified predictor variables were gender, race, number of work-based learning (WBL) hours worked during 11th and 12th grades, socioeconomic status (SES), applied mathematics score, locating information score, and reading for information score. Dependent variables included the work ethic constructs of (a) interpersonal skills, (b) initiative, and (c) dependability. Findings related to the following research questions are discussed in this Chapter:

1. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills?
2. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of initiative?
3. What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of dependability?

Background Information

High school counselors identified the pool of respondents by retrieving initial data from the local school system's database management system. Each counselor created a refreshable *Excel* file that provided the most accurate up-to-date data pertaining to potential participants who were CTE seniors on track for graduating in May 2011. This initial file contained gender and race for each CTE senior. The system's youth apprenticeship facilitator then retrieved additional data from appropriate databases restricted to system employees and added the data to the counselors' *Excel* files creating one spreadsheet. Socioeconomic status was retrieved from the student information database; number of WBL hours worked during 11th and 12th grades was retrieved from the state of Georgia's C-Net database for WBL; and scores from the seniors' three assessments including applied mathematics, reading for information, and locating information, was retrieved from the national ACT WorkKeys® Official Skill Report.

Work ethic constructs of interpersonal skills, initiative, and dependability were the criterion variables and were obtained from subscale scores in Part IV of the OWEI section of the annual exit survey for seniors (see Appendix H). A retired educator then entered this data into the spreadsheet.

A total of 533 CTE seniors representing a population of 639 participated in this study. After eliminating 106 students with missing data points, the usable responses from the databases resulted in a usable sample of 83 percent. Tables 5-7 display the following background information for participants: gender, race, socioeconomic status, number of WBL hours worked during 11th and 12th grades, applied mathematics, locating information, and reading for information.

Table 5

Means and Standard Deviations for Continuous and Interval Variables

Variable	Mean	Standard Deviation
WBL hours	186.4	285.1
Applied mathematics	4.12	1.18
Locating information	3.65	0.78
Reading for information	4.49	1.00

Note. WBL=work-based learning. WBL on this table was calculated using number of hours worked by each participant.

Table 6

Variables Categorized by Descriptor, Number and Percentage of Participants

Variable	Descriptor	Number of Participants	Percentage of Participants
Gender	Male	266	49.9%
	Female	267	50.1%
Race	White	311	58.3%
	Non-white	222	41.7%
SES	Free/reduced	224	42.0%
	Not free/reduced	309	58.0%
WBL Hours	Participated	214	40.2%
	Did not participate	319	59.8%

Note. SES=socioeconomic status. WBL=work-based learning. Non-white includes black, Hispanic, Asian, etc. WBL on this table indicates participation or not.

Table 7

Count and Percentage of Participants with Each Assessment Score

Score	2	3	4	5	6	7
Applied mathematics	54	106	162	152	51	8
	10.1%	19.9%	30.4%	28.5%	9.6%	1.5%
Reading for information	30	25	212	191	70	5
	5.6%	4.7%	39.8%	35.8%	13.1%	1.0%
Locating information	49	140	293	50	1	0
	9.2%	26.1%	55.0%	9.4%	0.2%	N/A

Note. Scores are multiple choice measurements from WorkKeys® which included questions with five answer choices, and they assessed based on up to six levels of difficulty, with level 2 as the least complex and level 7 as the most complex: 2=<level 3 score; 3=level 3 score; 4=level 4 score; 5=level 5 score; 6=level 6 score; 7=level 7 score.

A variety of reasons resulted in the 106 potential participants being eliminated from the study due to missing data sets (see Table 1). Some of the reasons resulted from carelessness on the participant's part; other reasons were due to administrative errors. Regardless of the reason, 17% of the potential population was eliminated from the study; therefore, introducing bias among groups in the study (Keppel & Wickens, 2004).

The eliminated participants did not have similar demographics to the study participants in all areas. Gender among study participants was almost a 50/50 split among males and females, while gender among eliminated students included 44.3% male and 55.7% females. The study group contained more non-white than white students, whereas the eliminated group consisted of more white than non-white. SES was similar in both groups with more students qualifying for not free/reduced lunch than those who qualified for free/reduced lunch. Students participating in WBL were reversed in the two groups. The study participants had a greater percentage of students who did not participate in WBL as compared to the eliminated group of students (see Tables 6 and 8).

Table 8

Variables Categorized by Descriptor, Number and Percentage of the 106 Eliminated Participants

Variable	Descriptor	Number of Participants	Percentage of Participants
Gender	Male	47	44.3%
	Female	59	55.7%
Race	White	70	66%
	Non-white	36	34%
SES	Free/reduced	45	42%
	Not free/reduced	61	58%
WBL Hours	Participated	56	53%
	Did not participate	50	47%

Note. SES=socioeconomic status. WBL=work-based learning. Non-white includes black, Hispanic, Asian, etc. WBL on this table indicates participation or not.

Of the 106 eliminated participants, 29 or 27.4% of the 106 eliminated students were missing data due to an administrative error consisting of expired assessments. The demographics of this group of students were considerably different than the study participants in all areas. Gender among study participants was almost a 50/50 split among males and females, while gender among eliminated students included 20.7% male and 79.3% females. The study group contained 58.3% non-white students and 41.7% white, whereas the eliminated group consisted of 79.3% white and 20.7% non-white. SES among study group participants included 42.0% eligible for free/reduced lunch while the eliminated group of students included only 6.9% eligible for free/reduced lunch. The study participants consisted of 40.2% participation in WBL as compared to the eliminated group of students which consisted of 96.6% participation (see Tables 6 and 9). An additional difference of the participation in WBL for the two groups includes the range of the number of WBL hours worked for students. The study participants' WBL hours ranged from 0-1,409, with a mean of 186.4 while the group eliminated due to administrative error had a range of 0-1,777 hours WBL and a mean of 570.4.

Table 9

Variables Categorized by Descriptor, Number and Percentage of 29 Eliminated Participants due to Administrative Error

Variable	Descriptor	Number of Participants	Percentage of Participants
Gender	Male	6	20.7%
	Female	23	79.3%
Race	White	23	79.3%
	Non-white	6	20.7%
SES	Free/reduced	2	6.9%
	Not free/reduced	27	93.1%
WBL Hours	Participated	28	96.6%
	Did not participate	1	3.4%

Note. SES=socioeconomic status. WBL=work-based learning. Non-white includes black, Hispanic, Asian, etc. WBL on this table indicates participation or not.

Of the 106 eliminated participants, 77 or 72.6% of the 106 eliminated students were missing data due to carelessness on the students' part. The demographics of this group of students were in line with the study participants in the variables of race and WBL participation areas. The two groups were different with regards to gender, SES, and number of WBL worked. Gender was split almost 50/50 among study participants while the 77 students eliminated from the study consisted of 53.2% male and 46.8% females. A greater percentage of students from the eliminated group were eligible for free or reduced lunch with 55.8% eligible while 42% of the study participants were eligible. Participation in WBL by the study participants was 40.2% compared to 36.4% participation in WBL by the 77 eliminated students (see tables 6 and 10). The study participants' WBL hours ranged from 0-1,409, with a mean of 186.4 while the group eliminated due to student carelessness had a range of 0-1051 hours WBL and a mean of 148.1.

Table 10

Variables Categorized by Descriptor, Number and Percentage of the 77 Eliminated Participants due to Student Carelessness

Variable	Descriptor	Number of Participants	Percentage of Participants
Gender	Male	41	53.2%
	Female	36	46.8%
Race	White	47	61%
	Non-white	30	39%
SES	Free/reduced	43	55.8%
	Not free/reduced	34	44.2%
WBL Hours	Participated	28	36.4%
	Did not participate	49	63.6%

Note. SES=socioeconomic status. WBL=work-based learning. Non-white includes black, Hispanic, Asian, etc. WBL on this table indicates participation or not.

OWEI Reliability

Internal consistency of the OWEI used in this study was determined by computing Cronbach alpha for the three subscale factors of the OWEI (Gloeckner et al. 2001; Hill 2001). The alpha coefficients for the work ethic constructs were .80 for *interpersonal skills*, .88 for *initiative*, and .90 for *dependability*. According to Nunnally and Bernstein (1994), the alpha coefficient of each subscale should be higher than a minimum of .70. All three constructs reported well above the minimum alpha coefficient, which determined that reliability based on internal consistency was met in this study. Table 11 contains the means and standard deviations for the work ethic constructs of interpersonal skills, initiative, and dependability for the participants in this study.

Table 11

*Means and Standard Deviations for Work Ethic Constructs**Interpersonal Scores*

Variable	Descriptor	Mean	Standard Deviation
Gender	Male	6.2003	0.6249
	Female	6.2504	0.7434
Race	White	6.2494	0.6437
	Non-white	6.1918	0.7427
SES	Free/reduced	6.1505	0.7773
	Not free/reduced	6.2797	0.6082
WBL hours	Participated	6.4112	0.5872
	Did not participate	6.1008	0.7204

Initiative Scores

Variable	Descriptor	Mean	Standard Deviation
Gender	Male	5.7838	0.7067
	Female	5.6992	0.7814
Race	White	5.8341	0.7242
	Non-white	5.7866	0.7669
SES	Free/reduced	5.6992	0.7814
	Not free/reduced	5.8977	0.7015
WBL hours	Participated	6.0694	0.6150
	Did not participate	5.6432	0.7710

Dependability Scores

Variable	Descriptor	Mean	Standard Deviation
Gender	Male	6.1930	0.6698
	Female	6.2559	0.7354
Race	White	6.2184	0.6872
	Non-white	6.2330	0.7271
SES	Free/reduced	6.1702	0.7791
	Not free/reduced	6.2639	0.6416
WBL hours	Participated	6.4115	0.5566
	Did not participate	6.0991	0.7623

Note. SES=socioeconomic status. WBL=work-based learning participation or not.. Non-white includes black, Hispanic, Asian, etc.

Prior to proceeding with a regression analysis, a search for potential outliers using Minitab version 15 was conducted. Outliers were found but a decision was made to retain all data because removing the outliers in this study would be illogical, especially for the variable of number of work-based learning hours worked during 11th and 12th grades. Doing so could produce greater limitations on the study and increase bias.

Regression Analysis

The stepdown variation of multiple regression was used in this study. All of the variables in the multiple regression equations were converted to standard score form with the use of Beta weights. Beta weights were preferred because they form absolute scale (Gall, Gall, & Borg, 2007). A higher Beta weight indicates a greater impact of the predictor variable on the criterion variable; a lower Beta weight indicates a lesser impact of the predictor variable on the criterion variable (Brace, Kemp, & Snelgar, 2009).

For each of the three questions, the same regression analysis procedure was followed utilizing Minitab version 15. In the stepdown multiple regression process, analysis began with a full regression model containing all seven predictor variables of interest. The variable with the least Beta weight was removed from the model and the model was re-run. The best model for each construct of work ethic was determined by continuing to remove the next variable with the least Beta weight and then re-running the model until a statistically significant decrease in R^2 occurred (Berger, 2003). As recommended by Berger (2003), the statistically significant decrease in R^2 was determined by an F-test which indicated $p < .05$.

The R^2 value was used to explain any variation in the criterion variable through a relationship with the predictor variable(s). As stated by Brace, Demp, and Snelgar, (2009), the R^2 value indicates the proportion of the variance in the criterion variable, which is accounted for

by the model composed of selected predictor variables. A high value for R^2 is important for using a regression model for prediction; a low R^2 may indicate that important factors have been omitted from the model (Sykes, 1992). Brace, Demp, and Snelgar, (2009) found that R^2 tends to over-estimate the success of a model in the real world. Since an adjusted R^2 is necessary to provide the most useful measure of a model, it was used in these analyses.

Results for Research Question 1: Interpersonal Skills

What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills?

The full regression model for interpersonal skills with all variables of interest is included in Table 12. The Beta weights indicated the percentage of contribution to the model. A residual plot of this model is provided which indicated that the general clustering around the horizontal line $y = 0$ is suggestive of a good model fit; however, there were several points below the horizontal that appeared to skew equal spread amongst the residuals and may have indicated an issue with fit as the interpersonal scores only ranged from 1.71 to 7 (see Figure 4).

Table 12

Full Regression Analysis for Interpersonal Skills

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight %
Constant	5.9619	0.1724	34.59	0.000		
Gender	-0.02982	0.05919	-0.50	0.615	-0.02016	0.040656
Race	-0.00559	0.06681	-0.08	0.933	-0.00373	0.001388
SES	-0.09854	0.06600	-1.49	0.136	-0.06578	0.43267
Total WBL hours	0.0003626	0.0001076	3.37	0.001	0.139661	1.950527
Applied mathematics	-0.04421	0.03273	-1.35	0.177	-0.07055	0.497725
Locating information	0.05971	0.04905	1.22	0.224	0.063058	0.397627
Reading for information	0.04892	0.03667	1.33	0.183	0.066163	0.437754

Note. $S = 0.676049$. $R\text{-Sq} = 4.3\%$. $R\text{-Sq (adj)} = 3.1\%$. Coef=estimated slopes. SE Coef=standard deviation of the estimated intercept. The t-statistic and P-value is for testing H_0 . The regression equation is:

OWEI Interpersonal Skills = 5.96 - 0.0298 Gender - 0.0056 Race - 0.0985 SES + 0.000363 Total
WBL hours - 0.0442 Applied Mathematics + 0.0597 Locating
Information + 0.0489 Reading for Information

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	7	10.8695	1.5528	3.40	0.001
Residual error	525	239.9472	0.4570		
Total	532	250.8167			

Note. DF=degrees of freedom. SS=sum of squares. MS=means squared. $F=SS/DF$. P=measure of reliability

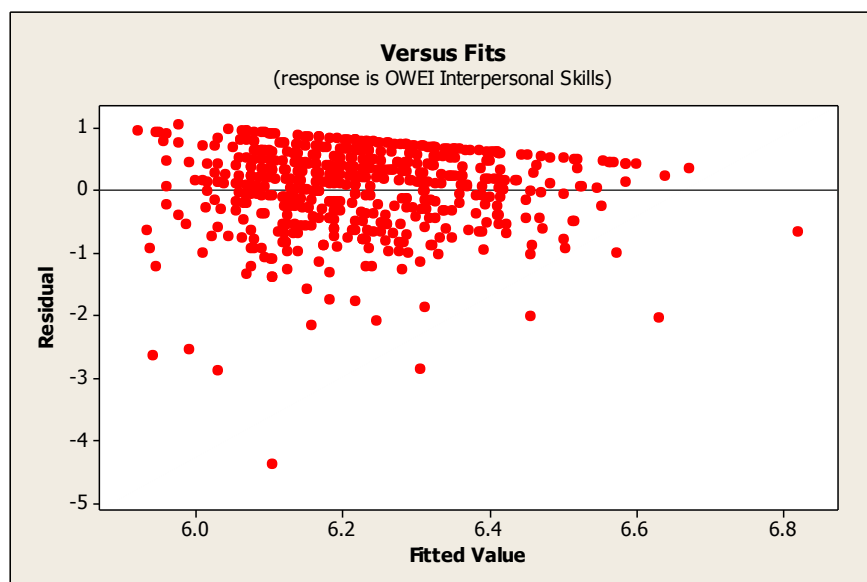


Figure 4
Residual Plot of Full Regression Model for Interpersonal Skills

General clustering around the horizontal line $y=0$ suggested a good model fit; however, the points below the horizontal appeared to skew equal spread amongst the residuals and may have indicated an issue with fit.

Race contained the lowest Beta weight with .001388% of variance (see Table 12). The variable, race, was removed and the model was re-run. The process of removing the next variable with the least Beta weight and re-running the model continued for interpersonal skills with all of the predictor variables due to the fact that that a significant decrease in the R^2 occurred when the last variable, WBL, was removed. Variables were removed and the model was re-run in this order: gender with Beta weight of .040984%, SES with Beta weight of .398341%, applied math with Beta weight of .395514%, locating information with Beta weight of .172516%, and reading for information with Beta weight of .55635% (see Table 13). Table 14 shows the progression of removing variables from the model and the corresponding F values

used to determine whether or not a significant change R^2 occurred. WBL hours was the only remaining predictor which was significant.

Table 13

Process of Removing Predictor Variables with Low Beta Weights for Interpersonal Skills

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight %
Constant	5.9591	0.1689	35.28	0.000		
Gender	-0.02994	0.05912	-0.51	0.613	-0.02024	0.040984
SES	-0.09647	0.06115	-1.58	0.115	-0.0644	0.414683
Total WBL hours	0.0003621	0.0001073	3.37	0.001	0.139469	1.945151
Applied mathematics	-0.04469	-0.04469	-1.39	0.165	-0.07132	0.508592
Locating information	0.05973	0.04900	1.22	0.223	0.063079	0.397894
Reading for information	0.04908	0.03658	1.34	0.180	0.066379	0.440622

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.9397	0.1644	36.13	0.000		
SES	-0.09455	0.06099	-1.55	0.122	-0.06311	0.398341
Total WBL hours	0.0003664	0.0001069	3.43	0.001	0.141125	1.991623
Applied mathematics	-0.04621	0.03202	-1.44	0.150	-0.07374	0.543777
Locating information	0.06176	0.4881	1.27	0.206	0.065223	0.425399
Reading for information	0.04945	0.03655	1.35	0.177	0.06688	0.447290

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.8606	0.1565	37.45	0.000		
Total WBL hours	0.0003824	0.0001066	3.59	0.000	0.147288	2.169362
Applied mathematics	-0.03941	0.03176	-1.24	0.215	-0.06289	0.395514
Locating information	0.06222	0.04887	1.27	0.204	0.065708	0.431760
Reading for information	0.05094	0.03658	1.39	0.164	0.068895	0.474651

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.8443	0.1560	37.46	0.000		
Total WBL hours	0.0003616	0.0001053	3.43	0.001	0.139276	1.939783
Locating information	0.03756	0.04467	0.84	0.401	-0.04154	0.172516
Reading for information	0.03933	0.03539	1.11	0.267	0.050799	0.258052

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.9101	0.1350	43.79	0.000		
Total WBL hours	0.0003634	0.0001052	3.45	0.001	1.959143	1.959143
Reading for Information	0.05515	0.02996	1.84	0.066	0.55635	0.55635

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	6.14998	0.03507	175.35	0.000		
Total WBL hours	0.0004047	0.0001030	3.93	0.000	0.155877	2.429756

Note. $S = 0.677506$. $R\text{-Sq} = 2.8\%$. $R\text{-Sq (adj)} = 2.6\%$. Coef=estimated slopes. SE Coef=standard deviation of the estimated intercept. The t-statistic and P-value is for testing H_0 . The regression equation is: OWEI Interpersonal Skills = $6.15 + 0.000405$ Total WBL hours.

Table 14

Interpersonal Skills: Progression of Variable Removal and Determination of Significant R^2 Change

	R^2	Predictors	F (diff)	P
Full model	0.061	7	n/a	
Removed race	0.043	6	1.421269	0.194192
Removed gender	0.043	5	1.664537	0.127606
Removed SES	0.038	4	0.546499	0.741038
Removed applied math	0.036	3	0.960031	0.429018
Removed locating info	0.034	2	0.730423	0.534158
Removed reading for info	0.028	1	2.195021	0.112369

Note. WBL= work-based learning. SES = socioeconomic status. Info = information.

The best model to explain the variance of scores in the work ethic construct of interpersonal skills was WBL which accounted for 2.6% of the variance as indicated by the adjusted R^2 . This model had residuals that are for the most part evenly spread around $y = 0$; there was no distinctive pattern and all residuals were less than 5, indicating a likelihood of good

model fit (see Figure 5). The scatter plot demonstrated a weak linearity between WBL and interpersonal skills scores (see Figure 6).

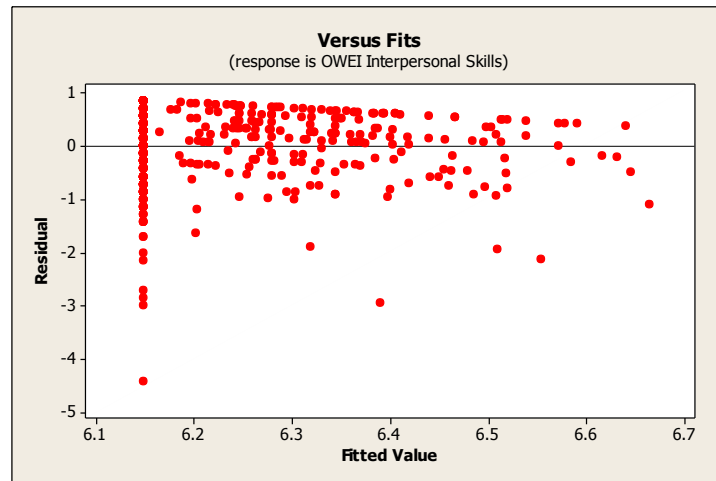


Figure 5

Residual Plot with the WBL Hours Model for Interpersonal Skills

The reduced model, containing only WBL hours as a predictor, had residuals that were for the most part evenly spread around $y = 0$; there were no distinctive patterns and all residuals were less than 5, which indicated a likelihood of good model fit in general terms.

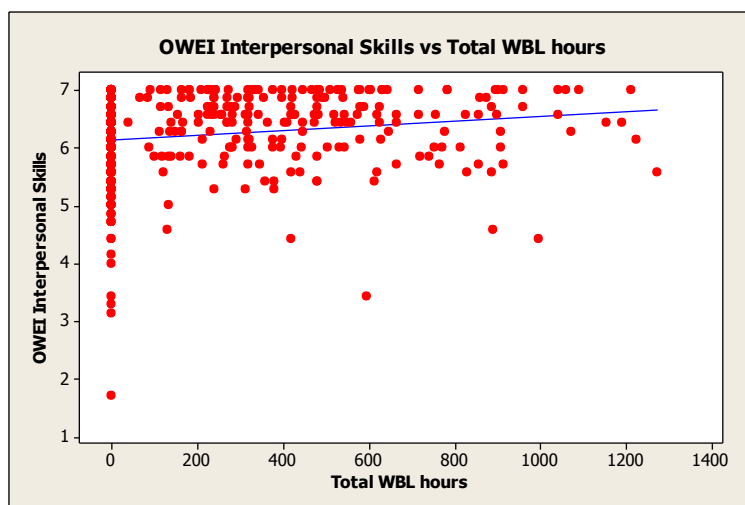


Figure 6
Scatter plot of Interpersonal Skills versus WBL

This scatter plot demonstrated the linearity, though weak, between WBL hours and interpersonal skills score.

Results for Research Question 2: Initiative

What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of initiative?

The full regression model for initiative with all variables of interest is included in Table 15. The Beta weights indicated the percentage of contribution to the model. A residual plot for the full regression model for initiative is provided and demonstrated no apparent patterns or extremely large residuals (see Figure 7). There were several points that appeared larger than others but did not present magnitudes greater than 5.

Table 15

Full Regression Analysis for Initiative

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight%
Constant	5.1817	0.1800	28.79	0.000		
Gender	-0.02816	0.06182	-0.46	0.649	-0.01829	0.03346
Race	-0.07526	0.06977	-1.08	0.281	-0.04819	0.232264
SES	-0.15530	0.06892	-2.25	0.025	-0.09959	0.991807
Applied Mathematics	-0.04026	0.03418	-1.18	0.239	-0.06172	0.380933
Locating Information	0.08250	0.05122	1.61	0.108	0.083699	0.700556
Reading for Information	0.11577	0.03829	3.02	0.003	0.150418	2.262568
Total WBL hours	0.0005402	0.0001124	4.81	0.000	0.199885	3.995382

Note. S = 0.705992. R-Sq = 10.6%. R-Sq (adj) = 9.5%. Coef=estimated slopes. SE Coef=standard deviation of the estimated intercept. The t-statistic and P-value is for testing H_0 . The regression equation is:

OWEI Initiative Skills = 5.18 - 0.0282 Gender - 0.0753 Race - 0.155 SES - 0.0403 Applied Mathematics + 0.0825 Locating Information + 0.116 Reading for Information + 0.000540 Total WBL hours

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	7	31.1802	4.4543	8.94	0.000
Residual Error	525	261.6726	0.4984		
Total	532	292.8528			

Note. DF=degrees of freedom. SS=sum of squares. MS=means squared. F=SS/DF. P=measure of reliability.

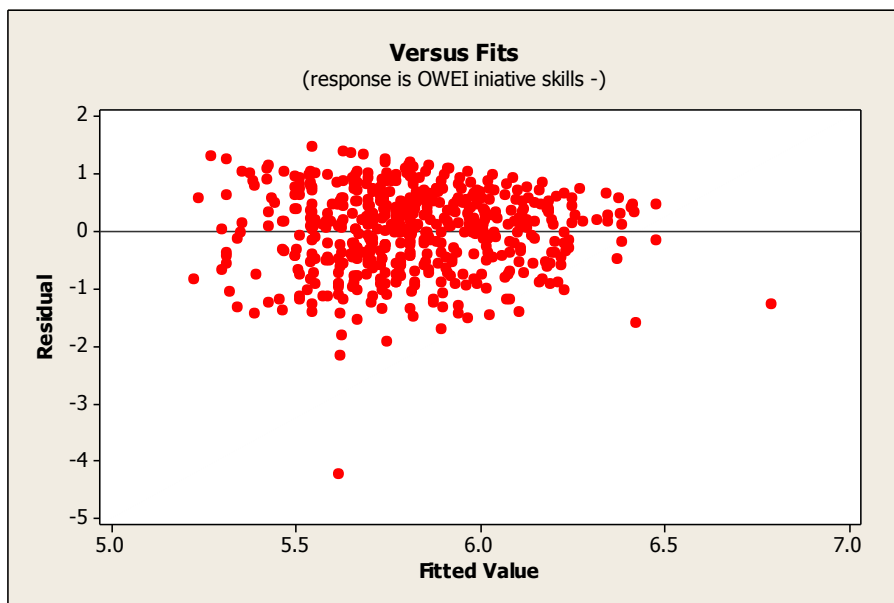


Figure 7
Residual Plot of Full Regression Model for Initiative

The residual plot for the full model for predicting initiative scores demonstrated no apparent patterns or extremely large residuals; there were several points that appeared larger than others but did not present magnitudes greater than 5.

Gender contained the lowest Beta weight with .03346% of variance (see Table 13). The variable, gender, was removed and the model was re-run. The process of removing the next variable with the least Beta weight and re-running the model continued for initiative with this order of variables: race with Beta weight of .237165%, applied math with Beta weight of .548045%, locating information with Beta weight of .31465%, SES with Beta weight of .572596%, and reading for information with Beta weight of 3.047088% (see Table 16). A significant difference in R^2 occurred when reading for information was removed as indicated in Table 17. Reading for information was added back and the best model to explain the variance of scores in the work ethic construct of initiative was WBL and reading for information.

Table 16

Process of Removing Predictor Variables with Low Beta Weights for Initiative

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight%
Constant	5.1639	0.1755	29.42	0.000		
Race	-0.07605	0.06969	-1.09	0.276	-0.0487	0.237165
SES	-0.15378	0.06879	-2.24	0.026	-0.09861	0.972488
Applied mathematics	-0.04162	0.03402	-1.22	0.222	-0.0638	0.407104
Locating information	0.08440	0.05102	1.65	0.099	.085627	0.73319
Reading for information	0.11611	0.03825	3.04	0.003	0.15086	0.022759
Total WBL hours	0.0005444	0.000119	4.86	0.000	0.201439	0.040578

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.1248	0.1719	29.82	0.000		
SES	-0.12557	0.06376	-1.97	0.049	-0.08052	0.6484
Applied mathematics	-0.04829	0.03347	-1.44	0.150	-0.07403	0.5480
Locating information	0.08488	0.05102	1.66	0.097	0.086114	0.7416
Reading for information	0.11828	0.03821	3.10	0.002	0.15368	2.3617
Total WBL hours	0.0005380	0.00011	4.81	0.000	0.19907	3.9629

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.0947	0.1708	29.83	0.000		
SES	-0.11296	0.06322	-1.79	0.075	-0.07244	0.5247
Locating information	0.05529	0.04677	1.18	0.238	0.056094	0.3147
Reading for information	0.10452	0.03704	2.82	0.005	0.135801	1.8442
Total WBL hours	0.000515	0.0001108	4.65	0.000	0.190597	3.6327

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.1951	0.1482	35.06	0.000		
SES	-0.11800	0.06310	-1.87	0.062	-0.07567	0.5726
Reading for information	0.12751	0.03153	4.04	0.000	0.165672	2.7447
Total WBL hours	0.0005167	0.0001108	4.66	0.000	0.191189	3.6553

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.1102	0.1414	36.14	0.000		
Reading for Information	0.13435	0.03139	4.28	0.000	0.174559	3.0471
Total WBL hours	0.0005414	0.0001103	4.91	0.000	0.200329	4.0132

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.69466	0.03726	152.85	0.000		
Total WBL hours	0.0006420	0.0001095	5.87	0.000	0.237552	5.6431

Note. $S = 0.708237$. $R\text{-Sq} = 9.2\%$. $R\text{-Sq (adj)} = 8.9\%$. Coef=estimated slopes. SE Coef=standard deviation of the estimated intercept. The t-statistic and P-value is for testing H_0 . The regression equation is:
 OWEI Initiative Skills = 5.11 + 0.134 Reading for Information + 0.000541 Total WBL hours.

Table 17

Initiative: Progression of Variable Removal and Determination of Significant R^2 Change

	R^2	Predictors	F (diff)	P
Full model	0.061	7	n/a	
Removed gender	0.106	6	0	1
Removed race	0.104	5	0.194258	0.978402
Removed applied math	0.101	4	0.585011	0.711508
Removed locating info	0.098	3	0.878906	0.476273
Removed SES	0.092	2	1.758621	0.154076
Removed reading for info	0.061	1	10.84978	0.000024

Note. WBL= work-based learning. SES = socioeconomic status. Info = information.

The best model to explain the variance of scores in the work ethic construct of initiative was WBL and reading for information. This model explained 8.9% of the variance. The residual plot for the best model was clustered around $y = 0$ which indicated good fit; however,

since initiative scores range from 1.375 to 7, there were several points that caused some concern about the predictive ability of the model (see Figure 8).

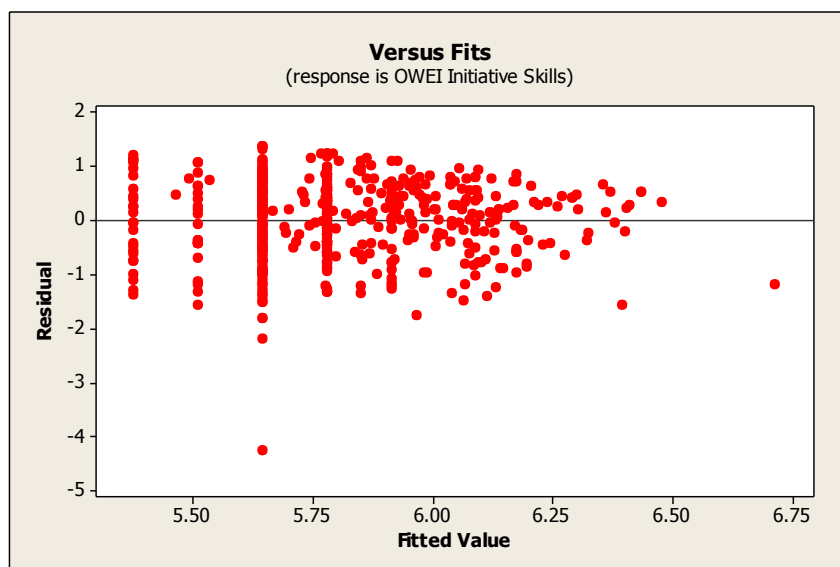


Figure 8

Residual Plot for Initiative versus WBL and Reading for Information

The residual plot was clustered around $y = 0$ which indicated a good fit; however, since initiative scores ranged from 1.375 to 7, there were several points that caused some concern about the predictive ability of the model.

Results for Research Question 3: Dependability

What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of dependability?

The full regression model for dependability with all variables of interest is included in Table 18. The Beta weights indicated the percentage of contribution to the model. The residual

plot of this model presented a fair amount of clustering around the horizontal $y = 0$; there appeared to be a few points below the line that had significant values when compared with the spread above the line which may have indicated possible issues with model fit (see Figure 9). A possible issue could have been the lack of ability to accurately make predictions which was also shown with the low R^2 value. The points were not of such large magnitude as to raise much concern.

Table 18

Full Regression Analysis for Dependability

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight%
Constant	5.8944	0.1749	33.70	0.000		
Gender	-0.03315	0.06007	-0.55	0.581	-0.02416	0.058394
Race	-0.07122	0.06780	-1.05	0.294	-0.05118	0.261936
SES	-0.08372	0.06698	-1.25	0.212	-0.06025	0.362978
Total WBL hours	0.0004197	0.0001092	3.84	0.000	0.174274	3.03714
Applied mathematics	-0.06266	0.03321	-1.89	0.060	-0.1078	1.162037
Locating information	0.03364	0.04978	0.68	0.499	0.038299	0.146685
Reading for information	0.10703	0.03721	2.88	0.004	0.156056	2.435333

Note. $S = 0.686061$. $R\text{-Sq} = 6.1\%$. $R\text{-Sq (adj)} = 4.9\%$. Coef=estimated slopes. SE Coef=standard deviation of the estimated intercept. The t-statistic and P-value is for testing H_0 . The regression equation is: OWEI Dependability = $5.89 - 0.0331 \text{ Gender} - 0.0712 \text{ Race} - 0.0837 \text{ SES} + 0.000420 \text{ Total WBL hours} - 0.0627 \text{ Applied Mathematics} + 0.0336 \text{ Locating Information} + 0.107 \text{ Reading for Information}$

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	7	16.1548	2.3078	4.90	0.000
Residual error	525	247.1071	0.4707		
Total	532	263.2619			

Note. DF=degrees of freedom. SS=sum of squares. MS=means squared. $F=SS/DF$. P=measure of reliability.

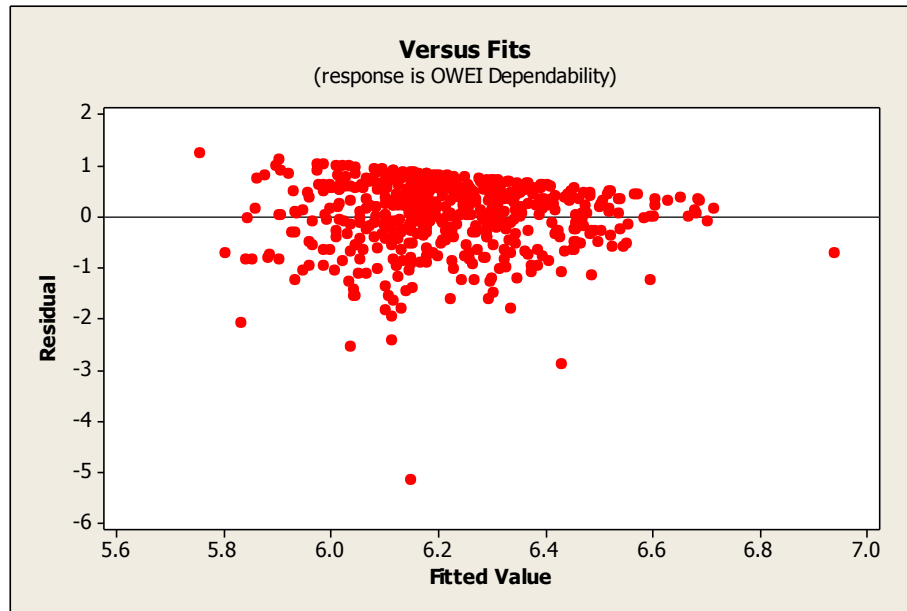


Figure 9
Residual Plot of Full Regression Model for Dependability

The residual plot for the full model for dependability scores presented a fair amount of clustering around the horizontal $y=0$; there did appear to be a few points below the line which may have indicated possible issues with model fit though they were not of such large magnitude as to raise much concern.

Gender contained the lowest Beta weight with .058394% variance (see Table 18). The variable, gender, was removed and the model was re-run. The process of removing the next variable with the least Beta weight and re-running the model continued for dependability in this order: locating information with Beta weight of .166777%, race with Beta weight of .27196%, SES with Beta weight of .15923%, applied math with Beta weight of .959565%, and reading for information with Beta weight of 1.668464 (see Table 19). There was no significant decrease (at $\alpha = .05$ level) in R^2 until reading for information was removed as indicated in Table 20.

Table 19

Process of Removing Predictor Variables with Low Beta Weights for Dependability

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight%
Constant	5.8734	0.1706	34.43	0.000		
Race	-0.07215	0.06773	-1.07	0.287	-0.05185	0.268821
SES	-0.08194	0.06685	-1.23	0.221	-0.05897	0.347707
Total WBL hours	0.0004246	0.0001088	3.90	0.000	0.176309	3.108471
Applied mathematics	-0.06426	0.03306	-1.94	0.052	-0.11055	1.222139
Locating information	0.03587	0.04958	0.72	0.470	0.040838	0.166777
Reading for information	0.10742	0.03718	2.89	0.004	0.156624	2.453113

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.9224	0.1565	37.83	0.000		
Race	-0.07257	0.06770	-1.07	0.284	-0.05215	0.27196
SES	-0.08237	0.06682	-1.23	0.218	-0.05928	0.35136
Total WBL hours	0.0004210	0.0001086	3.88	0.000	0.174814	3.055984
Applied mathematics	-0.05476	0.03033	-1.81	0.072	-0.09421	0.887495
Reading for information	0.11722	0.03461	3.39	0.001	0.170913	2.921129

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.8857	0.1528	38.52	0.000		
SES	-0.05545	0.06193	-0.90	0.371	-0.0399	0.15923
Total WBL hours	0.0004148	0.0001085	3.82	0.000	0.172239	2.966636
Applied mathematics	-0.06100	0.02977	-2.05	0.041	-0.10494	1.101283
Reading for information	0.11942	0.03455	3.46	0.001	0.174121	3.031806

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.8397	0.1438	40.60	0.000		
Total WBL hours	0.0004242	0.0001079	3.93	0.000	0.176142	3.102617
Applied mathematics	-0.05694	0.02942	-1.94	0.053	-0.09796	0.959565
Reading for information	0.12037	0.03453	3.49	0.001	0.175506	3.080235

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	5.7537	0.1372	41.95	0.000		
Total WBL hours	0.0003924	0.0001070	3.67	0.000	0.162938	2.654880
Reading for information	0.08859	0.03045	2.91	0.004	0.129169	1.668464

Predictor	Coef	SE Coef	T	P	Beta	Beta Weight
Constant	6.13902	0.03581	171.41	0.000		
Total WBL hours	0.0004587	0.0001052	4.36	0.000	0.190468	3.627806

Note. $S = 0.687039$. $R\text{-Sq} = 5.0\%$. $R\text{-Sq (adj)} = 4.6\%$. Coef=estimated slopes. SE Coef=standard deviation of the estimated intercept. The t-statistic and P-value is for testing H_0 . The regression equation is: OWEI Dependability = $5.75 + 0.000392 \text{ Total WBL hours} + 0.0886 \text{ Reading for Information}$.

Table 20

Dependability: Progression of Variable Removal and Determination of Significant R^2 Change

	R^2	Predictors	F (diff)	P
Full model	0.061	7	n/a	
Removed gender	0.061	6	0	1
Removed locating info	0.06	5	0.092474	0.997079
Removed race	0.058	4	0.334185	0.892278
Removed SES	0.056	3	0.558511	0.692893
Removed applied math	0.05	2	1.491861	0.215804
Removed reading for info	0.035	1	5.884004	0.002969

Note. WBL= work-based learning. SES = socioeconomic status. Info = information.

Because of the significant difference in R^2 , reading for information was added back to the model resulting in WBL and reading for information being the best model to explain the variance in the work ethic construct of dependability. This model accounted for 4.6% of the variance in work ethic as indicated by the adjusted R^2 . Overall, the residual plot for dependability for the best model which contained WBL and reading for information scores was fairly evenly spread about $y = 0$ with no apparent patterns. There seemed to be good fit with this model, though there were a few more residuals below the horizontal than above (see Figure 10).

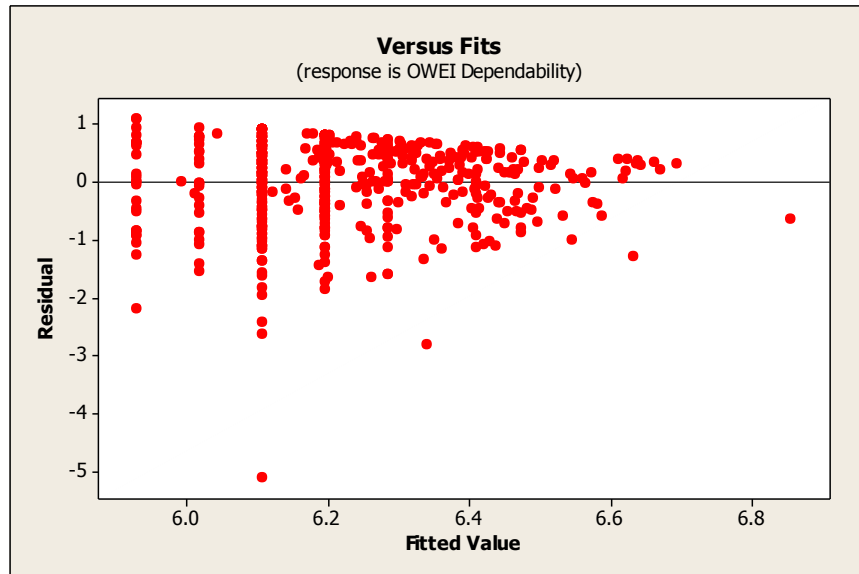


Figure 10
Residual Plot of Dependability versus WBL and Reading for Information

There seemed to be a good fit with this model, though there were a few more residuals below the horizontal than above.

After the best models to explain variance in work were determined with multiple regression, two-sample T-tests were conducted to determine significant difference in participants' scores on the constructs of work ethic between demographic groups of gender, race, SES, and WBL. No significant differences were evident between demographic groups of gender, race, and SES for the construct of interpersonal skills or the construct of dependability. No significant differences were evident between demographic groups of gender and race for the construct of initiative, but there was a significant difference in initiative scores for SES. The confidence interval suggested that non free/reduced students score between .0694 and .3277 points higher on average than do free/reduced lunch qualifiers on the work ethic construct of initiative (see Table 21).

Table 21

Two-Sample T-Test and CI: Initiative – SES

SES	N	Mean	St Dev	SE Mean
2	309	5.898	0.702	0.040
1	224	5.699	0.781	0.052

Difference = $\mu(0) - \mu(1)$

Estimate for difference: 0.1985

95% CI for difference: (0.0694, 0.3277)

T-Test of difference = 0 (vs not =) : T-Value = 3.02 P-Value = 0.003 DF = 448

Note. SES=socioeconomic status. 1 = free/reduced lunch. 2 = not free/reduced lunch. N = number of participants. St Dev = standard deviation. SE Mean = standard error of mean.

The results for the two-sample T-test of WBL revealed significant differences in all three constructs of work ethic between students who participated in WBL and those who did not. The confidence interval suggested that students who participated in WBL scored between .2001 and .4248 points higher on dependability than those who did not participate (see Table 22). Students who participated in WBL scored between .3078 and .5445 points higher on the work ethic construct of initiative than those who did not participate (see Table 23). WBL participants scored between .1987 and .4222 points higher on interpersonal skills than those who did not participate (see Table 24).

Table 22

Two-Sample T-Test and CI: Dependability – WBL

WBL	N	Mean	St Dev	SE Mean
0	319	6.099	0.762	0.043
1	214	6.412	0.557	0.038

Difference = $\mu(0) - \mu(1)$

Estimate for difference: -0.3125

95% CI for difference: (-0.4248, -0.2001)

T-Test of difference = 0 (vs not =): T-Value = -5.47 P-Value = 0.000 DF = 527

Note. WBL = work-based learning. 1 = some participation in WBL. 2 = 0 hours of participation.
N = number of participants. St Dev = standard deviation. SE Mean = standard error of mean.

Table 23

Two-Sample T-Test and CI: Initiative – WBL

WBL	N	Mean	St Dev	SE Mean
0	319	5.643	0.771	0.043
1	214	6.069	0.615	0.042

Difference = $\mu(0) - \mu(1)$

Estimate for difference: -0.4261

95% CI for difference: (-0.5445, -0.3078)

T-Test of difference = 0 (vs not =): T-Value = -7.07 P-Value = 0.000 DF = 515

Note. WBL = work-based learning. 1 = some participation in WBL. 2 = 0 hours of participation.
N = number of participants. St Dev = standard deviation. SE Mean = standard error of mean.

Table 24

Two-Sample T-Test and CI: Interpersonal Skills – WBL

WBL	N	Mean	St Dev	SE Mean
0	319	6.101	0.720	0.040
1	214	6.411	0.587	0.040

Difference = $\mu(0) - \mu(1)$

Estimate for difference: -0.3105

95% CI for difference: (-0.4222, -0.1987)

T-Test of difference = 0 (vs not =): T-Value = -5.46 P-Value = 0.000 DF = 511

Note. WBL = work-based learning. 1 = some participation in WBL. 2 = 0 hours of participation.
N = number of participants. St Dev = standard deviation. SE Mean = standard error of mean.

The best models were determined for the three work ethic constructs. WBL had the highest beta weight in all three models; therefore, it was the only variable that was never removed. WBL was the best model for interpersonal skills. WBL and reading for information was the best model for both initiative and dependability constructs of work ethic. None of the models appeared to be a good fit because each R^2 was small. Since a low R^2 may indicate that important factors have been omitted from the model (Sykes, 1990), additional variables may be necessary to accurately make predictions through a linear model.

The findings from the two-sample T-test of WBL add support for the models that were created through multiple regression. The results revealed significant differences in all three constructs of work ethic between students who participated in WBL and those who did not. Significant differences were also evident for the construct of initiative between demographic groups of SES.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Research Study

The purpose of this study was to investigate variables associated with work ethic of high school Career and Technical Education (CTE) seniors from a central Georgia school district and to determine which of these variables were more likely to explain the variance in work ethic scores. The identified variables were selected based on Bandura's (1986) social learning theory and supported by previous work ethic research, including Boatwright and Slate 2002; Cokley et al., 2007; Harvell, 2009; Hill 1997; Hill and Fouts, 2005; Hughes et al., 2001; and Payne, 2005. Independent or predictor variables included gender, race, number of work-based learning (WBL) hours worked during 11th and 12th grades, socioeconomic status (SES), applied mathematics score, locating information score, and reading for information score. Dependent variables were the work ethic constructs of interpersonal skills, initiative, and dependability.

In this study, work ethic was defined as work attitudes and behaviors that contribute to success at work. Bandura's social cognitive theory (1977), which explained that people learn social behaviors for the most part from others by observing and modeling behavior, attitudes, and outcomes of those behaviors, served as the theoretical framework for this study. It also explained the ability of humans to motivate and regulate their own behavior. Human functioning is explained by social learning theory as a continuous triadic reciprocal interaction between personal factors, behavioral and environmental factors (Bandura, 1986). Each of these factors is capable of producing change to the other.

In this study, interpersonal skills, initiative, and dependability were viewed as human functioning. Prior research determined that work ethic was comprised of three categories with three distinct themes or constructs (Hill and Petty, 1995). The theme of the work ethic construct of interpersonal skills relates to working relationships with other people, so all of the descriptors for interpersonal skills deal with job performance where cooperation is important. Initiative depicts the theme of workers not being satisfied with “status quo” job performance; therefore, the descriptors for initiative describe characteristics which assist workers with “moving up the ladder”. Meeting minimum expectations but not going “beyond the call of duty” is the theme of dependability; descriptors for dependability portray this theme. The descriptors are the social behaviors that workers exhibit in each of these distinct categories.

The personal factors included in this study were the predictor variables of gender and race. Applied math, reading for information, and locating information scores were predictor variables which were considered behavioral factors. Predictor variables considered environmental factors included socioeconomic status and the number of WBL hours worked during the 11th and 12th grades.

Additional behavioral factors for the work ethic construct of interpersonal skills were these descriptors: appreciative, patient, likeable, helpful, pleasant, cooperative, hardworking, cheerful, devoted, courteous, considerate, well groomed, friendly, loyal, and modest. Additional initiative behavioral factors included: independent, ambitious, effective, initiating, perceptive, efficient, adaptable, accurate, conscientious, persevering, orderly, enthusiastic, persistent, dedicated, productive, and resourceful. Additional behavioral factors for dependability were: dependable, following regulations, following directions, reliable, honest, careful, and punctual.

Employers have voiced concern for improved work ethic in the workplace, and their voices appear to be stronger and more demanding. This concern is indicated by CTE advisory committee members, legislators, and education reform literature (Achieve, Inc., 2004; Georgia House Bill 186, 2011; SCANS Report, 1991; School-to-Work Opportunities Act, 1994). This study sought to determine which variables associated with work ethic scores of CTE seniors provide the best model for explaining the variance in their work ethic scores. By learning which variables have the greatest impact on work ethic and which model best explains the variance in work ethic scores, educators will be able to develop strategies that target those specific variables, thereby better preparing students for the workforce.

The participants in the study were 2010-2011 Career Technical Education (CTE) seniors who graduated in May 2011. The selected group of participants from the central Georgia school district represented the accessible population and was used as a convenience sample in the study. The total potential population for the central Georgia school district was 639 senior CTE students. The school system had usable data sets for all seven independent variables and the three constructs of work ethic for 533, or 83%, of the CTE seniors from 2010-2011.

Archival data from several databases were retrieved and analyzed for this study. Access to the databases was restricted to school system employees. Descriptive statistics were run on the data for the purpose of providing the reader with some information about the participants and describing the data. Frequencies and percentages were run for the nominal data collected for gender, race, and socioeconomic status. Once the descriptive statistics were run, a search for any previously overlooked missing entries on the data matrix, and a search for potential outliers was conducted (Huberty & Petoskey, 1999). Data analysis was conducted using the stepdown variation of multiple regression.

For each of the three questions, the same regression analysis procedure was followed utilizing Minitab version 15. In the stepdown multiple regression process, analysis began with a full regression model containing all seven predictor variables of interest. The variable with the least Beta weight was removed from the model and the model was re-run. The best model for each construct of work ethic was determined by continuing to remove the next variable with the least Beta weight and then re-run the model until a statistically significant decrease in R^2 occurred (Berger, 2003). As recommended by Berger (2003), the statistically significant decrease in R^2 was determined by an F-test which indicated $p < .05$. An adjusted R^2 was calculated and used to explain any variation in the criterion variable through a relationship with the predictor variable(s). After the best models to explain variance in work were determined with multiple regression, two-sample T-tests were conducted to determine significant difference in participants' scores on the constructs of work ethic between demographic groups of gender, race, SES, and WBL.

Based on prior research and Bandura's social learning theory, the seven identified variables selected for this study seemed to be reasonable variables for explaining variance in work ethic; however, these variables did not do enough to explain the variance in work ethic of high school CTE seniors from a central Georgia school district. The one predictor variable that consistently contributed to all three of the best models for explaining variance in the three constructs of work ethic was WBL. Reading for information contributed to two of the best models.

The findings from the two-sample T-test of WBL add support for the models that were created through the multiple regression analysis process. The results revealed significant differences in all three constructs of work ethic between students who participated in WBL and

those who did not. Significant differences were also evident for the construct of initiative between demographic groups of SES.

Summary of Findings

Bandura's social learning theory and the triadic reciprocal interaction for human functioning of interpersonal skills, initiative, and dependability have been used to provide examples to support the findings listed below. The social learning theory posits that people learn social behavior from others by observing and modeling behaviors and attitudes of others. The social learning theory explains human functioning as a continuous triadic reciprocal interaction between personal factors, behavioral factors and environmental factors. Each of these factors is capable of producing change on the other.

Research Question 1: Interpersonal Skills

What combination of gender, race, number of WBL hours worked during 11th and 12th grades, socioeconomic status, applied mathematics score, locating information score, and reading for information score provides the best model for explaining the variance in scores on the work ethic construct of interpersonal skills?

The full regression model for interpersonal skills with all variables of interest explained 3.1% of the variance in work ethic. The best model to explain variance in the work ethic construct of interpersonal skills was WBL which accounted for 2.6% of the variance.

The human functioning of interpersonal skills consists of several behaviors; two of these behaviors are cheerful and friendly. Through the personal factor of gender, a female may observe and model behaviors and attitudes of other female family members of being very quiet and behaving in the manner of "being seen and not heard" for most of her life. In the 11th grade the female could decide to participate in the WBL program at her school. WBL would be

considered an environmental factor. Being cheerful and friendly could be behaviors that the student struggles with. By observing and modeling cheerful and friendly behaviors and attitudes of her mentor at the workplace, the WBL student could learn to portray these behaviors that are characteristic of the interpersonal skills that she lacked.

Research Question 2: Initiative

What combination of gender, race, number of WBL hours worked during 11th and 12th grades, socioeconomic status, applied mathematics score, locating information score, and reading for information score provides the best model for explaining the variance in scores on the work ethic construct of initiative?

The full regression model for initiative with all variables of interest explained 9.5% of the variance in work ethic. The best model to explain variance in the work ethic construct of initiative was WBL and reading for information which accounted for 8.9% of the variance.

Some of the behaviors that describe the human functioning of initiative are resourceful, perceptive, independent, and accurate. A review of sample questions, characteristics of the questions, and skills required from the reading for information assessment showed a direct link between the reading for information assessment and the human functioning of initiative in the specific areas of being resourceful and accurate. These behaviors more than likely require reading skills. WBL provides an environment for students to practice behaviors that are characteristic of initiative. Possessing the reading skills to perform the specific behaviors of being resourceful and accurate, as well as having opportunities through WBL to observe and practice these behaviors, could affect other behaviors that are characteristic of the human functioning of initiative such as effective, efficient, and productive, thus improving a student's initiative.

Research Question 3: Dependability

What combination of gender, race, work-based learning, socioeconomic status, applied mathematics, locating information, and reading for information provides the best model for explaining the variance in scores on the work ethic construct of dependability?

The full regression model for dependability with all variables of interest explained 4.9% of the variance in work ethic. The best model to explain variance in the work ethic construct of dependability was WBL and reading for information which accounted for 4.6% of the variance.

A review of sample questions, characteristics of the questions, and skills required from the reading for information assessment revealed a direct link between the reading for information assessment and the human functioning of dependability. Many of the reading questions dealt with company policy, regulations, and procedure, as well as, following directions. Behaviors that are characteristic of dependability were dependable, follows regulations, follows directions, reliable, honest, careful, and punctual. WBL provides an environment for students to observe and practice behaviors that are characteristic of dependability. A WBL student could be perceived as being lazy due to exhibiting behaviors that are in conflict with dependability such as not following regulations or directions. The WBL student could be perceived as being lazy, when in fact he could have a reading problem that gives the appearance of laziness.

Conclusions

Based on the assumption that the data and findings in this research study were valid and reliable, the following conclusions were made:

The fact that male and female scores on all three constructs of work ethic were so close could be an indication that society has similar values and expectations for both genders. It could also be an indication that, with the increase of women in the workforce, gender lines in respect to

work ethic are becoming blurred. As Bandura (1986) stated, certain gender attributes and roles are influenced by the value society places on them.

Race was not determined as a significant factor in predicting work ethic scores in any of the constructs of work ethic. Interpersonal skills yielded the same mean score for whites and non-whites. Whites scored slightly higher on initiative, while non-whites scored slightly higher on dependability.

WBL was the one predictor variable that consistently contributed to the best models for explaining variance in all three constructs of work ethic. The value of WBL programs should be noted in an effort to explain variance in work ethic.

By conducting this study, the best model for explaining variance in scores on the work ethic constructs of interpersonal skills, initiative, and dependability for CTE seniors in a central Georgia school district has been determined. WBL was the best model for interpersonal skills, with 2.6% of the variance being explained by WBL. WBL and reading for information accounted for 8.9% of the variance in initiative and 4.6% of variance in dependability. WBL and reading for information was determined as the best model for both initiative and dependability. Even though the best model for variance in scores for the three work ethic constructs has been determined, over 90% of the variance in each of the constructs was not explained by this study. The researcher expected that more variance would be explained and has attempted to understand what may have attributed to the unexpected outcomes.

The predictor variables of gender, race, SES, WBL, applied math, locating information, and reading for information seemed to be reasonable predictors of work ethic as indicated by Bandura's social learning theory and prior research. The criterion variables of interpersonal skills, initiative, and dependability were determined to be replicable in different populations and

can be used with confidence and without concern of population bias (Brauchle and Azam, 2004a). Greater variance in work ethic scores may be found by including additional predictor variables.

It appears that there may have been some overlap in the assessments of applied math, reading for information, and locating information with other predictor variables of WBL and SES, as well as criterion variables of initiative and dependability. All three assessments overlapped with WBL because the questions on the assessments were stated from a work-related format. Many of the characteristics of the assessed items in applied math overlapped with descriptors of initiative such as independent, perceptive, persevering, orderly, persistent, and resourceful. Descriptors of dependability such as following directions and being careful overlapped with characteristics of the assessed items in applied math, locating information, and reading for information. Some of the assessed items from the locating information assessment overlapped with descriptors of initiative including resourceful, orderly, perceptive, persevering, and accurate. Reading for information overlapped with descriptors of resourceful, perceptive, and orderly. This overlap could help to explain the unexpected outcomes of the study.

The outcomes of the study could have been influenced by the use of level scores rather than raw scores from the three assessments of applied math, reading for information, and locating information. Level scores were used in this study because the level scores are the ones used by employers for selection and promotion decisions (ACT, Inc, 2011). Each level included a broad range of job skills. The use of the level scores may have limited what could be done with the scores and introduced some bias in the study (Brace, Kemp, and Snelgar, 2009).

Eliminating 106 students with missing data sets from the study more than likely influenced the outcomes. The students with missing data sets were categorized into eight groups

indicating why the data was missing. Reasons for missing data included incomplete assessments, did not take assessments, expired assessments, omitted one or more questions on the senior survey, did not take the senior survey, did not take the assessments nor the senior survey, did not take the assessments and omitted questions on the survey, and expired assessments and did not take senior survey. The students volunteered to take the assessments and survey; graduation was not contingent upon completing neither the assessments nor the survey.

Reasons for not taking the assessments and survey ranged from being absent from school due to sickness, hospitalization, serving jail time, and unknown. Omitting one or more questions from the assessments or survey resulted from carelessness on the students' part. An administrative error did occur which resulted in the elimination of 29 of the 106 students with missing data sets.

Even though the sample size for this study was 533 CTE seniors which was almost twice as many participants required of the high ratio of 40 participants:1 predictor variable (Brace, Kemp, and Snelgar, 2009), eliminating the 106 students with missing data sets more than likely attributed to the unexpected outcomes of this study. Had the eliminated students shared similar demographics to the study participants, eliminating the students with missing data sets may not have been a problem. But the eliminated participants did not have similar demographics to the study participants in three of four categories. The group of 106 eliminated students was different than the study participants in regards to gender, race, and participation in WBL. The group of eliminated students contained a greater percentage of white females that participated in work-based learning. The range of hours participated in WBL differed as well. The range of hours for the study participants was from 0-1,409 hours with a mean of 186.4, while the range of hours of

WBL for the eliminated students was 0-1,777 with a mean of 263.6. The two groups were identical in SES with 42% qualifying for free/reduced lunch and 58% not qualifying.

It is speculated that more variance in work ethic constructs would have been explained by this study had the 106 students not been eliminated from the study. The results for the two-sample T-test of WBL revealed significant differences in all three constructs of work ethic between students who participated in WBL and those who did not. Of the 106 students, 56 participated in WBL. The confidence interval suggested that non free/reduced students scored higher on average than did free/reduced lunch qualifiers on the work ethic construct of initiative. Of the 106 students eliminated from the study, 61 did not qualify for free/reduced lunch.

Eliminating the 106 students with missing data sets contributed to sampling bias in the study because of the demographics of this group being different than the study participants (Keppel & Wickens, 2004). Rather than eliminating participants with missing data, Sprinthall (2007) recommended using a conservative approach that consisted of inserting the mean value for the missing data.

Recommendations for Further Research

Greater variance in work ethic scores may be found by including additional predictor variables in future research. Some variables to consider are income levels, parents' occupation, post-secondary plans, and involvement in extracurricular activities such as Career Technical Student Organizations.

Other predictor variables representing levels of education could be considered in future research instead of the Work Keys assessments of applied math, reading for information, and location information. This is recommended due to the overlap in the assessments of applied

math, reading for information, and locating information with other predictor variables of WBL and SES, as well as criterion variables of initiative and dependability.

Raw scores for assessments would be recommended over level scores for future research study on work ethic. Doing so would help reduce bias.

In future studies, consideration should be given to using methods other than eliminating participants with missing data sets when the demographic makeup does not reflect demographics of study participants. Bias could further be reduced by doing so.

Contributions of the Study

Employers have voiced concern for improved work ethic in the workplace, and their voices appear to have become stronger and more demanding. This concern is indicated by CTE advisory committee members, legislators, and education reform literature (Achieve, Inc., 2004; Georgia House Bill 186, 2011; SCANS Report, 1991; School-to-Work Opportunities Act, 1994). This study was designed to investigate variables associated with work ethic of high school CTE seniors from a Central Georgia school district and to determine which of these variables are more likely to explain the variance in work ethic scores.

This researcher hopes that the results of this study can be used to improve work ethic of high school CTE students by developing strategies that target specific work ethic factors. Even though the variance on work ethic was low among the variables of reading for information, WBL, and SES, these three variables did show some significance in the constructs of work ethic. As a result of the multiple regression analysis, reading for information was significant in the work ethic constructs of initiative and dependability. WBL was significant in the work ethic construct of interpersonal skills, initiative, and dependability as revealed by multiple regression and two-sample T-test. As a result of the two-sample T-tests, SES was significant in the work

ethic construct of initiative. Reading for information, WBL, and SES are three variables that may help explain the variance in work ethic scores among CTE seniors in the Central Georgia school district.

Of the three assessments used as variables in this study, reading for information was the only one to show any significance on work ethic in the constructs of initiative and dependability. This finding could indicate that the direction in which the state of Georgia and many other states are headed (implementing reading literacy common core standards in all CTE courses) may help to improve work ethic.

The common core state standards were launched in June 2010 by the National Governors Association and State Education Chiefs in an effort to help address the national concern of high school graduates not being adequately prepared for college and not being able to compete in the global economy (Omear, 2010). Some English and math standards will be applied in the CTE courses as literacy standards. As teachers begin training for implementing the literacy standards, as with any new initiative, they may question the importance of change. Professional training in implementing literacy standards for CTE teachers may be based, in part, on findings from studies like this one to reveal possible solutions for improving CTE seniors' work ethic.

The numbers of hours CTE students participated in WBL was not significant in the variance of work ethic scores; however the 2-sample T-test showed that whether or not a student participated in WBL was significant in all three work ethic constructs including interpersonal skills, initiative, and dependability. This finding indicates that increasing the number of participants in the WBL program may help increase work ethic scores. Should enrollment in WBL become limited, implementing strategies in the classroom to simulate the work environment could be considered.

SES was not shown as significant in the variance of work ethic scores; a significant difference in initiative scores for SES was a result of the two-sample T-tests. The confidence interval suggested that non free/reduced students scored higher on average than do free/reduced lunch qualifiers on the work ethic construct of initiative. Initiative required self-control of behavior. Payne (2005) explained that to be successful in work requires self-control concerning behavior and that people of poverty tend to lack self-control. Being extremely disorganized is behavior related to poverty, in which the skills of planning, scheduling, and prioritizing are not taught (2005). The work ethic construct of initiative was described as independent, ambitious, effective, initiating, perceptive, efficient, adaptable, accurate, conscientious, persevering, orderly, enthusiastic, persistent, dedicated, productive, and resourceful. Ensuring that the skills of planning, scheduling, and prioritizing are taught at school could help to improve the scores on the work ethic construct of initiative.

According to Payne (2005), the socioeconomic status of economically disadvantaged students limits their access to a variety of resources, such as emotional, mental, spiritual, physical, support systems, and relationships/role models. Relationships are considered the most significant motivator for students living in poverty, and participation in the WBL program could be especially helpful to low socioeconomic students because the mentor required in WBL would provide support and be a significant resource to students

Hidden rules are described by Payne (2005) as unspoken cues and habits of a group learned from one's environment. She also stated that work ethic is a set of hidden rules belonging to the middle class. Students of poverty have their own set of hidden rules which enable them to survive in poverty, but, to be successful in the workplace, they will need

additional work ethic rules. They may have two different sets of rules including how to behave at home and how to behave at work.

Overall, the findings in this study can serve as the catalyst for CTE educators to implement strategies to improve the work ethic of CTE seniors. Strategies which consider the variance that reading for information assessment, WBL, and SES have on work ethic may prove helpful to students and worthy topics of discussion among advisory committee members. Due to the unexpected outcomes of this study, exploring additional predictor variables with advisory committee members is encouraged.

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APPENDICES

Appendix A

164-4-8.08 Career Education

160-4-8- .08 Career Education**(1) Definitions**

(a) Career education - a learning process that increases career awareness, provides career exploration, and appropriate educational planning, thereby enabling students and their parents/guardians to make informed decisions about post-high school educational opportunities and career choices .

(2) Requirements

(a) The local school system shall provide opportunities for students to:

1. Learn how interests, aptitudes, and abilities are related to career and educational alternatives.
2. Understand the relationship between learning acquired in school and learning needed for future careers.
3. Develop a work ethic and appreciation for the dignity of all work.
4. Understand the economic concepts of becoming a producer and contributor to society.
5. Develop a program of study by no later than ninth grade.

(b) The local school system shall involve parents , teachers, guidance counselors , and community resources in the career education process by:

1. Using career-oriented content and learning-by-doing activities in the curriculum as a means to motivate and enhance student achievement.
2. Implementing guidance activities that encourage individual responsibility for career awareness and a broadening of perceived career choices.
3. Providing opportunities for broadening career options through such activities as career exploration, school-managed volunteer and work-based learning programs.
4. Relating the fine, practical, and liberal arts to work and other life roles and values.
5. Providing students with current, accurate career and educational planning information about future career possibilities for use in educational planning .
6. Integrating skills and attitudes needed for continued learning, career decision making, planning, career preparation, and career success .

160-4-8- .08 (Continued)

7. Involving home, community, business, and industry as resources for learning about work and careers.

(c) Each school containing grades 9-12 shall provide annual student advisement sessions to review programs of study and offer alternatives toward satisfying graduation requirements and updating career objectives.

Authority O.C .G.A. § 20-2-131 ; 20-2-151(b)

Adopted: May 13, 1999 Effective : June 9, 1999

Appendix B
CTAE Foundation Skills

Georgia CTAE Foundation Skills

1. **Technical Skills:** Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.
2. **Academic Foundations:** Learners achieve state academic standards at or above grade level.
3. **Communications:** Learners use various communication skills in expressing and interpreting information.
4. **Problem Solving and Critical Thinking:** Learners define and solve problems, and use problem-solving and improvement methods and tools.
5. **Information Technology Applications:** Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.
6. **Systems:** Learners understand a variety of organizational structures and functions.
7. **Safety, Health and Environment:** Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.
8. **Leadership and Teamwork:** Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.
9. **Ethics and Legal Responsibilities:** Learners commit to work ethics, behavior, and legal responsibilities in the workplace.
10. **Career Development:** Learners plan and manage academic-career plans and employment relations.
11. **Entrepreneurship:** Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.”

Appendix C

Scans Workplace Know-How: Competencies and a Foundation

Five Competencies

Resources: Identifies, organizes, plans, and allocates resources

- A. *Time* – Selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
- B. *Money* – Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
- C. *Material and Facilities* – Acquires, stores, allocates, and uses materials or space efficiently
- D. *Human Resources* – Assesses skills and distributes work accordingly, evaluates performance and provides feedback

Interpersonal: Works with others

- A. *Participates as a Member of a Team* – contributes to group effort
- B. *Teaches Others New Skills*
- C. *Serves Clients/customers* – works to satisfy customers' expectations
- D. *Exercises Leadership* – communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies
- E. *Negotiates* – works toward agreements involving exchange of resources, resolves divergent interests
- F. *Works with Diversity* – works well with men and women from diverse backgrounds

Information: Acquires and uses information

- A. *Acquires and Evaluates Information*
- B. *Organizes and Maintains Information*
- C. *Interprets and Communicates Information*
- D. *Uses Computers to Process Information*

Systems: Understands complex inter-relationships

- A. *Understands Systems* – knows how social, organizational, and technological systems work and operates effectively with them
- B. *Monitors and Corrects Performance* – distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions
- C. *Improves or Designs Systems* – suggests modifications to existing systems and develops new or alternative systems to improve performance

Technology: Works with a variety of technologies

- A. *Selects Technology* – chooses procedures, tools or equipment including computers and related technologies
- B. *Applies Technology to Task* – Understands overall intent and proper procedures for setup and operation of equipment
- C. *Maintains and Troubleshoots Equipment* – Prevents, identifies, or solves problems with equipment, including computers and other technologies

Three-Part Foundation

Basic Skills: Reads, writes, performs arithmetic and mathematical operations, listens and speaks

- A. *Reading* – locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules
- B. *Writing* – communicates thoughts, ideas, information, and messages in writing; and creates documents such as letters, directions, manuals, reports, graphs, and flow charts
- C. *Arithmetic/Mathematics* – performs basic computations and approaches practical Problems by choosing appropriately from a variety of mathematical techniques
- D. *Listening* – receives, attends to, interprets, and responds to verbal messages and other cues
- E. *Speaking* – organizes ideas and communicates orally

Thinking Skills: Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons

- A. *Creative Thinking* – generates new ideas
- B. *Decision Making* – specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative
- C. *Problem Solving* – recognizes problems and devises and implements plan of Action
- D. *Seeing Things in the Mind's Eye* – organizes, and processes symbols, pictures, graphs, objects, and other information
- E. *Knowing How to Learn* – uses efficient learning techniques to acquire and apply new knowledge and skills
- F. *Reasoning* – discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem

Personal Qualities: Displays responsibility, self-esteem, sociability, self-management, and integrity and honesty

- A. *Responsibility* – exerts a high level of effort and perseveres towards goal attainment
- B. *Self-Esteem* – believes in own self-worth and maintains a positive view of self
- C. *Sociability* – demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings
- D. *Self-Management* – assesses self accurately, sets personal goals, monitors progress, and exhibits self-control
- E. *Integrity/Honesty* – chooses ethical courses of action

Appendix D

The Partnership for 21st Century Skills

The Partnership for 21st Century Skills

Life and Career Skills



Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills.

Flexibility and Adaptability

Adapt to Change

- Adapt to varied roles, jobs responsibilities, schedules and context
- Work effectively in a climate of ambiguity and changing priorities

Be Flexible

- Incorporate feedback effectively
- Deal positively with praise, setbacks and criticism
- Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments

Initiative and Self-Direction

Manage Goals and Time

- Set goals with tangible and intangible success criteria
- Balance tactical (short-term) and strategic (long-term) goals
- Utilize time and manage workload efficiently

Work Independently

- Monitor, define, prioritize and complete tasks without direct oversight

Be Self-directed Learners

- Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
- Demonstrate initiative to advance skill levels towards a professional level
- Demonstrate commitment to learning as a lifelong process
- Reflect critically on past experiences in order to inform future progress

Social and Cross-Cultural Skills

Interact Effectively with Others

- Know when it is appropriate to listen and when to speak
- Conduct themselves in a respectable, professional manner

Work Effectively in Diverse Teams

- Respect cultural differences and work effectively with people from a range of social and cultural backgrounds
- Respond open-mindedly to different ideas and values
- Leverage social and cultural differences to create new ideas and increase both innovation and quality of work

Productivity and Accountability

Manage Projects

- Set and meet goals, even in the face of obstacles and competing pressure
- Prioritize, plan and manage work to achieve the intended result

Produce Results

- Demonstrate additional attributes associated with producing high quality products including the abilities to:

- *Work positively and ethically*
- *Manage time and projects effectively*
- *Multi-task*
- *Participate actively, as well as be reliable and punctual*
- *Present oneself professionally and with proper etiquette*
- *Collaborate and cooperate effectively with teams*

- *Respect and appreciate team diversity*
- *Be accountable for results*

Leadership and Responsibility

Guide and Lead Others

- Use interpersonal and problem-solving skills to influence and guide others toward a goal
- Leverage strengths of others to accomplish a common goal
- Inspire others to reach their very best via example and selflessness
- Demonstrate integrity and ethical behavior in using influence and power

Be Responsible to Others

- Act responsibly with the interests of the larger community in mind

Appendix E

Permission to Use OWEI From Dr. Gregory Petty

Original Message ----

From: [Gregory Petty](#)

To: [Barbara M. Wall](#)

Cc: [Roger Hill](#)

Sent: Monday, October 13, 2008 11:50 AM

Subject: Re: OWEI

Barbara,

This email will serve as my permission for you to use the OWEI for the research you outlined below. I only ask that you send me (an electronic emial attachment is fine) a copy of your results and your raw data in excel form. I do not need your analysis.

I'm sure Dr. Hill can answer any procedural questions you may have regarding the instrument's use.

Good luck to you in your study. I think you will find the OWEI to be a robust and discriminating instrument for data analysis and work ethic determination.

Sincerely,

Gregory Petty

On Sat, Oct 11, 2008 at 3:23 PM, Barbara M. Wall <barbwall@cox.net> wrote:
Dr. Petty,

I am currently a doctoral student at the University of Georgia; my advisor is Dr. Cliff Smith. I see that you and Dr. Roger Hill of UGA have done quite a bit of research in the area of work ethics and you actually created the OWEI. I had Dr. Hill for a technology in the workplace class a couple of summers ago and have recently contacted him via e-mail about my research that I tend to conduct. I plan to set up a conference with Dr. Hill in the near future for further discussions on the work ethics topic. Right now I am reading research that others have conducted and am writing the various parts of Chapter 3 of my dissertation. The purpose of my study that I have written thus far follows:

The purpose of this study will be to compare the work ethics as measured by the three subscales scores -- interpersonal skills, initiative, and dependability -- of the Occupational Work Ethic Inventory (OWEI) of high school Career Technical and Agriculture Education (CTAE) graduates who either have or have not participated in formalized work-based learning opportunities. Formalized work-based learning opportunities will be generally categorized as cooperative education, paid or non-paid internships, youth apprenticeship, and clinical experiences.

While researching today, I ran across a site that states the following:

Appendix F

Human Research Curriculum Completion Report

CITI Collaborative Institutional Training Initiative

Human Research Curriculum Completion Report**Printed on 3/29/2011****Learner:** Barbara Wall (username: barbarawall)**Institution:** University of Georgia**Contact** Phone: 478-988-6222 x 10226**Information** Email: barbwall@cox.net**Social & Behavioral Research:****Stage 1. Basic Course Passed on 10/25/08 (Ref # 2245438)**

Required Modules	Date Completed	
Introduction	10/25/08	no quiz
History and Ethical Principles - SBR	10/25/08	7/7 (100%)
Defining Research with Human Subjects - SBR	10/25/08	5/5 (100%)
The Regulations and The Social and Behavioral Sciences - SBR	10/25/08	5/5 (100%)
Assessing Risk in Social and Behavioral Sciences - SBR	10/25/08	5/5 (100%)
Informed Consent - SBR	10/25/08	4/4 (100%)
Privacy and Confidentiality - SBR	10/25/08	4/4 (100%)
University of Georgia	10/25/08	no quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiger Ph.D.

Professor, University of Miami

Director Office of Research EducationCITI Course Coordinator

Appendix G

Research Approval by School System



DAVID CARPENTER, SUPERINTENDENT

BOARD MEMBERS

TOM WALMER, VICE CHAIRMAN
W. G. CLEMENTS
DR. MARIANNE MELNICK

PAMELA GREENWAY, CHAIRMAN

DR. CHARLES M. (TOBY) HILL
SKIP DAWKINS
FRED WILSON

MEMORANDUM

DATE: November 3, 2008

TO: Barbara Wall
Director, CTAE – Houston County BOE

FROM: Robin Hines, Ed.D.
Assistant Superintendent for School Operations

SUBJECT: **RESEARCH APPROVAL REQUEST**

Your request to conduct research in Houston County for your doctoral dissertation by use of three subscales scores from the OWEI (Occupational Work Ethic Inventory) of CTAE graduates is approved.

I will need approval letters from the principals of the schools the selected students attend, as well as your assurance that student anonymity is protected. Also, please keep in mind that the Central Office Department of Testing is unable to compile data for you for your research.

My best as you work toward your doctorate degree. Please let me know if I may be of any assistance to you again in the future.

JHK:jm

c: Dr. Wanda Creel
Mr. Ed Dyson

P.O. Box 1850 • PERRY, GEORGIA 31069
(478) 988-6200 • FAX (478) 988-6259
WWW.HCBE.NET

Appendix H
Exit Survey for 2011 Graduates

EXIT SURVEY FOR 2011 GRADUATES

Part I: General Information

1. **Checking the box to the right indicates that I agree to complete this survey.** ☐

2. **Today's Date:** _____

3. **High School:** _____

4. **Adults Administering this Survey:** _____

5. **Last 5 Digits of My High School ID Number:** _____

6. **Do you currently have a paying job? Y or N**

7. **Have you ever had a paying job? Y or N**

PART II: Post-Secondary Plans

DIRECTIONS: For each statement listed below, CIRCLE THE RESPONSE to the right that most accurately describes you. There are two possible choices for each item:

<u>YES</u>	<u>NO</u>
<u>Y</u>	<u>N</u>

1. I will graduate in May 2011.....Y or N

2. Within 4 months of high school graduation I plan to enter the workforce....Y or N

3. Within 4 months of high school graduation I plan to enter the military.....Y or N

4. Within 4 months of high school graduation I plan to enter technical college..Y or N

5. Within 4 months of high school graduation I plan to enter a 2 year college....Y or N

6. Within 4 months of high school graduation I plan to enter a 4 year college
or university.....Y or N

PART III: Extracurricular Membership

DIRECTIONS: For each statement listed below, CIRCLE THE RESPONSE to the right that most accurately describes you during your high school years. For questions 1, 3, 5, and 7, there are two possible choices for each item:

<u>YES</u>	<u>NO</u>
Y	N

For question 2, you will be asked to circle from the responses listed below question 2.

For questions 4, 6, and 8 you will be asked to enter a number.

1. During high school I have been a paid member of at least ONE
Career Technical Student Organization (CTSO).....Y or N
(note: CTSO's include DECA, FBLA, FCCLA, FFA, HOSA, Skills USA, TSA)
2. Circle each CTSO that you have paid membership dues to while in high
School:
DECA FBLA FCCLA FFA HOSA SKILLS USA TSA NONE
3. During high school I have been a member of school clubs other than the CTSO's
listed in the above.....Y or N
4. Enter the number of school clubs other than CTSO's you have been a member
of during high school:.....
5. During high school I have been a member of my high school's organized sports
team(s).....Y or N
6. Enter the number of different sports teams you have been a member of during
high school.....
7. During high school I have been a member of my high school's organized
academic teams (example: debate team, academic bowl, etc).....Y or N
8. Enter the number of different academic teams you have been a member of during
high school.....
9. During high school I have been a member of other extracurricular activities not
mentioned above.....Y or N
10. If you circled "Y" for # 9, list which extracurricular activities in which you participated

Part IV: Work Ethic --Occupational Work Ethic Inventory © 1991 by G. C. Petty

DIRECTIONS: For each work ethic descriptor listed below, CIRCLE THE NUMBER that most accurately describes your standards for that item. There are seven possible choices for each item:

<u>Never</u>	<u>Almost Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Usually</u>	<u>Almost Always</u>	<u>Always</u>
1	2	3	4	5	6	7

At work I can describe myself as:

Never							Always
1	2	3	4	5	6	7	

Descriptors

- | | | | | | | | | |
|-----|----------------------------|---|---|---|---|---|---|---|
| 1. | dependable..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | stubborn..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | following regulations..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | following directions..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | independent..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | ambitious..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | effective..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | reliable..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | tardy..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | initiating..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | perceptive..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | honest..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. | irresponsible..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. | efficient..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. | adaptable..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. | careful..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. | appreciative..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. | accurate..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. | emotionally stable..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. | conscientious..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. | depressed..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. | patient..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

<u>Never</u>	<u>Almost Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Usually</u>	<u>Almost Always</u>	<u>Always</u>
1	2	3	4	5	6	7

At work I can describe myself as:

Never							Always
1	2	3	4	5	6	7	

Descriptors

- | | | | | | | | | |
|-----|-------------------|---|---|---|---|---|---|---|
| 23. | punctual..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. | devious..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. | selfish..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. | negligent..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. | persevering..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. | likeable..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. | helpful..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. | apathetic..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. | pleasant..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32. | cooperative..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33. | hard working..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34. | rude..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 35. | orderly..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 36. | enthusiastic..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 37. | cheerful..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 38. | persistent..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 39. | hostile..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 40. | dedicated..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 41. | devoted..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 42. | courteous..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 43. | considerate..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 44. | careless..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 45. | productive..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 46. | well groomed..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 47. | friendly..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

<u>Never</u>	<u>Almost Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Usually</u>	<u>Almost Always</u>	<u>Always</u>
1	2	3	4	5	6	7

At work I can describe myself as:

Never							Always
1	2	3	4	5	6	7	

Descriptors

48. loyal.....1 2 3 4 5 6 7
49. resourceful.....1 2 3 4 5 6 7
50. modest.....1 2 3 4 5 6 7

Part V: Credentials

DIRECTIONS: For each statement listed below, CIRCLE THE RESPONSE to the right that most accurately describes you during your high school years. For questions 1, 3, 4, and 6, there are two possible choices for each item:

<u>YES</u>	<u>NO</u>
Y	N

For questions 2 and 5, you will be asked to circle from the responses listed below the question.

1. I was provided an opportunity to take the Work Ready Assessment at some point during my senior year.....Y or N

2. I CURRENTLY have achieved a Work Ready Certificate at this level:

No Certificate Bronze Silver Gold Platinum

3. I was provided an opportunity to use Key Train software at some point during my senior year to improve my Work Ready score.....Y or N
4. I improved my Work Ready Certificate Level during my senior year.....Y or N
5. When I took the Work Ready assessment for the FIRST time, I achieved a certificate at this level:

No Certificate Bronze Silver Gold Platinum

6. I completed a pathway and have taken or will have taken at least one end of pathway assessment this year.....Y or N

Part VI: Contacts

DIRECTIONS: Should we need to contact you after you graduate from high school, how can we do that?

List 3 people below who will more than likely know how to contact you after you graduate. Include their contact information.

1. Contact #1: _____
 Contact #1's phone #, e-mail address, and/or mailing address:
phone #: _____
e-mail address: _____
mailing address: _____

2. Contact #2: _____
 Contact #2's phone #, e-mail address, and/or mailing address:
phone #: _____
e-mail address: _____
mailing address: _____

3. Contact #3: _____
 Contact #3's phone #, e-mail address, and/or mailing address:
phone #: _____
e-mail address: _____
mailing address: _____

Thank you for completing this survey and best of luck with your plans after high school graduation!

1. Please double check and make sure that you have responded to **EVERY** item.
2. Raise your hand and one of the adults administering this survey will give you further instructions.

Appendix I
IRB Approval

PROJECT NUMBER: 2012-10508-0

TITLE OF STUDY: Work Ethic of High School Seniors in Career and Technical Education

PRINCIPAL INVESTIGATOR: Dr. Roger B. Hill

Dear Roger and Barbara,

The University of Georgia Institutional Review Board (IRB) has reviewed and approved your above-titled proposal through the exempt (administrative) review procedure authorized by 45 CFR 46.101(b)(4) -- Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Your approval packet will be sent by mail. Please remember that any changes to this research proposal can only be initiated after review and approval by the IRB (except when necessary to eliminate apparent immediate hazards to the research participant). Any adverse events or unanticipated problems must be reported to the IRB immediately. The principal investigator is also responsible for maintaining all applicable protocol records (regardless of media type) for at least three (3) years after completion of the study (i.e., copy of approved protocol, raw data, amendments, correspondence, and other pertinent documents). You are requested to notify the Human Subjects Office if your study is completed or terminated.

Good luck with your study, and please feel free to contact us if you have any questions. Please use the IRB number and title in all communications regarding this study.

Best regards,

Benil

Benilda P. Pooser, Ph.D., CIM
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