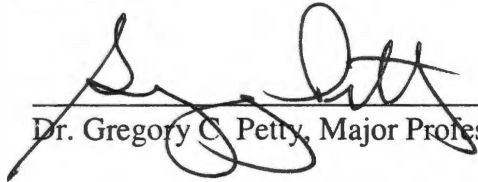


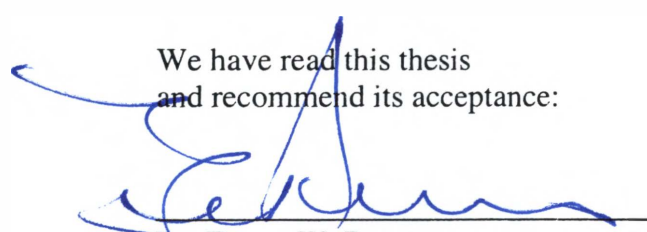
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I am submitting herewith a thesis written by Mary Kathryn Rhodes entitled "Teamwork Skills and Occupational Work Ethic of Secondary School Students in a School-to-Work Program." I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Human Resource Development.

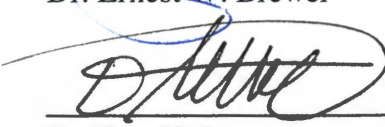


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**Teamwork Skills and Occupational Work Ethic of Secondary School Students
in a School-to-Work Program**

**A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville**

**Mary Kathryn Rhodes
May, 2003**

DEDICATION

This research project is dedicated to my family.

To my husband and sons,
you have been patient and understanding.

To my parents, J. C. and Wanda Lovely,
you provided the spark to continue my education.

ACKNOWLEDGEMENTS

The completion of this thesis is due to the guidance and support of my major professor, Dr. Gregory C. Petty, as well as Dr. Ernest W. Brewer and Dr. Doo H. Lim for serving on my committee and providing constructive feedback during this process. The knowledge and perseverance discernible in these individuals have provided a model for my professional and personal life. I would like to extend a special thank you to Dr. Connie Hollingsworth for the Dead Thesis Society meetings.

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Last, to my family and friends who gave me the fortitude to continue this journey, an enormous thank you. All of you have kept me from straying off the path and encouraged me to be steadfast.

ABSTRACT

The main purpose in conducting this quasi-experimental study was to determine, using the WorkKeys Teamwork assessment and the Occupational Work Ethic Inventory (OWEI), if there are significant differences between teamwork skills and work ethic of secondary student participants in a company-sponsored school-to-work program and a control group. Demographic factors were reviewed including grade level, career cluster, work experience, anticipated level of education, and cooperative education participation. In addition, this study examined if there is any significant interaction between WorkKeys Teamwork scores and OWEI scores.

Students from a secondary school in Monroe County were used as participants in the study. A total of 128 students were asked to participate in the study. One hundred and five surveys were returned, accounting for an 82% response rate.

Descriptive statistics including the mean, standard deviation, and frequencies were gathered for demographic data to assist in the interpretation of the WorkKeys Teamwork scores and work ethic subscales. A multivariate analysis of variance (MANOVA), analysis of variance (ANOVA), and Chi-square statistics were utilized to analyze differences between the experimental group and the control group. Finally, Spearman's rho correlation was calculated to determine if a relationship existed between the WorkKeys Teamwork scores and work ethic subscales.

The major findings from the study implied that (a) there are significant differences in work ethic of the experimental and control group and (b) there is a positive correlation between the WorkKeys Teamwork scores and initiative, subscale of work ethic.

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CHAPTER I

INTRODUCTION

According to various studies, employers have been dissatisfied with the quality of perspective employees produced by the American education system (Hill & Petty, 1995; Lynch, 2000; McNabb, 1997; National Center on the Quality of Education, 1995; Secretary's Commission on Achieving Necessary Skills, 1991; U.S. Department of Education, 1983). The skills necessary for entry-level employment have not been evident in entry-level applicants (Brown, 1999; Cumming & Lesniak, 2000; Imel, 1999; Lankard, 1990; Lynn & Wills, 1994; Stasz & Brewer, 1999). New jobs have required prospective employees to have generic employability skills such as problem-solving, communication, and personal skills (McLarty & Palmer, 1994). Resnick (1997) stated that personal skills include teamwork and resource management skills. Recent studies conducted by business and industry, the U.S. government, and educational experts have indicated a deficiency in job preparation procedures and have concluded that changes are necessary (Gregson, 1995; Maddy-Bernstein, 2000; National Employer Leadership Council, 1999; Tennessee Department of Education, 1998; U.S. Department of Labor, 1995; Zirkle, 1998).

Statement of the Problem

A review of relevant literature indicated that employers have required employees to have numerous employability skills. Employability skills embody affective behaviors including teamwork skills and work ethic. Employers want educators to teach these skills in school. Educators want employers to assist them with this task through methods such as involvement in school-to-work programs.

Few studies have reported on the effectiveness of company-sponsored school-to-work programs or their impact on employability skills. In a study conducted by Bozick and MacAllum (2002); the findings indicated that regardless of whether graduates pursued further education or entered the world of work, participation in a school-to-career program was beneficial in making transitions and decisions during their senior year of high school. Hughes, Bailey, & Mechur (2001) found that participants in school-to-work programs broadened their career options and had increased access to caring adults that enhanced motivation and allowed for better planning for the future. The National Employer Leadership Council (NELC) (1999) confirmed the benefits of school-to-work for both employers and students during a review of eight employers with school-to-work programs. The study quantified benefits and costs of the school-to-work programs and concluded that a benefit-cost ratio above 1, represented a positive return on investment. While the ratios varied from organization to organization, seven organizations reported ratios of greater than 1 in at least one participating site or division (NELC).

Additional information on employability skills, particularly the work ethic of student school-to-work participants, may be useful to employers, educators, and researchers in determining the value of school-to-work programs. This is a quasi-experimental study with experimental and control groups at the same secondary school.

Purpose of the Study

The purpose of this study was to determine, using the WorkKeys Teamwork assessment and the Occupational Work Ethic Inventory (OWEI), if there are significant differences between WorkKeys Teamwork scores and work ethic of secondary student

participants in a company-sponsored school-to-work program and a control group. The experimental group participated monthly in one-hour interactive sessions with a company representative on a variety of topics including interpersonal skills, problem-solving skills, career planning, and job search.

The two groups were categorized by (a) grade level, (b) school-to-work participation, (c) career cluster, (d) work experience, (e) gender, (f) post-school goals, and (g) cooperative education participation. In addition, this study examined if there is any significant interaction between WorkKeys Teamwork scores and OWEI scores.

Research Questions

To focus the study, the researcher developed four questions based on the literature review and the statement of the problem:

1. Does grade level affect the work ethic of secondary school students as measured by the OWEI?
2. Does the work ethic differ among secondary school students who participate in a school-to-work program and those who do not as measured by the OWEI?
3. Does participation in a school-to-work program affect the WorkKeys Teamwork scores of secondary school students?
4. Is there a relationship between occupational work ethic as measured by the OWEI and WorkKeys Teamwork scores of secondary school students?

Null Hypotheses

The researcher developed the hypotheses based upon the research questions and the review of literature. A hypothesis is a researcher's prediction of results prior to the beginning of the study (Gay & Airasian, 2000). "The null hypothesis is the hypothesis of choice when there is little research or theoretical support for a hypothesis" (Gay & Airasian, p. 74).

- H₀1: There is no significant difference in the work ethic, as measured by the OWEI, of secondary school students categorized by grade levels.
- H₀2: There is no significant difference in the work ethic, as measured by the OWEI, of secondary school students categorized by participation in a school-to-work program.
- H₀3: There is no significant difference in the WorkKeys Teamwork scores of secondary school students categorized by participation in a school-to-work program.
- H₀4: There is no significant relationship between work ethic, as measured by the OWEI, and WorkKeys Teamwork scores of secondary school students.

Assumptions

Assumptions are considered to be facts that are presumed to be true, that could not be verified. The following assumptions were made during this study:

1. Students were diligent when taking the WorkKeys Teamwork assessment and during the completion of the Occupational Work Ethic Inventory.
2. The administrative procedures were essentially the same at all times.
3. Each student was able to self-evaluate his or her work ethic and report it accurately.

Delimitations

Delimitations are factors that can affect the external validity or generalizability of a study. Due to the quasi-experimental design of the study, this study was delimited by the following:

1. The study was conducted at one rural secondary school.
2. The researcher was affiliated with the sponsoring company and had responsibilities for the school-to-work program.
3. The study continued for a three-year period of time.

Limitations

Sampling Limitations

Sampling limitations occurred because the sample was not randomly selected. Sampling limitations can affect the internal validity; however, this study utilized a quasi-experimental design. Experimental designs have higher internal validity due to their relatively "tight control" and/or randomization of a wide variety of such potential contaminating factors or variables (Dereshiwsky, 1999). The sample was limited in the following areas:

1. Because student participants in the company-sponsored school-to-work program choose to be in the program, the results could be influenced by self-selection.
2. The control group was made up of students in intact classrooms at the same secondary school.
3. Only students whose parents gave permission for their participation in the study were included.

Methodological Limitations

Methodological limitations are due to the design of the study. This study was limited methodologically in that:

1. The sample was not a true random selection. However, because each student had the potential to be selected for inclusion in the company-sponsored school-to-work program, the method is considered to be somewhat random.
2. This study involves students at only one rural secondary school and thus has limited generalizability to other secondary school students.

Definitions of Terms

The researcher used the review of literature to generate the following list of terms and definitions. Usage of the terms is consistent throughout this research project.

1. *Assessment*: An evaluation procedure that requires pupils to perform tasks and approximates an outcome as closely as possible within established requirements of economy, validity, and reliability (Law, Knuth, & Bergman, 1992).
2. *Career awareness*: Any exposure such as discussion or printed material that describes a specific occupation.
3. *Career exploration*: Any opportunity to discuss an occupation with an individual in a particular field or to shadow the person while at work.
4. *Career preparations*: Opportunities that prepare students for work (e.g., cooperative education or apprenticeship programs).
5. *Competencies*: Result of integrative processes in which skills, abilities, and knowledge interact to form bundles that have currency in relation to the task for which they are assembled (National Center for Education Statistics [NCES], 1999).
6. *Contextual learning*: Instruction that (a) imparts knowledge within the context in which it will be used, (b) links abstract concepts to real-life problems, and (c) is designed to blend the simultaneous teaching of skills and knowledge (Ohio School-to-Work, 1999).
7. *Cooperative education*: Structured method of instruction whereby students alternate or parallel their secondary school or post-secondary studies with jobs in a field related to their academic or occupational objectives (Ohio School-to-Work, 1999).
8. *Employer*: Entity or person that pays for work done by another person.
9. *Job performance*: Outcome of completing tasks associated with work.
10. *Job profiling*: The list of necessary skills identified and determined by employees in a specific job or occupation (ACT, 1997b).
11. *Job shadowing*: Time that a student is allowed to observe a person's performance in a given occupation.
12. *Occupational Work Ethic Inventory (OWEI)*: An inventory designed to measure work ethic and developed by Dr. Gregory C. Petty at the University of Tennessee, Knoxville in 1991.
13. *School-to-Work Opportunities Act of 1994 (STWOA)*: Legislation enacted to provide money and the initiative for schools and employers to partner or

collaborate to enhance education outcomes.

14. *School-to-Work (STW)*: Any of a number of programs that involve an employer and a school collaborating to enhance learning and/or work behavior; sometimes referred to as school-to-career (STC).
15. *Skills, abilities, and knowledge*: Attributes developed through learning experience, broadly defined to include work, participation in community affairs, and so forth (NCES, 1999).
16. *Task*: Specific component of work.
17. *Trait and characteristic*: Foundation for learning; an individual's innate make-up on which further experiences can be built (NCES, 1999).
18. *Work ethic*: System of values that guides employees' behaviors or attitudes (Hatcher, 1995).
19. *WorkKeys*: A system of assessments designed by ACT to measure job-related skills (ACT, 1997b).
20. *WorkKeys Teamwork*: The ability to support others that leads to the accomplishment of a work task or goal (ACT, 1995).

Summary of Introduction Chapter

This chapter presented the statement of the problem, purpose of the study, research questions, and hypotheses based upon a literature review. It also contained assumptions, delimitations, limitations, and operational definitions of the study. The population consisted of students from a secondary school in Monroe County of eastern Tennessee. This study examined the effect of participation by secondary students in a school-to-work program on teamwork skills and occupational work ethic. Studies of this nature have seldom been conducted. Business and industry, U.S. government, and educational experts are interested in the outcomes of interaction between students and employers.

CHAPTER II

REVIEW OF LITERATURE

This chapter provides a review of related literature and research regarding employability skills of work ethic and teamwork skills, together with school-to-work programs in secondary schools.

Current Theoretical Perspectives

Motivation Theories

“A large part of the school’s job is to motivate children not only to want to work but also to accept the dominant place of work in their future lives” (White, 1997, p. 17). Motive, the root word of motivate, is defined as “something that causes a person to act” (Funk & Wagnalls, 1980, p. 517). White further theorized that schools can make motivational appeals based upon moral duty and self-interest. The study of motivational theories is a key component of leadership training to maximize labor resources (Daughtrey & Ricks, 1989; Noe, 1999; Schuler & Jackson, 1996). Two theories embraced by American business are those of Herzberg and Maslow (Gawel, 1997).

Maslow (1954), author of the Theory of Human Motivation, classified needs into (a) physiological, (b) safety, (c) belonging and love, (d) esteem, and (e) self-actualization. Maslow postulated that there is a hierarchy of needs and that an individual must satisfy the lower needs before moving upward to the next set of needs, and character traits and interpersonal skills develop after basic need gratification (p. 120). Character traits and interpersonal skills according to Maslow’s theory include unselfishness, self-esteem, respect for others, interest in others, and greater frustration tolerance.

In his Motivation-Hygiene Theory, Herzberg (1968) summarized events as falling

into two categories: dissatisfiers and satisfiers. Dissatisfiers, or hygiene factors, are those that deal with the environment. Satisfiers, or motivator factors, are those that are effective in spurring the individual to superior performance and effort. Herzberg stated that satisfiers include achievement, recognition, work itself, responsibility and advancement. In order to achieve the satisfiers, a substance task is required. Although both Maslow's (1954) and Herzberg's theories have been widely accepted as guidelines, neither theory takes various cultural differences into consideration (Daughtrey & Ricks, 1989).

Pearlman (1997) introduced a schematic model of general work performance, as depicted in Figure 1, to provide a theoretical framework for understanding the components of the 21st century workplace. Whereas task performance relates to recognized tasks and activities required by a specific job, contextual performance is not specific to a particular job (Pearlman). Worker attributes including motivation to perform represent the interactions that lead to work performance and consequently to results (e.g., outputs or value-added benefits). Employer involvement in the education, training, and experience arenas can lead to basic and cross-functional skills in the workplace (Imel, 1999; National Employer Leadership Council, 1999).

Past work motivation theorists focused on individual performance analysis. However, Erez and Earley (1993) pointed out that the relationship between needs, values, and culture needed to be studied to understand the full scope of work motivation. Culture, a shared set of meanings and beliefs, is also a determinant on motivation behavior in the workplace. The success of group versus individual goals varies across cultures (Erez & Earley). With the increased requirement of working in teams, motivation theories

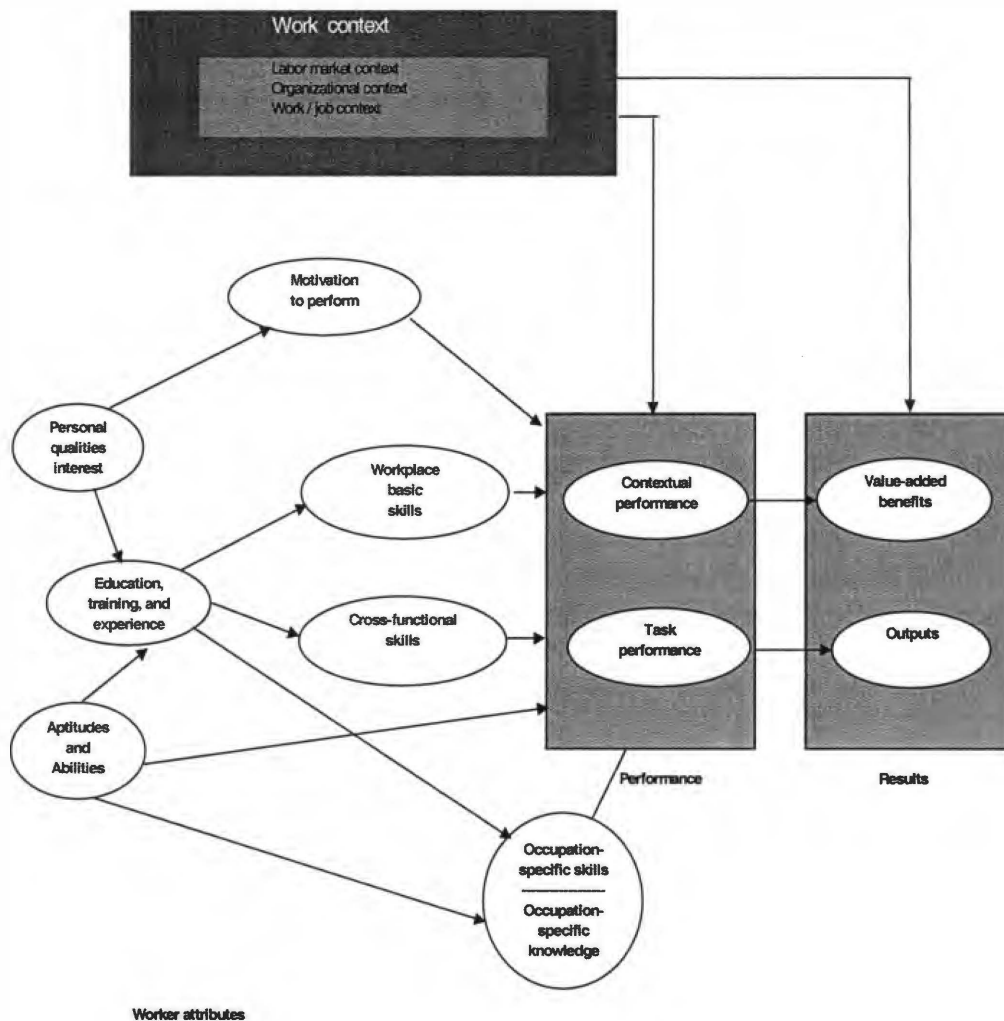


Figure 1. Pearlman's (1997) general work-performance model.

Source: Pearlman, K. (1997). Twenty-first century measures for twenty-first century work. In A. Lesgold, M. Feuer, & A. Black (Eds.), *Transitions in work and learning* (pp. 136-179). Washington, DC: National Academy Press.

were revised. The increased diversity of the American workforce required such a review of past definitions of work ethic as an attribute of employability skills.

Cognitive Constructivism

Doolittle and Camp (1999) concluded that the emerging theory of constructivism has implications for the career and technical education practice. Constructivism is defined as learning as the construction of knowledge including experiential learning. The preparation of students for employment requires not only job skills, but problem solving and collaborative work skills (Cumming & Lesniak, 2000; Lynn & Wills, 1994; U.S. Department of Education, 1983). Constructivist pedagogy links learning contextually in the real world while developing active self-learners (Hiltunen & Jarvinen, 2000). Herschbach (1998) presented applications of constructivist concepts in the learning environment that included contextual learning and cognitive apprenticeships (e.g., simulated activities or tasks in a classroom setting).

Employability Skills

One role of the education system has been to prepare students for work (Cappelli, 1993; Centko, 1998; Medrich, 1996; U.S. Department of Education, 1983). Employers have complained that students are not prepared for work (Cumming & Lesniak, 2000; Lankard, 1990; Lewis, 2001; McNabb, 1997). In survey after survey, employers have expressed their dissatisfaction with the quality of entry-level workers relative to specific job skills as well as to attitudes toward work and the ability to work with others (Lynn & Wills, 1994). In 1991, the U.S. Department of Labor, through the Secretary's Commission on Achieving Necessary Skills (SCANS), prepared a report entitled *What Work Requires of Schools*. The SCANS report verified that workplace know-how has two

elements: competencies and a foundation. The report identified five competencies: (a) allocating resources, (b) working with others, (c) using information, (d) understanding systems, and (e) using technology. The foundation skills identified by the report included (a) basic skills, (b) thinking skills, and (c) personal qualities. Personal qualities were defined as “individual responsibility, self-esteem and self-management, sociability, and integrity” (SCANS, p. 4).

Other studies conducted during the same time frame by the American Society of Training and Development, the Michigan Employability Skills Task Force, the New York State Education Department, and the National Academy of Sciences were found to be similar in scope (O’Neil, Allred, & Baker, 1992). The studies identified a need for higher order thinking and for interpersonal and teamwork skills as essential. Also considered in the studies was the need for problem-solving and conflict resolution skills.

Douthitt (1990) defined employability skills as “problem solving, teamwork, the ability to set goals, and pride in oneself and one’s work” (p. 2). Lankard (1990) termed employability as the fifth basic skill: “skills that enable an individual to acquire and keep a job” (p. 2). These skills include good work habits, positive work attitudes, ethical behavior, and cooperation with others. Overtom (2000) defined employability skills as “transferable core skills groups that represent essential functional and enabling knowledge, skills, attitudes required by the 21st century workplace” (p. 1). These skills are not knowledge, but behavior and attitudes. Hatcher (1995) postulated that work ethic is the system of values that guides employees’ behaviors or attitudes. Petty (1996) stated that the attainment of employability skills must occur in the educational and training environment.

Occupational Work Ethic

The Protestant work ethic (PWE), as identified by Weber in 1958, gave birth to modern capitalism. Providing a sense of respect and value for work, work ethic has been viewed as a cultural norm that formed in society and that expected all employees to do a good job. Through interaction with family, peers, and other adults, individuals have learned to place value on work (Hill, 1999). One factor that has shaped the work attitudes of young people is work experience. Taylor (1996) studied how adolescents' work experience contributed to their development of a work ethic. Her findings included that adolescents' perception of becoming more responsible and more independent resulted from working and that the relationship between the supervisor and the employee was a determinant of either a positive or a negative work ethic.

The Industrial Revolution shaped the work ethic and attitudes toward work in modern times (Hill, 1992). In his letter accepting the nomination for U.S. President in 1884, Grover Cleveland stated, "Honor lies in honest toil" (Bartlett, 1919). This quote reflected the cultural norm for work and illustrated the belief systems that were widely held at that time. In current research, work ethic has been defined as the willingness to work and to stay employed; it has been characterized by beliefs, values, and principles (Miller, 1999).

Kraska (1991) used Kazanas' Meaning and Value of Work Scale to conduct a study of high school students' perceptions of work and work value orientations. According to the study, female students scored significantly higher than male students on both meaning and value of work. The explanation for this difference may be that female students were more socialized to accept broader perceptions of work and more intrinsic

work values than were male students (Kraska).

In 1993, Allender reported on the work ethic of secondary vocational students categorized by (a) occupational training area, (b) gender, (c) grade level, (d) hours worked per week, and (e) socio-economic status. Allender used the Occupational Work Ethic Inventory (OWEI), developed by Petty (1991) as part of a research project at The University of Tennessee-Knoxville, to measure work ethic. The population for this study consisted of students enrolled in secondary vocational programs in 15 schools representing 35 counties in East Tennessee. Allender found that student (senior grade level) exposure to (a) vocational training for 2 or 3 years and (b) instructors with an industrial background had the strongest work ethic. Additionally, as the hours of work increased, so did the work ethic.

Hatcher (1993) conducted a study of the work ethic of apprentices and instructors in a national apprenticeship training program sponsored by the International Brotherhood of Electrical Workers (IBEW) and the National Electrical Contractor Association (NECA). Participants were categorized by (a) occupation, (b) job specialization, and (c) year participating in or teaching in the apprenticeship training program or years of full-time work experience. Hatcher found significant differences in work ethic based on occupation and work experiences and moderate differences in work ethic by job specialization. The data from this study did not support a significant difference between years participating in or teaching in the apprenticeship training program.

Watson (1993) conducted a study with high school students identified as either general education or tech prep to determine if differences in occupational work ethic categorized by gender, grade level, and employment status were evident. The findings

were not significant; however, the number of participants in the study was small, totaling only 107 students.

In a later study, Petty (1995) found that work ethic differed by occupation. Participants identified their occupation as defined by the Standard Occupational Classification (SOC). Dependent variables for the study were (a) working well with others, (b) striving for advancement/success, (c) being dependable, and (d) acceptance of duty (Petty). Petty recommended that these data be used in the educational system for students to evaluate their affective behaviors and traits for suitability to their chosen occupational field. McNabb (1997) specified that affective skills focus on feelings, emotions, and attitudes and involve important psychological traits such as motivation, self-esteem, and socialization.

Wells (1998) proposed that vocational work ethics are best learned when consistently taught using a combination of direct, indirect, and self-evaluative methods. According to Wells, direct methods comprised discussions of workplace culture, definitions of work ethics, and case studies; indirect methods included visiting guest professionals that model behaviors such as prompt arrival times, pride in their work, and loyalty to their employers. Assessments, survey instruments, inventories, and analysis of one's own behavior have been identified as examples of self-evaluations (Ohio State University, 1995). Employer representatives have provided valuable information for the format and objectives of work ethic and other employability skills. Lankard (1996) stated that historical self-knowledge is a key to shaping the future of career development.

The Occupational Information Network (O*Net) is the U.S. Department of Labor's comprehensive database of worker attributes and job characteristics that will

replace the *Dictionary of Occupational Titles* (DOT) (Overtom, 2000). O*Net contains information about job characteristics and employability skills for each job title (Occupational Information Network, 2000). O*Net has been developed to include work values as measured by the Minnesota Importance Questionnaire (McCloy et al., 1999). The Minnesota Importance Questionnaire (MIQ) measures relative importance of 21 vocationally relevant need reinforcers grouped into six value dimensions derived through factor analysis. Achievement, working conditions, recognition, relationships, support, and independence are the six value dimensions of the MIQ (McCloy et al.).

Hill and Petty (1995) reported that although work ethic and employability skills have been listed continually as necessary for job success, efforts to address them in the school systems have fallen short of anticipated outcomes. To address work ethic and employability skills, educators must decide upon the target objectives to be taught. A study with 1,151 responses from public businesses and industries in the southeastern United States, Hill and Petty used the OWEI to identify a four-factor solution. In a factor labels chosen by Hill and Petty included interpersonal skills, initiative, and being dependable. The fourth factor consisted of reversed items to prevent a response pattern from developing when completing the survey instrument (Hill & Petty).

Douthitt (1990) recommended that education be realistic about what the business world expects of entry-level employees. She stated that education should incorporate the following strategies to strengthen work ethic:

1. Invite employers into the classroom to share experiences and provide mentoring.
2. Incorporate quality circle initiatives to develop teamwork.

3. Teach labor history.
4. Utilize peer teaching.

Bainbridge College personnel implemented work ethic training for students completing coursework in a technical program. The training included work ethic traits of attendance, character, teamwork, attitude, productivity, organizational skills, communication, cooperation, and respect (Beynon, 2001). The work ethics training was not formalized in the curriculum until the 2000 - 2001 school year and has not yet yielded results.

Teamwork

The word “team” connotes collaboration and cooperation (Ciulla, 2000). The importance of teamwork has become more widely recognized by educators due to the need to solve more complex and interdisciplinary problems (Barak & Maymon, 1998) and because modern business is interrelated with the work of others (Novak, 1996).

Church (1998) reported that a consultant from the Hay Group remarked that because companies have combined old jobs and have created work teams, a demand for new skills sets has resulted. Although a lack of good interpersonal skills ultimately erodes job performance (Centko, 1998), these skills can be developed through interventions delivered in group settings to promote teamwork.

Centko (1998) identified oral communications, idea clarification, negotiation, and goal setting as required skills to promote successful teamwork. Negotiation skills are conflict resolution, collaboration, and accommodation developed by self-awareness and mutual respect. Adaptability is only possible when problem-solving and creative thinking skills are developed (Centko). Contextual learning has included the use of interdependent

learning groups that allow students to work in teams and to collaborate with others as they would in the workplace (Barak & Maymon, 1998; Berns & Erickson, 2001; Denton, 1990). Barak & Maymon led a study with teams of ninth graders to examine the processes of teamwork during a four-hour workshop to build a model of a hot-air balloon with tissue paper. Students adapted to their roles, but teachers experienced difficulty in changing to a facilitator. Denton challenged teachers to incorporate teamwork-building exercises within their curriculum to meet the needs of industry.

Self-directed teams have the ability to solve problems and create a working environment that is interdependent with increased loyalty, lower turnover, and decreased absenteeism (Howell, 2001). Avery (2002) asserted that teamwork is a personal responsibility and a skill to be developed as new opportunities are presented. Teamwork has been viewed as an aspect of contextual performance of the knowledge, skills, and abilities of conflict resolution, collaborative problem solving, and communication (Stevens, 1999).

School-to-Work Connections

In 1994, the U.S. Congress enacted a bill entitled the School-to-Work Opportunities Act (STWOA). Purposes and congressional intent of STWOA contain the following:

“(1)(C)(ii) prepare the students for first time jobs in high-skill, high-wage careers, ... (3) utilize workplaces as active learning environments, ... (5) to promote formation of local partnerships linking the worlds of school and work, ... (9) to improve the knowledge and skills of youths by integrating academic and occupational learning” (pp. 5-6).

STWOA provided grant money to partnerships to establish school-to-work initiatives because of the imperative need for schools and employers to work collaboratively to meet

these objectives. Employers have been interested in obtaining employees who will be successful on the job (ACT, 1996).

In addition to STWOA, other legislation enacted in the last 10 years provides the groundwork for educational reform including the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 containing TECH PREP and the act as amended in 1998; the Workforce Investment Act of 1998, and the No Child Left Behind Act of 2001. Tech Prep programs have been designed to produce strong and comprehensive links between secondary and post-secondary educational institutions. The post-secondary programs lead to the completion of associate degrees or certificates and provide technical preparation and skill competence for future employment. Specific program goals set forth in the Act include the development of articulation agreements; a core of required courses, curriculum, in-service teacher and counselor training; equal access for special populations; and preparatory services (Stewart & Bristow, 1997).

Employer Involvement

Kazanas (1973) inferred from societal trends that vocational and technical educators need to work closer with business, industrial, and labor leaders to help students prepare for the world of work. In addition, he later recommended cooperation and communication between employing organizations and education institutions, the identification of affective competencies, and the development of objective instruments to measure the competencies (Kazanas, 1978). *A Nation at Risk*, a report by the U.S Department of Education (1983), issued a call to use the tools at hand, which included efforts of businesses, to strengthen American educational programs. Bremer and Madzar

(1995) suggested that schools should encourage business involvement by establishing closer ties and by asking business owners and managers to help students learn transferable work skills that would enhance students' overall education. Employers have been interested in working with schools because it is in their own self-interest. Benefits to employers have included "(a) reduction of selection and training costs, (b) increased pools of qualified candidates, (c) increased diversity of their workforce, (d) directly teach the work ethics and employability skills and (e) enhanced skills and morale of their own existing workforce" (Olson, 1997, pp. 67-68).

Employer involvement has taken many shapes and forms. The National Employer Leadership Council's (NELC) Employer Participation Model outlines school-to-work initiatives that employers have offered to students. Figure 2 displays this model. These initiatives have incorporated career awareness, career exploration, and career preparations. Examples of career awareness have included career talks and industry visits. Career exploration has incorporated job shadowing, and career preparation has included internships and cooperative education. Students exposed to a wide range of career choices should be able to make informed choices and gain valuable employability skills.

The NELC has promoted employer participation in school-to-work programs. In a recent report, the NELC (1999) stated that "there is real, quantifiable evidence that these programs yield two important benefits: positive academic results for students and positive business results for employers" (p. 1). Positive academic results for students included

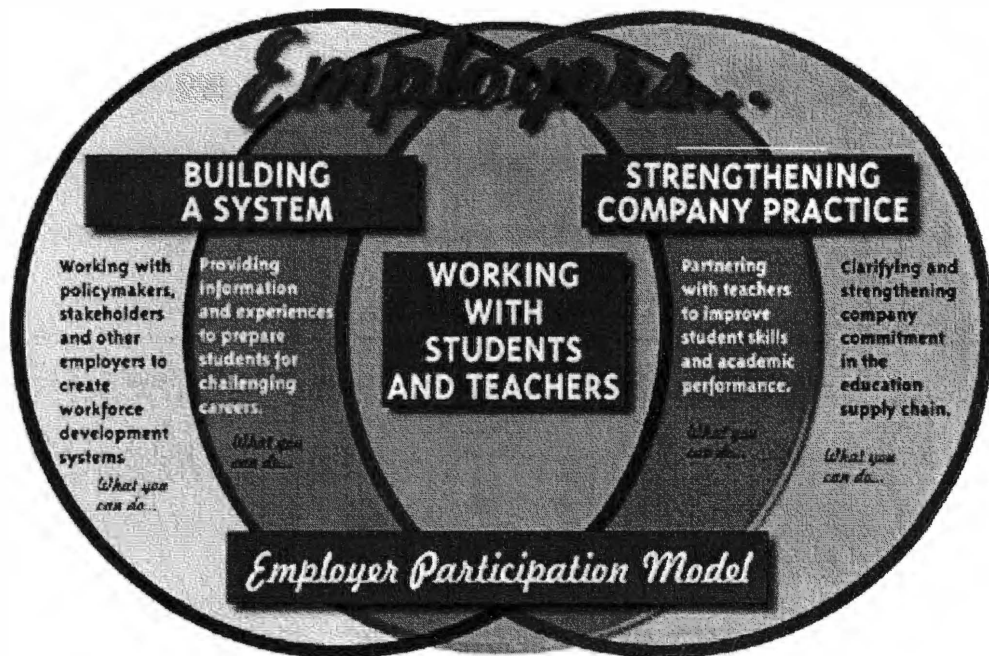


Figure 2. National employer leadership council's (1997) employer participation model.

Source: National Employer Leadership Council. (1997). *Employer participation model*. Retrieved July 14, 2001, from <http://www.necl.org/aboutnelc/epm/epm.html>

better grades, enrollment in advanced math, science, and technology courses, and better preparation for college and work. Positive business results included productivity, recruitment, training and supervising costs. A study conducted by Bozick and MacAllum (2002) based upon a School-to-Work program for high school students during their senior year sponsored by a Midwest automotive manufacturer found the program beneficial in making transitions and decisions regarding their future (e.g. pursuing further education or entering the world of work).

Employers' involvement in school-to-work programs has enabled students to learn contextually. As Parnell (2000) stated, learning contextually is "helping students make connections between their lives and the knowledge and information that they are discovering" (p. 19). Students have been more apt to learn when they understand how the knowledge would be used in the work world, and it is the demonstration of that knowledge in the workplace that employers need to maintain and grow their businesses.

Employer involvement in school-to-work programs grew from 25% in 1996 to 37% in 1998 (U.S. Department of Education, 2000). A key factor in employer involvement has been the availability of qualified employees (Cappelli, Shapiro, & Shumanis, 1998). When the labor pool has been sufficient for employers to meet their recruitment needs, employers have not been interested in involvement with schools. Moreover, employers have been reluctant to participate due to the substantial costs and time involved in school-to-work programs (Hollenbeck, 1996). Incentives offered under STWOA have been considered to be an underlying cause of the increased number of school-to-work partnerships (Shapiro, 1999).

Leaders also have been hesitant to participate in school-to-work programs.

Leonard (1996) reported that human resource managers in the Cincinnati area teamed up with schools to prepare students for the realities of the working world (p. 76). The school system administrators were apprehensive about having employers come into the schools and talk about work and had to be convinced that it was a worthwhile endeavor (Leonard). Through this collaborative effort, students reaped numerous benefits.

Despite the success of many school-to-work partnerships, there have been critics of employer involvement in the schools. Kiser (1999) reported that school-to-work has come under fire by parents who fear that their children are being forced into pre-selected career paths by business and industry. Cheney (1998) opposed school-to-work initiatives due to directed job choices and unwarranted authority over students.

Career Planning and Selection

Conroy (1998) conducted a study and concluded that most students often have unrealistic occupational and educational aspirations. Therefore, students must be provided with opportunities to discover their talents and relate them to the world of work. The National Association of Partners in Education and Search Institute (Scales et al., 2001) revealed that fewer than half of all students have discussed a potential job of interest with someone who works in that job. Employers can fill this need. McNerney and Coleman (1998) found that students aspired to occupations of greater prestige than their parents, but their unfamiliarity of other occupational opportunities could hinder their aspirations.

The role of parents in career development is often overlooked; however, their influence and support have a significant impact (Kerka, 2000; Turner, 2002; Way & Grossman, 1996). Wang and Staver (2001) found positive links between student career

aspiration and home environment. School personnel must recognize parental influence in career development and make use of parent work experiences and expertise (Reagor & Rehm, 1995).

Employers who have participated in school-to-work programs have provided learning experiences and integrative processes to students (American Youth Policy Forum, 2000). Learning experiences have taken the form of career awareness or career exploration. Integrative processes have included cooperative education, apprenticeship programs, and opportunities to try new skills. Wonacott (2001) reported that a variety of secondary career development interventions have been used to assist students, including career days and fairs, career passports, computer-assisted career guidance interventions, curriculum interventions, youth apprenticeships, mentorships, job shadowing, and internships. Buffalo State College served the youth in its area by providing career exploration, career readiness, and life and academic skills to students and their families (Schmidli, 2001). Career education provides a natural vehicle for instruction into the world of work and formation of work importance and ethic (Evans & McCloskey, 2001).

The National Commission on the High School Senior Year (2001) recommended that students develop a learning plan to help them attain goals related to education, work, and service. In addition, the Commission suggested that students need strong connections with adults to explore options for work and school. Most high school teachers struggle to keep seniors engaged during the final months. Strategies to keep senior students engaged include career academies, applied academics, dual enrollment programs, and internships (Conley, 2001).

LaGuardia Community College in New York City has provided an example for

implementing these recommendations, requiring all full-time students to enroll in three 12-week internships and to attend a weekly cooperative education seminar. The cooperative education seminars served three purposes: (a) to allow students to explore career options, (b) to present skills and competencies required on the job (e.g. behavioral competencies), and (c) to explore work's influence on individuals and society (Grubb & Badway, 1998).

Career Academies have enhanced the high school experiences of students (Kemple, Poglinco, & Snipes, 1999). Career Academies are schools within a school that have a specific career theme (e.g., electronics, video, business, travel and tourism) that integrate a college preparatory curriculum with applied, occupation-related courses. Career Academies build career awareness along with work-based learning activities with employer partnerships (Weil, 2002).

Hughes, Bailey, and Mechur (2001) found that school-to-work student participants had broadened their career options to include the option of post-secondary school enrollment, perhaps due to enhanced student motivation resulting from increased access to caring adults. After conducting a six-year longitudinal study of high school graduates, Griffith and Wade (2001) reported that graduates of career and work-oriented education programs had higher earnings and were less likely to be employed in traditionally short-term or temporary work such as restaurants, hotels, and entertainment.

Interpersonal Skills Including Teamwork

DeLeon and Borchers (1998) reported that manufacturing employers in Texas placed a higher value on interpersonal skills (i.e., teamwork, punctuality, respect for workforce diversity issues, good work habits, and pride in their work) than on basic

academic skills. A Delphi study conducted in the northeastern corner of Tennessee showed that employers were in search of future employees who could participate effectively in work teams as evidenced by fostering positive relations with others on the team while solving problems collectively (Dean & West, 1999). Significant changes in the workplace have occurred that impact the work ethic: (a) increased amount of control that individuals have over their own work; (b) the economic necessity of lifelong learning; and (c) more mental, visual, and emotional stimulation required for new employees (Wayne & Chapman, 1992). Basic skill assessments of 109 employees in five small manufacturing businesses revealed that 84% needed additional training as measured by the WorkKeys assessment system (Kuchinke, Brown, Anderson, & Hobson, 1998).

Strategies and techniques to teach proper work attitudes have included (a) modeling positive work behaviors, (b) establishing high expectations for students, (c) discussing employer expectations with business and industry professionals in the classroom, (d) using simulations to develop teamwork skills, (e) designing courses that have relationships to the real world, and (f) developing desirable traits through experiences (Beynon, 2001; Cumming & Lesniak, 2000; Douthitt, 1990; Hollenbeck, 1996; Shapiro, 1999).

Although it has been agreed that employability interpersonal skills are important and can be taught, most educators do not believe they are prepared to teach these skills effectively (Miller, 1999). Miller indicated that the values and attitudes to be taught should include punctuality, dependability, reliability, dedication, honesty, conscientiousness, ambition, adaptability, cooperativeness, helpfulness, and

resourcefulness. Villeneuve and Grubb (1996) reported that although Cincinnati cooperative employers wanted good academic students, they emphasized the personal competencies such as enthusiasm, ability to work with others, and a general sense of teamwork.

Work Experience

Early employment in an adolescent's life has been one aspect that contributes to the development of a work ethic (Taylor, 1996). Medrich (1996) stated that in 1992, 30% of all high school students aged 16 - 24 were employed and noted that workplace exposure helped students prepare for future, full-time employment. Educators have utilized a variety of means to link students with employers: (a) placement of cooperative students, (b) actual work experience, (c) business and industry tours and observations, (d) school-based enterprises, and (e) inviting business and industry representatives into the classroom (Schmidt, Finch, & Moore, 1997). Stasz and Kaganoff (1997) conducted a study with three high school work-based learning programs and concluded that although school and work are often loosely connected, authentic work experiences give students the opportunity to apply knowledge in useful contexts.

The Bureau of Labor Statistics of the U.S. Department of Labor found that almost 60% of students who were 16 or older at the beginning of the 1997-1998 school year worked at an employee job at some time during the academic year (2000). Espinoza (1999) conducted a qualitative study to examine the skills learned by undergraduate students employed in on-campus wage positions. He identified skills through a review of available literature on job skills that employers seek, including adaptability/flexibility, analytical skills, communication skills, initiative, interpersonal skills, leadership skills,

self-confidence, and teamwork skills. Espinoza found that the undergraduate students reported that they used analytical skills, interpersonal skills, adaptability, and communication skills more than the other identified skills. The National Alliance of Business (1992) listed the benefits of youth apprenticeship programs as (a) expanded pool of qualified applicants, (b) evaluation of potential employees in work settings prior to hiring, (c) improved quality of life and skills in the community, and (d) reduced turnover among entry-level employees.

A study analyzing data from the National Education Longitudinal Study of 1988 (NELS88), a survey of the eighth-grade student cohort, found students in vocational track programs in the twelfth grade were more likely to work more than 15 hours per week than others (Warren, LePore, & Mare, 2001). In general, students who worked between 1 and 15 hours per week had the best grades and highest test scores and were confident that they would attend college. The researchers concluded that employment had no important long-term or short-term effects on grades during the senior year in high school. The Kauffman Teen Survey (2002) reported that by twelfth grade only 16.8% report that they do not have a job. However, most teens work between 10 and 20 hours per work.

In a 1998 education survey of Tennessee residents (Tennessee Department of Education, 1998), only 20% of respondents thought that Tennessee high school graduates were well prepared for work. In addition, 67% responded that they thought the business community should play a large role in showing teachers what occurs in the workplace. Eighty-seven percent of respondents reported that they thought most high school students would benefit from participating in part-time work activities related to school teachings.

Cooperative education is a link between school and business personnel that has

established a working relationship (Cumming & Lesniak, 2000). The relationship between classroom learning and workplace learning generally has tended to be assumed as reinforcing, although research does not support this claim (Hughes, Moore & Bailey, 1999). Workplace activities can be used to support a better understanding of knowledge or concepts taught in the classroom. Rezin and McCaslin (2001) concluded that cooperative apprenticeship program participants had higher related employment rates, annual income, and career advancement than other graduates.

Conclusions

Employability skills including work ethic and teamwork are important skills for prospective employees and employers. Employers anticipate that prospective employees such as new graduates will obtain employability skills while attending secondary or post-secondary schools. This interdependent relationship between educators and employers (supplier and customer, respectively) must be recognized. Gehring (2001) reported that high school teachers in the Kent district of Washington State give grades to students for employability. School officials initiated the program after listening to what employers had to say about recent high school graduates and their success on the job. The employability grade encompasses work habits, commitment to quality, attendance and punctuality, and communications and interpersonal skills (Gehring). It is an example of a collaboration between schools and employers that impacts students' employability skills.

Summary of Review of Literature Chapter

The review of relevant literature has demonstrated a need for school-to-work programs that focus on students' employability skills. Previous research has defined factors of work ethic through the use of the OWEI developed by Petty (1991). Limited

research has been conducted with secondary school students regarding their work ethic, teamwork skills, and interventions through school-to-work programs. One rationale for this study is to provide information on the school-to-work impact of the work ethic of secondary students.

CHAPTER III

METHODOLOGY

This chapter provides an overall description of the population and sample selected for this study. The (a) instrumentation, (b) independent and dependent variables, (c) data collection procedures, and (d) data analysis procedures also are described. In addition, the interventions used with the school-to-work student participants are summarized for the reader.

Population, Sampling Frame, and Sample

The experimental group for this study consisted of an intact group of secondary students who participated in a company-sponsored school-to-work program. The control group consisted of intact classrooms of students at the equivalent grade level.

Population

The population for this study consisted of students at a secondary school in Monroe County in southeast Tennessee. At the time of the study design, the school had 771 students including a 4.1% minority student population. Approximately 30.5% of students at the high school qualify for free/reduced price school lunches (Tennessee Department of Education, 2000). Monroe County is located 58 miles from Knoxville and 82 miles from Chattanooga with a population of 34,830, with 3.5% minority (Monroe County Chamber, n.d.).

Sampling Frame

The students are selected to participate in the program in January of their freshman year at Sequoyah High School. Representatives from the sponsoring company spend the day at the school presenting information regarding the program to all of the

freshman English classes. In 1998, the freshman class had 209 students. All students completed a homework assignment for a grade within two days. Students interested in participation in the program provided additional information including (a) their current grade point average (GPA), (b) number of days absent from school during the first semester, and (c) a signature from their parent or guardian granting permission to participate in the program. Student requirements included (a) a GPA of 2.0 or higher, (b) good attendance record (e.g. no more than five days missed in previous semester), and (c) permission to participate in the program from a parent or guardian.

Sample

A representative from the sponsoring company, a school guidance counselor, and the cooperative education coordinator from the secondary school met to determine the students who were eligible for the school-to-work program. Students and their parents/guardians were then invited to attend an information session held at the sponsoring company's place of business. Students could have been excluded from the program due to grade point average, an excessive number of absences during the first semester of school, or because they did not receive a recommendation by the secondary school staff. Students chosen to participate in the company-sponsored school-to-work program comprised the experimental group. In September 2002, a total of 59 students participated in the school-to-work program: 26 sophomores, 20 juniors, and 13 seniors. The number of students who participated as seniors declined significantly due to students' involvement in cooperative education, moving out of the school district, or early graduation. There were also rare occurrences of students dropping out of school; one student chose to take the General Educational Development test and one student

married while a junior and was home-schooled during her pregnancy.

The control group was selected from intact classrooms from equivalent grades at the same secondary school. A total of 69 students were asked to participate in the study; 17 sophomores, 20 juniors, and 32 seniors. Some students in the control group had previous or current work experience or participation in the school-sponsored cooperative education program.

Instruments

WorkKeys Teamwork Assessment

Employers need to be able to evaluate applicants' job-related skills to insure success on the job. Sanders and Horn (1995) asserted that standardized testing is a viable, inexpensive, reliable, and valid means for assessment of education entities and student achievement. American College Testing (ACT), a not-for-profit education organization, has been a leader in providing educational assessments (McLarty & Palmer, 1994). ACT developed the WorkKeys System to document and improve individuals' workplace skills (ACT, 1995). WorkKeys is a standardized assessment used to assess education attainment of job-related skills. WorkKeys is an assessment designed to help (a) businesses fulfill their needs for workplace skills in hiring and training; (b) individuals document their workplace skills; (c) states and schools comply with assessment guidelines, particularly for school-to-work and workforce development programs; and (d) institutions meet Tech-Prep initiatives (ACT, 1997c).

WorkKeys assessment results provide valuable feedback to students (ACT, 1997c). The feedback can be given in the context of a specific job or occupation and the scores necessary for success on that job. WorkKeys provides a system for teaching and

assessing employability skills to gauge the level of generic workplace skills demonstrated by an individual (Scruggs, 1994). WorkKeys provides individuals with career planning information regarding their existing skill levels and the skill levels needed to perform the jobs or occupations that they identified as of interest (Reimer, 1996).

Reliability is the measure of consistency of a test score (Gay & Airasian, 2000). WorkKeys has been proven to be a reliable assessment by ACT. The coefficient alpha for each selected-response assessment is .74 for Teamwork (ACT, 1997a). In general, reliability is substantial for these multiple-choice assessments.

Validity is used in a testing context as the appropriateness, meaningfulness, and usefulness of inferences that can be made from the test scores (Gay & Airasian, 2000). Validity studies on WorkKeys have spanned a wide variety of approaches and types of evidence due to the wide usage of WorkKeys scores. Content validity was established by consulting with employers, educators, and labor organizations to develop a list of generic workplace skills that are (a) used in a wide range of jobs, (b) teachable in a reasonable period of time, and (c) facilitative of job analysis (ACT, 1997a). Grace (1994) reviewed tools for measuring basic skills and concluded that ACT's WorkKeys Teamwork tool had high validity because of the development process that included business representatives and functional business context.

The WorkKeys skill scales were established as intentional scales to ensure that the score would be both meaningful and hierarchical (ACT, 1997a). Each skill level is standardized and particular to the skill. Therefore, a level 5 in Reading for Information is not comparable to a level 5 in Teamwork; however, a level 5 in Teamwork is the same skill level regardless of whether describing the skill of a person or of a job. The common

metric forges a link between assessment results and job analysis (ACT).

After the assessments for each skill were developed, ACT also utilized content reviewers and fairness reviews (ACT, 1997a). Statistical analyses of the items were carried out through differential item functioning (DIF), including chi-square and Mantel-Haenszel for gender and race differences (ACT). No items showed DIF based on data collected during pretesting of each skill area (ACT). WorkKeys assessments are scored using a modified Guttman scoring procedure (Schulz, Kolen, & Nicewander, 1997).

Schulz et al., (1997) conducted a study of the scoring procedures for WorkKeys assessments. Based upon the results of the study, it was concluded that the number correct in the level scoring is accurate for WorkKeys (Schulz et al.).

Occupational Work Ethic Instrument Survey

The second research instrument, the Occupational Work Ethic Instrument (OWEI) survey, was developed by Petty in 1991. The OWEI survey was developed to provide an accurate measure of work ethic (Petty, 1995). Modifications were made to the demographic information contained in the survey for use in the study. No modifications were made to the survey items. The OWEI was selected over other surveys because of (a) ease of understanding and administration, (b) suitability for the population of this study because of the simple one-word descriptors, (c) measurement of attitudes toward work and work values, and (d) the differentiation of work ethic properties provided by the subscales of the OWEI.

Other surveys including Working-Assessing Skills, Habits and Style (Miles & Grummon, 1996) were evaluated for use in the study. The Working assessment utilizes nine scales and 50 items rated on a 5-point Likert-type scale. The nine scales are (a)

taking responsibility, (b) working in teams, (c) persisting, (d) sense of quality, (e) life-long learning, (f) adapting to change, (g) permanent problem solving, (h) information processing, and (i) systems thinking. Coefficient alphas for the scales range from a low of .52 to a high of .75 (Maduschke & Grummon, 1996).

The OWEI has been found to be internally consistent and highly reliable. Hill (1992) reported a correlation coefficient alpha of .95 for the OWEI. Hatcher (1995) reported a coefficient alpha of .90 for a study involving occupational work ethic of apprentices and instructors in a trade union apprenticeship program. Allender (1993) reported a correlation alpha of .95, which indicated that the instrument has high internal consistency. Dawson (1999) found that the Cronbach alpha for the OWEI was .93.

Independent Variables

The independent variables for this study were grade level and participation in the school-to-work program. Information on other independent variables were obtained and reported as demographic information. These variables included (a) career cluster, (b) work experience, (c) gender, (d) post-school goals, and (e) participation in the cooperative education program at the secondary school.

Grade level was depicted by three categories: (a) sophomore, (b) junior, and (c) senior. Participation in the school-to-work program had two categories: (a) yes or (b) no. Career cluster was represented by seven categories: (a) arts and communication, (b) business and marketing, (c) health, (d) human services, (e) science and technology, (f) tourism, and (g) manufacturing and technology. Work experience had three categories: (a) none, (b) less than one year, and (c) more than one year. Work experience was divided into three categories due to the age of the students. Most students begin working

upon receipt of their license to drive. Therefore, the students were unlikely to have more than two years of work experience. Gender had two categories: female and male. Post-school goals were divided into five categories: (a) work, (b) technical school, (c) community college, (d) university, and (e) other. Cooperative education program participation had two categories: yes and no.

Dependent Variables

The WorkKeys Teamwork skills were used as a dependent variable. These skills were measured by scores of <3, 3, 4, 5, or 6. Other dependent variables for this study consisted of the three dimensions of the work ethic as represented by the subscales of the OWEI. These variables are (a) interpersonal skills, (b) initiative, and (c) being dependable (Appendix F).

Procedures

Data Collection

Students were given a packet of information regarding the study including an assent form for their signatures and a consent form for their parent/guardian signatures. Students returned the assent and consent forms to the school. Students completed the WorkKeys Teamwork assessment first. During the WorkKeys Teamwork assessment, students were offered refreshments to encourage participation. ACT returned the WorkKeys scores to the high school within two weeks. Students then completed the OWEI survey and self-reported their WorkKeys Teamwork scores on the survey. Students were given frisbees, cups, and pencils from the sponsoring organization for their participation in the study.

Data Analysis

The data gathered were input into a Microsoft Excel spreadsheet. Raw scores included the data circled on the OWEI survey instrument and the WorkKeys Teamwork assessment results. SPSS for Windows 11.0.1 was utilized to analyze the data. Descriptive statistics including the mean, standard deviation, and frequencies were calculated for the demographic data. A multiple analysis of variance (MANOVA) test was used to analyze the self-reported perceptions of work ethic based upon grade level and participation in the school-to-work program. Chi-square analysis was utilized to determine if participation in the school-to-work program affected the WorkKeys Teamwork assessment results. Finally, Spearman's rho correlation was the test used to determine if there was a relationship between the OWEI subscales and Teamwork scores.

Design of the Study

This study was conducted as a component of an ongoing company-sponsored school-to-work program. Participating students were selected during their second semester of their freshman year and continued in the program through graduation of high school. School-to-work students participated in a variety of activities intended to increase their employability skills. These activities included one-hour contact sessions at the school, visits to post-secondary institutions, and visits to the sponsoring company. The one-hour contact sessions at the school included interpersonal skills, problem-solving abilities, career planning, and job search skills.

Interpersonal Skills

The secondary school student participants in the school-to-work program attended six modules of Zenger Miller Working. These modules combine adult learning theory

and individual learning styles (Zenger Miller, 1996) to facilitate interpersonal skills including teamwork. The six modules are (a) Basic Principles; (b) Being a Team Player; (c) Giving Feedback to Help Others; (d) Listening to Understand Clearly; (e) Resolving Issues With Others; and (f) Positive Responses to Negative Situations.

The modules were developed on the concept of behavior modeling (Zenger Miller, 1996). Behavior modeling is a visual demonstration of desired behavior (Schuler & Jackson, 1996). In addition, students are given the opportunity to discuss and practice the skills based upon specific key concepts. The specific key concepts for each module are step-by step guidelines for the interpersonal skill area. Each module was adapted to a 50-minute class time.

The behavior-modeling segment of the training module is a videotape segment that illustrates the particular module and key concepts. A key concept review with video snippets of the particular key concept highlights each module. The instructor then conducts a discussion and an interactive exercise. Students have the opportunity to participate and practice the behaviors.

Musselwhite and Zenger (1995) outlined the skills building approach for participants in the modules. The skills-building approach includes (a) active participation, (b) working to fill skill gaps, (c) building upon personal experiences, and (d) practice, use, and retention (Musselwhite & Zenger). The modules Basic Principles and Being a Team Player are conducted during the sophomore year of the STW program. Juniors complete the modules of Listening to Understand Clearly and Giving Feedback to Help Others. Seniors complete the modules of Resolving Issues with Others and Positive Responses to Negative Situations.

Problem-solving Skills

The second semester of the sophomore year relates to problem-solving skills. During the Cinderella Case Study, student participants learn a variety of problem-solving tools in a team environment. The tools include brainstorming, data collection, pareto charts, and cause and effect diagrams.

The first session used the tool of brainstorming to select a name for their team. Brainstorming is the process of enabling a group to create as many ideas as possible in a short time period (Goal/QPC, 1988). Each student took a turn at giving a potential team name for the group or passed until the next round. Rounds continued until each student passed and no other team names were generated. Each name was written on the board as it was given. The facilitator then instructed the students to select their top three choices by coming up to the board and placing a check at the side of the potential team names. At that point, the top five to six team names were voted on by all of the students. In the event of a tie, there is another vote. The rules of brainstorming follow:

1. Never criticize ideas.
2. Write all ideas on a board or flipchart for everyone to see.
3. No interpretations by the recorder; write down exactly what the person said.
4. Set a time limit of 5–15 minutes; do it quickly (Goal/QPC, 1988).

The second session was dedicated to data collection. Students were divided into two teams of equal numbers. Students on each team tossed objects into a box from a specific distance. The objects thrown included paper clips, ping-pong balls, and pencils. Each student had the opportunity to throw 10 of each of the objects above. The total number of each object that missed the box was counted for each person for each team.

The teams were not allowed to make any guiding devices or share information on best methods. At the end of the tossing of objects, each team totaled the individuals' scores of the objects that missed the box. The data collected were in the form of a check sheet. A check sheet is a form used to answer the question (Goal/QPC, 1988). It is important that data were collected in a manner that allows data to be stratified or broken down into smaller pieces for analysis (Goal/QPC).

At the third session, the instructor drew a pareto chart using the collected data to illustrate which object was the easiest to toss into the box. The instructor drew a second pareto chart to illustrate which student had the worst performance. A pareto chart is a special form of vertical bar graph that helps to determine which problem should be addressed first (Goal/QPC, 1988).

The instructor conducted a discussion of the given task—tossing objects into a box with the students. Why were some students more successful than others, and why were some objects easier to toss into the box? During the discussion, the group completed a cause-and-effect diagram. Cause-and-effect diagrams were drawn to illustrate the various causes of a problem using the four categories of (a) manpower, (b) machines, (c) methods, and (d) materials for causes (Goal/QPC, 1988). In this case, the effect was the objects that were not tossed into the box. Analogies were drawn to potential problems on the job.

During the final session, students implemented potential solutions to the problem derived from the cause-and-effect diagram. Then, the students tried again to toss the objects into the box using a generated solution. Data were collected at the individual and

team levels. A comparison made at the end of the session ascertained if an improvement occurred.

Career Planning

The second semester of the junior year is spent on Career Planning. Students completed the Personal Style Inventory, a version of the Myers-Briggs Type Indicator. Students then determined their preferred styles. Discussions revolved around the differences in the preferred styles. Information regarding the 16 different types and career choices were discussed with an emphasis on recognition of using preferences as a guide (Kroeger & Thuesen, 1992).

During the next session, students played the Just My Type Game. Students received color-coded cards with statements. The students reviewed each statement and decided whether or not it fit their personalities. Cards that were a fit were kept; cards that did not fit were traded for a statement that was a fit. Students ended up with three cards in each color. Students then turned over the color-coded cards to reveal letters that indicated the preferred style. The students tallied the number of cards of each letter to indicate their preferred style. The results were then compared with the last session's results. The students and instructor reviewed results from both sessions, and the students made a decision regarding the best fit in a preferred style (Training Essentials, 1996).

Each student received a copy of the WorkKeys Scores from the freshman year. The scores of WorkKeys were explained in a brief lecture (ACT, 1997b). Students then received the standardized WorkKeys scores for their career choice. Students reviewed the past scores and the scores for their career choice. Students were given time to reflect upon their gap analysis.

The last session in Career Planning was an overview of *The 7 Habits of Highly Effective People* by Covey (1989), which is subtitled “Restoring the Character Ethic.” The seven habits are behaviors that exemplify or lead to success. Students participated in exercises related to the seven habits. In one exercise, students explored their powers of perception by examining a picture that could be construed as either an elderly lady or as a young woman. The instructor also facilitated an interactive lecture regarding the seven habits.

As a component of Career Planning, students visited the sponsoring company each May to eat lunch with employees in their chosen career cluster. Students completed a questionnaire that included information on the career and the employees’ work experiences. Typically students indicated an interest in the following careers: (a) engineering, (b) accounting, (c) office/administrative assistant, (d) maintenance, (e) first-line supervision or team leader, (e) information systems technology, (f) health care, and (g) production operator. These opportunities enabled students to gain valuable information and insight regarding unfamiliar careers. During their visit to the sponsoring company, students selected the site for their post-secondary school visit in the fall.

Each October, students visited a state-funded post-secondary school. This visit provided students an opportunity to review their career goals and education needs. In the past, students have visited Pellissippi State Technical Community College in Knoxville, The University of Tennessee-Knoxville, Tennessee Technological University in Cookeville, Middle Tennessee State University in Murfreesboro, and East Tennessee State University in Johnson City. Campus visits include information on admission

requirements and degree programs offered, a tour of the campus, and time spent in Career Services.

At the end of the Career Planning module, students reviewed their career choices with their parents and guidance counselor. Students were given the assignment to begin the next year with a career goal in mind.

Job Search Skills

The program addressed Job Search Skills in the second semester of the senior year. Most seniors have held a job, typically a job in fast food, retail, or customer service. Some students reported that they filled out an application and attended a brief interview session on the same day before beginning work the following day. Thus, they had nominal experience with pre-employment tasks including resume writing or interviewing skills.

The first session was an overview of resumes and applications. Students received a template for a resume to complete with their own information. The class discussed applications in detail, particularly in regard to the information that is required, and how to correctly fill out an application. The sponsoring company brought its applications for the students to practice completing. Students received tips and pointers about the application process, including information that would ensure an interview.

The second session began with a brief lecture on interviews and the questions that might be asked during an interview situation. Students received a list of typical interview questions and then provided answers to the questions. During the last 20 minutes of the session, a game—Interview Challenge—was introduced. Students competed in teams to answer the questions correctly to assist a person interviewing for a job. The teams earned

play money for answering correctly. The game required students to (a) identify seven types of interview questions, (b) identify interview stages, and (c) select the interview skill(s) that should be used by the interviewee. Examples include:

1. Tell me about the worst boss you ever had. The student teams must select from three answers, one that identifies the interviewees' skills and is not overly critical of the former boss.
2. If I called your last boss, what would she say about you? The student teams must review three answers and select two interview skills that are demonstrated by the answer.
3. What was the most important thing that you learned in school? (Franklin Learning Systems, 1997).

The student teams identified the stage of the interview, the type of question, and the interview skill used most directly during the game. During the Interview Challenge game, the student teams contemplated the interview process, gave advice to the interviewee, and evaluated the answers given. The game concluded in the third session. At the conclusion of the game, the instructor conducted a discussion and a review of the concepts with all students.

The fourth session gave students an opportunity to participate in mock interviews. The mock interviews involved three students. Students took turns assuming the role of interviewer, interviewee, and assessor. The interviewer conducted the interview with the interviewee while the assessor kept track of the time and gave feedback at the end of the interview. Students switched roles until each student had the opportunity to participate in each role. The students then reassembled for debriefing. The instructor facilitated a discussion of what went right and what could be improved, along with insights from students.

Summary of Methodology Chapter

The students in the school-to-work group received opportunities to interact with representatives from the sponsoring company throughout their secondary school years. The interventions were based upon workplace skills and behaviors and included modules of training given to newly hired employees at the sponsoring company. The National Commission on the High School Senior Year (2001) has recommended that students develop a learning plan to help the individual student attain goals relative to education, work, and service. In addition, students need strong connections with adults to explore options for work and school. The sponsoring company's school-to-work program encompassed both of these principles.

CHAPTER IV

FINDINGS

Introduction

The purpose of this study was to determine if there are significant differences between teamwork skills and work ethic of secondary student participants in a company-sponsored school-to-work program and a control group. Four specific objectives were set for this study. The first was to determine if grade level affected the work ethic of secondary school students. The second was to determine if work ethic differed among secondary school students who participated in a school-to-work program and those who did not. The third was to determine if participation in a school-to-work program affected teamwork skills of secondary school students. The fourth was to determine if a relationship existed between work ethic and teamwork skills of secondary school students. The data gathered for the study were collected using the Occupational Work Ethic Inventory (OWEI) instrument (Petty, 1991) and the WorkKeys Teamwork assessment (ACT, 2001a) by the researcher. This chapter presents the results gathered from a local secondary school.

Response Rate

A total of 128 students were selected to participate in the study. Participants in the school-to-work program totaled 59 students along with a control group of intact classrooms totaling 69 students. Of the 128 total participants, 105 completed the WorkKeys Teamwork assessment and completed the OWEI survey. This accounted for a response rate of 82%.

Demographic Characteristics

Demographic data were collected to identify and describe the participants of the study. The demographic information collected included the variables of grade level and school-to-work participation as well as the variables of career cluster interest, years of work experience, gender, post-school goals, and enrollment in cooperative education program. Frequency statistics were calculated for the 105 responses. Demographic information is shown in Table 1.

The first demographic variable, grade level, revealed that there were 32 (31.4%) sophomores, 36 (35.3%) juniors, and 34 (32.4%) seniors. There were three (2.9%) missing values. The grade levels of the participants were fairly equal with approximately one-third at each level of high school.

The second demographic variable of participation in the school-to-work program was evenly split numerically between the experimental and control groups. There were 51 (50%) that reported participation and 51 (50%) who reported no participation in the school-to-work program. Three (2.9%) respondents failed to report school-to-work program participation.

Other demographic information includes career cluster interest, work experience level, gender, post-school goals, and participation in the cooperative education program at the secondary school.

Responses to the items of career cluster interest disclosed that 16 (15.7%) were interested in Arts and Communication, 22 (21.6%) were interested in Business and Marketing,

Table 1

Respondents' Demographic Information

Source	Frequency	Percent	Valid Percent
<u>Grade Level</u>	32	30.5	31.4
Sophomore	36	34.3	35.3
Junior	34	32.4	35.3
Senior	3	2.9	
Missing Value	105	100.0	100.0
Total			
<u>School-to-Work</u>	51	48.6	50.0
Yes	51	48.6	50.0
No	3	2.9	
Missing	105	100.0	100.0
Total			
<u>Career Cluster</u>			
Arts/Communication	16	15.2	15.7
Business/Marketing	22	21.0	21.6
Health	30	28.6	29.4
Human Services	1	1.0	1.0
Manufacturing/Construction	10	9.5	9.8
Science/Technology	9	8.6	8.8
Tourism	14	13.3	13.7
Missing	3	2.9	
Total	105	100.0	100.0
<u>Work Experience</u>			
None	35	33.3	34.3
<1 year	32	30.5	31.4
>1 year	35	33.3	34.3
Missing	3	2.9	
Total	105	100.0	100.0
<u>Gender</u>			
Female	63	60.0	61.8
Male	39	37.1	38.2
Missing	3	2.9	
Total	105	100.0	100.0
<u>Post-school goals</u>			
Work	6	5.7	5.9
Technology school	12	11.4	11.8
Community College	16	15.2	15.7
University	64	61.0	62.7
Other	4	3.8	3.9
Missing	3	2.9	
Total	105	100.0	100.0
<u>Cooperative Education</u>			
Yes	23	21.9	22.5
No	79	75.2	77.5
Missing	3	2.9	
Total	105	100.0	100.0

30 (29.4%) were interested in Health, 1 (1.0%) was interested in Human Services, 10 (9.8%) were interested in Manufacturing and Construction, 9 (8.8%) were interested in Science and Technology, and 14 (13.7%) were interested in Tourism. Three (2.9%) did not designate their career cluster interest.

When participants indicated their level of work experience, 35 (34.3%) respondents had no work experience; 32 (31.4%) had less than 1 year of work experience; 35 (34.3%) had more than 1 year of work experience; and 3 (2.9%) did not indicate their work experience levels. The majority (65.7%) had some work experience.

The respondents reported that 63 (61.8%) were female and 39 (38.2%) were male. There were three (2.9%) missing values. Regarding gender, the sample was predominantly female.

A total of 6 (5.9%) of the respondents indicated that they would seek work upon graduation as their post school goal. Twelve (11.8%) expected to enroll at the Technology Center School had 12 (11.8%) of respondents' interest. A greater number, 16 (15.7%), indicated that they would attend community college. The vast majority, 64 (62.7%) responded that they would enroll in a university or four-year college. Only 4 (3.9%) respondents were interested in pursuing other goals upon leaving secondary school. Three (2.9%) respondents did not report their post-school goals.

Respondents disclosed that 23 (22.5%) participated and that 79 (77.5%) did not participate in the cooperative education program. There were 3 (2.9%) missing values.

Instrumentation

American College Testing's (ACT) WorkKeys Teamwork assessment and the Occupational Work Ethic Inventory were used to collect the data for this study. The WorkKeys Teamwork assessment is skill-level standardized and particular for that skill. The OWEI is a 50-item survey with subscales: (a) interpersonal skills, (b) initiative, and (c) dependable. The results of the mean scores and standard deviation scores are shown in Table 2. Both instruments have proven to be reliable instruments.

Hypotheses

Findings for H₀₁

H₀₁: There is no significant difference in the work ethic, as measured by the OWEI, of secondary school students categorized by grade levels.

The means for the OWEI were calculated by grade level and are shown in Table 3. A multiple analysis of variance (MANOVA) was run to test for grade differences in OWEI subscales. This test indicated there were no significant differences in subscales for the different grades. The MANOVA test results produced $p = .485$. Therefore, the null hypothesis H₀₁ was not rejected. These findings are summarized in Table 4.

Findings for H₀₂

H₀₂: There is no significant difference in the work ethic, as measured by the OWEI, of secondary school students categorized by participation in a school-to-work program.

Table 2

Means of OWEI Subscales

	N	Mean	Standard deviation
Interpersonal Skills	105	5.882	.635
Initiative	105	5.461	.750
Dependable	105	5.953	.683

Table 3

Means of OWEI Subscales by Grade Level (N = 102)

		N	Mean	Standard deviation
Interpersonal Skills	Sophomore	32	5.97	.525
	Junior	36	5.78	.708
	Senior	34	5.87	.656
Initiative	Sophomore	32	5.46	.693
	Junior	36	5.55	.871
	Senior	34	5.37	.704
Dependable	Sophomore	32	5.96	.605
	Junior	36	5.87	.719
	Senior	34	6.00	.721

Table 4

Multiple Analysis of Variance for Grade

Effect	Wilks' Lambda	Hypothesis <i>df</i>	Error <i>df</i>	<i>F</i>	Sig.
Intercept	.010	3	97 194	329.672	.000
Grade	.946	6		.915	.485

Again, the MANOVA was used to test for differences between the school-to-work group and the group who did not participant in the program. This analysis found significant differences in at least one OWEI subscale as shown in Table 5. To determine which of the subscales differed, individual one-way analysis of variance (ANOVA) tests were run on each of the subscales. The individual ANOVA tests found there were significant differences in all three subscales. These findings are summarized in Table 6. Therefore, the null hypothesis H_02 was rejected.

Findings for H_03

H_03 : There is no significant difference in the WorkKeys Teamwork scores of secondary school students categorized by participation in a school-to-work program.

Chi-square was utilized to determine differences in the Teamwork scores between participants and non-participants of the school-to-work program. The findings are summarized in Table 7. Chi-square indicated no significant relationship of the school-to-

Table 5

Multiple Analysis of Variance for School-to-Work Participants

Effect	Wilks' Lambda	Hypothesis <i>df</i>	Error <i>df</i>	<i>F</i>	Sig.
Intercept	.009	3	98	3752.284	.000
School-to-Work	.849	3	98	5.809	.001*

* $p < .05$

Table 6

Analysis of Variance for OWEI Subscales

Dependent Variable	Source	Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
Interpersonal Skills	Intercept	3518.943	1	3518.943	9144.412	.000
	STW	2.440	1	2.440	6.341	.013*
	Error	38.482	100	.385		
	Total	3559.865	102			
Initiative	Intercept	3045.617	1	3045.617	5980.582	.000
	STW	7.552	1	7.552	14.829	.001*
	Error	50.925	100	.509		
	Total	3104.094	102			
Dependable	Intercept	3606.863	1	3606.863	8520.824	.000
	STW	4.592	1	4.592	10.849	.001*
	Error	42.330	100	.423		
	Total	3653.758	102			

* $p < .05$

Table 7

Chi-square of Teamwork Skills Scores Categorized by Participation in STW

Teamwork		Yes	No	Total
<3	Count	3	5	8
	% within Teamwork	37.5	62.5	100.0
	% within STW	5.9	9.8	7.8
3	Count	27	24	51
	% within Teamwork	52.9	47.1	100.0
	% within STW	52.9	47.1	50.0
4	Count	17	19	36
	% within Teamwork	47.2	52.8	100.0
	% within STW	33.3	37.3	35.3
5	Count	4	3	7
	% within Teamwork	57.1	42.9	100.0
	% within STW	7.8	5.9	6.9
Total	Count	51	51	102
	% within Teamwork	50.0	50.0	100.0
	% within STW	100.0	100.0	100.0

Chi-square = .930, $df = 3$, $p = .817$

work program participants in their Teamwork scores. Thus, null hypothesis H_{03} was not rejected.

Findings for H_{04}

H_{04} : There is no significant relationship between work ethic, as measured by the OWEI, and WorkKeys Teamwork scores of secondary school students.

To determine relationships between OWEI and WorkKeys Teamwork scores, the Spearman's rho correlation was used. The findings are tabulated in Table 8. The Spearman's rho test indicated a significant correlation with the subscale initiative and Teamwork scores. Rho equals .280 and $p = .004$ which indicated a positive relationship. As initiative increased, Teamwork scores tended to increase. Therefore, null hypothesis H_{04} was rejected.

Summary of Findings Chapter

The results of the data analysis for the four null hypotheses were presented in this chapter. The purpose of this study was to determine if there were significant differences between teamwork skills and work ethic of secondary student participants in a company-sponsored school-to-work program and a control group. Of the 128 students asked to participate, 105 completed both assessments, the ACT's WorkKeys Teamwork and the Occupational Work Ethic Inventory (OWEI). This resulted in a 82% rate of completed assessments. The experimental group, the school-to-work participants, had a total of 51 students. The control group, students who did not participate in the school-to-work group, had a total of 61 students. Three students did not complete the demographic information

Table 8

Spearman's Rho Correlations for WorkKeys Teamwork

		Teamwork	Interpersonal Skills	Initiative	Dependable
Teamwork	Correlation coefficient	1.000	.026	.280*	-.013
	Sig. (2-tailed)	-	.794	.004	.899
Interpersonal Skills	Correlation coefficient	.026	1.000	.573	.658*
	Sig. (2-tailed)	.794	-	.000	.000
Initiative	Correlation coefficient	.280*	.573	1.000	.557*
	Sig. (2-tailed)	.004	.000	-	.000
Dependable	Correlation coefficient	-.013	.658	.557	1.000
	Sig. (2-tailed)	.899	.000	.000	-

$p < .01$

* Correlation is significant at the .01 level (2-tailed).

on the OWEL. Therefore, it could not be determined if those students were participants in the school-to-work program or not. Means, standard deviations, correlations, and frequency counts were descriptive statistics utilized to analyze the survey data. Two of the four null hypotheses were not rejected. The findings of this study were applicable to the secondary school student participants.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter provides a summary regarding the researcher's findings. The objectives of this study were to determine the differences in teamwork skills and work ethic between secondary students involved in a company-sponsored school-to-work program and those in a control group. Teamwork skills were measured by ACT's WorkKeys Teamwork assessment and work ethic by the three subscales (interpersonal, initiative, dependable) of the OWEI. Demographic variables were also examined. This chapter contains a brief summary of the study, major findings, conclusions, and the researcher's recommendations based upon the data collected in this study.

Summary

This study focused on comparing the difference in teamwork skills and work ethic between secondary students involved in a company-sponsored school-to-work program and those in a control group. The experimental group participated monthly in one-hour interactive sessions with a company representative on a variety of topics including teamwork skills, problem-solving skills, career planning, and job search.

The review of literature disclosed the belief that employers can impact employability skills of secondary students by participating in school-to-work programs or other forms of involvement in schools. The School-to-Work Opportunities Act (STWOA) was funded by the U.S. Congress to provide funds to encourage employers and school administrators to establish partnerships. The review of literature revealed a general trend of employer involvement and students' preparation for the world of work. However, the

review of literature did not uncover any quasi-experimental studies that reviewed the relationship between involvement in a school-to-work program and an increase in employability skills such as teamwork and work ethic.

Four null hypotheses were formulated for the purpose of the study. The first stated that there are no significant differences in work ethic of students in different grade levels. The second hypothesis stated that there are no significant differences in work ethic of students participating in a school-to-work program and those who did not. The third stated that there is no significant difference in teamwork scores of students participating in a school-to-work program and those who did not. The fourth hypothesis stated that there is no significant relationship between teamwork scores and work ethic of students.

The population of the study consisted of two groups of students at a secondary school in Monroe County, Tennessee. Student participants in the school-to-work program comprised the experimental group. The control group consisted of students in intact classrooms. The participants of this study were asked to take the WorkKeys Teamwork assessment and then self-report the Teamwork score on the OWEI survey.

The researcher assisted with the collection of the OWEI surveys during a school day due to the availability of the students. The cooperative education coordinator collected OWEI surveys again later in the week due to students' schedule conflicts with the first collection date and time. In September 2002, a total of 59 students participated in the school-to-work program; 26 sophomores, 20 juniors, and 13 seniors. The control group was selected from intact classrooms from equivalent grades at the same secondary school. A total of 69 students were asked to participate in the study; 17 sophomores, 20 juniors, and 32 seniors. Of the experimental group, 51 students completed both the

Teamwork assessment and the OWEI survey. The control group had a response rate of 51 students. Three surveys were returned with no demographic information. Of the 128 possible respondents, 105 completed the assessments yielding an 82% overall response rate. The response rate can be attributed to incentives and the sponsoring company's ongoing relationship and partnership with the secondary school.

The analysis of the respondents' data using a multiple analysis of variance (MANOVA), analysis of variance (ANOVA), chi-square, and Spearman's rho statistics were reported in Chapter IV. The purpose of this study was to determine if any significant differences existed between secondary students participating in a school-to-work program and a control group.

Findings

Included in this section are the findings from the demographic variables and findings from the four hypotheses. Findings of the demographic information collected from the respondents concluded:

1. The sample was comprised of 63 females (61.8%).
2. A majority of students (64) (62.7%) indicated that they would pursue entrance into a university upon completion of high school.
3. A total of 23 students (22.5%) indicated participation in the cooperative education program.
4. A majority of students (67) (65.7%) indicated that they had some work experience.
5. Students indicated more interest in the health occupations career cluster (29.4%) and business and marketing occupations career cluster (21.6%) than in the other five career clusters.

Findings for H₀₁

Null hypothesis one was analyzed using the MANOVA. This analysis indicated there were no significant differences in subscales for the different grades. The MANOVA results produced $p = .485$. The p value is greater than .05; therefore it is not statistically significant.

Findings for H₀₂

Null hypothesis two was analyzed using the MANOVA. This analysis found significant differences in at least one OWEI subscale. To determine which of the subscales differed, individual one-way ANOVA tests were run on each of the subscales (interpersonal skills, initiative, dependable). The individual ANOVA tests found there were significant differences in all three subscales.

Findings for H₀₃

Chi-square was utilized to determine differences in the Teamwork scores between participants and non-participants of the school-to-work program. Chi-square indicated that participation in the school-to-work program did not have a significant effect on Teamwork scores.

Findings for H₀₄

To determine relationships between OWEI and Teamwork scores, the Spearman's rho correlation was used. The Spearman's rho test indicated a significant correlation with the subscale initiative and Teamwork scores. As initiative increased, Teamwork scores tended to increase.

Conclusions

From the findings of this study, some conclusions can be reached recalling the limitations and delimitations listed in Chapter I.

1. Students participating in the school-to-work program have significantly higher scores in all three subscales of the OWEI.
2. The data showed a positive relationship between the OWEI subscale, initiative, and Teamwork scores.
3. There were no significant differences in work ethic based upon grade level.
4. Participation in the school-to-work program did not significantly affect WorkKeys Teamwork scores.

Implications

After the review of literature, findings, and conclusions, the following implications appeared.

1. Teamwork and work ethic skills are necessary to succeed at work. These skills can be reinforced at school.
2. School-to-work initiatives are successful. Business and industry involvement at schools can have a positive impact on teamwork and work ethic skills of students.
3. Knowledge of the positive correlation of initiative and teamwork skills can help teachers and administrators in the development of curriculum materials.
4. Students will make informed decisions about career choices when given opportunities to interact with individuals in a wide range of careers.

The study did not find a significant difference in the WorkKeys Teamwork scores of secondary students of the experimental and control group. The experimental group participated in interventions designed to model and encourage interpersonal skills including teamwork. However, graded classroom activities often do not support team or collaborative efforts and are discouraged by many school teachers and administrators. In

light of employers' preference for teamwork skills over basic academic skills, the issue of modeling and teaching teamwork in the classroom takes on more relevance as curriculum materials are developed.

Douthitt (1990) and Lankard (1996) support teaching employability skills through a variety of methods including linking learning at school with learning on the job; discussions centered on employability skills and the use of inventories in relation to occupational interests and skills. The NELC (1999) has promoted employer participation in school-to-work programs as a means for employers to positively impact students by providing career awareness and exploration opportunities. Taylor (1996) found that students with positive first-time work experiences contributed to the development of a positive work ethic. School cooperative education coordinators and employers could work together to insure a positive first-time work experience for students.

In a study conducted in 1993, Allender found that students exposure to vocational training had the strongest work ethic. The curriculum for most vocational training includes materials on employability skills in addition to the specific occupational skills taught. Teachers and students discuss work-related issues e.g. employer expectations in the workplace, appropriate attire for work, necessary communication skills, etc. Conroy (1998) states that all students have a need for workplace preparation experiences. His study concluded that most students have unrealistic occupational goals. Through interaction with people representing a variety of careers, students can make informed, realistic occupational goals and begin working to successfully obtain the goal.

Recommendations

Based upon the findings and conclusions of this study, the researcher makes the following recommendations for future studies.

1. The location and cultural differences found in a rural secondary school may have some effect on the outcome. Replication of this study in diverse locations may reveal different outcomes.
2. The number of participants in this study was small and not random. Additional studies are encouraged to utilize larger number of participants.
3. The scores on WorkKeys Teamwork assessment were relatively low. A total of 43 (42.2%) of all student participants scored 4 or 5. The majority of jobs profiled by ACT indicate that a score of 4 or better is needed (ACT, 2002). School teachers and administrators need to include teamwork skills and work ethic in the curriculum taught to prepare students for careers.
4. Other demographic variables such as cooperative education, work experience, and post-school goals should be included in the study to determine their effect on teamwork skills and work ethic.

Summary of Conclusions, Implications, and Recommendations Chapter

This chapter included the summary of the study, a review of major findings, conclusions and recommendations. Furthermore, implications for future research on the topic of teamwork and work ethic skills of secondary students in a school-to-work program were presented. Additional research should focus on work experience and the role of parent involvement on students' teamwork skills and work ethic. This research would be helpful to determine support systems for employers and parents in developing teamwork skills and work ethic in young adults as they prepare for their future. It is hoped that the recommendations and implications made in this chapter are helpful to employers and school personnel in the preparation of students to enter the workforce.

REFERENCES

References

- ACT. (1995). *WorkKeys*. Iowa City, IA: Author. (ERIC Document Reproduction Service No. ED381574)
- ACT. (1996). *Want to unlock high performance in your workforce? Put WorkKeys to work for you!* [Brochure]. Iowa City, IA: Author.
- ACT. (1997a). *ACT's WorkKeys preliminary technical handbook*. Iowa City, IA: Author.
- ACT. (1997b). *The WorkKeys system* [Brochure]. Iowa City, IA: Author.
- ACT. (1997c). *WorkKeys and school-to-work programs* [Brochure]. Iowa City, IA: Author.
- ACT. (2001a). *WorkKeys Assessments Teamwork*. Retrieved August 4, 2001, from <http://www.act.org/workkeys/assess/teamwork>
- ACT. (2001b). *WorkKeys Occupational Profiles*. Retrieved July 15, 2001, from <http://www.act.org/workkeys/profiles/occupprof/index.html>
- ACT. (2002). *WorkKeys Job Profiles*. Retrieved October 19, 2002, from <http://www.act.org/workkeys/profiles/occupprof/index.html>
- Allender, B. (1993). *The occupational work ethic of vocational students in East Tennessee*. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.
- American Youth Policy Forum, & The Center for Workforce Development Institute for Educational Leadership. (2000). *Looking forward: School-to-work principles and strategies for sustainability*. Washington, DC: Author.
- Avery, C. (2002, January). Individual-based teamwork. Teamwork isn't just a group process. This time, it's personal. *Training and Development*. Retrieved January 15, 2003, from http://www.findarticles.com/cf_0/m44671/1_56/82361931/print.jhtml
- Barak, M., & Maymon, T. (1998). Aspects of teamwork observed in a technological task in junior high schools. *Journal of Technology Education*, 9(2), 4-18.
- Bartlett, J. (1919). *Familiar quotations*. Retrieved June 29, 2001, from <http://www.bartelby.com/100/594.1.html>
- Berns, R., & Erickson, P. (2001). *Contextual teaching and learning: Preparing students for the new economy*. Columbus, OH: National Dissemination Center for Career and Technical Education.

- Beynon, V. (2001, February 28). BC implements work ethic program. *The Post-Searchlight*, p. 14B.
- Bozick, R. & MacAllum, K. (2002) Does participation in a school-to-career program limit educational and career opportunities. Retrieved December 5, 2002, from <http://scholar.lib.vt.edu/ejournals/JCTE/v18n2/bozick.html>
- Bremer, C., & Madzar, S. (1995). Encouraging employer involvement in youth apprenticeship and other work-based learning experiences for high school students. *Journal of Vocational and Technical Education*, 12(1), 15-26.
- Brown, B. (1999). *Corporate/school partnerships: Learner centered or business centered?* Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education. (ERIC Document Reproduction Service No. ED435836)
- Cappelli, P. (1993). *Is the 'skills gap' really about attitudes?* Philadelphia: National Center on the Educational Quality of the Workforce.
- Cappelli, P., Shapiro, D., & Shumanis, N. (1998). Employer participation in school-to-work programs. *Annals of the American Academy of Political Science*, 559, 109-124.
- Centko, J. (1998). Addressing the humanistic side of workforce education. *Journal of Industrial Teacher Education*, 35(2), 74-78.
- Cheney, L. (1998, February 3). Limited horizons. *The New York Times*, p. B5.
- Church, G. (1998, June 22). Help! *Time*, 152, 21-24.
- Ciulla, J. (2000). *The working life: The promise and betrayal of modern work*. New York: Times Books.
- Conley, D. (2001). *Rethinking the senior year*. Retrieved September 8, 2001, from <http://www.nassp.org/news/bltn0501.html>
- Conroy, C. (1998). Influence of gender and program of enrollment on adolescents' and teens' occupational and educational aspirations. *Journal of Vocational and Technical Education*, 14(2), 17-32.
- Covey, S. (1989). *The 7 habits of highly effective people*. New York: Simon and Schuster.
- Cumming, T., & Lesniak, G. (2000). *Improving employability skills through cooperative education and Tech Prep*. Unpublished paper, Saint Xavier University, Chicago, IL. (ERIC Document Reproduction Service No. ED442978)

- Daughtrey, A., & Ricks, B. (1989). *Contemporary supervision*. New York: McGraw-Hill.
- Dawson, M. (1999). *A construct validity assessment of the occupational work ethic inventory*. Unpublished doctoral dissertation, University of Tennessee, Knoxville.
- Dean, B., & West, R. (1999, November). *Characteristics of viable and sustainable workers for the year 2015*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Point Clear, AL.
- DeLeon, J., & Borchers, R. (1998). High school graduate employment trends and the skills graduates need to enter Texas manufacturing industries. *Journal of Vocational and Technical Education*, 15(1), 28-41.
- Denton, H. (1990). The role of teamwork in technology education: Observations from an action research program. *Journal of Technology Education* 1(2), Retrieved on December 5, 2002 from <http://scholar.lib.vt.edu/ejournals/JTE/v1n2/pdf/denton.pdf>
- Dereshiwsky, M. (1999). *Online reading: Electronic textbook: Limitations and delimitations*. Retrieved on December 4, 2002 from <http://jan.ucc.nau.edu/~mid/edr720/class/methodology/delimitations/reading3-3-1.html>
- Doolittle, P., & Camp, W. (1999). Constructivism: The career and technical education perspective. *Journal of Vocational and Technical Education*, 16(1), 23-46
- Douthitt, F. (1990). *Developing the work ethic through vocational/technical education*. Westerville, OH: Ohio State Council on Vocational Education. (ERIC Document Reproduction Service No. ED346331)
- Erez, M., & Earley, P. (1993). *Culture, self-identity, and work*. New York: Oxford University Press.
- Espinoza, J. (1999). *The hourly rate of learning: Skills students learn while working in college*. Unpublished master's thesis, Virginia Polytechnic Institute and State University, Blacksburg.
- Evans, R., & McCloskey, G. (2001). Rationale for career education. *Journal of Industrial Teacher Education*, 39(1), 6-17.
- Franklin Learning Systems. (1997). *Interview challenge teacher materials* [Brochure]. Westport, CT: Author.
- Funk & Wagnalls Standard Dictionary*. (1980). New York: Lippencott & Crowell.

- Gawel, J. (1997). *Herzberg's theory of motivation and Maslow's hierarchy of needs*. Washington, DC: ERIC Clearinghouse on Assessment and Evaluation (ERIC Document Reproduction Service No. ED421486)
- Gay, L., & Airasian, P. (2000). *Educational research: Competencies for analysis and application* (6th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Gehring, J. (2001, January 17). Washington state districts issue grades for 'employability'. *Education Week*, 20, 12.
- Goal/QPC. (1988). *The memory jogger: A pocket guide of tools for continuous improvement*. Methuen, MA: Author.
- Grace, E. (1994). *Workplace basic skills assessment tools*. Unpublished master's thesis, Colorado State University, Fort Collins.
- Gregson, J. (1995). The school-to-work movement and youth apprenticeship in the U.S.: Educational reform and democratic renewal? *Journal of Industrial Teacher Education*, 32(3), 7-29.
- Griffith, J., & Wade, J. (2001). The relation of high school career-and work-oriented education to postsecondary employment and college performance: A six-year longitudinal study of public high school graduates. *Journal of Vocational Education Research*, 26(3). Retrieved on January 10, 2003, from <http://scholar.lib.vt.edu/ejournal/JVE/v26n3/griffith.html>
- Grubb, W., & Badway, N. (1998). *Linking school-based and work-based learning: The implications of LaGuardia's co-op seminars for school-to-work programs* (MDS-1046). Berkeley, CA: National Center for Research in Vocational Education.
- Hatcher, T. (1993). *The work ethic of apprentices and instructors in a trade union apprenticeship training program*. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.
- Hatcher, T. (1995). From apprentice to instructor: Work ethic in apprenticeship training. *Journal of Industrial Teacher Education*, 33(1), 24-45.
- Herschbach, D. (1998). Reconstructing technical instruction. *Journal of Industrial Teacher Education*, 36(1), 36-61.
- Herzberg, F. (1968). *Work and the nature of man*. London: Crosby Lockwood Staples.
- Hill, R. (1992). *The work ethic as determined by occupation, education, age, gender, work experience, and empowerment*. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.

- Hill, R. (1999). *Historical context of the work ethic*. Unpublished paper, The University of Georgia, Athens.
- Hill, R., & Petty, G. (1995). A new look at selected employability skills: A factor analysis of the occupational work ethic. *Journal of Vocational Education Research*, 20(4), 59-73.
- Hiltunen, J., & Jarvinen, E. (2000). Automation technology in elementary technology education. *Journal of Industrial Teacher Education*, 37(4), 51-76.
- Hollenbeck, K. (1996). *School-to-work programs to facilitate youth employment and learning*. Kalamazoo, MI: Upjohn Institute for Employment Research. (ERIC Document Reproduction Service No. ED394046)
- Howell, R. (2001). Fostering self-directed team members. *The Journal of Technology Studies*, 27(1), 12-14.
- Hughes, K., Bailey, T., & Mechur, M. (2001). *School-to-work: Making a difference in education*. New York: Institute on Education and the Economy, Teachers College, Columbia University.
- Hughes, K., Moore, D., & Bailey, T. (1999). *Work-based learning and academic skills* (IEE Working Paper No. 15). New York: Institute on Education and the Economy, Teachers College, Columbia University.
- Imel, S. (1999). *School-to-work. Myths and realities No. 4*. Columbus, OH: ERIC Clearinghouse on Adult Career and Vocational Education. (ERIC Document Reproduction Service No. ED435835)
- Kauffman Foundation. (2002). *Voices of youth. Results of the 2000 - 2001 Kauffman teen survey: Youth development issues*. Kansas City, KS: Author.
- Kazanas, H. (1973). *The meaning and value of work*. Columbus, OH: Center for Vocational and Technical Education. (ERIC Reproduction Service No. 091504)
- Kazanas, H. (1978). *Affective work competencies for vocational education*. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education. (ERIC Reproduction Service No. ED166420)
- Kemple, J., Poglinco, S., & Snipes, J. (1999). *Career academies. Building career awareness and work-based learning activities through employer partnerships*. Amherst, MA: Massachusetts Rural Development Council.
- Kerka, S. (2000). *Parenting and career development. ERIC Digest No. 214*. Columbus, OH: ERIC Clearinghouse on Adult Career and Vocational Education. (ERIC Document Reproduction Service No. ED440251)

- Kiser, K. (1999, July). Is school-to-work tapped out? *Training*, 36, 44-49.
- Kraska, M. (1991). *Work values of high school vocational education students*. Auburn, AL: Auburn University. (ERIC Document Reproduction Service No. ED336532)
- Kroeger, O., & Thuesen, J. (1992). *Type talk at work*. New York: Delacorte Press.
- Kuchinke, K., Brown, J., Anderson, H., & Hobson, J. (1998). Assessing training needs of manufacturing employees in rural Minnesota: A model and results. *Journal of Industrial Teacher Education*, 36(1), 79-98.
- Lankard, B. (1990). *Employability-the fifth basic skill*. Columbus, OH: ERIC Clearinghouse on Adult Career and Vocational Education. (ERIC Document Reproduction Service No. ED325659)
- Lankard, B. (1996). *Acquiring self-knowledge for career development*. Columbus, OH: ERIC Clearinghouse on Adult Career and Vocational Education. (ERIC Document Reproduction Service No. ED399414)
- Law, C., Knuth, R., & Bergman, S. (1992). *What does research say about school-to-work transition?* Oak Brook, IL: North Central Regional Educational Laboratory.
- Leonard, B. (1996, July). From school-to-work. *HR Magazine*, 41, 74-82.
- Lewis, M. (2001). *Major needs of career and technical education in the year 2000*. Columbus, OH: National Dissemination Center for Career and Technical Education.
- Lynch, R. (2000). High school career and technical education for the first decade of the 21st century. *The Journal of Vocational Education Research*, 25(2), 35-63.
- Lynn, I., & Wills, J. (1994). *School lessons, work lessons: Recruiting and sustaining employer involvement in school-to-work programs* (EQW Catalog Number: WP28). Philadelphia: National Center for the Educational Quality of the Workforce.
- Maduschke, K., & Grummon, P. (1996). *Technical documentation to working*. Lansing, MI: Public Policy Research.
- Maddy-Bernstein, C. (2000). *Career development issues affecting secondary schools*. Columbus, OH: National Dissemination Center for Career and Technical Education.
- Maslow, A. (1954). *Motivation and personality*. New York: Harper.

- McCloy, R., Waugh, G., Medsker, G., Wall, J., Rivkin, D., & Lewis, P. (1999). *Determining the occupational reinforcer patterns for O*Net occupational units*. Raleigh, NC: National Center for O*Net Development.
- McLarty, J., & Palmer, J. (1994, June). *Are high school students ready to work? A progress report from the WorkKeys system: ACT's nationwide program for building workplace skills*. Paper presented at the International Personnel Management Association Assessment Council Annual Conference, Charleston, SC.
- McNabb, J. (1997). Key affective behaviors of students identified by a select group of secondary school teachers using the SCANS categories. *Journal of Industrial Teacher Education*, 34(4), 29-41.
- McNerney, K., & Coleman, C. (1998, April). *Educational and occupational aspirations of high school students*. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.
- Medrich, E. (1996). Preparedness for work. In T. M. Smith (Ed.), *The condition of education 1996* (NCES Report No. 96-304, pp. 11 –17). Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Miles, C., & Grummon, P. (1996). *Working: assessing skills, habits, and style*. Clearwater, FL: H&H Publishing Company, Inc.
- Miller, J. (1999). *Survey of literature related to work ethics pedagogy*. Unpublished paper, Florida State University, Tallahassee.
- Monroe County Chamber of Commerce. (n.d.). *Demographic information for Monroe county*. Retrieved July 5, 2001, from <http://www.monroecountychamber.org>
- Musselwhite, E., & Zenger, J. (1995). *How to get the most for yourself from training*. San Jose, CA: Zenger Miller.
- National Alliance of Business. (1992). *Real jobs for real people: An employer's guide to youth apprenticeship*. Washington, DC: U.S. Department of Labor.
- National Center for Education Statistics. (1999). *Data ramifications of competency-based initiatives*. Retrieved April 15, 2001, from <http://nces.gov/NPEC/papers/PDF/cbi.pdf>
- National Commission on the High School Senior Year. (2001). *The lost opportunity of the senior year: Finding a better way*. Washington, DC: U.S. Government Printing Office.

- National Employer Leadership Council. (1997). *Employer participation model*. Retrieved July 14, 2001, from <http://www.nec1.org/aboutnec1c/epm/epm.html>
- National Employer Leadership Council. (1999). *The bottom-line return on school-to-work investment for students and employers: Intuitions confirmed*. Washington, DC: Author.
- Noe, R. (1999). *Employee training and development*. Boston: Irwin McGraw-Hill.
- Novak, M. (1996). *Business as a calling*. New York: The Free Press.
- Occupational Information Network. (2000). *What is O*Net?* Retrieved September 1, 2001, from <http://www.onecenter.org/overview/index.html>
- Ohio School-to-Work. (1999). *Ohio school-to-work glossary*. Retrieved November 20, 2000, <http://www.ohio-stw.com/resources/glossary.htm>
- Ohio State University. (1995). *Documenting student competence through effective performance assessment: Employability skills workshop summary*. Columbus, OH: Ohio Agricultural Education Curriculum Materials Service. (ERIC Reproduction Service No. ED397263)
- Olson, L. (1997). *The school-to-work revolution*. Reading, MA: Addison-Wesley.
- O'Neil, H., Allred, K., & Baker, E. (1992). *Measurement of workforce readiness: Review of theoretical frameworks*. Los Angeles: National Center for Research on Evaluation, Standards, and Student Testing. (ERIC Reproduction Service No. ED353328)
- Overtom, C. (2000). *Employability skills: An update*. Columbus, OH: ERIC Clearinghouse on Adult Career and Vocational Education. (ERIC Document Reproduction Service No. ED445236)
- Parnell, D. (2000). *Contextual teaching works!* Waco, TX: CCI.
- Pearlman, K. (1997). Twenty-first century measures for twenty-first century work. In A. Lesgold, M. Feuer, & A. Black (Eds.), *Transitions in work and learning* (pp. 136-179). Washington, DC: National Academy Press.
- Petty, G. (1991). *Occupational work ethic inventory*. Unpublished survey, The University of Tennessee, Knoxville.
- Petty, G. (1995). Vocational-technical education and the occupational work ethic. *Journal of Industrial Teacher Education*, 32(3), 45-58.

- Petty, G. (1996). Employability skills. In C. Campbell (Ed.), *Education and training for work: Vol. 1* (pp. 133-151). Lancaster, PA: Technomic.
- Reagor, J., & Rehm, M. (1995). Perspectives on work from rural parents with different levels of education. *Journal of Vocational and Technical Education* 12(1), 4-14.
- Reimer, J. (1996, January). *A review and critique of the WorkKeys system*. Paper presented at annual meeting of the Southwest Educational Research Association, New Orleans, LA.
- Resnick, L. (1997). Getting to work: Thoughts on the function and form of the school-to-work transition. In A. Lesgold, M. Feuer, & A. Black (Eds.), *Transitions in work and learning* (pp. 249-263). Washington, DC: National Academy.
- Rezin, A., & McCaslin, N. (2001). Comparing the impact of traditional and cooperative apprenticeship programs on graduates' industry success. *Journal of Career and Technical Education*, (18)1, 81-96.
- Sanders, W., & Horn, S. (1995, March 3). Educational assessment reassessed: The usefulness of standardized and alternative measures of student achievement as indicators for the assessment of educational outcomes. *Education Policy Analysis*, 3(6). Retrieved September 7, 2000, from <http://olam.ed.asu.edu/epaa/v3n6.html>
- Scales, P., Benson, P., Merenda, D., Mannes, M., Vraa, R., Melnick, S., et al. (2001). *What students need to succeed*. National Association of Partners in Education. Retrieved June 5, 2001, from <http://www.napehq.org/13/htm>
- Schmidli, K. (2001). Infusing the career development facilitator curriculum into career and technical teacher education: A model for fundamental change to improve outcomes for all students. *Journal of Industrial Teacher Education*, 38(4). Retrieved December 5, 2002 from <http://scholar.lib.vt.edu/ejournals/JITE/v38n4/schmidli.html>
- Schmidt, B., Finch, C., & Moore, M. (1997). *Facilitating school-to-work transition: Teacher involvement and contributions* (MDS-938). Berkeley, CA: National Center for Research in Vocational Education.
- The School-to-Work Opportunities Act of 1994, Pub L. No. 103-239, §3, 108 Stat. 568 (1994).
- Schuler, R., & Jackson, S. (1996). *Human resource management: Positioning for the 21st century* (6th ed.). Minneapolis/St. Paul, MN: West.

- Schulz, E., Kolen, M., & Nicewander, W. (1997). *A study of modified-Guttman and IRT-based level scoring procedures for WorkKeys assessments* (ACT Research Report Series 97-7). Iowa City, IA: ACT.
- Scruggs, C. (1994). WorkKeys assessments. In J. Kapes, M. Mastie, & E. Whitfield (Eds.), *A counselor's guide to career assessment instruments* (3rd ed., pp. 124-130). Alexandria, VA: The National Career Development Association.
- Secretary's Commission on Achieving Necessary Skills. (1991). *What work requires of schools: A SCANS report for America 2000*. Washington, DC: U.S. Government Printing Office.
- Shapiro, D. (1999). *School-to-work partnerships and employer participation*. Philadelphia: National Center for Postsecondary Improvement.
- Stasz, C., & Brewer, D. (1999). *Academic skills at work: Two perspectives* (MDS-1193). Berkeley, CA: National Center for Research in Vocational Education.
- Stasz, C., & Kaganoff, T. (1997). *Learning how to learn at work: Lessons from three high school programs* (MDS-916). Berkeley, CA: National Center for Research in Vocational Education.
- Stevens, M. (1999, March – April). Staffing work teams: Development and validation of a selection test for teamwork settings. *Journal of Management*, (25)4, 207-228.
- Stewart, B., & Bristow, D. (1997). Tech prep programs: The role and essential elements. *Journal of Vocational and Technical Education*, (13)2, 54-69.
- Taylor, B. (1996). *The influence of adolescent employment experience on the development of a work ethic*. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.
- Tennessee Department of Education. (1998). *Tennesseans' attitudes toward learning and the workplace*. Retrieved April 25, 2001, from <http://www.state.tn.us/education/ee98svfc.htm>
- Tennessee Department of Education. (2000). *State of Tennessee school report card 2000 Sequoyah High School*. Retrieved August 15, 2001, from <http://www.k-12.state.tn.us/rptcrd00/school.asp>
- Turner, S. (2002). Career self-efficacy and perceptions of parent support in adolescent career development. *Career Development Quarterly*. Retrieved January 15, 2003, from http://findarticles.com/cf_0moJAX/1_51/92036446/print.jhtml

- Training Essentials. (1996). *Just my type: The personality game* [Brochure]. King of Prussia, PA: Author.
- U.S. Bureau of Labor Statistics. (2000). *Employment experience of youths: results from a longitudinal survey*. Retrieved July 14, 2001, from <ftp://ftp.bls.gov/pub/news.release/nlsyth.txt>
- U.S. Department of Education. (1983). *A nation at risk*. Retrieved July 14, 2001, from <http://www.ed.gov/pubs/NatAtRisk/risk.html>
- U.S. Department of Education. (2000). *School-to-work: National good news facts and figures*. Retrieved November 9, 2000, from <http://stw.ed.gov/research/goodfacts2.htm>
- U.S. Department of Labor. (1995). *What's working and what's not. A summary of research on the economic impacts of employment and training programs*. Washington, DC: Author. (ERIC Document Reproduction Service No. ED379445)
- Villeneuve, J., & Grubb, W. (1996). *Indigenous school-to-work programs: Lessons from Cincinnati's co-op education* (MDS-702). Berkeley, CA: National Center for Research in Vocational Education.
- Wang, J., & Staver, J. (2001). Examining relationships between factors of science education and student career aspiration. *The Journal of Educational Research*, 94(5), 312-321.
- Warren, J., LePore, P., & Mare, R. (2001). Employment during high school: Consequences for student grades in academic courses. *Journal of Vocational Education Research*, 26(3), 366-411.
- Watson, E. (1993). *A comparison of self-perceived occupational work ethics of general education and tech prep students*. Unpublished master's thesis, The University of Tennessee, Knoxville.
- Way, W., & Grossman, M. (1996). *Lessons from life's first teacher: The role of the family in adolescent and adult readiness for school-to-work transition* (MDS-725). Berkeley, CA: National Center for Research in Vocational Education.
- Wayne, F., & Chapman, P. (1992). The need to incorporate the work ethic and ethics into business education curricula. In A. Burford (Ed.), *The hidden curriculum* (pp. 127-144). Reston, VA: National Business Education Association.
- Weber, M. (1958). *The Protestant ethic and the spirit of capitalism* (T. Parsons, Trans.). New York: Scribner. (Original work published 1904/1905)

- Weil, L. (2002). *Employer involvement in career academies: Old model sparks new involvement*. Retrieved December 5, 2002 from <http://www.nelc.org/resources/career%20academ/%202.pdf>
- Wells, J. (1998). Teaching vocational work ethics using direct, indirect and self-evaluative methods. *Journal of Vocational and Technical Education*, 14(2), 47-52.
- White, J. (1997). *Education and the end of work*. London: Cassell.
- Wonacott, M. (2001). *Secondary career development interventions* (Brief No. 13). Columbus, OH: National Dissemination Center for Career and Technical Education.
- Zenger Miller. (1996). *Pework materials*. San Jose, CA: Author.
- Zirkle, C. (1998). Perceptions of vocational educators and human resource/training and development professionals regarding skills dimensions of school-to-work transition programs. *Journal of Vocational and Technical Education*, 51(1), 50-62.

APPENDICES

Appendix A
LETTERS OF PERMISSION

Board of Education

DEAN B. WILLIAMS
553 Lakeside Road
Vonore, Tennessee
2nd District

JEAN B. ALLISON
312 Povo Road
Madisonville, Tennessee
2nd District

LEONARD BLEVINS
1051 Monroe Circle
Madisonville, Tennessee
2nd District

ROBERT "RUSTY" VINEYARD
207 Blair Avenue
Sweetwater, Tennessee
1st District

**Monroe County
Department of Education**

JOE HELMS, Director of Schools
205 Oak Grove Road
Madisonville, Tennessee 37354
Telephone: 442-2373
Fax: 442-1389

Chairman of School Board
DEWITT UPTON
236 Washington Street
Sweetwater, Tennessee
1st District

MARTY ALLEN
415 Edgewood Drive
Sweetwater, Tennessee
1st District

A.C. WILSON, Vice Chairman
680 Reliance Road
Tellico Plains, Tennessee
3rd District

FRED McNABB
245 Gibson Road
Madisonville, Tennessee
3rd District

STEVE ROGERS
207 Cagle Road
Tellico Plains, Tennessee
3rd District

January 28, 2002

Ms. Kathy Rhodes
HR Administrator
TRW Koyo
55 Excellence Way
Vonore, Tennessee 37885

Dear Ms. Rhodes:

This is to inform you that Sequoyah High School has been granted permission to participate in the research for your thesis, "The Teamwork Skills and Occupational Work Ethic of Secondary School Students In a School-to-Work Program".

As the former Vocational Director for Monroe County Schools I have worked closely with the School-to-Career program sponsored by TRW Koyo Steering Systems. I have witnessed the benefits of this program for all students involved.

Please contact my office if you need any further assistance or information.

Sincerely,



Mr. Joe Helms, Director
Monroe County Schools

JH/gg

August 29, 2002

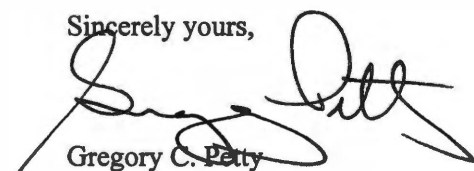
Kathy Rhodes
8650 Huff's Ferry Road
Loudon, TN 37774

Dear Kathy,

This letter is to authorize you to use the Occupational Work Ethic Inventory (OWEI, 1991©), for your study investigating teamwork skills and work ethic of high school students enrolled in a school to work program.

I will provide you with the necessary information for proper interpretation as well as for instrument reliability and validity. I only ask that you share with me your final results so that your study findings can be included with the Occupational Work Ethic Virtual Research Center.

Sincerely yours,



Gregory C. Petty
Professor

Appendix B
School-to-Work Spreadsheet

TOPIC	2002	2003	2004
	Seniors	Juniors	Sophomores
Selection of students	Jan-00	Jan-01	Jan-02
Orientation session w/ parents	Feb-00	Feb-02	Mar-02
TKS Products	Mar-00	Mar-01	Mar-02
TKS Production System Std. Work	Apr-00	Apr-01	Apr-02
Plant Visit	May-00	May-01	May-02
Assessment Tool	Career Key 09-00	Working 09-01	OWEI 10-02
Field Trip	MTSU - Oct-00	ETSU 10-01	UTK - 10-02
ZMW / Listening to Understand	Dec-00	None	
ZMW / How to be a Team Player	Nov-00	Nov-01	
QC: Cinderella Case Study	Jan - Apr 2001	Jan - Apr 2002	
Plant Visit	May-01	May-02	
Assessment Tool	Working 09-01	OWEI 10-02	
Field Trip	ETSU - Oct-01	UTK - 10-02	
ZMW: Basic Principles	11/27/2001		
ZMW: Giving Feedback	None		
Career Planning: MBTI	1/31/2002		
Just My Type Game	2/20/2002		
Work Keys Career Profiles	3/20/2002		
7 Habits	4/17/2002		
Plant Visit	5/2/2002		
Assessment Tool	OWEI - 10-02		
Field Trip	UTK - 10-02		
ZMW: Resolving Issues			
ZMW: Positive Responses			
Job Search Skills: Resumes			
Interview Challenge			
Interview Challenge			
Interview Trios			
Work Keys II			
Senior Day at TKS			

Appendix C
Zenger Miller Working Modules' Key Concepts

Basic Principles

1. Focus on the situation, issue, or behavior, not on the person
2. Maintain the self-confidence and self-esteem of your coworkers
3. Maintain good relationships with your coworkers and your supervisor.
4. Take initiative to make things better.
5. Lead by example.

How to be a teamplayer

1. Pass on good ideas.
2. Look for ways to help others.
3. Give recognition for things well done.
4. Let others know what you need to get the job done.

Listening to understand clearly

1. Show your interest in what the other person would have to say.
2. Ask questions to clarify what you have heard.
3. Let the other person know what you understand.

Giving feedback to help others

1. State the purpose of the discussion.
2. Describe specifically what you have observed.
3. Describe your reactions to what you have observed.
4. Offer helpful ideas when appropriate.
5. Summarize and show your support.

Resolving issues with others

1. Promptly state your concern about the problem.
2. Use facts to describe the situation clearly.
3. Ask for the other person's views.
4. Review the facts and generate alternative solutions.
5. Agree on what each person would do to resolve the problem.

Positive responses to negative situations

1. Deal constructively with your emotions.
2. Get perspective on the situation.
3. Understand why the situation exists.
4. Find something you can gain from the experience.

Appendix D
Occupational Work Ethic Inventory

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The purpose of this inventory is to obtain information about desirable characteristics of working individuals. Your responses would be kept strictly confidential and your name is not required on this form. It is important for you to answer each item as truthfully as possible.



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:

Never Almost Never Seldom Sometimes Usually Almost Always Always

1 2 3 4 5 6 7

THERE ARE NO RIGHT OR WRONG ANSWERS. There also is no time limit, but you should work as rapidly as possible. Please respond to every item on the list.

At work or school I can describe myself as:

	Never				Always		
Descriptors	1	2	3	4	5	6	7

- | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|
| 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. initiating1 2 3 4 5 6 7
11. perceptive.....1 2 3 4 5 6 7
12. honest1 2 3 4 5 6 7
13. irresponsible.....1 2 3 4 5 6 7
14. efficient1 2 3 4 5 6 7
15. adaptable1 2 3 4 5 6 7
16. careful1 2 3 4 5 6 7
17. appreciative1 2 3 4 5 6 7
18. accurate1 2 3 4 5 6 7
19. emotionally stable1 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
23. punctual.....1 2 3 4 5 6 7
24. devious1 2 3 4 5 6 7
25. selfish1 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. likeable1 2 3 4 5 6 7
29. helpful1 2 3 4 5 6 7
30. apathetic1 2 3 4 5 6 7
31. pleasant1 2 3 4 5 6 7
32. cooperative.....1 2 3 4 5 6 7

33. hard working1 2 3 4 5 6 7
34. rude1 2 3 4 5 6 7
35. orderly1 2 3 4 5 6 7
36. enthusiastic.....1 2 3 4 5 6 7
37. cheerful1 2 3 4 5 6 7
38. persistent1 2 3 4 5 6 7
39. hostile.....1 2 3 4 5 6 7
40. dedicated1 2 3 4 5 6 7
41. devoted.....1 2 3 4 5 6 7
42. courteous1 2 3 4 5 6 7
43. considerate1 2 3 4 5 6 7
44. careless.....1 2 3 4 5 6 7
45. productive1 2 3 4 5 6 7
46. well groomed1 2 3 4 5 6 7
47. friendly.....1 2 3 4 5 6 7
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

BACKGROUND INFORMATION

DIRECTIONS:

Please check the appropriate response for each item. Completion of this inventory acknowledges your understanding that this data would be used for research purposes only and would be kept completely confidential.

(1) Category that your future occupation best fits:

- ☐ Arts / Communication
- ☐ Business / Marketing
- ☐ Health Care
- ☐ Hospitality / Tourism
- ☐ Human Services
- ☐ Science / Technology
- ☐ Manufacturing / Construction / Transportation

(2) Do you plan on attending school after graduation of secondary school?

- ☐ No, looking for full-time work
- ☐ Technology Center
- ☐ Community College
- ☐ Trade School
- ☐ University or College (4-year institution)

(3) Grade Level:

☐ Sophomore

☐ Junior

☐ Senior

(4) Gender:

☐ Female

☐ Male

(5) Years of work experience:

☐ None

☐ Less than 1 year

☐ More than 1 year

(6) If you work, how many hours per week:

☐ 1 – 10 hours

☐ 11 – 20 hours

☐ More than 20 hours

(7) Are you a member of the TKS School-to-Work Team?

☐ Yes

☐ No

(8) Are you enrolled in the Cooperative Education program?

☐ Yes

☐ No

Appendix E
Occupational Work Ethic Subscales

Interpersonal Skills

courteous
friendly
cheerful
considerate
pleasant
cooperative
helpful
likeable
devoted
loyal
well groomed
patient
appreciative
hardworking
modest
emotionally stable
stubborn

Being Dependable

following directions
following regulations
dependable
reliable
careful
honest
punctual

Initiative

perceptive
productive
resourceful
initiating
ambitious
efficient
effective
enthusiastic
dedicated
persistent
accurate
conscientious
independent
adaptable
persevering
orderly

Reversed Items

hostile
rude
selfish
devious
irresponsible
careless
negligent
depressed
tardy
apathetic

Appendix F
Occupational Work Ethic Glossary

1. dependable: trustworthy, reliable.
2. stubborn: refusing to change an opinion or course of action in spite of difficulty or urging.
3. following regulations: conforming to rules and principles.
4. following directions: ability to carry through an order or instruction.
5. independent: self-reliant.
6. ambitious: a desire for success.
7. effective: producing or able to produce a desired effect.
8. reliable: fit to be trusted.
9. tardy: not on time.
10. initiating: taking the first step, originating.
11. perceptive: ability to grasp (meanings and ideas) with one's mind.
12. honest: not given to cheating, stealing, or lying.
13. irresponsible: having or showing little or no sense of responsibility.
14. efficient: capable of bringing about a desired result with little waste of time or energy.
15. adaptable: able to change easily to meet new circumstances.
16. careful: exercising care in one's work; painstaking.
17. appreciative: having or showing an awareness or understanding of worth or value.
18. accurate: free from mistakes.
19. emotionally stable: able to control one's thoughts and feelings.
20. conscientious: careful and thorough.

21. depressed: sad; disheartened.
22. patient: showing or involving calm self-control.
23. punctual: acting at the right time; not late.
24. devious: straying from the proper way; erring.
25. selfish: taking care of one's self without thought for others.
26. negligent: careless.
27. persevering: to keep trying to do something in spite of difficulties.
28. likeable: easily liked.
29. helpful: giving service; providing help.
30. apathetic: having or showing little or no feeling or interest.
31. pleasant: having pleasing manners, behaviors, or appearance.
32. cooperative: willing to cooperate or work with others.
33. hard working: productive.
34. rude: impolite.
35. orderly: being in good order; neat; tidy.
36. enthusiastic: full of enthusiasm; eager.
37. cheerful: full of good spirits; pleasant.
38. persistent: strive in spite of difficulties.
39. hostile: unfriendly.
40. dedicated: committed to a certain course of action or thought.
41. devoted: completely loyal.
42. courteous: showing respect and consideration for others.
43. considerate: thoughtful of the rights and feelings of others.

- 44. careless: not taking proper care.
- 45. productive: having the power to produce plentifully.
- 46. well groomed: a neat and attractive appearance.
- 47. friendly: showing friendship.
- 48. loyal: faithful to a person or thing.
- 49. resourceful: Clever in dealing with problems.
- 50. modest: having a limited and not too high opinion of oneself and one's abilities.

Appendix G
Examples of Careers within Career Clusters

Arts and Communications

- Artist
- Architect
- Journalist
- Television broadcast

Business / Marketing

- Accountant
- Financial careers e.g. bankers, stock brokers,
- Public Relations

Health Care

- Doctor
- Nurse
- Dentist or dental hygienist
- Physical therapist

Hospitality / Tourism

- Chef /cooks
- Hotel manager
- Server

Human Services

- Childcare
- Social worker
- Minister
- Teachers

Sciences / Technology

- Scientist
- Computer specialist
- Engineer

Manufacturing /Construction / Transportation

- Electrician
- Maintenance mechanic
- Truck driver
- Brick mason
- Carpenter

Appendix H

ACT WorkKeys Teamwork Assessment Examples

Excerpted from ACT (2001) WorkKeys website with permission

Level 3 Teamwork

Questions at Level 3 measure the examinee's skill in recognizing the behaviors or actions which would best support a team and contribute to work performance in simple work situations involving one problem or source of difficulty. In these work situations, team goals and consequences are clear, all the resources necessary for addressing the problem are readily available, and the team members get along well. Questions at Level 3 require the examinee to:

- identify team goals and ways to work with other team members to accomplish team goals;
- recognize that a team is having problems finishing a task and identify the cause of those problems;
- choose actions that actively support the ideas other team members have for accomplishing team goals; and
- recognize the need for trust and dependability in a team environment.

Level 3 Sample Item: Teamwork

Scenario:

A two-person paint and wallpaper crew is redecorating the first floor of a house for a family which would have gone on vacation. The team would have two days to finish the job. They have completed the dining room and family room. One team member is finishing the painting in the kitchen; the other would have begun wallpapering the living room. The second team member finds that after the paste is applied, the wallpaper tears very easily when he is trying to adjust it on the wall and trim it to fit.

They discuss the situation. The one who is painting suggests that they both work on the wallpapering first and then finish painting the kitchen. She explains that one of them can hold up the bottom of the wallpaper strip while the other one does the trimming. This might prevent the tearing by eliminating the extra weight on the paper.

Question:

1. In this situation, the goal for the team can best be accomplished by:
 - A. buying extra wallpaper to allow for torn pieces.
 - B. continuing to work individually on each room.
 - C. working together on the wallpapering and painting in both rooms.
 - D. asking for more time to complete the project.

Why this is a Level 3 problem:

- The goal to finish the painting and wallpapering is clear.
- There are no indications that team relations are not congenial.
- There is no apparent shortage of resources.
- There is one problem: how to keep the wallpaper from tearing when it is being applied.
- There is clear acceptance of the group goal: the painter realizes that the overall goal of finishing the job requires her to set aside her immediate task to help in the problem area.

Answer to Level 3 Sample Item:

- A. This is an unnecessary expense that can be eliminated if the team can avoid the tearing in the first place.
- B. This action ignores the problem with the wallpaper.
- C. This action contributes the most to task completion (finishing the job at the least cost) and also shows cooperative team relationships.

D. This action is costly, could annoy the customer, and may be unnecessary.

Level 4 Teamwork

Questions at Level 4 measure the examinee's skill in recognizing the behaviors or actions which would best support a team and contribute to work performance in situations involving several problems or sources of difficulty. In these work situations, the goals and consequences are not altogether clear, some of the resources may be limited, and/or the team members have diverse needs.

In addition to the skills tested at the preceding level, questions at Level 4 require the examinee to:

- identify the organization of tasks and the time schedule that would help the team reach goals efficiently, creatively, and effectively
- select approaches that accept direction from other team members in order to complete tasks and to build and keep up good team relations
- identify behaviors that show appreciation for the personal and professional qualities of other team members and respect for their diversity
- recognize the need for commitment to quality and sensitivity to customers while pursuing the team goal

Level 4 Sample Item: Teamwork

Scenario:

A convenience store is staffed during the day by a manager and a team of four employees. One of the employees, a member of a minority group, would have just been hired and happens to begin work on the day of a large snowstorm. Another employee is not able to get to work because of the weather. The manager, who would be busy with

other weather-related problems, asks the other two experienced workers to work together to orient the new employee.

One of the experienced workers is normally the cashier, and the second usually stocks shelves and helps customers. Feeling that he would probably be very busy, the cashier tells the stocker to help the new worker. The stocker, knowing that orientation would take extra time, resents having it pushed off on her. Since the store is very busy, she would need to restock the shelves more often than usual. With the other experienced worker absent, the stocker doesn't see how she can possibly get everything done that is expected of her. She spends more time than necessary in the storage room to avoid the new employee.

Question:

2. As a member of this team, the stocker could best support the team and get the work task accomplished by:
 - A. telling the manager that nothing is going right and that she doesn't have time to train the new employee.
 - B. telling the cashier to take care of training the new employee so the stocker can get her work done.
 - C. having the new employee learn by just watching the other employees.
 - D. having the new employee help her stock shelves as she explains store procedures.

Why this is a Level 4 problem:

- It is not very clear whether orienting the new worker or taking care of regular duties is a more important goal.
- Some resources, specifically labor, are scarce because of the storm.
- The team members have competing concerns; each one feels that he or she is too busy to take care of the new employee.

- The situation involves the skills of prioritization and time management, creative thinking, customer sensitivity, and appreciation of diversity.

Answer to Level 4 Sample Item:

- A. The stocker does not exhibit any creative thinking, time management, or followership (willingness to take direction). She is refusing to consider any possibilities that would lead to accomplishment of the task.
- B. The stocker does not recognize that both employees would be extra busy and that the trainee can probably be more help to the stocker than to the cashier under the circumstances. This action does not contribute to accomplishing the goal.
- C. This action would not be very effective training and, therefore, does not contribute to goal accomplishment, especially regarding commitment to quality.
- D. This action contributes both to the goal of serving customers and also to maintaining good team relationships. This arrangement is probably the most efficient training that can be done under the circumstances

Level 5 Teamwork

Questions at Level 5 measure the examinee's skill in recognizing the behaviors or actions which would best support a team and contribute to work performance in situations involving many subtle and competing problems and sources of difficulty. In these work situations, consequences and team goals are unclear, resources are limited, and the relationships between team members are ambiguous.

In addition to the skills tested at the preceding levels, questions at Level 5 require the examinee to:

- identify courses of action that give direction to other team members
- determine the best use of team talents to accomplish goals
- choose approaches that encourage other team members to improve relationships and/or complete tasks

- consider and evaluate the possible effects of alternative behaviors on both team relationships and the completion of tasks

Level 5 Sample Item: Teamwork

Scenario:

A small health club employs a receptionist, four instructors, and a custodian. The club opens at 9:00 a.m. The instructors teach aerobics and weightlifting classes during the daytime and early evening hours. The custodian cleans the facilities in the early morning hours before the club opens and does odd jobs during the rest of the day. One of the instructors is a young mother who took the job because she was told that she would be expected to work only during the hours that her children were in school. Another is a college student who takes classes in the mornings and teaches weightlifting classes in the late afternoons and evenings. The other two instructors work a variety of hours. One of these instructors doesn't want to work any additional hours. Although the other one likes earning the extra money, she would have commented that the other three instructors take advantage of her willingness to work extra hours and pressure her to work whenever no one else wants to.

The club would have received requests from several of its clients for an early morning aerobics class. The manager would have told the team to discuss how such a class could be added without hiring any more instructors. At the meeting, several objections are raised. The custodian argues that a class early in the morning would interfere with cleaning the club. The instructor who would have the young children says that there is no way she could teach the class because she needs to get her children ready for school at that time. She suggests that perhaps the instructor who is usually eager for

extra work could teach the early class. That instructor groans, folds her arms, and does not reply or participate. The college student argues that, since the people requesting this class are already clients, the club would not really be gaining business by starting this class. The receptionist counters that there have been some calls from others about such a class. The fourth instructor is concerned that those clients who have requested this class may go elsewhere if it isn't offered.

Question:

3. As a member of this team, the instructor who usually works the extra hours should:
 - A. voice her feelings and suggest that the manager reevaluate the whole schedule to see how the class might be covered.
 - B. suggest that the team tell the manager to forget about the early class; it isn't going to work.
 - C. walk out to protest her hours and let them find a solution without her help.
 - D. suggest that the fairest solution would be for the team to vote on who should teach the early class.

Why this is a Level 5 problem:

- It is not clear how to accomplish the goal of setting up an early morning class.
- Resources are limited: neither an instructor nor space that is not being cleaned is available at that time.
- The team members have several competing concerns.
- Decisionmaking skills, as well as leadership and assertiveness skills, are involved.

Answer to Level 5 Sample Item:

- A. The instructor uses assertiveness to communicate her honest concerns, and still recognizes that the goal of providing the early class is important.

- B. This action does not contribute to goal accomplishment.
- C. This action does not contribute to either team relationships or goal accomplishment.
- D. In this situation, a vote does not guarantee a "fair" solution. It does not encourage good decision-making skills.

Level 6 Teamwork

Questions at Level 6 measure the examinee's skill in recognizing the behaviors or actions which would best support a team and contribute to work performance in situations involving complex problems and sources of difficulty. In these work situations, consequences and team goals are often unclear and in conflict, resources are limited or unavailable, and the team members frequently disagree and argue.

In addition to the skills tested at the preceding levels, questions at Level 6 require the examinee to

- identify the focus of team activity and select a new focus if that would help the team meet its goals more effectively
- select approaches that show a willingness to give and take direction, as needed, to further team goals (e.g., recognize the organization of team members' tasks that would best serve the larger goals of the team)
- choose approaches that encourage a team to act as a unit and reach agreement when discussing specific issues
- identify actions that would help manage differences of opinion between team members, moving the team toward its goals while valuing and supporting individual diversity

Level 6 Sample Item: Teamwork

Scenario:

A daily newspaper is changing from an afternoon to a morning delivery schedule. This change affects every employee, from the editor to the delivery people. The paper would have a 10:00 p.m. press deadline, and the reporters would be unable to write complete stories for many evening sports events, cultural events, and community meetings. The editor would have told the team of five reporters to propose a revised schedule of assignments. This schedule should take into account each reporter's area of expertise and still ensure that all important stories are covered by the deadline.

When the team meets to discuss this schedule, a major concern is how to make the evening stories as timely as possible within the new time constraints. Team members offer several suggestions regarding how to shift assignments around to accommodate the deadline. One of the reporters insists on covering only the political stories, which are his particular interest. Another reporter argues that the political reporter should help out the sports writer by preparing background material in the afternoon for the evening's sports stories. The political reporter refuses, saying that he wasn't hired to work on sports and doesn't know anything about them. The sports writer complains that the change to a morning edition is the whole problem, that coverage of evening sports events is going to be ruined, and that management doesn't know what they are doing. The cultural reporter agrees and adds that he is thinking about finding a job elsewhere. The society reporter retorts that he should do just that; she hates doing the society stories and would take the cultural assignment in a minute.

Question:

5. As a member of this team, the sportswriter can best support the team and accomplish the task by:
- A. suggesting the editor hire several part-time reporters to help cover sports stories.
 - B. suggesting that all of the reporters work on background for all types of stories so that each can do final details and editing in his or her area of expertise.
 - C. volunteering to tell management that the morning edition change is a mistake and should be withdrawn.
 - D. suggesting they keep their current assignments and accept a one-day delay in coverage of all evening stories.

Why this is a Level 6 problem:

- The team goal is to serve the public while meeting personal preferences; how best to do that is not clear.
- Limited resources include time in particular and, perhaps, labor.
- Team relations are jeopardized by a lack of respect for other team members' responsibilities.
- Skills involve the merging of conflict resolution, flexibility in roles, and goal creation and revision.

Answer to Level 6 Sample Item:

- A. There is no indication that there are resources available for increased staff.
- B. This action meets the criteria established by the editor. The action exhibits the Level 6 skills of structuring and flexibility.
- C. The decision would have already been made to change the schedule. This action does not exhibit flexibility.
- D. This action would not accomplish the general goal to provide the news in a timely manner.

An Important Consideration

Some WorkKeys questions have a response choice (the "key") that can be clearly defined as right or correct and other response choices (the "distractors" or "foils") that can be identified as wrong or incorrect. Many WorkKeys questions, however, are in a *best-response* format: the keyed response is simply the best of those available. It is important to keep this in mind when discussing such questions, since it would sometimes be possible to think of responses that would be better than any of those offered, or to defend a distractor as not entirely wrong. Best-response formats are consistent with the real world, where choices among less-than-perfect alternatives are routinely the case.

VITA

Mary Kathryn Rhodes, daughter of J. C. Lovely and Wanda Lee Lovely, was born in Landstul, Germany, on November 2, 1957. She graduated with honors from Jacksboro High School in Jacksboro, Tennessee in 1975. Following high school, she began working on a Bachelor of Science degree with a major in Management at The University of Tennessee in Knoxville, Tennessee and graduated in June 1981. She began working on a Master of Science degree at The University of Tennessee in Human Resource Development in August 1997.

Ms. Rhodes has held a variety of positions in human resources in manufacturing and service industries over the last twenty years. Most recently she was employed as the Human Resource Administrator-Training for TRW Koyo Steering Systems Co. in Vonore, Tennessee. As of November 1, 2002, she holds the position of Director of Distance Education at Roane State Community College in Harriman, Tennessee.

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