To the Graduate Council:

I am submitting herewith a dissertation written by Roger Brian Hill entitled "The Work Ethic as Determined by Occupation, Education, Age, Gender, Work Experience, and Empowerment." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.

Gregory C. Petty, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor
and Dean of the Graduate School

THE WORK ETHIC AS DETERMINED BY OCCUPATION, EDUCATION, AGE, GENDER, WORK EXPERIENCE, AND EMPOWERMENT

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Roger Brian Hill

May 1992

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ACKNOWLEDGEMENTS

The task of continuing one's education while in the midst of career and family responsibilities cannot be undertaken alone. For me this work has been accomplished with the understanding and support of my wife and children. To Karen, Brian and Krystle, I express my sincere thanks.

In addition, I wish to thank my Major Professor, Dr. Gregory C. Petty, for his direction and guidance throughout this study, and for his permission to use the Occupational Work Ethic Inventory in collecting the data for this research. Thanks to Dr. John Matthews, Dr. Gary Ubben, and Dr. Robert Maddox, who served on my committee, for their suggestions and support for this project.

A final word of thanks and appreciation goes to my parents, Justin and Mildred Hill, who through the years have modeled a strong work ethic and have encouraged me to do my best. It is the work ethic they imparted to me that has sustained me through this project.

ABSTRACT

The purpose of this study was to determine if there were significant differences in the work ethic of workers categorized by Standard Occupational Classification (SOC), level of education, age, gender, years of full-time work experience, or empowerment. Data was collected using the Occupational Work Ethic Inventory (OWEI). For those categories of workers where significant differences in work ethic were found, further analysis was done to determine how the groups differed for the four dimensions of the work ethic represented by the subscales of the OWEI. The four dimensions of the work ethic measured by the OWEI were *dependable*, *ambitious*, *considerate*, and *cooperative*.

The population for this study consisted of workers employed by public and private businesses and industries in Monroe County, Tennessee. From a list of 1,011 businesses and industries in Monroe County, 285 firms were randomly selected for purposes of this investigation. Participation by employees of each firm was requested by the researcher during a personal visit to each selected business and industry. Copies of the OWEI were also delivered and picked up in person to maximize cooperation. Employees from 158 industries and businesses participated in the study. A total of 1,840 instruments were distributed and 1,201 completed instruments were collected for an overall response rate of 65.3%.

This study was unique in its utilization of respondents from randomly selected workplaces. A review of previous studies of work ethic revealed many based on samples of convenience which did not adequately represent the full range of occupations. In addition, the use of aggregate occupational groupings consistent with guidelines from the Office of Federal Statistical Policy and Standards of the U.S. Department of Commerce provided a coherent framework for comparative use of the results.

A multivariate analysis of variance was used to analyze the data collected. Significant differences in work ethic were found for all groupings selected for the study, but further examination using a Fisher's Protected LSD Procedure was not sensitive enough to determine precise differences for all independent variables. The results of the study showed that workers in SOC aggregate group 1 (administrative, engineering, scientific, teaching, and related occupations, including creative artists) scored significantly higher than those in other occupational groups for *ambitious*. Workers in SOC aggregate group 1 (administrative, engineering, scientific, teaching, and related occupations, including creative artists) and group 2 (technical, clerical, sales, and related occupations) scored higher for *considerate* than group 4 (farming, forestry, fishing and hunting occupations), group 5 (precision production, craft, and repair occupations), and group 6 (operators, fabricators, and laborers) and higher for *cooperative* than group 3 (service occupations, including military occupations), group 4 (farming, forestry, fishing and hunting occupations), and group 6 (operators, fabricators, and laborers). Workers in SOC aggregate group 5 (precision production, craft, and repair occupations) scored higher for *cooperative* than group 4 (farming, forestry, fishing and hunting occupations). The Fisher's Protected LSD did not detect significant differences in mean scores for workers categorized by SOC aggregate group on *dependable*.

The mean subscale scores of workers grouped by level of education increased sequentially for *ambitious* with group 5 (some graduate work) scoring significantly higher than group 1 (less than a high school diploma), group 2 (high school degree or GED), and group 3 (two years of college or Associate's degree). Group 4 (a Bachelor's degree) scored significantly higher for *ambitious* than group 1 (less than a high school diploma) and group 2 (high school degree or GED), and group 2 (high school degree or GED)

scored higher than group 1 (less than a high school diploma). The Fisher's Protected LSD did not detect significant differences in mean scores for workers grouped by level of education on *dependable*, *considerate*, or *cooperative*.

The Fisher's Protected LSD did not detect significant differences in mean scores for workers grouped by age on any of the work ethic dimensions measured by OWEI subscales, but females scored significantly higher than males on all four of the work ethic dimensions measured by OWEI subscales.

Workers who had less than two years of full-time work experience or more than eight years of full-time work experience scored significantly higher than those who had from two to eight years of full-time work experience for *dependable* and *cooperative*. Workers who had more than eight years of full-time work experience scored significantly higher than those who had from two to eight years of full-time work experience for *ambitious*. Workers who had less than two years of full-time work experience scored significantly higher than those who had more than eight years of full-time work experience for *considerate* and those with more than eight years of full-time work experience scored significantly higher than those with from two to eight years of full-time work experience for *considerate*.

Workers who were empowered scored significantly higher than those who were not empowered for *ambitious*. Workers who were not empowered scored higher than those who were empowered for *considerate* and *cooperative*. The *F*-test did not detect significant differences in mean scores for workers categorized by empowerment on *dependable*.

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CHAPTER I

INTRODUCTION

This chapter provides an introduction to the problem and the theoretical constructs upon which this study is based, a problem statement, a purpose statement, research questions, null hypotheses, and a rationale for the study. Limitations for the study are also described and operational definitions of terms are given.

Introduction to the Problem

The last three decades of the twentieth century have been described as times of extensive personal and cultural change (Miller, 1986; Naisbitt, 1984; Naisbitt & Aburdene, 1990; Ormsby, 1986; Robertson, 1984; Toffler, 1980; Yankelovich, 1981; Yankelovich & Immerwahr, 1984). While advances in technology significantly altered people's lives, changes in occupations and the workplace were especially evident during this span of time. Just as the shift from an agrarian society to an industrial society precipitated great change in occupations during the eighteenth and nineteenth centuries, the transformation from an industrial society to an information society brought a period of rapid change with the approach of the year 2000.

Advances in technology were not the sole cause for the changes which transpired. Shifts in the demographic characteristics of workers also occurred. Dramatic increases in the number of women and minorities in the workforce during the 1960's through the 1980's resulted in a need to reexamine policies, practices, and values related to the workplace (Fisher, Schoenfeldt, & Shaw, 1990). In addition, the rising average age of workers and increased levels of education within the population were factors which

affected the characteristics of the workforce. What can be concluded from all of this is that who workers were, what workers did, and the cultural significance of work changed markedly in the last half of the 20th century.

One of the recurring themes found in the literature was that the work ethic was perceived to have declined (Bernstein, 1988; O'Toole, 1981, pp. 34-36). Particularly from the vantage of a generation of workers reaching retirement in the 1990's, a weaker work ethic appeared to be evident. These workers could remember the scarcity and sacrifice brought on by the Great Depression and World War II. Their careers were established during a time when "male breadwinners" worked hard at often unpleasant jobs to bring their families an increasingly higher standard of living--as measured by cars, clothing, appliances, and houses (Yankelovich & Immerwahr, 1984). The culture of the 1940's and 1950's supported hard work through a system of consumer values, the respect and support of the nuclear family, and the norms of society. Attitudes toward work were influenced by those among the workforce who had experienced the hard times of the Great Depression and who counted it as a privilege just to have a job (Yankelovich & Immerwahr, 1984, p. 62).

By contrast, in the 1990's this same generation of workers lived in a culture where many people no longer believed that effort invested in their jobs would be rewarded. Yankelovich and Immerwahr (1984, p. 62) found that public agreement with the statement, "hard work always pays off," declined from 58% in 1968 to 36% in 1984. They also reported deterioration of public perceptions about the role of men as "providers" for their families and the importance of rate of pay as a major criterion in selecting a job (1984, p. 62). In the culture of the 1990's, workers presumed that having a job was a

right, not a privilege, and that employers should hire them regardless of their skills and abilities (Sheehy, 1990).

The work ethic is a cultural norm that places a positive moral value on doing a good job and is based on a belief that work has intrinsic value for its own sake (Cherrington, 1980, p.19; Quinn, 1983, p. 89; Yankelovich & Immerwahr, 1984, p. 64). The argument that the work ethic in the United States was declining became popularized following the report of a task force of the Department of Health, Education, and Welfare entitled *Work in America* (1973). This study "contended that 'significant numbers of Americans are dissatisfied with the quality of their working lives. Dull, repetitive, seemingly meaningless tasks are causing discontent among workers at all occupational levels'" (Lipset, 1990, p. 63). During the decade and a half following that report, concern over declining productivity and work performance increased (Stanton, 1983). Some critics declared that the work ethic was "missing and presumed dead" (Miller, 1985, p. 92) and that trends toward automation in business and industry had decreased the significance of work ethic values. Sheehy (1990) reported that young workers, in particular, often participated in a type of gamesmanship characterized by "taking the system" or "milking the place dry."

The literature, however, was inconsistent in reporting a decline in the work ethic. Pierson (1989) reported a strong work ethic on the part of workers who had successful careers in sales. Harris and Trotter (1989, p. 33) described work as an intoxicant and reported a 40% reduction over the past 15 years in the amount of leisure time for the typical American worker--down from 26.6 hours per week to 16.6 hours per week. Lipset (1990, p. 63) stated that available facts did not support a decline in the work ethic. The rhetoric of the early 1990's included numerous statements regarding the commitment of

workers to their jobs and the improvement of work quality in American industries, as international competitiveness brought criticism from Japan and other countries.

To draw conclusions about the true status of the work ethic was difficult considering the inconsistencies in the literature. It was evident that the cultural flux ensuing the transition from the industrial age to the information age had made it difficult to determine whether this norm remained viable.

A theory explained by Yankelovich and Immerwahr (1984) provided a coherent framework to bring seemingly divergent data into a logical consistency. This theory held that the industrial age was characterized by "low-discretion" jobs in which workers had little control over their work. As the assembly line increased productivity by reducing worker discretion about how a job would be performed, it diminished the importance of individual values and attitudes. The importance of an individual's work ethic was minimized by a systematic simplification of the tasks a person was asked to do and a concentration of control and power in the hands of managers. In the information age, however, the same advancing technology which replaced many menial jobs, raised the level of worker discretion in most jobs. The "high-discretion" jobs of the 1990's shifted significant control into the hands of workers, and without a strong commitment to the work ethic, productivity and work performance faltered.

From the literature, therefore, it was concluded that the work ethic was a norm which has been caught up in changes in the nature of the work people do as well as in the cultural context of that work. The same cultural shifts which made it difficult to discern the status of the work ethic created a need to update some of the basic tenants of those sectors of our educational system directly concerned with preparation of people for work. Educational programs dealing with technological content have required frequent revisions

to keep instructional content current with rapid advances in technology (Ormsby, 1986). Adjustments in instruction related to the affective domain have also been needed (Cherrington, 1980; Sheehy 1990). Educators need to have a good understanding of work attitudes and other worker characteristics which contribute to successful employment (Petty & Campbell, 1988). Teachers, counselors, and curriculum writers, as they facilitate preparation of students for work, need to have up-to-date knowledge of worker characteristics which are conducive to job success.

Vocational education, the primary segment of the educational system which focuses on preparation of people for work, includes development of the affective domain in students. One of the principles of vocational education has been that it promotes a positive work ethic (Miller, 1985, pp. 91-94). Sheehy (1990, p. 36), lamenting the malaise of the work ethic in present day young people, recommended that businesses become actively involved with education, perhaps by sending representatives to present a realistic view to students of what will be expected of them in the workplace "in the way of performance, skills, abilities, ethics, attitude, appearance, and service." Miller and Coady (1989) described a program of "vocational ethics instruction" which utilized small group discussion and role playing to facilitate understanding of the work ethic in students. Gregson (1991) reported a study of 50 secondary trade and industrial instructors in which he identified the work attitudes and values being taught and the pedagogical techniques used.

It was evident that there was considerable agreement among vocational education educators and researchers that the work ethic should continue to be included in the vocational curriculum (Gregson, 1991, p. 334). To enable vocational and technical

educators to encourage the work ethic in their students, however, it was important to have accurate information about its role in the workplace of the 1990's.

Research providing baseline data on the work ethic in the workplace of the 1990's was not found. Previous studies targeted specific groups such as instructors and students in a particular field (Crosby & Petrosko, 1990), instructors, students, and practitioners in a particular field (Petty & Campbell, 1988), college students (Hall, 1990; Miller, 1980), and workers with varied demographic characteristics (Baldwin, 1984). No study was found which examined the work ethic of workers using the Standard Occupational Classification (SOC) established by the Federal Government's Office of Federal Statistical Policy and Standards for use in research related to occupations and work, and a widely used classification system for reporting employment statistics. Research into potential differences, based on the work ethic of a population which included all of the SOC's, was needed to provide accurate baseline data on the work ethic within the context of a workplace which included more high-discretion jobs than low-discretion jobs, disparate levels of worker education, workers of all ages, almost as many females as males, a diverse range of experience on the job, and workers with a diametric sense of empowerment.

Problem Statement

Considerable evidence of shifts in the level of work ethic and concern about the continued existence of the work ethic as a cultural norm was available upon examination of recent literature (Bernstein, 1988; Bullock, 1986; Conforti, 1989; Fraser 1987; Giallourakis, 1989; Lipset, 1990; Mullin, 1988; Samuelson, 1990; Sheehy, 1990). Much of the research had utilized samples of convenience and no systematic examination of the

work ethic included comparisons based on workers grouped by SOC, education, age, gender, work experience, and empowerment.

An investigation of the work ethic as determined by SOC, education, age, gender, work experience, and empowerment was needed to provide vocational and technical education instructors with an accurate description of the workplace students should be prepared for and to provide accurate baseline data for use by vocational and technical educators and career counselors for use in advising students regarding the non-technical job skills needed for specific occupations. Baseline information on the work ethic was also expected to be useful to personnel directors and other persons responsible for placing workers in positions across the spectrum of SOC jobs.

Purpose of Study

The purpose of this study was to provide baseline data on the level of the work ethic, using the Occupational Work Ethic Inventory (OWEI), with workers from a random sample of public and private businesses and industries in Monroe County, Tennessee, whose occupations were distributed among the six standardized aggregate SOC groups. Data was analyzed to determine if there were differences in the level of the work ethic of persons employed within the six aggregate SOC groups, persons with differing levels of education, persons of differing ages, males and females, persons with differing amounts of full-time work experience, and persons who were empowered as a result of their occupation or business. If differences were found, further tests were performed to discover how the groups differed on each of four dimensions of the work ethic measured by the OWEI subscales.

Research Questions

The following research questions were formulated to guide the gathering and analysis of data in this study:

1. Is there a difference in work ethic among aggregate groupings of the Standard Occupational Classifications?
2. Does the work ethic differ among workers categorized by level of education?
3. Does the work ethic differ among workers categorized by age?
4. Does the work ethic differ among workers categorized by gender?
5. Does the work ethic differ among workers categorized by years of full-time work experience?
6. Does the work ethic differ among workers categorized by empowerment at their occupation or business?

Null Hypotheses

Using data collected from a sample of workers, whose occupations were distributed among the six standardized aggregate SOC groups, selected using a random sample of businesses and industries located in Monroe County, Tennessee, the following null hypotheses were tested at the .05 level of significance:

Ho_1: There will be no significant difference in the work ethic, as measured by the OWEI, among aggregate groupings of the Standard Occupational Classifications.

Ho_2: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by level of education.

Ho_3: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by age.

Ho_4: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by gender.

Ho_5: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by years of full-time work experience.

Ho_6: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by empowerment in their occupation or business.

Rationale

Vocational and technical education has been defined as education provided for the purpose of preparing people for a vocation. It has been offered as part of the program of public education to improve students' preparedness for entry into specific employment or to enhance the job proficiency of students who are already employed. In either case, the extent to which students subscribe to the work ethic enhances their ability to succeed within an organization, and is therefore of concern to vocational and technical education professionals.

One of the important tasks of professional educators, as they endeavor to work with students, is to encourage acceptance of cultural norms which will maximize students' chances for success in the workplace. Students come to vocational education programs with belief systems which are not always compatible with the work ethic. The educator is then faced with the goal of trying to bolster those elements of a student's belief system

which are conducive to good work habits and discouraging those characteristics which would detract from a future worker's job performance. To whatever extent these efforts are important, research to determine what characteristics should be fostered in students is worthwhile.

Considerable research has been done into what employee work values cause them to be content with a job, thereby increasing the likelihood of success. Research has also been done on the qualities employers seek in their employees. One of the distinctions of the present study is an effort to identify points at which work ethic is the same and where it is different between workers in different categories of occupations. With advances in technology and the advent of "the information age," shifts may have occurred in the dimensions of the work ethic needed for various categories of occupations. Automation of mundane and repetitive tasks in manufacturing and industry has greatly reduced the number of workers with assembly line type jobs.

A theory espoused by Yankelovich and Immerwahr (1984) stated that "low-discretion," non-technical jobs minimize the importance of the work ethic while "high-discretion," technical and professional jobs require a strong work ethic. If this theory is true, data collected from a random sample of workers spanning the full range of SOC's should indicate a significantly higher level of work ethic for workers in the top two classifications as compared to those in the bottom four classifications. If workers in different occupations have differing profiles of work ethic beliefs, awareness of these patterns would assist educators in informing students of work ethic dimensions typically associated with occupations the student might be seeking to prepare for.

Trends toward an aging adult population and increased educational opportunities for older students were reported during the 1980's (Baldridge, Kemerer, & Green, 1982;

Bowen, 1984; Brazziel, W. F., 1987; Miller, 1986; Perry, 1989). As a result, vocational and technical educators have encountered increased numbers of older workers enrolled in classes. One of the components of this study was to examine differences in the work ethic typical of workers in five age categories, ranging from *19 or under* to *over 55*. Information about the work ethic of workers who developed their belief systems during different periods of time would benefit educators in their understanding of students of diverse ages, and enable guidance in occupational choices and decisions.

Parallel trends to that of more older students in classes included larger numbers of females preparing for traditionally male jobs, workers with varying levels of education returning to school for retraining, and persons with different levels of full-time work experience finding their way into the classroom. Participants in this study included these groups of workers and the results of the research will assist vocational and technical educators in understanding the work ethic typical of workers with varied demographic characteristics who are seeking vocational and technical education to enhance their employability.

The data compiled in this study will also contribute to the body of knowledge based on the Standard Occupational Classifications. This classification system, developed by the Office of Federal Statistical Policy and Standards of the U.S. Department of Commerce, was specifically designed to provide a systematic and consistent means of categorizing occupation-related data. In the introduction to the 1980 *Standard Occupational Classification Manual*, researchers were encouraged to use the system for collecting occupational data, planning occupational education and training programs, planning occupational research and analysis, and conducting other forms of statistical research related to occupations. The aggregate SOC groupings used in this study were

those recommended in the 1980 manual to provide for standardization of such abbreviated groups.

Limitations

The following limitations should be considered regarding the results of this study:

1. The characteristics of work ethic examined in the study were limited to those included in the OWEI.
2. The results of this study were limited by the respondents' understanding of the items on the OWEI and their responses to those items.
3. The dimensions of the work ethic for this study were limited to those measured by the four OWEI subscales.
4. The results of this study are only applicable to workers employed in businesses, industries, and government entities in Monroe County, Tennessee.

Definitions of Terms

As operationally defined for purposes of this research project, the following terminology was utilized in this study:

Agrarian society. The culture and society that existed during that period of time when most occupations engaged in by people were related to the production of food and food products (approximately 6000 B.C. until 1700 A.D.).

Dimensions of the work ethic. Four composite characteristics of a worker, based on the four subscales of the Occupational Work Ethic Inventory (OWEI).

Empowerment. Power, control, or authority wielded by a person in the workplace as a result of ownership or position.

Occupation. That activity which comprises a persons primary source of livelihood or remuneration.

Occupational Work Ethic Inventory (OWEI). A 50 item questionnaire designed to measure a worker's work ethic. This instrument, developed by Dr. Gregory C. Petty, included four subscales to measure the work ethic dimensions of *dependable*, *ambitious*, *considerate*, and *cooperative.*

Industrial society or *industrial age.* The culture and society of a time when fewer and fewer people engaged in occupations related to the production of food and food products and more and more worked in occupations related to manufacturing and industrial production (approximately 1700 until 1955).

Information activity. Of or pertaining to the work of producing, processing, and/or distributing information goods and services (Porat, 1977).

Information society or *information age.* The culture and society of a time when fewer and fewer people worked in occupations related to manufacturing and industrial production and more and more worked in occupations related to the work of producing, processing, and/or distributing information goods and services (approximately 1955 until the present).

Standard Occupational Classifications. A system of classifying various occupations, established by the Office of Federal Statistical Policy and Standards of the U.S. Department of Commerce, for use in cross-referencing and collecting statistical data related to occupations.

Technology. The application of knowledge, particularly science and mathematics; tools; and skills to solve practical problems and extend human capabilities.

Vocational and technical education. That education provided primarily for the purpose of preparation for a vocation. Vocational education refers to programs provided at the secondary level, and technical education refers to programs at the post-secondary level. Specific curricular areas of particular note for this study include Trades and Industry, Technology Education, Industrial Arts, Industrial Education, Industrial Technology, Engineering Technology, Technology Teacher Education, and other such curricula related to industry and technology.

Work. Physical or mental exertion required for the production of goods and services and which usually results in fatigue.

Work ethic. A cultural norm that places a positive moral value on doing a good job and is based on a belief that work has intrinsic value for its own sake (Cherrington, 1980, p.19; Yankelovich & Immerwahr, 1984, p. 64).

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

This chapter contains a review of literature and research related to the work ethic. The historical and theoretical context for the development of the work ethic in Western European and American culture is provided along with a description of previous studies of the work ethic.

Historical Context of the Work Ethic

From a historical perspective, the cultural norm placing a positive moral value on doing a good job because work has intrinsic value for its own sake was a relatively recent development (Lipset, 1990). Work, for much of the ancient history of the human race, has been hard and degrading. Working hard--in the absence of compulsion--was not the norm for Hebrew, classical, or medieval cultures (Rose, 1985). It was not until the Protestant Reformation that physical labor became culturally acceptable for all persons, even the wealthy.

Attitudes Toward Work During the Classical Period

Sometime after the dawn of creation, man was placed in the Garden of Eden "to work it and take care of it" (NIV, 1973, Genesis 2:15). What was likely an ideal work situation was disrupted when sin entered the world and humans were ejected from the Garden. Genesis 3:19 described the human plight from that time on. "By the sweat of your brow you will eat your food until you return to the ground, since from it you were taken; for dust you are and to dust you will return" (NIV, 1973). Rose stated that the Hebrew belief system viewed work as a "curse devised by God explicitly to punish the

disobedience and ingratitude of Adam and Eve" (1985, p. 28). Numerous scriptures from the Old Testament in fact supported work, not from the stance that there was any joy in it, but from the premise that it was necessary to prevent poverty and destitution (NIV; 1973; Proverbs 10:14, Proverbs 13:4, Proverbs 14:23, Proverbs 20:13, Ecclesiastes 9:10).

The Greeks, like the Hebrews, also regarded work as a curse (Maywood, 1982, p. 8). According to Tilgher (1930, p. 3), the Greek word for work was *ponos*, taken from the Latin *poena*, which meant sorrow. Manual labor was for slaves. The cultural norms allowed free men to pursue warfare, large-scale commerce, and the arts, especially architecture or sculpture (Rose, 1985, pp. 27-28).

Mental labor was also considered to be work and was denounced by the Greeks. The mechanical arts were deplored because they required a person to use practical thinking, "brutalizing the mind till it was unfit for thinking of truth" (Tilgher, 1930, p. 4). Skilled crafts were accepted and recognized as having some social value, but were not regarded as much better than work appropriate for slaves. Hard work, whether due to economic need or under the orders of a master, was disdained.

It was recognized that work was necessary for the satisfaction of material needs, but philosophers such as Plato and Aristotle made it clear that the purpose for which the majority of men labored was "in order that the minority, the élite, might engage in pure exercises of the mind--art, philosophy, and politics" (Tilgher, 1930, p. 5). Plato recognized the notion of a division of labor, separating them first into categories of rich and poor, and then into categories by different kinds of work, and he argued that such an arrangement could only be avoided by abolition of private property (Anthony, 1977, p. 15-16). Aristotle supported the ownership of private property and wealth. He viewed

work as a corrupt waste of time that would make a citizen's pursuit of virtue more difficult (Anthony, 1977, p. 17).

Braude (1975, p. 6) described the Greek belief that a person's prudence, morality, and wisdom was directly proportional to the amount of leisure time that person had. A person who worked, when there was no need to do so, would run the risk of obliterating the distinction between slave and master. Leadership, in the Greek state and culture, was based on the work a person *didn't* have to do, and any person who broke this cultural norm was acting to subvert the state itself.

The Romans adopted much of their belief system from the culture of the Greeks and they also held manual labor in low regard (Lipset, 1990, p. 62). The Romans were industrious, however, and demonstrated competence in organization, administration, building, and warfare. Through the empire that they established, the Roman culture was spread through much of the civilized world during the period from c500 BC until c117 AD (*Webster Encyclopedia*, 1985, p. 784). The Roman empire spanned most of Europe, the Middle East, Egypt, and North Africa and greatly influenced the Western culture in which the theoretical constructs underlying this study were developed.

Slavery had been an integral part of the ancient world prior to the Roman empire, but the employment of slaves was much more widely utilized by the Romans than by the Greeks before them (Anthony, 1977, p. 20). Early on in the Roman system, moderate numbers of slaves were held and they were treated relatively well. As the size of landholdings grew, however, thousands of slaves were required for large-scale grain production on some estates, and their treatment grew worse. Slaves came to be viewed as cattle, with no rights as human beings and with little hope of ever being freed. In fact, in

some instances cattle received greater care than slaves, since cattle were not as capable of caring for themselves as were slaves (Anthony, 1977, p. 21).

For the Romans, work was to be done by slaves, and only two occupations were suitable for a free man--agriculture and big business (Maywood, 1982, p. 8). A goal of these endeavors, as defined by the Roman culture, was to achieve an "honorable retirement into rural peace as a country gentleman" (Tilgher, 1930, p. 8). Any pursuit of handicrafts or the hiring out of a person's arms was considered to be vulgar, dishonoring, and beneath the dignity of a Roman citizen.

Philosophically, both the Greeks and the Romans viewed the work that slaves performed and the wealth that free men possessed as a means to achieve the supreme ideal of life--man's independence of external things, self-sufficiency, and satisfaction with one's self (Tilgher, 1930, p. 9). Although work was something that would degrade virtue, wealth was not directly related to virtue except in the matter of how it was used. The view of Antisthenes that wealth and virtue were incompatible and the view of the Stoics that wealth should be pursued for the purpose of generosity and social good represented extremes of philosophical thought. The most accepted view was that pursuit of gain to meet normal needs was appropriate.

From the perspective of a contemporary culture, respect for workers upon whom the economic structure of a nation and a society rested would have been logical for the Greeks and the Romans, but no such respect was evident. Even free men, who were not privileged to be wealthy and were obliged to work along side slaves, were not treated with any sense of gratitude, but were held in contempt. The cultural norms of the classical era regarding work were in stark contrast to the work ethic of the latter day.

Attitudes Toward Work During the Medieval Period

The fall of the Roman empire marked the beginning of a period generally known as the Middle Ages. During this time, from c400 AD until c1400 AD, Christian thought dominated the culture of Europe (Braude, 1975, p. 6). Woven into the Christian conceptions about work, however, were Hebrew, Greek, and Roman themes. Work was still perceived as punishment by God for man's original sin, but to this purely negative view was added the positive aspect of earnings which prevented one from being reliant on the charity of others for the physical needs of life (Tilgher, 1930, p. 29). Wealth was recognized as an opportunity to share with those who might be less fortunate and work which produced wealth therefore became acceptable.

Early Christian thought placed an emphasis on the shortness of time until the second coming of Christ and the end of the world. Any attachment to physical things of the world or striving to accumulate excessive wealth was frowned upon. As time passed and the world did not end, the Christian church began to turn its attention to social structure and the organization of the believers on earth. Monasteries were formed where monks performed the religious and intellectual work of the church (reading, copying manuscripts, etc.), but lay people tended to the manual labor needed to supply the needs of the community. People who were wealthy were expected to meet their own needs, but to give the excess of their riches to charity. Handicraft, farming, and small scale commerce were acceptable for people of moderate means, but receiving interest for money loaned, charging more than a "just" price, and big business were not acceptable (Tilgher, 1930, p. 33-35).

As was the case for the Greeks and the Romans, social status within the medieval culture was related to the work a person did. Aristotelianism was also evident in the

system of divine law taught by the Catholic church during this time (Anthony, 1977, p. 21). A hierarchy of professions and trades was developed by St. Thomas Aquinas as part of his encyclopedic consideration of all things human and divine (Tilgher, 1930, p. 39). Agriculture was ranked first, followed by the handicrafts and then commerce. These were considered to be the work of the world, however, and the work of the church was in a higher category (Rose, 1985, p. 28). The ideal occupation was the monastic life of prayer and contemplation of God (Braude, 1975, p. 6; Tilgher, 1930, p. 41-42). Whether as a cleric or in some worldly occupation, each person embarked on a particular work course as a result of the calling of God, and it was the duty of a worker to remain in his class, passing on his family work from father to son.

In the culture of the medieval period, work still held no intrinsic value. The function of work was to meet the physical needs of one's family and community, and to avoid idleness which would lead to sin (Tilgher, 1930, p. 29, 35). Work was a part of the economic structure of human society which, like all other things, was ordered by God.

Protestantism and the Protestant Ethic

With the Reformation, a period of religious and political upheaval in western Europe during the sixteenth century, came a new perspective on work. Two key religious leaders who influenced the development of western culture during this period were Martin Luther and John Calvin. Luther was an Augustinian friar who became discontent with the Catholic church and was a leader within the Protestant movement. He believed that people could serve God through their work, that the professions were useful, that work was the universal base of society and the cause of differing social classes, and that a person should work diligently in their own occupation and should not try to change from the profession to which he was born. To do so would be to go against God's laws since

God assigned each person to his own place in the social hierarchy (Lipset, 1990, p. 62; Tilgher, 1930, p. 47-48).

The major point at which Luther differed from the medieval concept of work was regarding the superiority of one form of work over another. Luther regarded the monastic and contemplative life, held up as the ideal during the middle ages, as an egotistic and unaffectionate exercise on the part of the monks, and he accused them of evading their duty to their neighbors (Tilgher, 1930, p. 47). For Luther, a person's vocation was equated as his calling, but all calling's were of equal spiritual dignity. This tenant was significant because it affirmed manual labor.

Luther still did not pave the way for a profit-oriented economic system because he disapproved of commerce as an occupation (Lipset, 1990, p. 62; Tilgher, 1930, p. 48). From his perspective, commerce did not involve any real work. Luther also believed that each person should earn an income which would meet his basic needs, but to accumulate or horde wealth was sinful.

According to Weber (1904, 1905), it was John Calvin who introduced the theological doctrines which combined with those of Martin Luther to form a significant new attitude toward work. Calvin was a French theologian whose concept of predestination was revolutionary. Central to Calvinist belief was the Elect, those persons chosen by God to inherit eternal life. All other people were damned and nothing could change that since God was unchanging. While it was impossible to know for certain whether a person was one of the Elect, one could have a sense of it based on his own personal encounters with God. Outwardly the only evidence was in the person's daily life and deeds, and success in one's worldly endeavors was a sign of possible inclusion as one of the Elect. A person who was indifferent and displayed idleness was most certainly one

of the damned, but a person who was active, austere, and hard-working gave evidence to himself and to others that he was one of God's chosen ones (Tilgher, 1930, p. 53-61).

Calvin taught that all men must work, even the rich, because to work was the will of God. It was the duty of men to serve as God's instruments here on earth, to reshape the world in the fashion of the Kingdom of God, and to become a part of the continuing process of His creation (Braude, 1975, p. 6-8). Men were not to lust after wealth, possessions, or easy living, but were to reinvest the profits of their labor into financing further ventures. Earnings were thus to be reinvested over and over again, *ad infinitum*, or to the end of time (Lipset, 1990, p. 62). Using profits to help others rise from a lessor level of subsistence violated God's will since persons could only demonstrate that they were among the Elect through their own labor (Lipset, 1990, p. 63).

Selection of an occupation and pursuing it to achieve the greatest profit possible was considered by Calvinists to be a religious duty. Not only condoning, but encouraging the pursuit of unlimited profit was a radical departure from the Christian beliefs of the middle ages. In addition, unlike Luther, Calvin considered it appropriate to seek an occupation which would provide the greatest earnings possible. If that meant abandoning the family trade or profession, the change was not only allowed, but it was considered to be one's religious duty (Tilgher, 1930, p. 61).

The norms regarding work which developed out of the Protestant Reformation, based on the combined theological teachings of Luther and Calvin, encouraged work in a chosen occupation with an attitude of service to God, viewed work as a calling and avoided placing greater spiritual dignity on one job than another, approved of working diligently to achieve maximum profits, required reinvestment of profits back into one's

business, allowed a person to change from the craft or profession of his father, and associated success in one's work with the likelihood of being one of God's Elect.

Two Perspectives of the Protestant Ethic

The attitudes toward work which became a part of the culture during the sixteenth century, and the economic value system which they nurtured, represented a significant change from medieval and classical ways of thinking about work (Anthony, 1977, p. 39). Max Weber, the German economic sociologist, coined a term for the new beliefs about work calling it the "Protestant ethic." The key elements of the Protestant ethic were diligence, punctuality, deferment of gratification, and primacy of the work domain (Rose, 1985, p. 29). Two distinct perspectives were evident in the literature with regard to the development of the Protestant ethic.

One perspective was the materialist viewpoint which stated that the belief system, called the Protestant ethic, grew out of changes in the economic structure and the need for values to support new ways of behavior. Anthony (1977, p. 39) attributes this view to Karl Marx. The other perspective, delineated by Max Weber (1904,1905), viewed changes in the economic structure as an outgrowth of shifts in theological beliefs. Regardless of the viewpoint, it is evident that a rapid expansion in commerce and the rise of industrialism coincided with the Protestant Reformation (Rose, 1985, p. 29).

Bernstein (1988, p. 8), in an argument supporting the materialist viewpoint, enumerated three sixteenth century trends which probably contributed to the support by Luther and Calvin of diligence: (1) a rapid population increase of Germany and Western Europe, (2) inflation, and (3) a high unemployment rate. Probably the most serious of these was the rapid expansion in population. Between 1500 and 1600, the population of Germany increased by 25% and the British population increased by 40% (Bernstein, 1988,

p. 9). In the cities, the increases were even greater as people from rural areas were displaced by enclosure of large tracts of land for sheep farming. In addition, the import of large quantities of silver and gold from Mexico and Peru contributed to inflation in general price levels of between 300% and 400%, and even higher inflation in food prices (Bernstein, 1988, p. 9). Along with the growth in population and the inflation problems, unemployment was estimated at 20% in some cities (Bernstein, 1988, p. 10). People without jobs became commonplace on the streets of cities, begging and struggling to survive.

European cities acted to alleviate the problems of unemployment and begging on the streets by passing laws which prohibited begging. The general perception of the time was that work was available for those who wanted to work, and that beggars and vagrants were just lazy. The reality was that the movement of people into the cities far exceeded the capacity of the urban areas to provide jobs. The theological premise that work was a necessary penance for original sin caused increased prejudice toward those without work. Bernstein (1988) suggested that a fundamental misunderstanding of the economic realities facing the poor contributed to the theological development of the Protestant ethic.

From a marxist view, what actually occurred was the development of a religious base of support for a new industrial system which required workers who would accept long hours and poor working conditions (Anthony, 1977; Berenstein, 1988). Berenstein did not accuse the theological leaders of the Protestant Reformation of deliberately constructing a belief system which would support the new economic order, but proposed that they did misconstrue the realities of the poor and the unemployed of their day.

From the perspective of Max Weber (1904, 1905), the theological beliefs came first and change in the economic system resulted. Motivation of persons to work hard and to

reinvest profits in new business ventures was perceived as an outcome primarily of Calvinism. Weber further concluded that countries with belief systems which were predominantly Protestant prospered more under capitalism than did those which were predominantly Catholic (Rose, 1985, p. 30).

The Work Ethic and the Rise of Capitalism

During the medieval period, the feudal system became the dominant economic structure in Europe. This was a social, economic, and political system under which landowners provided governance and protection to those who lived and worked on their property. Centralization of government, the growth of trade, and the establishment of economically powerful towns, during the fifteenth century, provided alternative choices for subsistence, and the feudal system died out (*Webster Encyclopedia*, 1985). One of the factors that made the feudal system work was the predominant religious belief that it was sinful for people to seek work other than within the God ordained occupations fathers passed on to their sons. With the Protestant Reformation, and the spread of a theology which ordained the divine dignity of *all* occupations as well as the right of *choosing* one's work, the underpinnings of an emerging capitalist economic system were established.

Anthony (1977) described the significance of an ideology advocating regular systematic work as essential to the transformation from the feudal system to the modern society. In the emerging capitalist system, work was good. It satisfied the economic interests of an increasing number of small businessmen and it became a social duty--a norm. Hard work brought respect and contributed to the social order and well being of the community. The dignity with which society viewed work brought dignity for workers as well, and contempt for those who were idle or lazy.

The Protestant ethic, which gave "moral sanction to profit making through hard work, organization, and rational calculation" (Yankelovich, 1981, p. 247), spread throughout Europe and to America through the Protestant sects. In particular, the English Puritans, the French Huguenots, and the Swiss and Dutch Reformed subscribed to Calvinist theology that was especially conducive to productivity and capital growth (Lipset, 1990, p. 63). As time passed, attitudes and beliefs which supported hard work became secularized, and were woven into the norms of Western culture (Lipset, 1991; Rodgers, 1978; Rose, 1985). Weber (1904, 1905) especially emphasized the popular writings of Benjamin Franklin as an example of how, by the eighteenth century, diligence in work, scrupulous use of time, and deferment of pleasure had become a part of the popular philosophy of work in the Western world.

The Work Ethic in America

Although the Protestant ethic became a significant factor in shaping the culture and society of Europe after the sixteenth century, its impact did not eliminate the social hierarchy which gave status to those whose wealth allowed exemption from toil and made gentility synonymous with leisure (Rodgers, 1978). The early adventurers who first found America were searching, not for a place to work and build a new land, but for a new Eden where abundance and riches would allow them to follow Aristotle's instruction that leisure was the only life fitting for a free man. The New England Puritans, the Pennsylvania Quakers, and others of the Protestant sects, who eventually settled in America, however, came with no hopes or illusions of a life of ease.

The early settlers referred to America as a wilderness, in part because they sought the spiritual growth associated with coming through the wilderness in the Bible (Rodgers, 1978, p. 4). From their viewpoint, the moral life was one of hard work and determination,

and they approached the task of building a new world in the wilderness as an opportunity to prove their own moral worth. What resulted was a land preoccupied with toil.

When significant numbers of Europeans began to visit the new world in the early 1800's, they were amazed with the extent of the transformation (Rodgers, 1978, p. 5). Visitors to the northern states were particularly impressed by the industrious pace. They often complained about the lack of opportunities for amusement, and they were perplexed by the lack of a social strata dedicated to a life of leisure.

Work in preindustrial America was not incessant, however. The work of agriculture was seasonal, hectic during planting and harvesting but more relaxed during the winter months. Even in workshops and stores, the pace was not constant. Changing demands due to the seasons, varied availability of materials, and poor transportation and communication contributed to interruptions in the steadiness of work. The work ethic of this era did not demand the ceaseless regularity which came with the age of machines, but supported sincere dedication to accomplish those tasks a person might have before them. The work ethic "was not a certain rate of business but a way of thinking" (Rodgers, 1978, p. 19).

The Work Ethic and the Industrial Revolution

As work in America was being dramatically affected by the industrial revolution in the mid-nineteenth century, the work ethic had become secularized in a number of ways. The idea of work as a *calling* had been replaced by the concept of public usefulness. Economists warned of the poverty and decay that would befall the country if people failed to work hard, and moralists stressed the social duty of each person to be productive (Rodgers, 1978). Schools taught, along with the alphabet and the spelling book, that idleness was a disgrace. The work ethic also provided a sociological as well as an

ideological explanation for the origins of social hierarchy through the corollary that effort expended in work would be rewarded (Gilbert, 1977).

Some elements of the work ethic, however, did not bode well with the industrial age. One of the central themes of the work ethic was that an individual could be the master of his own fate through hard work. Within the context of the craft and agricultural society this was true. A person could advance his position in life through manual labor and the economic benefits it would produce. Manual labor, however, began to be replaced by machine manufacture and intensive division of labor came with the industrial age. As a result, individual control over the quantity and methods of personal production began to be removed (Gilbert, 1977, p. 3).

The impact of industrialization and the speed with which it spread during the second half of the nineteenth century was notable. Rodgers (1978, p. 19) reported that as late as 1850 most American manufacturing was still being done in homes and workshops. This pattern was not confined to rural areas, but was found in cities also where all varieties of craftsmen plied their trades. Some division of labor was utilized, but most work was performed using time-honored hand methods. A certain measure of independence and creativity could be taken for granted in the workplace. No one directly supervised home workers or farmers, and in the small shops and mills, supervision was mostly unstructured. The cotton textile industry of New England was the major exception.

Rodgers (1978, p. 20) described the founding, in the early 1820's, of Lowell, Massachusetts as the real beginning of the industrial age in America. By the end of the decade, nineteen textile mills were in operation in the city, and 5,000 workers were employed in the mills. During the years that followed, factories were built in other towns as competition in the industry grew. These cotton mills were distinguished from other

factories of the day by their size, the discipline demanded of their workers, and the paternalistic regulations imposed on employees (Rodgers, 1978, p. 20). Gradually the patterns of employment and management initiated in the cotton mills spread to other industries, and during the later half of the nineteenth century, the home and workshop trades were essentially replaced by the mass production of factories.

In the factories, skill and craftsmanship were replaced by discipline and anonymity. A host of carefully preserved hand trades--tailoring, barrel making, glass blowing, felt-hat making, pottery making, and shoe making--disappeared as they were replaced by new inventions and specialization of labor (Rodgers, 1978, p. 25). Although new skills were needed in some factories, the trend was toward a semiskilled labor force, typically operating one machine to perform one small piece of a manufacturing process. The sense of control over one's destiny was missing in the new workplace, and the emptiness and lack of intellectual stimulation in work threatened the work ethic (Gilbert, 1977, p. 6). In the secularized attitudes which comprised the work ethic up until that time, a central component was the promise of psychological reward for efforts in one's work, but the factory system did little to support a sense of purpose or self-fulfillment for those who were on the assembly lines.

The factory system also threatened the promise of economic reward--another key premise of the work ethic. The output of products manufactured by factories was so great that by the 1880's industrial capacity exceeded that which the economy could absorb (Rodgers, 1978, pp. 27-28). Under the system of home and workshop industries, production had been a virtue, and excess goods were not a problem. Now that factories could produce more than the nation could use, hard work and production no longer always provided assurance of prosperity.

In the first half of the twentieth century, the industrial system continued to dominate work in America and much of the rest of the world. Technology continued to advance, but innovation tended to be focused on those areas of manufacture which had not yet been mastered by machines. Little was done to change the routine tasks of feeding materials into automated equipment or other forms of semiskilled labor which were more economically done by low wage workers (Rodgers, 1978).

The Work Ethic and Industrial Management

Management of industries became more systematic and structured as increased competition forced factory owners to hold costs down. The model of management which developed, the *traditional model*, was characterized by a very authoritarian style which did not acknowledge the work ethic. To the contrary, Daft and Steers (1986, p. 93) described this model as holding "that the average worker was basically lazy and was motivated almost entirely by money." Workers were assumed to neither desire nor be capable of autonomous or self-directed work. As a result, the *scientific management* concept was developed, predicated on specialization and division of jobs into simple tasks. Scientific management was claimed to increase worker production and result in increased pay. It was therefore seen as beneficial to workers, as well as to the company, since monetary gain was viewed as the primary motivating factor for both.

As use of scientific management became more widespread in the early 1900's, it became apparent that factors other than pay were significant to worker motivation. Some workers were self-starters and didn't respond well to close supervision and others became distrustful of management when pay increases failed to keep pace with improved productivity (Daft and Steers, 1986, p. 94). Although unacknowledged in management practice, these were indicators of continued viability of the work ethic in employees.

By the end of World War II scientific management was considered inadequate and outdated to deal with the needs of industry (Jaggi, 1988, p. 446). At this point the behaviorist school of thought emerged to provide alternative theories for guiding the management of workers. Contrary to the principles of scientific management, the behaviorists argued that workers were not intrinsically lazy. They were adaptive. If the environment failed to provide a challenge, workers became lazy, but if appropriate opportunities were provided, workers would become creative and motivated.

In response to the new theories, managers turned their attention to finding various ways to make jobs more fulfilling for workers. *Human relations* became an important issue and efforts were made to make people feel useful and important at work. Company newspapers, employee awards, and company social events were among the tools used by management to enhance the job environment (Daft and Steers, 1986, p. 168), but the basic nature of the workplace remained unchanged. The adversarial relationship between employee and employer persisted.

In the late 1950's *job enrichment* theories began to provide the basis for fundamental changes in employer-employee relationships. Herzberg, Mausner, and Snyderman (1959) identified factors such as achievement, recognition, responsibility, advancement, and personal growth which, when provided as an intrinsic component of a job, tended to motivate workers to perform better. Factors such as salary, company policies, supervisory style, working conditions, and relations with fellow workers tended to impair worker performance if inadequately provided for, but did not particularly improve worker motivation when present.

In 1960, when the concepts of theory "X" and theory "Y" were introduced by McGregor, the basis for a management style conducive to achieving job enrichment for

workers was provided (Jaggi, 1988, p. 446). Theory "X" referred to the authoritarian management style characteristic of scientific management but theory "Y" supported a *participatory* style of management.

Jaggi (1988, p. 446) defined participatory management as "a cooperative process in which management and workers work together to accomplish a common goal." Unlike authoritarian styles of management, which provided top-down, directive control over workers assumed to be unmotivated and in need of guidance, participatory management asserted that worker involvement in decisionmaking provided valuable input and enhanced employee satisfaction and morale. Yankelovich and Immerwahr (1984) described participatory management as a system which would open the way for the work ethic to be a powerful resource in the workplace. They stated, however, that the persistence of the traditional model in American management discouraged workers, even though many wanted to work hard and do good work for its own sake.

The Work Ethic in the Information Age

Just as the people of the mid-nineteenth century encountered tremendous cultural and social change with the dawn of the industrial age, the people of the late twentieth century experienced tremendous cultural and social shifts with the advent of the information age. Toffler (1980) likened these times of change to waves washing over the culture, bringing with it changes in norms and expectations, as well as uncertainty about the future.

Since 1956 (Naisbitt, 1984, p. 2) white-collar workers in technical, managerial, and clerical positions have outnumbered workers in blue-collar jobs. Porat (1977), in a study for the U.S. Department of Commerce, examined over 400 occupations in 201 industries. He determined that in 1967, the economic contribution of jobs primarily dealing with

production of information, as compared with goods-producing jobs, accounted for 46% of the GNP and more than 53% of the income earned. Some jobs in manufacturing and industry also became more technical and necessitated a higher level of thinking on the job as machines were interfaced with computers and control systems became more complex.

Yankelovich and Immerwahr (1984) contrasted the work required of most people during the industrial age with the work of the information age. Industrial age jobs were typically low-discretion, required little decisionmaking, and were analyzed and broken into simple tasks which required very little thinking or judgement on the part of workers. Information age jobs, in contrast, were high-discretion and required considerable thinking and decisionmaking on the part of workers (Miller, 1986, p. 63). In the workplace characterized by high-discretion, the work ethic became a much more important construct than it was during the manipulative era of machines. Maccoby (1988) emphasized the importance, in this setting, of giving employees authority to make decisions which would meet the needs of customers as well as support the goals of their own companies.

As high-discretion, information age jobs provided opportunities for greater self-expression by workers, people began to find more self-fulfillment in their work. Yankelovich and Harmon (1988, p. 238-239) reported that a significant transformation in the meaning of the work ethic resulted. Throughout history, work had been associated with pain, sacrifice, and drudgery. The previously mentioned Greek word for work, *ponos*, also meant "pain." For the Hebrews as well as for the medieval Christians, the unpleasantness of work was associated with Divine punishment for man's sin. The Protestant ethic maintained that work was a sacrifice that demonstrated moral worthiness, and it stressed the importance of postponed gratification. With the information age, however, came work which was perceived as good and rewarding in itself. Most workers

were satisfied with their work and wanted to be successful in it (Wattenberg, 1984, pp. 303-305).

According the Yankelovich and Harmon (1988), the work ethic of the 1980's stressed skill, challenge, autonomy, recognition, and the quality of work produced (p. 239). Autonomy was identified as a particularly important factor in worker satisfaction with their jobs (p. 240). Motivation to work involved trust, caring, meaning, self-knowledge, challenge, opportunity for personal growth, and dignity (Maccoby, 1988, p. 35; Walton, 1974, p. 229). Workers were seeking control over their work and a sense of empowerment and many information age jobs were conducive to meeting these needs. As a result, the work ethic was not abandoned during the information age, but was transformed to a state of relevance not found in most industrial age occupations.

Even though the information age was well established by the 1980's and 1990's, not all jobs were high-discretion. Some occupations continued to consist primarily of manual labor and allowed minimal opportunity for worker involvement in decisionmaking. In addition, authoritarian forms of management continued to be utilized and the potential of the work ethic was wasted. Statistics reported by Yankelovich and Immerwahr (1984) indicated that by the early 1980's, 43% of the workforce perceived their jobs as high-discretion and 21% of the workforce perceived their jobs as low-discretion (p. 63). The high-discretion workers were likely to be better educated, to be in white-collar or service jobs, and to have experienced technological changes in their work. The low-discretion workers were more likely to be union members, to be in blue-collar jobs, and to be working in positions characterized by dirt, noise, and pollution.

The Work Ethic and Empowerment

As a result of the rapid changes associated with the Information Age workplace, codified and systematized knowledge not limited to a specific organizational context was important during the 1980's and 1990's (Maccoby, 1983). Higher levels of education became necessary along with skills at solving problems, managing people, and applying the latest information to the tasks at hand. With increased education, higher expectations and aspirations for careers emerged.

Young people, in particular, entering the workforce with high school and college educations, expected opportunities for advancement (Maccoby, 1983; Sheehy, 1990). They anticipated that talent and hard work would be the basis for success rather than chance or luck. In essence, information age workers expected application of a positive work ethic to result in rewards, and they sometimes became impatient if progress was not experienced in a relatively short period of time (Sheehy, 1990).

For workers who acquired positions of supervision or ownership, motivation to accomplish personal goals through success in the organization enhanced the expression of work ethic attributes. Barnard (1938) identified the process of persons in an organization coordinating their activities to attain common goals as important to the well-being of the organization. One of the essential elements for this process was the creation and allocation of satisfaction among individuals (Barnard, 1938).

Further explanation for organizational behavior was provided by a model developed by Getzels and Guba (Getzels, 1968). The major elements of the model were institution, role, and expectation which formed the normative dimension of activity in a social system; and individual, personality, and need-disposition which constituted the personal dimension of activity in a social system (Getzels, 1968). To the extent that a

person's work ethic beliefs influenced personality and need-disposition, the observed behavior of that individual within the context of the workplace would be affected. Particularly in the high-discretion workplace of the information age, role and expectations found within the workplace would tend to be reinforced by a strong work ethic.

Other Changes in the Workplace

Besides changes in the jobs people performed, changes in the levels of education required for those jobs, and changes in the extent to which people were given control or empowerment in their work, the workforce of the 1980's and 1990's reflected a larger number of women and a reduced number of workers older than 65. Changes in gender and age of workers had a significant impact on the culture of the later twentieth century and influenced the pattern of work related norms such as the work ethic.

Rodgers (1978, pp. 182-209) told of the growing restlessness of women in the late 1800's and the early 1900's. As the economic center of society was moved out of the home or workshop and into the factory, women were left behind. Some women became operatives in textile mills, office workers, or salesclerks, and increased numbers were employed as teachers (Sawhill, 1974, p. 90). Women comprised a relatively small percentage of the workforce, however, and their wages were about half that of men. Those who labored at housework and child-rearing received no pay at all and often were afforded little respect or appreciation for what they did.

It was not until World War II and the years following that women began to enter the workplace in great numbers. In 1900 women made up 18% of the nation's workforce, but by 1947 they comprised 28% of the workforce (Levitan & Johnson, 1983, p. 5). By 1980 42.5% of the nation's workers were women (Stencel, 1980, p. 48). In 1990 the number of women workers was approaching 50% of the workforce, and Naisbitt and

Aburdene (1990) reported that women held 39.3% of all executive, administrative, and management jobs. Due to the increase in the number of women working outside the home, their attitudes about work have become a significant influence on the work ethic in the contemporary workplace.

Comparisons of attitudes of men and women in the workplace have shown that men tended to be more concerned with earning a good income, having freedom from close supervision, having leadership opportunities, and having a job that enhanced their social status. Women were inclined to seek job characteristics which allowed them to help others, to be original and creative, to progress steadily in their work, and to work with people rather than things (Lyson, 1984, p. 140). Women, more than men, also tended to seek personal benefits such as enjoyment, pride, fulfillment, and personal challenge (Bridges, 1989, p. 206).

Another trend which shaped the workforce of the later twentieth century was an increase in the number of older workers who retired from their jobs. Statistics reported by Quinn (1983, pp. 87-89) showed that in 1950, persons 65 years old and older comprised 45.8% of the workforce as compared to 18.4% in 1981. Part of this trend can be explained by the continued shift away from agriculture and self-employment--occupations which traditionally had high older worker participation rates. In addition, increased provision for retirement income, as a result of pensions or other retirement plans, has removed the financial burden which necessitated work for many older adults in the past.

Deans (1972, pp. 8-9) noted a trend on the part of younger workers to view work differently than older workers. He found less acceptance, among young people entering the workforce, of the concept that hard work was a virtue and a duty and less upward striving by young workers compared to that of their parents and grandparents.

Yankelovich (1981) reported findings which contradicted the view that younger workers were less committed to the work ethic, but he did find a decline in belief that hard work would pay off (p. 39). This was a significant shift because pay and "getting ahead" were the primary incentives management used to encourage productivity during the industrial age. If economic reward had lost its ability to motivate workers, then productivity could be expected to decline, in the absence of some other reason for working hard (Yankelovich, 1981, pp. 42-44). Within this context, the work ethic, and a management style which unfettered it, was a significant factor for maintaining and increasing performance.

Influences Shaping the Contemporary Work Ethic

The work ethic is a cultural norm that places a positive moral value on doing a good job and is based on a belief that work has intrinsic value for its own sake (Cherrington, 1980, p.19; Quinn, 1983, p. 89; Yankelovich & Immerwahr, 1984, p. 64). Like other cultural norms, a person's adherence to or belief in the work ethic is principally influenced by socialization experiences during childhood and adolescence. Through interaction with family, peers, and significant adults, a person "learns to place a value on work behavior as others approach him in situations demanding increasing responsibility for productivity" (Braude, 1975, p. 134). Based on praise or blame and affection or anger, a child appraises his or her performance in household chores, or later in part-time jobs, but this appraisal is based on the perspective of others. As a child matures, these attitudes toward work become internalized, and work performance is less dependent on the reactions of others.

Children are also influenced by the attitudes of others toward work (Braude, 1975, p. 135). If a parent demonstrates a dislike for a job or a fear of unemployment, children

will tend to assimilate these attitudes. Parents who demonstrate a strong work ethic tend to impart a strong work ethic to their children.

Another significant factor shaping the work attitudes of people is the socialization which occurs in the workplace. As a person enters the workplace, the perceptions and reactions of others tend to confirm or contradict the work attitudes shaped in childhood (Braude, 1975, pp. 135-136). The occupational culture, especially the influence of an "inner fraternity" of colleagues, has a significant impact on the attitudes toward work and the work ethic which form part of each person's belief system.

Among the mechanisms provided by society to transfer the culture to young people is the public school. One of the functions of schools is to foster student understanding of cultural norms, and in some cases to recognize the merits of accepting them. Vocational education, for example, has as a stated goal that it will promote the work ethic (Gregson, 1991, p. 334; Miller, 1985, pp. 91-94). Reubens (1974, p. 328) listed "inculcation of good work attitudes" as one of the highest priorities for high school education. In the absence of early socialization which supports good work attitudes, schools should not be expected to completely transform a young person's work ethic orientation, but enlightening students about what the work ethic is, and why it is important to success in the contemporary workplace, should be a component of secondary education.

Work Ethic Research

Review of the literature related to work ethic revealed a varied array of terms used in research related to the topic. Work values, work attitudes, Protestant ethic, Protestant work ethic, contemporary work values, and affective work competencies were terms found sometimes to refer, in part or in toto, to the concept of work ethic (Buros,

1978). In addition, scales, surveys, and inventories were associated with each of these terms along with reports of what they were designed to measure.

Work Ethic Instruments

Considerable work has been done using Super's Work Values Inventory (1969) which was designed to assess the importance of 15 identified satisfactions that seventh-grade through adult men and women seek to fulfill through work. The 15 values identified by Super were creativity, management, achievement, surroundings, supervisory relations, way of life, security, associates, esthetics, prestige, independence, variety, economic return, altruism, and intellectual stimulation (Gable, 1972). As reflected by the values listed, Super's work and related research are from the perspective of worker satisfaction with employment rather than specifically focusing on the work ethic. As cited by Breme and Cockriel (1975), "Super (1970) defines work-values as being work-goals--those attributes or qualities we consider to be intrinsically desirable and which people 'seek in the activities in which they engage.'" Their research did show a difference between work values, as measured by the Work Values Inventory, and work interests, as measured by the Strong Vocational Interest Blank, but the extent to which worker needs were being met was the focal point rather than the work ethic.

Wayne (1989) developed and tested an instrument to measure adherence or nonadherence to both the Protestant ethic and to what he called contemporary work values. The instrument identified the values that most affected a person's orientation toward work including not only those which could be considered part of the Protestant ethic set, but additional values described in the literature as new or emerging. These contemporary values dealt less with the physical aspects of work, less with obedience and authority, and included the level of desire for leisure time. The instrument included 119

statements, 35 of which pertained to contemporary work values, and it utilized a four-point Likert scale for each item.

In testing his instrument, Wayne used what appeared to be a sample of convenience consisting of 688 subjects (1989, p. 796). Included were 230 undergraduate university students, 61 graduate university students, 97 business college students, and 300 workers from miscellaneous occupations. Multivariate statistical analyses were performed to determine potential differences in responses based on gender, income, and age. No difference was found in Protestant ethic values based on gender, but women scored significantly higher than men for contemporary work values. By income, persons earning between $50,000 and $59,999 and those earning less than $10,000 adhered the least to contemporary work values and those earning between $15,000 and $19,999 adhered the most to contemporary work values. On the Protestant scale, persons earning less than $15,000 adhered more than respondents in other income categories. For respondents grouped by age, those under 25 and those from 31 to 35 scored lower than other age categories for the contemporary work values scale. No significant difference was found for age on the Protestant ethic scale.

Based on his results, Wayne (1989) concluded that the instrument developed was reliable and that work values, other than those included as part of the Protestant ethic, were apparent in the population he worked with. He also determined that Protestant ethic values and contemporary work values overlapped and were not mutually exclusive in the belief system of most people.

Furnham (1990) performed a content, a correlational, and a factor analysis of seven self-report instruments designed to measure the Protestant work ethic. The scales he used were (1) the Protestant Ethic, 1961, by Goldstein and Eichhorn, (2) the

Protestant Work Ethic, 1971, by Mirels and Garrett, (3) the Pro-Protestant Ethic Scale, 1969, by Blood, (4) the Spirit of Capitalism Scale, 1976, by Hammond and Williams, (5) the Leisure Ethic and Work Ethic, 1978, by Buchholz, (6) the Eclectic Protestant Ethic, 1982, by Ray, and (7) the Australian Work Ethic, 1984, by Ho (Furnham, 1990, p. 385).

Based on data collected from 1,021 subjects and all seven instruments, a VARIMAX orthogonal rotation factor analysis identified five interpretable factors which accounted for over a third of the total variance between items (Furnham, 1990, p. 391). These factors were (1) belief in hard work, (2) the role of leisure, (3) religious and moral beliefs, (4) a stress on independence from others, and (5) asceticism (Furnham, 1990, p. 394).

Furnham concluded that while Protestant work ethic beliefs were multi-dimensional, existing scales to measure them were essentially uni-dimensional. Collectively, the scales he used were able to measure the five factors he identified as significant, but individually none was found to be sufficiently multi-dimensional. He recommended that a scale which would measure attitudes and beliefs about asceticism, independence, time, leisure, and work be developed (1990, p. 396).

The study by Furnham also provided evidence that the Protestant work ethic still existed, that it was made up of various related facets, not always in close harmony, and that differences in results of previous research was due to emphasis on one or more of these different facets (1990, p. 397). At the level of the individual respondent, Furnham noted that Protestant work ethic beliefs could be "systematically related to demographic variables like age, sex, social class, or education" (1990, p. 397).

Furnham and Koritsas (1990) examined the relationship between the seven Protestant ethic scales, used in the study by Furnham described above, and six personality types specified using Holland's 1973 measure of vocational preference called *The Self-Directed Search*. The six personality types identified by the Holland instrument were (1) realistic, (2) investigative, (3) artistic, (4) social, (5) enterprising, and (6) conventional.

Data was collected from 108 respondents in the Furnham and Koritsas study (1990, p. 47). The sample included both employed people and students and appeared to be a sample of convenience. The results of the study indicated a positive correlation between the Protestant work ethic scales, which were themselves all correlated, and the realistic, artistic, enterprising, and conventional types on the vocational preference scale. The researchers had hypothesized that correlation would be found with the realistic, enterprising, and conventional types, but the correlation with the artistic type was inconsistent with their study of previous research (1990, p. 52). Social type and investigative types did not correlate with the Protestant work ethic scales.

Waters and Zakrajsek (1991) performed a study to determine the construct validity of four Protestant work ethic instruments. They examined (1) The Survey of Work Values, 1971, by Wollack, Goodale, Wijting, and Smith, (2) the Protestant Ethic Scale, 1971, by Mirels and Garrett, (3) the Pro-Protestant Ethic Scale, 1969, by Blood, and (4) the Non-Protestant Ethic Scale, 1969, by Blood. Coefficient alpha reliability estimates were computed for each scale and subscale, and correlation coefficients were calculated. A multivariate analysis of variance was used to compare the results for the first three instruments with those obtained in a similar study, by Waters, Batlis, and Waters in 1975, which used the same three instruments.

The respondents for the study by Waters and Zakrajsek (1991) consisted of 152 college students enrolled in introductory psychology courses. The results indicated similar reliability estimates to those from the study conducted 15 years earlier, but mean scores on the scales were significantly higher for the later study. Since college major, urban/rural background, and other biographical factors were not controlled in the 1991 study, it was not determined whether the increase in mean scores was due to a shift toward greater endorsement of Protestant ethic attitudes or due to uncontrolled differences between the sample groups.

The Occupational Work Ethic Inventory selected for use in the present study was developed based on previous research by Petty. Unlike other instruments, which included aspects of personality type, personal preferences, and measures of work satisfaction, the Occupational Work Ethic Inventory focused on measurement of work ethic characteristics directly related to a person's work. The alpha for the instrument, based on a 1990 pilot study, was determined to be .95 (Petty, 1991). While the mean score for the instrument assessed the level of work ethic for a respondent, subscales for the instrument, established using content analysis, measured four dimensions of the work ethic. These dimensions were *dependable*, *ambitious*, *considerate*, and *cooperative*.

Work Ethic Research Studies

Several studies which explored work attitudes and values, efforts to shape work values, assessment of work values, and the significance of work values to successful employment in a vocation, dealt with special populations. Pacto (1971) examined work attitudes among multiply handicapped deaf adults within a rehabilitation setting, Alfano (1972) analyzed attitudes of the unemployed toward work, Zaccaria, Jacobs, Creaser, and Klehr (1972) studied the work values of college-bound students, and Petty and Campbell

(1988) reported research on work attitudes of teachers and practitioners in health occupations.

Miller (1974) reported research on vocational maturity and its relationship to work values. Vocational maturity had been previously related to "goal-directedness, general adjustment, intelligence, scholastic achievement, persistence in college, success in vocational training, and job success" (Miller, 1974, p. 367). Miller used the attitude scale on Crites' *Vocational Development Inventory* and Super's *Work Values Inventory* with a sample of 62 community college students in a remedial reading course.

The results of Miller's study indicated a positive relationship between vocational maturity and work values for women but not for men. Miller hypothesized that vocational maturity would be positively associated with intrinsic work values and negatively associated with extrinsic work values, but negligible evidence was generated to support this hypothesis.

A study by Manz and Grothe (1991) examined a *Quality of Work Life* survey of 4,996 employees in a large, American-based computer manufacturing firm. A comparison of four age categories was used to determine if participants in a 21-40 year focal group differed significantly from those in 41-50 year, 51-60 year, and 61 year and older groups. The 21-40 year age group was chosen to represent *baby-boomers*, as the study sought to determine if they were having difficulty finding satisfaction in their jobs.

Results of the study showed that the 21-40 year age group scored lower than other age groups for 73% of the possible paired comparisons for 31 quality of life factors. This pattern was still evident when statistical techniques were used to partial out the effects of employee tenure, hierarchical level, and salary range (Manz and Grothe, 1991, p. 67).

In general, the findings of the Manz and Grothe study confirmed changing attitudes and expectations toward work on the part of workers in the 21-40 age category (1991, p. 78). Reports in the literature of shifts in *baby-boomer* attitudes toward lower respect for authority, and a greater desire for self-fulfillment, self-expression, and individual growth were supported by this study.

Harpaz (1989), in an international study, used the so-called *lottery question* to address concerns regarding the decline in the work ethic. He used a one question instrument asking "Would you stop or continue working if there were no economic reasons for carrying on working?" (1989, p. 147). The design of this study was based on research using this question performed by Morse and Weiss in 1955.

The participants in Harpaz's study consisted of 8,763 workers from seven different countries. Included were 450 workers from Belgium, 840 workers from Great Britain, 1,278 workers from Germany, 973 workers from Israel, 3,226 workers from Japan, 996 workers from The Netherlands, and 1,000 workers from the United States (Harpaz, 1989, p. 149).

The results of the study showed that from 68.8% (Great Britain) to 93.4% (Japan) of the total labor force in these countries would continue working, even if their jobs were not an economic necessity. Comparisons with studies conducted during the 1970's showed that the figures for the United States (88.1%) and for The Netherlands (86.3%) were higher than had been reported a decade earlier, perhaps indicating reversal of a trend for the United States that started back in the 1960's.

In another international study, Elizur, Borg, Hunt, and Beck (1991) did a cross cultural comparison of work values using a sample of 2,283 respondents from eight countries. Data was collected from 108 workers from China, 345 workers from Germany,

515 workers from Holland, 540 workers from Hungary, 378 workers from Israel, 95 workers from Korea, 148 workers from Taiwan, and 154 workers form the United States (Elizur *et al.*, 1991, p. 26).

The purpose of the study by Elizur *et al.* (1991) was to identify the basic concept structure of work values. Findings indicated that the framework of concepts regarding work values identified from the literature was relatively consistent when compared across cultures. A limited range of work values were different for different cultures, but these were considered to be minor variations as compared to the broader scope of all 24 work values examined in the study (1991, p. 36).

Chusmir and Koberg (1988) did a study of the relationship of specific religions and degree of religious beliefs to various job-related attitudes and values, including the work ethic. Underlying the work ethic portion of their study were the tenants of Max Weber (1904, 1905), that Protestant beliefs encouraged hard work, self discipline, and deferral of rewards, and McClelland's (1961) theory that Protestant beliefs and values resulted in child-raising practices which lead to children possessing high levels of need for achievement (n Ach). McClelland noted that high levels of n Ach inculcated in children often led to adult careers involving entrepreneurial leadership in growing companies. Although Chusmire and Kolberg acknowledged studies showing that characteristics of the Protestant ethic--early training for independence, high need achievement, positive attitudes toward work, occupational success, and preference for self-employment--were often endorsed by religious groups other than Protestants, they identified several studies which supported the influence of religious affiliation on attitudes toward work (1988, pp. 252-253).

The Chusmir and Koberg study (1988) utilized Blood's Pro-Protestant and Non-Protestant Ethic Scales, along with instruments measuring factors related to other aspects of their study, to gather data from 222 working adults. The method of selecting the sample appeared to be one of convenience, with access to participants gained through a group of working adults who were taking a graduate management class (p. 254).

Results of the study showed no relation between overall work commitment and religious affiliation, but scores on the Protestant ethic scale were higher for Protestants than for non-Protestants (Catholics and affiliates of Jewish and Eastern religions). A significant positive relationship between Protestant ethic and both age and organizational tenure was also found (Chusmir and Koberg, 1988, p. 257).

Shapira and Griffith (1990) performed a study to compare the work values of engineers to those of managers, production workers, and clerical workers. They hypothesized that the work values of engineers would be more like those of managers than like those of either production or clerical workers. They also expected to find the relationship between work values and job performance to be more closely associated for engineers than for production or clerical workers (Shapiro & Griffith, 1990, pp. 281-283). In particular, because work values were related to the Protestant ethic, values such as pride, job involvement, and achievement were expected to be positively related to quality of performance, and negatively related to absenteeism and turnover.

The subjects for this study were 432 employees of two electronics manufacturing firms located in Israel. Data was collected using the *Survey of Work Values* (Wollack, Goodale, Wijting, and Smith, 1971), an instrument which included six subscales: (1) pride in work, (2) job involvement, (3) activity preference, (4) attitude toward earnings, (5) social status, and (6) upward striving.

Results of the Shapira and Griffith study (1990) indicated that the work values of engineers were similar to those of managers and that both of these groups significantly differed from production and clerical workers for the subscales of *pride in work*, *activity preference*, and *attitude toward earnings*. Analysis of the data also indicated a strong relationship between the work values of engineers and managers and their job performance, and a weaker relationship between work values and job performance for production and clerical workers. *Pride in work*, *activity preference*, *upward striving*, and *job involvement* were positively related to job performance for engineers and managers. *Social status* and *upward striving* were the major factors associated with job performance for production and clerical workers. The relationship between work values and absenteeism or turnover was not statistically significant.

In a study by Randall and Cote (1991), a multivariate model of work commitment, comprised of work group attachment, Protestant work ethic, job involvement, career salience, and organizational commitment, was tested. Blood's Pro-Protestant and Non-Protestant Ethic Scales were used to collect data on the work ethic from a sample of 545 randomly selected staff personnel from a large northwestern university.

Randall and Cote (1991) found the various bivariate correlations between five work commitment constructs to be supported by their data except for the relationship between work group attachment and organizational commitment. A direct relationship was found between Protestant ethic and organizational commitment. One of the conclusions was that persons committed to the value of work were likely to develop a strong loyalty to the firms they work for.

In a study of the impact of the work ethic and task labels on task preference, Tang (1989) determined that workers with low work ethic scores committed more time to

performing a task labeled as being difficult than those with high work ethic scores. This effect was not evident on tasks labeled easy, whether work ethic scores were high or low, but was observed for low work ethic individuals when they were challenged in a social context.

Tang's study was based on data collected from 49 managerial and clerical workers at a major manufacturing firm's world headquarters (1989, pp. 432-433). The Protestant work ethic scale of Mirels and Garrett, 1971, was utilized to determine adherence to the work ethic. Tang (1989, pp. 435-436) suggested that the results were due to arousal, within a social context, of a fear of failure and a possible need to impress others. He also stated that persons scoring low on Protestant ethic had an external locus of control, and were therefore more readily influenced by the perceived expectations of others.

Petty (1978) conducted a study of *Affective Work Competencies of Workers, Supervisors, and Vocational Educators*. Using the Affective Work Competency Inventory (AWCI), data was collected from 25 industries and 11 vocational schools. Responses were categorized by vocational service area for a total of 120 vocational educators, 567 supervisors, and 798 workers.

The results of the study by Petty (1978) showed that the attitudes toward work differed between workers, supervisors, and vocational educators. Supervisors were more ambitious, cooperative, considerate, efficient, and dedicated than workers. Vocational educators were more ambitious, cooperative, and efficient than workers. Differences in several work competencies were also found for the six vocational service areas examined. This study, and others which followed, led to development of the OWEI by Petty (1991).

Baldwin (1984), in her study of *Differences in Work Values Perceptions of Diverse Demographic Groups*, utilized the Ohio Work Values Inventory to examine potential

differences in work attitudes based on age, level of education, college major, race, sex, pay method, skill level and eligibility for overtime pay. Her population included two hospitals, two universities, and one industry. Data was collected, using a sample of convenience, from 471 respondents. Baldwin (1984) concluded that none of the eight demographic variables was related to the work attitudes she measured.

Miller (1980) reported a study of *Differences in the Protestant Work Ethic Values of Selected Freshman and Senior Students at a Land Grant University*. He also utilized the Ohio Work Values Inventory as he examined Protestant work ethic values of freshman and senior university students categorized not only by class, but also by age, sex, major, prior work experience, and occupational interest. Miller's sample consisted of 1,147 respondents (1980, p. 30).

The results of Miller's (1980) research showed statistically significant differences in 85 of 228 Protestant work ethic values examined. Differences were found between males and females, between freshmen and seniors, among various majors and age groups, and among students with varying amounts of work experience and differing occupational interests, but which group in each comparison scored higher varied depending on the particular value being tested. Occupational interest and sex were determined to be the two variables accounting for the largest variance in Protestant work ethic values.

Hall (1990, 1991), in a study of work attitudes of traditional and non-traditional community college students, compared work attitudes of community college students categorized by gender, work experience, and age. Her findings indicated significant statistical differences in work attitudes based on all three of the categories examined. Female students scored higher than male students, students with three years or more work experience scored higher than students with less work experience, and students who were

20 years old or older scored higher than younger students on the Work Attitudes Inventory used to collect the data for her study.

A comparison of the results of the Baldwin's research with the findings of the Miller and Hall studies indicated that demographic variables had less impact on work attitudes for populations of working adults than for populations which consisted entirely of college students, but inadequate information was available to verify this observation or to speculate on the cause. The need for additional research on populations within the work-force was evident.

Most of the studies, related to the work ethic, examined in this review of literature supported the continued viability of the work ethic as a cultural norm. Other evidence to support the continued influence of the work ethic was provided by Harris and Trotter (1989). They indicated that American adults worked, on average, 46.8 hours per week in 1989 compared to 40.6 hours per week in 1973 (p. 33). Workers in professional occupations put even more hours in, averaging 52.2 hours per week, and owners of small businesses worked an average of 57.3 hours per week.

Harris and Trotter (1989) also pointed out changes in the motives for working. In the 1950's, the predominant reason given for working was to make money, but in the 1980's, workers were driven by gratification in the job itself. Work provided not only material rewards, but opportunities for self-expression. Jobs of the 1980's provided empowerment for workers as control over their work increased, compared to the previous decades.

From a broad perspective, the literature appeared to send mixed signals regarding the status of the work ethic. On one side were reports of a declining work ethic, such as those by Miller (1985) and Sheehy (1990), and on the other, reports of increased evidence

of the work ethic, such as those by Harris and Trotter (1989) and Posner (1991). One of the reasons for these apparent contradictions in the literature may have been the discrepancy between changes in the *official work week* as compared to the changes in the *actual work week.* Posner (1991) reported that in 1910, the official work week was 50 hours, whereas in 1991 it was 38 hours. He went on to report evidence, however, that the actual amount of time spent working by many workers in 1991 approached 85 hours per week. This was Posner's (1991, p. 26) estimate for professional executive classes, and it included 55 hours in the office, 15 hours working at home, and 15 hours attending work related social activities.

Workers in the last two decades of the twentieth century came to the workplace with greater expectations for nonmaterial intrinsic rewards (Maccoby, 1983; Martin & Shenan, 1989). Higher levels of education, in particular, resulted in increased desire for interesting work, autonomy, and skill utilization. Although Martin and Shenan (1989) did not find a reduction in job satisfaction due to varying levels of education when expectations for work were unfulfilled, Yankelovich (1984, p. 61) noted a general increase in education levels for American workers and corresponding expectations to have greater control over their work.

The work ethic was identified as a factor that employers were seeking in job applicants in a study by Stevenson and Bowers (1986). Based on interviews with persons involved in hiring for 60 different companies throughout Ohio, positive work attitude was rated as essential by 40 of the 60 respondents and was rated as advantageous by the other 20. Skills of the job, basic mathematics, writing, speaking, reading, computer literacy, people skills, appearance, and personal life skills were also rated, but only *reading,* selected as essential for 43 of the 60 firms, was rated as a more highly valued quality.

When a question was framed to ask what was the number one worker quality needed, 32% selected skills on the job and 30% selected positive work attitude. The next highest rating for this item was people skills at 10%.

Of the 60 companies who participated in the study by Stevenson and Bowers (1986), none of them answered yes for positive work attitudes on an item labelled *company will train*. Some large corporations have taken action, however, to provide their employees with company training to encourage appropriate work attitudes. One example is Citicorp, which developed a board and card game called *The Ethics Game* to encourage the work ethic of its 90,000 employees (Ireland, 1991).

In summary, a review of research and literature related to the work ethic revealed numerous studies on various aspects of the work ethic, often using samples of convenience, utilizing a variety of instruments. Studies were found which indicated potential differences in the work ethic of workers who differed by occupation, education, age, gender, experience on the job, and sense of control or empowerment. No studies were found which included a systematic examination of a full range of occupational classifications and levels of education, age, gender, work experience, and empowerment.

CHAPTER III

METHODS AND PROCEDURES

This chapter provides a description of the population and the sample selected for this study, the research design, the instrument used, independent and dependent variables, procedures followed in collecting data, and the methods of analyzing the data.

Population and Sample

The population selected for this study consisted of workers employed in public and private businesses and industries located in Monroe County, Tennessee. Data obtained from the office of the County Executive indicated that the total labor force in the county consisted of 16,730 persons. A table for determining sample size for a given population (NEA Research Division, 1960) was used to determine that a sample of 375 was needed to allow inferences to this population. The most effective access to Monroe County workers was through their places of work, so a list of businesses and industries in Monroe County was compiled. The 1991 *Monroe County Industrial Directory*; the 1991-92 South Central Bell telephone directory for Madisonville, Sweetwater, Tellico Plains, and Vonore, Tennessee; the Southeast Directory Company 1991-92 *Foothills Area Telephone Book*; and the *1990 Directory of Tennessee Manufacturers* were used in generating this list. A total of 1011 businesses and industries were identified and entered into a computer database along with their locations and telephone numbers.

A major component of this study was the collection of data from respondents whose jobs spanned a representative cross-section of occupations. Based on the sample size table (NEA Research Division, 1960), a random list of 285 workplaces was needed to

represent the 1,011 businesses and industries. A BASIC computer program (see Appendix A) was written to generate a list of unique random numbers to use in selecting the list of workplaces. Beginning at the top of an alphabetical listing of the businesses and industries, a random number from the computer printout was assigned to each firm. This number became a unique identification number for that business or industry. The numbers were added to the records in the database and the records were sorted using the random identification number as the key field. A list of the 1,011 businesses and industries arranged in random order was the result and participation by employees of each of the first 285 firms on the list was requested by the researcher during a personal visit to each selected business and industry. The sample for the study consisted of the employees of 158 industries and businesses where agreements were reached for participation in the study.

The sample size for the study exceeded the number of respondents needed to represent the population. Given the practical constraints of seeking the voluntary assistance of business and industry personnel in providing the data needed, however, this approach was necessary to assure adequate representation of each aggregate SOC.

Research Design

The research design used in this study was ex-post facto with a multivariate analysis of variance used to analyze data collected using the survey method. Instruments were delivered to randomly selected businesses and industries, completed by every available employee at each site, and then picked up when completed. The sampling unit was the individual employee who, along with his or her co-workers, comprised the workforce of each of the randomly selected firms participating in the study.

Research Instrument

The Occupational Work Ethic Inventory (OWEI) utilized in this study was developed in 1990 by Dr. Gregory C. Petty (see Appendix B). Building on extensive prior research related to work ethic, the value of work, and affective work competencies, Petty (1991) developed the OWEI to provide a concise, but accurate measure of worker adherence to the work ethic.

Prior to developing the OWEI, Petty conducted a search of literature to identify terms which had been used to characterize work ethic attitudes and characteristics in the workplace. An extensive list of descriptors was compiled and reviewed by a panel of experts. Preparation of the OWEI was based on this list and the input received from those who reviewed it.

Previous research has demonstrated that the work ethic is multi-dimensional (Furnham, 1990; Wayne, 1989). To provide discrimination between the dimensions of the work ethic measured by the OWEI, subscales were developed using a content analysis and another panel of experts. Descriptors selected for use on the instrument were independently categorized and recategorized by participants on the panel until consensus was reached. The resulting subscales were labeled *dependable*, *ambitious*, *considerate*, and *cooperative* (see Appendix C).

In selecting an instrument for this study, the OWEI was found to have the following advantages over other instruments for assessing the work ethic:

1. The OWEI was designed to be concise, easy to understand, and quick to fill out. Since the respondents in this study would receive minimal instructions and would participate on a voluntary basis, the OWEI was better suited for

use in this study than longer, more complex instruments which might have been chosen.

2. The OWEI achieved a correlation alpha of .95 in a pilot test of 152 persons conducted during the fall of 1990 to check internal validity. This indicated that the instrument was highly consistent internally.
3. The background information provided by the OWEI was compatible with the needs of this study. The occupational categories on the inventory matched those of the SOC aggregate groupings used in this study, and the level of education, age, gender, work experience, and empowerment on the job were all included in the information requested by the form.
4. The four subscales of the OWEI provided needed discrimination of work ethic qualities. Use of these subscales allowed additional interpretation of data to be performed should null hypotheses be rejected.

Independent Variables

The independent variables for this study were Standard Occupational Classification (SOC) aggregate group, as defined for research purposes by the U.S. Office of Federal Statistical Policy and Standards; education; age; gender; years of full-time work experience; and empowerment. *SOC aggregate group* had six levels: (1) administrative, engineering, scientific, teaching, and related occupations, including creative artists; (2) technical, clerical, sales, and related occupations; (3) service occupations, including military occupations, including military occupations; (4) farming, forestry, fishing, and hunting occupations; (5) precision production, craft, and repair; and (6) operators, fabricators, and laborers. *Education* had five levels: (1) less than high school diploma, (2) high school

degree or GED, (3) two years of college or Associate's degree, (4) a Bachelor's degree, and (5) some Graduate work. *Age* had five levels: (1) nineteen or under, (2) twenty to twenty-six, (3) twenty-seven to thirty-five, (4) thirty-six to fifty-five, and (5) over fifty-five. *Gender* had two levels: (1) female and (2) male. *Years of full-time work experience* had three levels: (1) less than two years, (2) two to eight years, and (3) more than eight years. *Empowerment* had two levels: (1) empowered and (2) not empowered.

Dependent Variables

The dependent variables for this study consisted of the four dimensions of occupational work ethic represented by the subscales of the OWEI. These variables were *dependable*, *ambitious*, *considerate*, and *cooperative*.

Data Collection Procedures

To provide a written explanation of the research project for those persons who were a part of the sample, a letter of explanation was prepared and duplicated (see Appendix D). In addition, the researcher made appointments with the Monroe County Executive and the President/CEO of the Monroe County Chamber of Commerce. In individual meetings with each of these county leaders, the research to be undertaken was explained and letters of introduction were requested and received. Photocopies of these letters were prepared (see Appendix E and Appendix F) and also made available to research participants.

Since the 285 randomly selected businesses and industries, where data was to be collected, were scattered throughout the four towns in the county, the list of businesses and industries was sorted by city. It was found that of the firms on the list, 97 (34.0%)

were in Madisonville, 124 (43.5%) were in Sweetwater, 45 (15.8%) were in Tellico Plains, and 19 (6.7%) were in Vonore.

Beginning with the businesses and industries located in Madisonville, the researcher drove to each of the firms, introduced himself, and asked to speak with the manager, personnel director, or owner. Upon meeting that person, an explanation of the project was provided and participation was requested. The precise wording used in the initial introduction varied slightly depending on the type of firm, but Appendix G shows the explanation and request for assistance used for each work place.

If the person agreed to the request, copies of the letter explaining the project and the letters of introduction were presented along with a copy of the OWEI. Instructions for completing the instrument were explained and it was specifically mentioned that individual responses would not be identified by person or by firm. In the absence of a refusal at this point, the researcher asked how many instruments should be left and when he should call back about picking up completed instruments. The necessary materials were then provided, along with a 9" x 12" manila envelope in which to place completed questionnaires. After the researcher had left, he recorded the date indicated for picking up completed instruments, the number of available respondents, and the name or description of the person who had said the firm would participate in the research project.

Each business or industry where questionnaires had been left was contacted on the date when materials were supposed to be ready to be picked up. The statement made over the telephone during this conversation is provided in Appendix H. If the researcher was told that the instruments were ready, they were picked up later that day. If they were not ready, the researcher asked when he should check back again about them. The date

provided was recorded and another call was made at that time, using the same telephone message as before.

When completed instruments were collected from businesses and industries, the number of OWEI's received was recorded and the random number for that firm was written on the corner of each questionnaire. This facilitated an accurate tabulation of the response rate.

Data Analysis

Using the data collected, a frequency count of respondents for each level of the independent variable levels was tabulated to provide a descriptive analysis of the data.

Partial correlation coefficients for the four OWEI subscales were calculated to provide assurance that the dependent variables were significantly correlated and that a multivariate analysis of variance was appropriate for use in testing the null hypotheses. Partial correlation coefficients and the results of all other statistical procedures were accepted as being significant at the $p < .05$ level.

To test the null hypotheses, a multivariate analysis of variance was used for each independent variable to determine whether significant differences could be shown for the dependent variables using scores based on OWEI subscale responses. If the multivariate procedure indicated significant differences in the dependent variables, a univariate analysis of variance procedure was used to determine significant differences for the levels of the independent variable. When significant differences were found, results of the F test were sufficient to identify mean subscale scores which were significantly higher for independent variables with only two levels (gender and empowerment). For independent variables having more than two levels (SOC aggregate group, education, age, and years of full-time

work experience), a Fisher's Protected LSD Procedure was used to perform all pairwise comparisons and to determine which mean subscale scores were significantly different from others. Fisher's Protected LSD Procedure consists of running a Fisher's LSD test only after the *F* test for the treatments, or levels of independent variables, has been shown to be significant (Ott, 1988). Research studies by Cramer and Swanson (1973) showed that the experimentwise error rate for the protected LSD procedure is controlled at a level approximately equal to the alpha for the *F* test.

All statistical calculations were performed using SAS® statistical software for personal computers, version 6.04 (SAS®, 1985,86,87), operating on an IBM® compatible 286 microcomputer with math coprocessor. The SAS® log for the statistical procedures used is provided in Appendix I.

CHAPTER IV

FINDINGS

The purpose of this study was to determine if there were differences in the work ethic of workers categorized by SOC, level of education, age, gender, years of full-time work experience, or empowerment. If significant differences were found, the study sought to determine how categories of workers differed for the four dimensions of the work ethic represented by the subscales of the OWEI.

Response Rate

To provide the data for this study, a total of 1,840 instruments were delivered to 158 businesses and industries in Monroe County, Tennessee. A total of 1,201 instruments were returned for an overall response rate of 65.3%. A wide variety of types of businesses and industries were represented by the data collected (see Appendix J). The overall response rate was lowered by several firms which had a fairly large number of employees, but which did not provide a high rate of return for completed inventories. For all participating industries and businesses, the mean of the response rates for individual firms was 83% (see Appendix K).

The original list of 1,011 Monroe County businesses and industries, from which the random list of firms for this study was drawn, was compiled from a number of sources so that it would be as comprehensive as possible. As a result, however, the original list included a number of firms which were cross-listed, were not in Monroe County, or were no longer in business at the time data was collected. Of the 285 businesses and industries randomly selected for the study, 13 (4.6%) were cross-listed, 11 (3.9%) were located

outside Monroe County, and 38 (13.3%) were no longer in business. In addition to the 158 (55.4%) firms whose employees participated in the study, 34 (11.9%) businesses and industries declined to provide the inventories to their employees and 31 (10.9%) firms were not successfully contacted regarding participation in the study.

Research Question One

The first research question addressed by this study asked whether there is a difference in work ethic among aggregate groupings of the Standard Occupational Classifications.

The background information provided on the OWEI included an item which asked each respondent to indicate the category his or her occupation best fit. Six choices were provided, based on the aggregate groupings recommended by the Office of Federal Statistical Policy and Standards. The six categories were: (1) administrative, engineering, scientific, teaching, and related occupations, including creative artists; (2) technical, clerical, sales, and related occupations; (3) service occupations, including military occupations; (4) farming, forestry, fishing, and hunting occupations; (5) precision production, craft, and repair; and (6) operators, fabricators, and laborers. Of the 1,201 instruments collected, 1,196 (99.6%) were completed for this item.

Three hundred sixty-seven (30.7%) respondents were employed in occupations classified as technical, clerical, or sales, more than in any other field. Relatively large percentages also were found in the operator, fabricator, laborer category, with 346 (28.9%), and in the administrative, engineering, scientific, teaching, and creative artists category, with 255 (21.3%). Occupations classified as precision production, craft, or repair, with 110 (9.2%) of the research participants; service occupations, including military

occupations, with 96 (8.0%) of the research participants; and farming, forestry, fishing, or hunting, with 22 (1.8%) of the research participants; were less frequently reported. Table 1 shows a frequency count of the responses broken down by SOC aggregate groupings.

Partial correlation coefficients (see Table 2) were computed on the OWEI subscale scores for SOC categories to verify that a multivariate analysis of variance procedure would be appropriate for use in examining potential differences between aggregate groups. The probability level for each correlation was .0001, so an interrelationship among the dependent variables was confirmed.

A Hotelling-Lawley Trace statistical procedure was used to test the null hypothesis for each research question before proceeding with a univariate analysis of variance. If the multivariate analysis failed to show a significant difference, no univariate comparisons were performed. The null hypothesis for the first research question was as follows:

Ho_1: There will be no significant difference in the work ethic, as measured by the OWEI, among aggregate groupings of the Standard Occupational Classifications.

The multivariate *F*-value for group comparison on occupational classification using the Hotelling-Lawley Trace for 20 and 4,730 degrees of freedom was 7.8908 (see Table 3). This value was significant at the .05 level so the null hypothesis (Ho_1) was rejected. A univariate comparison was then performed to examine group responses for each OWEI subscale.

Using a univariate analysis of variance to test for significant differences in responses for each OWEI subscale (see Table 4), it was determined that the SOC aggregate groups differed for each of the following dimensions of the work ethic: (1) dependable with $F = 6.08$ and $PR > F = .0001$, (2) ambitious with $F = 16.94$ and

TABLE 1. Frequency Count of Respondents by SOC Aggregate Group[a]

SOC Group	Frequency	Percent
(1) Administrative, engineering, scientific, teaching, creative artists	255	21.3
(2) Technical, clerical, sales	367	30.7
(3) Service occupations, military	96	8.0
(4) Farming, forestry, fishing, hunting	22	1.8
(5) Precision production, craft, repair	110	9.2
(6) Operators, fabricators, laborers	346	28.9

[a]Frequency missing = 5.

TABLE 2. Partial Correlation Coefficients of the Four OWEI Subscales for the Factor of SOC Aggregate Grouping

	1[a]	2	3	4
1	1.000	.660*	.733*	.725*
2		1.000	.561*	.588*
3			1.000	.691*
4				1.000

[a]The OWEI subscales were (1) dependable, (2) ambitious, (3) considerate, and (4) cooperative. *$p < .05$.

TABLE 3. Multivariate Analysis of Variance for Mean Scores of Respondents Classified by SOC

	Hotelling-Lawley Trace	*df*	*F*	*PR > F*
SOC Aggregate Grouping	.1335	20,4730	7.8908*	.0001

*$p < .05$.

TABLE 4. Univariate Analysis of Variance for the Four OWEI Subscales for the Factor of SOC Aggregate Grouping

Source	*df*	*SS*	*F*	*PR > F*
Dependable	5	3255.003	6.08*	.0001
Ambitious	5	5807.611	16.94*	.0001
Considerate	5	4496.815	9.26*	.0001
Cooperative	5	891.400	5.71*	.0001

*$p < .05$.

PR > *F* = .0001, (3) considerate with *F* = 9.26 and *PR* > *F* = .0001, and (4) cooperative with *F* = 5.71 and *PR* > *F* = .0001. Since the factor of SOC aggregate grouping had more than two levels, however, a pairwise comparison was needed to determine which population means differed significantly from which others for each of the dimensions of the work ethic measured by OWEI subscale responses.

The means for subscales scores by respondents from each SOC group are provided in Table 5. A Fisher's least significant difference (LSD) was used to provide a pairwise comparison for each OWEI subscale.

The results of the LSD analysis are reported using a summary diagram in Table 6. In the summary diagram, numbers for each aggregate group are arranged by mean score, from smallest to largest. Groups for which the LSD analysis did not detect significant pairwise differences are connected with a common underline. The LSD analysis did not detect significant differences in scores for *dependable* even though the overall *F* test in the analysis of variance was significant. Ott (1988, p. 446) reported this apparent anomaly can occur because the null hypothesis for the *F* test is that all means are equal in all possible comparisons, not just in pairwise comparisons as is the case for the LSD procedure. The LSD analysis indicated that respondents from group 1 (administrative, engineering, scientific, teaching, and related occupations, including creative artists) scored significantly higher than all other occupational groups on *ambitious*. This same group along with group 2 (technical, clerical, sales, and related occupations) scored higher for *considerate* than group 5 (precision production, craft, and repair occupations), group 6 (operators, fabricators, and laborers), and group 3 (service occupations, including military occupations). For *cooperative*, Group 2 (technical, clerical, sales, and related occupations) and group 1 (administrative, engineering, scientific, teaching, and related occupations,

TABLE 5. Mean OWEI Subscale Scores and Standard Deviations for Respondents Classified by SOC Aggregate Grouping

Variable	n^a	Mean Score	*SD*
Dependable			
(1) Administrative, engineering, scientific, teaching, creative artists	254	95.579	7.700
(2) Technical, clerical, sales	366	94.915	9.589
(3) Service occupations, military	96	92.833	11.293
(4) Farming, forestry, fishing, hunting	22	91.954	10.265
(5) Precision production, craft, repair	110	92.045	11.786
(6) Operators, fabricators, laborers	345	91.698	11.940
Ambitious			
(1) Administrative, engineering, scientific, teaching, creative artists	254	68.941	6.410
(2) Technical, clerical, sales	366	66.038	8.296
(3) Service occupations, military	96	62.646	9.824
(4) Farming, forestry, fishing, hunting	22	64.091	7.003
(5) Precision production, craft, repair	110	63.618	9.445
(6) Operators, fabricators, laborers	345	63.414	8.685
Considerate			
(1) Administrative, engineering, scientific, teaching, creative artists	254	82.004	7.809
(2) Technical, clerical, sales	366	83.145	9.099
(3) Service occupations, military	96	80.448	10.961
(4) Farming, forestry, fishing, hunting	22	76.364	10.670
(5) Precision production, craft, repair	110	79.609	10.763
(6) Operators, fabricators, laborers	345	78.687	11.209
Cooperative			
(1) Administrative, engineering, scientific, teaching, creative artists	254	45.594	4.346
(2) Technical, clerical, sales	366	46.145	5.343
(3) Service occupations, military	96	43.677	6.192
(4) Farming, forestry, fishing, hunting	22	42.136	6.840
(5) Precision production, craft, repair	110	45.400	5.388
(6) Operators, fabricators, laborers	345	44.672	6.401

[a]Total $n = 1193$.

TABLE 6. Fisher's Protected LSD[a] Procedure for All Pairwise Comparisons of OWEI Subscale Means for the Factor of SOC Aggregate Grouping

OWEI Subscale	SOC Aggregate Group[b]					
Dependable	6	4	5	3	2	1
Ambitious	3	6	5	4	2	1
Considerate	4	6	5	3	1	2
Cooperative	4	3	6	5	1	2

[a]Controlling the Type I comparisonwise error rate at the .05 significance level.

[b]SOC Aggregate Groups: (1) administrative, engineering, scientific, teaching, creative artists; (2) technical, clerical, sales; (3) service occupations, including military occupations; (4) farming, forestry, fishing, hunting; (5) precision production, craft, repair; (6) operators, fabricators, laborers.

including creative artists) scored higher than group 6 (operators, fabricators, and laborers), group 3 (service occupations, including military occupations), and group 4 (farming, forestry, fishing and hunting occupations), and group 5 (precision production, craft, and repair occupations) scored higher than group 4 (farming, forestry, fishing and hunting occupations).

Research Question Two

The second research question addressed by this study asked if the work ethic differs among workers when categorized by level of education.

Respondents indicated, as part of the background information on the OWEI, what their level of education was. Five levels of achievement were provided for them to choose from: (1) less than high school diploma, (2) high school degree or GED, (3) two years of college or Associate's degree, (4) a Bachelor's degree, and (5) some Graduate work. Of the 1,201 instruments collected, 1,176 (97.9%) were completed for this item.

Five hundred ninety-nine (50.9%) of the participants in this study indicated that they had a high school level education. An additional one-third indicated either less than a high school degree, with 191 (16.2%) of the total responses, or two years of college or an Associate's degree, with 197 (16.8%) of the total responses. Only 189 (16.1%) indicated having a Bachelor's degree or higher. One hundred twenty-three (10.5%) of those who had completed a four-year college degree had done some graduate work as compared with 66 (5.6%) who indicated a Bachelor's degree as their level of education. Table 7 shows a frequency count of the responses broken down by level of education.

TABLE 7. Frequency Count of Respondents by Level of Education[a]

Level of Education	Frequency	Percent
(1) Less than high school diploma	191	16.2
(2) High school degree or GED	599	50.9
(3) 2 years college or Associate's degree	197	16.8
(4) Bachelor's degree	66	5.6
(5) Some graduate work	123	10.5

[a]n = 1201. Frequency missing = 25.

To verify that a multivariate analysis of variance procedure would be appropriate for use in examining potential differences between subscale scores for level of education, partial correlation coefficients were computed (see Table 8). The resulting values indicated consistently high correlations and supported proceeding with a multivariate analysis of variance next.

The null hypothesis for the second research question was tested using a Hotelling-Lawley Trace statistical procedure. The null hypothesis was stated as follows:

Ho_2: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by level of education.

The multivariate F-value for group comparison on level of education using the Hotelling-Lawley Trace for 16 and 4,658 degrees of freedom was 7.8054 (see Table 9). This value was significant at the .05 level so the null hypothesis (Ho_2) was rejected and

TABLE 8. Partial Correlation Coefficients of the Four OWEI Subscales for the Factor of Level of Education

	1[a]	2	3	4
1	1.000	.669*	.735*	.725*
2		1.000	.568*	.596*
3			1.000	.701*
4				1.000

[a]The OWEI subscales were (1) dependable, (2) ambitious, (3) considerate, and (4) cooperative. *$p < .05$.

TABLE 9. Multivariate Analysis of Variance for Mean Scores of Respondents Classified by Level of Education

	Hotelling-Lawley Trace	*df*	*F*	*PR > F*
SOC Aggregate Grouping	.1072	16,4658	7.8054*	.0001

*$p < .05$.

the univariate tests were proceeded with to determine more specifically how the work ethic differed with level of education.

Using a univariate analysis of variance to test for significant differences in responses for each OWEI subscale (see Table 10), it was determined that the respondents grouped by level of education differed for each of the following dimensions of the work ethic: (1) dependable with $F = 3.26$ and $PR > F = .0114$, (2) ambitious with $F = 18.47$ and $PR > F = .0001$, and (3) cooperative with $F = 5.09$ and $PR > F = .0005$. The F-value for the subscale for considerate was 1.22 with $PR > F = .2990$ so this dimension did not meet the established level for significant results used in this study.

The mean subscale scores for respondents grouped by level of education are shown in Table 11. Five different levels of education were used to group respondents so a pairwise comparison was computed using a Fisher's LSD procedure to determine which population means differed significantly for each of the three dimensions of the work ethic with significant F-values.

The LSD analysis did not detect significant differences in mean scores for *dependable* or for *cooperative* (see Table 12). The mean score for respondents in group 5 (some graduate work) was significantly higher for *ambitious* than the mean scores for group 3 (two years of college or Associate's degree), group 2 (high school degree or GED), and group 1 (less than a high school diploma). Mean scores for group 4 (a Bachelor's degree) and group 3 (two years of college or Associate's degree) were significantly higher for *ambitious* than those for group 2 (high school degree or GED) and group 1 (less than a high school diploma). Respondents in group 2 (high school degree or GED) had a mean score for *ambitious* higher than that for group 1 (less than a high school diploma).

TABLE 10. Univariate Analysis of Variance for the Four OWEI Subscales for the Factor of Level of Education

Source	*df*	*SS*	*F*	*PR > F*
Dependable	4	1392.732	3.26*	.0114
Ambitious	4	5061.945	18.47*	.0001
Considerate	4	483.886	1.22	.2990
Cooperative	4	634.557	5.09*	.0005

*$p < .05$.

TABLE 11. Mean OWEI Subscale Scores and Standard Deviations for Respondents Classified by Level of Education

Variable	n^a	Mean Score	*SD*
Dependable			
(1) Less than high school diploma	191	91.817	13.376
(2) High school degree or GED	599	93.765	10.279
(3) 2 years college or Associate's degree	197	93.975	8.742
(4) Bachelor's degree	66	93.076	10.072
(5) Some graduate work	121	96.058	7.200
Ambitious			
(1) Less than high school diploma	191	62.199	10.658
(2) High school degree or GED	599	64.952	8.235
(3) 2 years college or Associate's degree	197	66.548	7.119
(4) Bachelor's degree	66	67.939	7.226
(5) Some graduate work	121	69.760	6.225
Considerate			
(1) Less than high school diploma	191	79.623	11.943
(2) High school degree or GED	599	81.095	9.918
(3) 2 years college or Associate's degree	197	81.279	8.707
(4) Bachelor's degree	66	81.061	10.165
(5) Some graduate work	121	81.917	8.205
Cooperative			
(1) Less than high school diploma	191	43.728	6.882
(2) High school degree or GED	599	45.806	5.602
(3) 2 years college or Associate's degree	197	45.162	4.566
(4) Bachelor's degree	66	45.182	5.452
(5) Some graduate work	121	45.488	4.703

[a]Total $n = 1174$.

TABLE 12. Fisher's Protected LSD[a] Procedure for All Pairwise Comparisons of OWEI Subscale Means for the Factor of Level of Education

OWEI Subscale	Level of Education[b]				
Dependable	1	4	2	3	5
Ambitious	1	2	3	4	5
Considerate[c]					
Cooperative	1	3	4	5	2

[a]Controlling the Type I comparisonwise error rate at the .05 significance level.

[b]Level of Education: (1) less than high school diploma, (2) high school degree or GED, (3) 2 years of college or Associate's degree, (4) a Bachelor's degree, (5) some Graduate work.

[c]*F* test for this item not shown to be significant.

Research Question Three

The third research question addressed by this study asked if the work ethic differs among workers when categorized by age?

The OWEI background information included an item for the respondent to indicate age. Five age categories were chosen from: (1) 19 or under, (2) 20 - 26, (3) 27 - 35, (4) 36 - 55, and (5) over 50. Of the 1,201 instruments collected, 1,178 (98.1%) were completed for this item.

Table 13 provides a frequency count of the responses on the OWEI for age. The smallest group of respondents for the category of age was the 19 or under group with 44 (3.7%) of the total research participants. The data indicated that 197 (16.7%) of the respondents were in the 20 - 26 age category and 340 (28.9%) were in the 27 - 35 age category. The largest group of respondents for the category of age was the 36 - 55 group with 470 (39.9%) of the total research participants. The over 50 age category was the second smallest group with 127 (10.8%) respondents.

To confirm that a multivariate analysis of variance procedure would be appropriate for use in examining potential differences between subscale scores for age, partial correlation coefficients were computed (see Table 14). Consistently high correlations were found so it was appropriate to use a multivariate analysis of variance to test the null hypothesis for the data set collected.

The null hypothesis for the third research question was tested using a Hotelling-Lawley Trace statistical procedure. The null hypothesis was stated as follows:

Ho_3: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by age.

TABLE 13. Frequency Count of Respondents by Age[a]

Age	Frequency	Percent
(1) 19 or under	44	3.7
(2) 20 - 26	197	16.7
(3) 27 - 35	340	28.9
(4) 36 - 55	470	39.9
(5) Over 50	127	10.8

[a]n = 1201. Frequency missing = 23.

TABLE 14. Partial Correlation Coefficients of the Four OWEI Subscales for the Factor of Age

	1[a]	2	3	4
1	1.000	.667*	.733*	.731*
2		1.000	.565*	.590*
3			1.000	.698*
4				1.000

[a]The OWEI subscales were (1) dependable, (2) ambitious, (3) considerate, and (4) cooperative. *$p < .05$.

The *F*-value calculated for group comparison on level of age using the Hotelling-Lawley Trace for 16 and 4,662 degrees of freedom was 2.2997 (see Table 15). This value was significant at the .05 level so the null hypothesis (Ho_3) was rejected and univariate tests for each of the OWEI subscales were performed to determine more specifically how the work ethic differed with age.

The results of the univariate analysis of variance used to test for significant differences in responses for each OWEI subscale indicated that the respondents grouped by age differed only on the dimension of dependable (see Table 16). The *F*-value for dependable was 2.36 with $PR > F = .0516$. For the following dimensions of the work ethic, the *F*-values computed were not significant at the accepted level chosen for this study: (1) ambitious with $F = 1.00$ and $PR > F = .4091$, (2) considerate with $F = 0.34$ and $PR > F = .8538$, and (3) cooperative with $F = 0.45$ and $PR > F = .7744$.

The mean subscale scores for respondents grouped by age are shown in Table 17. Five different levels of age were used to group respondents so to determine which population means differed significantly for the factor of *dependable*, a pairwise comparison was computed using a Fisher's LSD procedure. This was the only dimension tested using the LSD since it was the only one determined to be significantly different using the univariate analysis.

The LSD analysis did not detect significant differences in mean scores for *dependable* (see Table 18) so, even though it had been determined that some significant difference was present between group means, it was not determined which means were significantly different from other means for respondents grouped by age.

TABLE 15. Multivariate Analysis of Variance for Mean Scores of Respondents Classified by Age

	Hotelling-Lawley Trace	*df*	*F*	*PR > F*
Age	.0316	16,4662	2.2997*	.0001

*$p < .05$.

TABLE 16. Univariate Analysis of Variance for the Four OWEI Subscales for the Factor of Age

Source	*df*	*SS*	*F*	*PR > F*
Dependable	4	1011.945	2.36*	.0516
Ambitious	4	290.184	1.00	.4091
Considerate	4	131.571	0.34	.8538
Cooperative	4	57.049	0.45	.7744

*$p < .05$.

TABLE 17. Mean OWEI Subscale Scores and Standard Deviations for Respondents Classified by Age

Variable		Mean Score	*SD*
Dependable			
(1) 19 or under	44	93.750	9.963
(2) 20 - 26	197	92.254	10.305
(3) 27 - 35	340	93.135	11.011
(4) 36 - 55	469	94.324	10.332
(5) Over 55	125	95.272	8.641
Ambitious			
(1) 19 or under	44	64.068	8.211
(2) 20 - 26	197	64.629	7.812
(3) 27 - 35	340	65.432	8.569
(4) 36 - 55	469	65.849	8.737
(5) Over 55	125	65.480	8.895
Considerate			
(1) 19 or under	44	81.750	9.864
(2) 20 - 26	197	80.802	9.374
(3) 27 - 35	340	80.623	10.479
(4) 36 - 55	469	81.320	9.899
(5) Over 55	125	81.184	8.995
Cooperative			
(1) 19 or under	44	46.045	4.983
(2) 20 - 26	197	45.299	5.482
(3) 27 - 35	340	45.376	5.894
(4) 36 - 55	469	45.260	5.504
(5) Over 55	125	44.808	5.952

[a]Total $n = 1175$.

TABLE 18. Fisher's Protected LSD[a] Procedure for All Pairwise Comparisons of OWEI Subscale Means for the Factor of Age

OWEI Subscale	Age[b]				
Dependable	2	3	1	4	5
Ambitious[c]					
Considerate[c]					
Cooperative[c]					

[a]Controlling the Type I comparisonwise error rate at the .05 significance level.

[b]Age: (1) 19 or under, (2) 20 - 26, (3) 27 - 35, (4) 36 - 55, (5) over 55.

[c]*F* test for this item not shown to be significant.

Research Question Four

The fourth research question addressed by this study asked if the work ethic differs among workers when categorized by gender.

Respondents indicated their gender as part of the background information requested on the OWEI. For this item, 1,177 (98.0%) of the 1,201 instruments were completed and could be used.

The respondents for this study were almost equally divided between female and male. The data indicated that 582 (49.4%) were female and 595 (50.6%) were male. Table 19 provides a frequency count for gender of participants in the study.

Partial correlation coefficients were computed to confirm that a multivariate analysis of variance procedure would be appropriate for use in examining potential differences between subscale scores for gender. The results of this analysis is shown in Table 20. Consistently high correlations were found so use of a multivariate analysis of variance was supported for this data.

The null hypothesis for the fourth research question was tested using a Hotelling-Lawley Trace statistical procedure. The null hypothesis was stated as follows:

Ho_4: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by gender.

The *F*-value calculated for group comparison on gender using the Hotelling-Lawley Trace for 4 and 1,169 degrees of freedom was 17.5307 (see Table 21). This value was significant at the .05 level so the null hypothesis (Ho_4) was rejected and univariate analyses were performed for each of the OWEI subscales to determine more precisely how the work ethic differed with gender.

TABLE 19. Frequency Count of Respondents by Gender[a]

Gender	Frequency	Percent
Female	582	49.4
Male	595	50.6

[a]n = 1201. Frequency missing = 24.

TABLE 20. Partial Correlation Coefficients of the Four OWEI Subscales for the Factor of Gender

	1[a]	2	3	4
1	1.000	.664*	.734*	.725*
2		1.000	.569*	.586*
3			1.000	.687*
4				1.000

[a]The OWEI subscales were (1) dependable, (2) ambitious, (3) considerate, and (4) cooperative. *$p < .05$.

TABLE 21. Multivariate Analysis of Variance for Mean Scores of Respondents Classified by Gender

	Hotelling-Lawley Trace	*df*	*F*	*PR > F*
Gender	.0600	4,1169	17.5307*	.0001

*$p < .05$.

The results of the univariate analysis of variance used to test for significant differences in responses for each OWEI subscale indicated that the respondents grouped by gender differed for all four of the dimensions of the work ethic measured by OWEI subscales (see Table 22). The *F*-values computed for each item were as follows: (1) dependable with $F = 24.01$ and $PR > F = .0001$, (2) ambitious with $F = 16.05$ and $PR > F = .0001$, (3) considerate with $F = 67.51$ and $PR > F = .0001$, and (4) cooperative with $F = 25.79$ and $PR > F = .0001$.

The mean subscale scores for respondents grouped by gender are shown in Table 23. For each dimension represented, the higher mean value was significantly greater than the lower, since the *F*-values for all four OWEI subscales were found to be significant by the univariate analysis, and the independent variable, gender, had only two levels. For all four dimensions of the work ethic represented by the OWEI subscales--*dependable*, *ambitious*, *considerate*, and *cooperative*--female respondents scored higher than males.

TABLE 22. Univariate Analysis of Variance for the Four OWEI Subscales for the Factor of Gender

Source	*df*	*SS*	*F*	*PR > F*
Dependable	1	2550.186	24.01*	.0001
Ambitious	1	1168.048	16.05*	.0001
Considerate	1	6368.962	67.51*	.0001
Cooperative	1	812.574	25.79*	.0001

*$p < .05$.

TABLE 23. Mean OWEI Subscale Scores and Standard Deviations for Respondents Classified by Gender

Variable	n[a]	Mean Score	*SD*
Dependable			
Female	582	95.210	9.515
Male	592	92.262	11.027
Ambitious			
Female	582	66.404	8.445
Male	592	64.409	8.614
Considerate			
Female	582	83.383	9.063
Male	592	78.725	10.312
Cooperative			
Female	582	46.106	5.563
Male	592	44.443	5.661

[a]Total n = 1174.

Research Question Five

The fifth research question addressed by this study asked if the work ethic differs among workers when categorized by years of full-time work experience.

The OWEI background information included the number of years of full-time work experience a respondent had completed. Three levels were provided for this independent variable: (1) less than two years, (2) two to eight years, and (3) more than eight years. Of the 1,201 instruments collected, 1,173 (97.7%) were completed for this item.

Of the total pool of respondents, 669 (57%), or over half, had worked full-time for more than eight years. Approximately one-third, 385 (32.8%) of the total research participants, had worked full-time for two to eight years, and 119 (10.1%) had worked full-time for less than two years. Table 24 provides a frequency count for research participants grouped by years of full-time work experience.

To verify that a multivariate analysis of variance procedure would be appropriate for use in examining potential differences between subscale scores for level of work experience, partial correlation coefficients were computed (see Table 25). The resulting values indicated consistently high correlations and supported proceeding with a multivariate analysis of variance next.

The null hypothesis for the fifth research question was tested using a Hotelling-Lawley Trace statistical procedure. The null hypothesis was stated as follows:

Ho_5: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by years of full-time work experience.

TABLE 24. Frequency Count of Respondents by Years of Full-Time Work Experience[a]

Years Full-Time Work Experience	Frequency	Percent
(1) Less than 2 years	119	10.1
(2) 2 - 8 years	385	32.8
(3) More than 8 years	669	57.0

[a]n = 1201. Frequency missing = 28.

TABLE 25. Partial Correlation Coefficients of the Four OWEI Subscales for the Factor of Years of Full-Time Work Experience

	1[a]	2	3	4
1	1.000	.666*	.737*	.725*
2		1.000	.566*	.590*
3			1.000	.695*
4				1.000

[a]The OWEI subscales were (1) dependable, (2) ambitious, (3) considerate, and (4) cooperative. *$p < .05$.

The *F*-value calculated for group comparison on years of full-time work experience using the Hotelling-Lawley Trace for 8 and 2,326 degrees of freedom was 5.2086 (see Table 26). This value was significant at the .05 level so the null hypothesis (Ho_5) was rejected and univariate tests for each of the OWEI subscales were performed to determine how the work ethic differed among respondent groups with different levels of full-time work experience.

The univariate tests produced significant *F*-values for all four of the OWEI subscales (see Table 27). It was therefore determined that years of full-time work experience was a significant factor in the work ethic dimensions of interest in this study. The *F*-values computed for each OWEI subscale were as follows: (1) dependable with $F = 8.28$ and $PR > F = .0003$, (2) ambitious with $F = 9.85$ and $PR > F = .0001$, (3) considerate with $F = 8.54$ and $PR > F = .0002$, and (4) cooperative with $F = 4.21$ and $PR > F = .0151$.

The mean subscale scores for respondents grouped by years of full-time work experience are shown in Table 28. Three different levels of work experience were used to group respondents so a Fisher's LSD procedure was needed to determine which population means differed significantly.

The LSD analysis (see Table 29) indicated that respondents who had less than two years of full-time work experience or more than eight years of full-time work experience scored significantly higher than those who had from two to eight years of full-time work experience for the work ethic dimensions of *dependable* and *cooperative*. Respondents who had more than eight years of full-time work experience scored significantly higher than those who had from two to eight years of full-time work experience for the work ethic dimension of *ambitious*. For the work ethic dimension of *considerate*, respondents

TABLE 26. Multivariate Analysis of Variance for Mean Scores of Respondents Classified by Years of Full-Time Work Experience

	Hotelling-Lawley Trace	*df*	*F*	*PR > F*
Full-Time Work Experience	.0358	8,2326	5.2096*	.0001

*$p < .05$.

TABLE 27. Univariate Analysis of Variance for the Four OWEI Subscales for the Factor of Years of Full-Time Work Experience

Source	*df*	*SS*	*F*	*PR > F*
Dependable	2	1770.330	8.28*	.0003
Ambitious	2	1411.460	9.85*	.0001
Considerate	2	1666.755	8.54*	.0002
Cooperative	2	265.916	4.21*	.0151

*$p < .05$.

TABLE 28. Mean OWEI Subscale Scores and Standard Deviations for Respondents Classified by Years of Full-Time Work Experience

Variable	n[a]	Mean Score	*SD*
Dependable			
(1) Less than 2 years	119	94.437	10.799
(2) 2 - 8 years	385	91.888	10.972
(3) More than 8 years	666	94.518	9.874
Ambitious			
(1) Less than 2 years	119	65.143	8.310
(2) 2 - 8 years	385	63.969	8.563
(3) More than 8 years	666	66.363	8.432
Considerate			
(1) Less than 2 years	119	83.672	9.119
(2) 2 - 8 years	385	79.579	10.280
(3) More than 8 years	666	81.254	9.77
Cooperative			
(1) Less than 2 years	119	46.059	5.771
(2) 2 - 8 years	385	44.616	5.784
(3) More than 8 years	666	45.473	5.495

[a]Total n = 1170.

TABLE 29. Fisher's Protected LSD[a] Procedure for All Pairwise Comparisons of OWEI Subscale Means for the Factor of Years of Full-Time Work Experience

OWEI Subscale	Years of Full-Time Work Experience[b]		
Dependable	2	1	3
Ambitious	2	1	3
Considerate	2	3	1
Cooperative	2	3	1

[a]Controlling the Type I comparisonwise error rate at the .05 significance level.

[b]Years of Full-Time Work Experience: (1) less than 2 years, (2) 2 - 8 years, (3) more than 8 years.

who had less than two years of full-time work experience scored significantly higher than those who had more than eight years of full-time work experience and those with more than eight years of full-time work experience scored significantly higher than those with from two to eight years of full-time work experience.

Research Question Six

The sixth research question addressed by this study asked if the work ethic differs among workers when categorized by empowerment at their occupation or business.

The background information on the OWEI included two items which were used to determine whether a respondent was empowered or not at their occupation or business. These items were business ownership and supervision of other workers. If research participants indicated either ownership or part ownership of a business or marked that they supervised other workers, they were operationally defined as empowered for purposes of this study. For the factor of empowerment, a total of 1,179 (98.2%) of the 1,201 instruments collected were completed for the items used to determine the level for this variable.

A frequency count for responses on the OWEI for empowerment is provided in Table 30. Four hundred forty-two (37.5%) of the participants in the study were empowered, as operationally defined, while 737 (62.5%) were not.

To verify that a multivariate analysis of variance procedure would be appropriate for use in examining potential differences between subscale scores for empowerment, partial correlation coefficients were computed (see Table 31). Consistently high correlations were found so it was appropriate to proceed with a multivariate analysis of variance next.

TABLE 30. Frequency Count of Respondents Who Were Empowered[a]

Empowered	Frequency	Percent
Yes	442	37.5
No	737	62.5

[a]n = 1201. Frequency missing = 22.

TABLE 31. Partial Correlation Coefficients of the Four OWEI Subscales for the Factor of Empowerment

	1[a]	2	3	4
1	1.000	.677*	.745*	.729*
2		1.000	.587*	.601*
3			1.000	.698*
4				1.000

[a]The OWEI subscales were (1) dependable, (2) ambitious, (3) considerate, and (4) cooperative. *$p < .05$.

The null hypothesis for the sixth research question was tested using a Hotelling-Lawley Trace statistical procedure. The null hypothesis was stated as follows:

Ho_6: There will be no significant difference in the work ethic, as measured by the OWEI, among workers categorized by empowerment in their occupation or business.

The *F*-value calculated for group comparison on empowerment using the Hotelling-Lawley Trace for 4 and 1,172 degrees of freedom was 10.7759 (see Table 32). This value was significant at the .05 level so the null hypothesis (Ho_6) was rejected and univariate analyses were performed for each of the OWEI subscales to determine more precisely how the work ethic differed with empowerment.

Based on the results of the univariate analysis of variance used to test for significant differences in responses for each OWEI subscale, it was determined that the respondents grouped by empowerment differed significantly for the dimensions of ambitious, considerate, and cooperative (see Table 33). The *F*-values computed for each OWEI subscale were as follows: (1) ambitious with $F = 7.12$ and $PR > F = .0077$, (2) considerate with $F = 6.46$ and $PR > F = .0112$, and (3) cooperative with $F = 5.21$ and $PR > F = .0226$. The *F*-value for dependable was 0.04 with $PR > F = .8410$ so this dimension was not accepted as having a significant difference at the level of significance selected for this study.

The mean subscale scores for respondents grouped by empowerment are shown in Table 34. Except for the work ethic dimension of dependable, the greater mean value for each subscale item was significantly greater than the lessor mean value. Since this independent variable only had two levels, the *F*-values for OWEI subscales which were found to be significant by the univariate analysis indicated a significant difference in the mean values for those items. Results of the *F* tests indicated that for the dimension of

TABLE 32. Multivariate Analysis of Variance for Mean Scores of Respondents Classified by Empowerment

	Hotelling-Lawley Trace	*df*	*F*	*PR > F*
Empowerment	.0368	4,1172	10.7759*	.0001

*$p < .05$.

TABLE 33. Univariate Analysis of Variance for the Four OWEI Subscales for the Factor of Empowerment

Source	*df*	*SS*	*F*	*PR > F*
Dependable	1	4.345	0.04	.8410
Ambitious	1	508.808	7.12*	.0077
Considerate	1	648.462	6.46*	.0112
Cooperative	1	165.017	5.21*	.0226

*$p < .05$.

TABLE 34. Mean OWEI Subscale Scores and Standard Deviations for Respondents Classified by Empowerment

Variable	n^a	Mean Score	*SD*
Dependable			
Yes	440	93.786	10.395
No	737	93.661	10.380
Ambitious			
Yes	440	66.332	8.442
No	737	64.973	8.458
Considerate			
Yes	440	79.998	9.894
No	737	81.532	10.095
Cooperative			
Yes	440	44.807	5.383
No	737	45.581	5.767

[a]Total $n = 1177$.

ambitious, respondents who were empowered scored significantly higher than those who were not empowered. For the dimensions of *considerate* and *cooperative*, however, respondents who were not empowered scored higher than those who were empowered.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter provides a summary of the study, conclusions drawn from the findings, and recommendations for future research on work ethic and the dimensions of the work ethic.

Summary

The purpose of this study was to determine, using the OWEI, if there were significant differences in the work ethic of workers categorized by SOC, level of education, age, gender, years of full-time work experience, or empowerment. In addition, if significant differences were found, the study sought to determine how categories of workers differed for the four dimensions of the work ethic represented by the subscales of the OWEI. The four dimensions of the work ethic measured by the OWEI were *dependable*, *ambitious*, *considerate*, and *cooperative*.

The rationale for the study was rooted in an extensive review of literature that revealed a proliferation of verbiage about the work ethic, but a deficiency of baseline data collected under controlled conditions. Rapid changes have taken place during the past three decades in the types of work most people do, in the demographic characteristics of the people who work, and in the level of control workers have in the workplace. This study examined the work ethic as a cultural norm, and determined the extent to which workers grouped by SOC, level of education, age, gender, years of full-time work experience, or empowerment subscribed to it.

Six research questions guided this research. Each question dealt with the work ethic of workers categorized by one of six independent variables. The first research question asked whether or not workers from different occupational classifications differed in their work ethic. The second research question asked whether workers with differing levels of education differed in their work ethic. The third and fourth research questions focused on two demographic variables--age and gender--and asked whether workers categorized by those factors differed in their work ethic. The fifth research question asked whether workers categorized by years of full-time work experience differed in their work ethic, and the sixth research question asked whether the work ethic of workers who were empowered differed from that of workers who were not empowered.

The population for this study consisted of workers employed by public and private businesses and industries in Monroe County, Tennessee. From a list of 1,011 businesses and industries located in Monroe County, 285 firms were randomly selected for investigation. Participation by employees of each firm was requested by the researcher during a personal visit to each business and industry in the sample. Copies of the OWEI were left for each employee of firms where managers, personnel directors, or owners agreed to allow participation in the study. Following a span of time indicated during the initial visit and after using telephone calls to verify that questionnaires had been completed, the researcher returned to participating firms to collect the instruments.

The population sample was comprised of workers from 158 industries and businesses which participated in the study. A total of 1,840 instruments were distributed and 1,201 completed instruments were collected for an overall response rate of 65.3%. The number of usable instruments varied from 1,196 (65.0%) to 1,173 (63.8%) for use in answering the six research questions.

After the data was collected using the OWEI, it was compiled and analyzed using SAS® statistical software running on a personal computer. Frequency counts were computed for respondents grouped according to levels of the six independent variables: (1) SOC aggregate group, (2) level of education, (3) age, (4) gender, (5) years of full-time work experience, and (6) empowerment. Partial correlation coefficients of the four OWEI subscales were then calculated to verify that data grouped by independent variable were appropriate for multivariate analysis. A multivariate analysis of variance was used to test each of the six null hypotheses. For each hypothesis rejected, mean scores for levels of a particular grouping were computed, and univariate analysis of variance tests were used to determine whether these means differed significantly for each of the work ethic dimensions. A Fisher's Protected LSD technique was used to do all-pairwise comparisons for independent variable groupings with more than two levels.

All of the null hypotheses for research questions in the study were rejected at the $p < .05$ level, based on the multivariate tests. The statistical tests, used to determine how workers differed when categorized by each of the independent variables, yielded the following findings:

1. Workers in SOC aggregate group 1 (administrative, engineering, scientific, teaching, and related occupations, including creative artists) scored significantly higher than those in other occupational groups for *ambitious*. Workers in SOC aggregate group 1 (administrative, engineering, scientific, teaching, and related occupations, including creative artists) and group 2 (technical, clerical, sales, and related occupations) scored higher for *considerate* than group 4 (farming, forestry, fishing and hunting occupations), group 5 (precision production, craft, and repair occupations), and group 6

(operators, fabricators, and laborers) and higher for *cooperative* than group 3 (service occupations, including military occupations), group 4 (farming, forestry, fishing and hunting occupations), and group 6 (operators, fabricators, and laborers). Workers in SOC aggregate group 5 (precision production, craft, and repair occupations) scored higher for *cooperative* than group 4 (farming, forestry, fishing and hunting occupations). The Fisher's Protected LSD did not detect significant differences in mean scores for workers categorized by SOC aggregate group on *dependable*.

2. The mean subscale scores of workers grouped by level of education increased sequentially for *ambitious* with group 5 (some graduate work) scoring significantly higher than group 1 (less than a high school diploma), group 2 (high school degree or GED), and group 3 (two years of college or Associate's degree). Group 4 (a Bachelor's degree) scored significantly higher for *ambitious* than group 1 (less than a high school diploma) and group 2 (high school degree or GED), and group 2 (high school degree or GED) higher than group 1 (less than a high school diploma). The Fisher's Protected LSD did not detect significant differences in mean scores for workers grouped by level of education on *dependable*, *considerate*, or *cooperative*.
3. The Fisher's Protected LSD did not detect significant differences in mean scores for workers grouped by age on any of the work ethic dimensions measured by OWEI subscales.
4. Females scored significantly higher than males on all four of the work ethic dimensions measured by OWEI subscales.

5. Workers who had less than two years of full-time work experience or more than eight years of full-time work experience scored significantly higher than those who had from two to eight years of full-time work experience for *dependable* and *cooperative*. Workers who had more than eight years of full-time work experience scored significantly higher than those who had from two to eight years of full-time work experience for *ambitious*. Workers who had less than two years of full-time work experience scored significantly higher than those who had more than eight years of full-time work experience for *considerate* and those with more than eight years of full-time work experience scored significantly higher than those with from two to eight years of full-time work experience for *considerate*.
6. Workers who were empowered scored significantly higher than those who were not empowered for *ambitious*. Workers who were not empowered scored higher than those who were empowered for *considerate* and *cooperative*. The *F*-test did not detect significant differences in mean scores for workers categorized by empowerment on *dependable*.

Conclusions

Several conclusions were formulated, based on the analysis of data collected using the OWEI. These conclusions are accurate, within the limitations specified for this study, and to the extent that the data and findings were valid and reliable.

The work ethic of workers categorized by occupation was significantly different. As compared to other segments of the workforce, persons in administrative, engineering,

scientific, teaching, technical, clerical, sales, and related occupations exhibited a strong work ethic, particularly for the dimensions of *ambitious*, *considerate*, and *cooperative*.

This conclusion was consistent with previous research (Shapira & Griffith, 1990) which demonstrated differences in work values between workers grouped by occupations. It was also notable that the two SOC groups which tended to have higher work ethic scores contained a preponderance of the information age occupations. It was in these high-discretion jobs that Yankelovich and Immerwahr (1984) said the work ethic should be nurtured as a motivational resource. The data in this study show this may be occurring.

This study demonstrated that level of education is not a strong indicator of a person's work ethic. There were significant differences between workers grouped by level of education for the work ethic dimension, *ambitious*, but for other dimensions of work ethic, strong differences were not evident.

Evidence that level of education is not a major determinant of work ethic does not mean that educational experiences do not significantly impact formation of this cultural norm. Schooling, along with the influences of family and society, plays an important role in shaping the attitudes which are a component of each person's belief system (Braude, 1975; Chusmir & Koberg, 1988; McClelland, 1961). In the sample for this study only 16.2% had less than a high school diploma, and most of this group likely attended school long enough to be significantly influenced by the experience.

Very little difference was detected in the work ethic of workers in rural Monroe County grouped by age. Work ethic was relatively homogeneous across all age categories. This may be an indication that rural populations are less fluid than those in metropolitan areas, and less susceptible to influences which cause flux in cultural norms over time.

For those jobs where the work ethic is a crucial attribute, women tend to be better suited than men. Women workers evidenced a stronger work ethic than men for all four dimensions of the work ethic. The finding that women scored higher than men on the OWEI was consistent with findings from most other studies which have included gender as a variable (Hall, 1990, 1991; Miller, 1980; Wayne, 1989).

Previous studies by Lyson (1984) and Miller (1980) showed that women tend to seek different things in their work than men. This likely reflects differences in gender biased cultural norms which augment work ethic attitudes and beliefs in women more than in men.

It was also concluded that when the work ethic is a crucial attribute for a job, workers new to the workforce or those who have been working more than eight years tend to be better suited than those who have worked from two to eight years. Further research is needed to adequately determine the cause for this observation, but it may be due to the novelty of the workplace for the worker with little experience and the wisdom that comes from years on the job for the more experienced worker.

The work ethic dimension, *ambitious*, tended to characterize workers who were empowered by their position at work. Workers who were not empowered were more *considerate* and *cooperative* than those that were. Those attitudes and beliefs which make up the work ethic dimension, *ambitious*, should be noted by vocational counselors and teachers as being a significant attribute for those persons who are seeking supervisory positions in the workplace or ownership of a business.

Collectively, all of the conclusions presented here provide considerable baseline information pertaining to the work ethic, and its dimensions, for workers categorized by

occupation, education, age, gender, full-time work experience, and empowerment. In addition, a significant basis for continued work ethic research has been established.

Recommendations for Further Research

The following recommendations for further research on the work ethic and the dimensions of the work ethic are based on the findings and conclusions from this study:

1. A study of a sample from a metropolitan area using the OWEI is needed to determine whether differences exist between the work ethic of rural and urban populations.
2. To further examine the effects of education on the work ethic, a study should be done using additional background information regarding schooling, including any vocational education experiences. Since this sector of the educational system focuses on preparation of people for work, its impact on work ethic should be examined.
3. The OWEI has been translated into German, French, Spanish, and Japanese. International data should be collected so that cross-cultural comparisons of the work ethic can be made. Such a study would provide more detailed information to complement international studies which have already been done (Elizur, Borg, Hunt, & Beck, 1991; Harpaz, 1989).
4. As additional data is collected using the OWEI, norms should be established so that the OWEI can be used for individual vocational counseling.
5. Multi-dimensional studies should be performed using the OWEI and personality inventories, such as the Meyers-Briggs Type Indicator, or other such instruments. The bi-polar model of work motivation, developed by

Borgotta, Ford, and Dohrnstedt (1973) and the work of Furnham and Koritsas (1990) are examples of the type of multi-dimensional approach which might result from such studies. This could facilitate a more complete understanding of the work ethic and its relationship to other factors within the cultural context of the workplace.

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APPENDIXES

APPENDIX A

BASIC PROGRAM TO GENERATE RANDOM NUMBERS

```
100 'PROGRAM TO GENERATE 1100 UNIQUE RANDOM NUMBERS
110 DIM R(2002)
120 RANDOMIZE VAL(RIGHT$(TIME$,2))
130 CLS
140 KEY OFF
150 '
160 '
170 PRINT "Pass Number: ";
180 FOR X=1 TO 1100
190   LOCATE 1,15
200   PRINT X
210   R(X)=INT(RND*2000)+1
220 NEXT X
230 '
240 '
250 PRINT
260 PRINT
270 PRINT "Table of numbers generated:"
280 FOR X=1 TO 1100       'Display final values for R(X).
290   IF X>1 THEN GOSUB 480
300   PRINT X;CHR$(29);". ";R(X),
310 NEXT X
320 '
330 '
340 FOR X=1 TO 1100       'Print final values for R(X).
350   LPRINT X;CHR$(29);". ";R(X),
360 NEXT X
370 '
380 '
390 OPEN "RANDNUM.DAT" FOR OUTPUT AS #1
400 FOR X=1 TO 1100
410   WRITE #1, R(X)
420 NEXT X
430 CLOSE #1
440 KEY ON
450 END
460 '
470 '
480 FOR C=1 TO X-1        'Check to see whether R(X) value already used.
490   IF R(X)=R(C) THEN GOSUB 540
500 NEXT C
510 RETURN
520 '
530 '
540 R(X)=INT(RND*2000)+1  'Assign new value to R(X).
550 IF C>1 THEN C=1       'Reset counter to check new value.
560 RETURN
570 '
580 '
590 'ROGER B. HILL  03-MAY-91
```

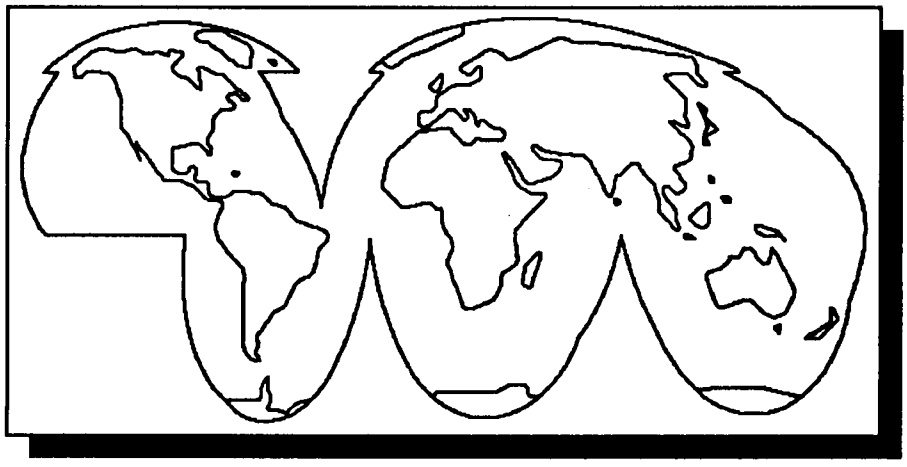
APPENDIX B

OCCUPATIONAL WORK ETHIC INVENTORY (OWEI)

OCCUPATIONAL WORK ETHIC INVENTORY

© 1991 by G. C. Petty

The purpose of this inventory is to obtain information about desirable characteristics of working individuals. Your responses will 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 I can describe myself as:

Descriptors	Never 1	2	3	4	5	6	Always 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. initiating	1	2	3	4	5	6	7
11. perceptive	1	2	3	4	5	6	7
12. honest	1	2	3	4	5	6	7
13. irresponsible	1	2	3	4	5	6	7
14. efficient	1	2	3	4	5	6	7
15. adaptable	1	2	3	4	5	6	7
16. careful	1	2	3	4	5	6	7
17. appreciative	1	2	3	4	5	6	7
18. accurate	1	2	3	4	5	6	7
19. emotionally stable	1	2	3	4	5	6	7
20. conscientious	1	2	3	4	5	6	7

At work I can describe myself as:

Descriptors	*Never* 1	2	3	4	5	6	*Always* 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. devious	1	2	3	4	5	6	7
25. selfish	1	2	3	4	5	6	7
26. negligent	1	2	3	4	5	6	7
27. persevering	1	2	3	4	5	6	7
28. likeable	1	2	3	4	5	6	7
29. helpful	1	2	3	4	5	6	7
30. apathetic	1	2	3	4	5	6	7
31. pleasant	1	2	3	4	5	6	7
32. cooperative	1	2	3	4	5	6	7
33. hard working	1	2	3	4	5	6	7
34. rude	1	2	3	4	5	6	7
35. orderly	1	2	3	4	5	6	7
36. enthusiastic	1	2	3	4	5	6	7
37. cheerful	1	2	3	4	5	6	7
38. persistent	1	2	3	4	5	6	7
39. hostile	1	2	3	4	5	6	7
40. dedicated	1	2	3	4	5	6	7
41. devoted	1	2	3	4	5	6	7
42. courteous	1	2	3	4	5	6	7
43. considerate	1	2	3	4	5	6	7
44. careless	1	2	3	4	5	6	7
45. productive	1	2	3	4	5	6	7
46. well groomed	1	2	3	4	5	6	7
47. friendly	1	2	3	4	5	6	7
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

(OVER PLEASE)

BACKGROUND INFORMATION

DIRECTIONS:

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

(1)Job Title: _____

(2)Category your occupation best fits:

____ administrative, engineering, scientific, teaching, and related occupations, including creative artists
____ technical, clerical, sales, and related occupations
____ service occupations, including military occupations
____ farming, forestry, fishing, and hunting occupations
____ precision production, craft and repair
____ operators, fabricators, and laborers

(3)Are you an owner or part owner of a business?

____ yes
____ no

(4)Do you supervise other workers?

____ yes
____ no

(5)Years of full-time work experience:

____ less than 2 yr.
____ 2 - 8 yr.
____ more than 8 yr.

(6)Sex:

____ female
____ male

(7)Level of education:

____ less than high school diploma
____ high school degree or GED
____ 2 years of college or Associate's degree
____ a Bachelor's Degree
____ some Graduate work

(8)Age:

____ 19 or under
____ 20 - 26
____ 27-35
____ 36-55
____ over 55

(9)Country of citizenship: _____

APPENDIX C

OCCUPATIONAL WORK ETHIC INVENTORY SUBSCALES

OCCUPATIONAL WORK ETHIC INVENTORY SUBSCALES

DEPENDABLE
accurate
careful
dedicated
dependable
depressed[a]
devoted
effective
efficient
emotionally stable
honest
loyal
patient
productive
punctual
reliable
tardy[a]

CONSIDERATE
appreciative
cheerful
considerate
courteous
devious[a]
friendly
helpful
hostile[a]
likeable
modest
pleasant
rude[a]
selfish[a]
well groomed

AMBITIOUS
ambitious
apathetic[a]
conscientious
enthusiastic
hard working
independent
initiating
irresponsible[a]
negligent[a]
persevering
persistent
resourceful

COOPERATIVE
adaptable
careless[a]
cooperative
following regulations
following directions
orderly
perceptive
stubborn[a]

[a]These items reversed.

APPENDIX D

LETTER OF EXPLANATION FOR RESEARCH PROJECT

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

College of Education

Department of Technological and Adult Education

May 20, 1991

Dear Research Participant:

Business, industry, and educational leaders are concerned about the developing and changing work ethic of today's youth, however very little reliable information is available concerning this topic. You and other employees of your firm have been selected at random as one of the participants in this study of the work ethic of Tennessee workers.

The inventory you are asked to complete will only take a few minutes of your time. It is designed to gather information on the occupational work ethic along with some background information regarding your job.

The information collected here will be used by the project staff to identify the work habits, attitudes, and values of workers from different occupational areas. Results of this study will enhance the education and training of today's youth. Your assistance in this effort is very important.

All replies will be kept confidential. Your name is not required on the questionnaire, but I do need the background information on the last page of the inventory.

Your prompt attention to this inventory is essential to the completion of my study. Your participation is vital and your responses are extremely important. I would like to thank you in advance for your help. If you have any questions, please write or call. I may be reached at 615/442-2520 (work) or 615/442-3015 (home) or by mail at Route 3, Box 32570; Oak Grove Road; Madisonville, TN 37354.

Sincerely,

Roger B. Hill
Project Director
Occupational Work Ethic Project

402 Claxton Addition / Knoxville, Tennessee 37996-3400 / (615) 974-2574

APPENDIX E

LETTER OF INTRODUCTION FROM MONROE COUNTY EXECUTIVE

J. ALLAN WATSON
COUNTY EXECUTIVE

MONROE COUNTY • MADISONVILLE, TENNESSEE 37354 • (615) 442-3981

May 21, 1991

Dear Friend:

Monroe County has been selected to participate in a study of the work ethic of Tennessee workers. Roger Hill is the Project Director for this research project at the University of Tennessee in Knoxville, and he will be using a random sample of businesses and industries in the county from which to collect data. He has provided a copy of this letter to you because you are part of that sample.

The purpose of my letter to you is to encourage your participation in this project. The work ethic, particularly as it is imparted to our young people, is of concern to all of us. The results of this research will help vocational counselors and trainers to do a better job in preparing people for work and will ultimately be of benefit to us all.

The design of this research project will protect the confidentiality of individuals and the firms that they work for. You can be assured that the results reported will be categorized in such a way that association with any individual business or industry will not be possible.

Thank you for your time and consideration of these efforts. I am certain that by working together to prepare for the future we can make Monroe County a better place to live and work.

Sincerely,

J. Allan Watson
Monroe County Executive

APPENDIX F

LETTER OF INTRODUCTION FROM PRESIDENT/CEO OF MONROE COUNTY CHAMBER OF COMMERCE



MONROE COUNTY CHAMBER OF COMMERCE
P.O. BOX 37
424 NEW HIGHWAY 68
MADISONVILLE, TENNESSEE 37354
(615) 442-4588

LETTER OF INTRODUCTION

With the increasing demand for a skilled and competent labor force, it is essential that we have a firm understanding of the work ethic of our workers.

The work ethic, workplace literacy, and educational standards are all intertwined and need to be evaluated to insure that we can meet the needs of business and industry.

As President of the Chamber of Commerce, I commend Mr. Roger Hill and encourage your participation in the work ethic survey.

Respectfully,

Beecham C. Willoughby
President/CEO

APPENDIX G

DIALOGUE FOR INTRODUCTION OF RESEARCH PROJECT AND REQUEST FOR PARTICIPATION

Introduction and Request for Assistance

My name is Roger Hill. I am working on a research project at the University of Tennessee in Knoxville, and doing a study of work attitudes and work ethic. I have a random sample of places in Monroe County where people work and your firm is on that list.

I am here to ask if I could leave a questionnaire for each person who works here to fill out and then come by at a later date to pick them up.

APPENDIX H

DIALOGUE FOR TELEPHONE FOLLOW UP WITH RESEARCH PARTICIPANTS

Telephone Follow Up

Hi. This is Roger Hill with the University of Tennessee Work-Ethic Research Project. I left (number) work ethic questionnaires a few days ago to be completed by the people who work there and I'm calling to see if they are ready to be picked up yet.

APPENDIX I

SAS® LOG FOR ANALYSIS OF OWEI DATA

```
1   *** FILE NAME: OWEI.SAS;
2   *** ROGER HILL / Monroe County Study;
3   *** Analysis Using Adjusted Means and Non-Adjusted Means;
4   *** Using PC Version of SAS Release 6.04;
5   *** 07-JAN-92;
6   OPTIONS LS=78 PS=64;
7
8   *** Data input from disk file;
9   DATA WORK;
10    INFILE 'B:OWEI.DAT';
11    INPUT FIRM 1-3 JOBCLASS 4 OWNBUS 5 SUPV 6 WKEXP 7 GENDER 8
12  EDUC 9 AGE 10 COUNTRY 11 Q1 12 Q2 13 Q3 14 Q4 15 Q5 16 Q6 17 Q7
13  18 Q8 19 Q9 20 Q10 21 Q11 22 Q12 23 Q13 24 Q14 25 Q15 26
14  Q16 27 Q17 28 Q18 29 Q19 30 Q20 31 Q21 32 Q22 33 Q23 34
15  Q24 35 Q25 36 Q26 37 Q27 38 Q28 39 Q29 40 Q30 41 Q31 42
16  Q32 43 Q33 44 Q34 45 Q35 46 Q36 47 Q37 48 Q38 49 Q39 50
17  Q40 51 Q41 52 Q42 53 Q43 54 Q44 55 Q45 56 Q46 57 Q47 58
18  Q48 59 Q49 60 Q50 61;
19
20  *** This section used to reverse values for items worded in the
21  negative;
22  ARRAY Q{11} Q2 Q9 Q13 Q21 Q24 Q25 Q26 Q30 Q34 Q39 Q44;
23  DO I=1 TO 11;
24    Q{I}=8-Q{I};
25  END;
26
27  *** Totals items on instrument for total score;
28  T1=SUM(Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q13,Q14,Q15,Q16,
29  Q17,Q18,Q19,Q20,Q21,Q22,Q23,Q24,Q25,Q26,Q27,Q28,Q29,Q30,Q31,Q32,
30  Q33,Q34,Q35,Q36,Q37,Q38,Q39,Q40,Q41,Q42,Q43,Q44,Q45,Q46,Q47,Q48,
31  Q49,Q50);
32
33  *** Mean score for instrument;
34  M1=T1/50;
35
36  *** Combines instrument items for inventory subscales;
37  *** Dependable;
38  TF1=SUM(Q1,Q7,Q8,Q9,Q12,Q14,Q16,Q18,Q19,Q21,Q22,Q23,Q40,Q41,Q45,Q48);
39  F1=TF1/16;
40  *** Ambitious;
41  TF2=SUM(Q5,Q6,Q10,Q13,Q20,Q26,Q27,Q30,Q33,Q36,Q38,Q49);
42  F2=TF2/12;
43  *** Considerate;
44  TF3=SUM(Q17,Q24,Q25,Q28,Q29,Q31,Q34,Q37,Q39,Q42,Q43,Q46,Q47,Q50);
45  F3=TF3/14;
46  *** Cooperative;
47  TF4=SUM(Q2,Q3,Q4,Q11,Q15,Q32,Q35,Q44);
48  F4=TF4/8;
49
50  *** Sets variables for level of empowerment;
51  IF OWNBUS=1 OR SUPV=1 THEN POWER=1;
```

```
  52   IF OWNBUS=2 AND SUPV=2 THEN POWER=2;
  53
  54   *PROC PRINT;
  55   *RUN;
  56
  57   *** Statistical analysis;
  58   PROC GLM;
NOTE: The infile 'B:OWEI.DAT' is file B:\OWEI.DAT.
NOTE: 1201 records were read from the infile B:\OWEI.DAT.
      The minimum record length was 61.
      The maximum record length was 61.
NOTE: Missing values were generated as a result of performing an operation on
      missing values.
      Each place is given by: (Number of times) at (Line):(Column).
      257 at 24:12
      2 at 31:5
      2 at 34:4
      2 at 38:65
      2 at 39:4
      2 at 41:51
      2 at 42:4
      3 at 44:61
      3 at 45:4
      2 at 47:34
      2 at 48:4
NOTE: The data set WORK.WORK has 1201 observations and 71 variables.
NOTE: The DATA statement used 3.55 minutes.
  59     CLASS JOBCLASS;
  60     MODEL TF1-TF4 = JOBCLASS;
  61     MANOVA H=JOBCLASS/PRINTE PRINTH;
  62     MEANS JOBCLASS;
  63     TITLE 'MANOVA FOR JOB CLASSIFICATION - SUBSCALE ITEMS SUMMED';
  64     LABEL F1='Dependable' F2='Ambitious' F3='Considerate'
  65           F4='Cooperative';
  66   RUN;
  67   PROC GLM;
NOTE: The PROCEDURE GLM used 1.15 minutes.
  68     CLASS POWER;
  69     MODEL TF1-TF4 = POWER;
  70     MANOVA H=POWER/PRINTE PRINTH;
  71     MEANS POWER;
  72     TITLE 'MANOVA FOR EMPOWERMENT - SUBSCALE ITEMS SUMMED';
  73     LABEL F1='Dependable' F2='Ambitious' F3='Considerate'
  74           F4='Cooperative';
  75   RUN;
  76   PROC GLM;
NOTE: The PROCEDURE GLM used 1.07 minutes.
  77     CLASS WKEXP;
  78     MODEL TF1-TF4 = WKEXP;
  79     MANOVA H=WKEXP/PRINTE PRINTH;
  80     MEANS WKEXP;
```

```
 81    TITLE 'MANOVA FOR WORK EXPERIENCE - SUBSCALE ITEMS SUMMED';
 82    LABEL F1='Dependable' F2='Ambitious' F3='Considerate'
 83          F4='Cooperative';
 84  RUN;
 85  PROC GLM;
NOTE: The PROCEDURE GLM used 1.07 minutes.
 86    CLASS GENDER;
 87    MODEL TF1-TF4 = GENDER;
 88    MANOVA H=GENDER/PRINTE PRINTH;
 89    MEANS GENDER;
 90    TITLE 'MANOVA FOR GENDER - SUBSCALE ITEMS SUMMED';
 91    LABEL F1='Dependable' F2='Ambitious' F3='Considerate'
 92          F4='Cooperative';
 93  RUN;
 94  PROC GLM;
NOTE: The PROCEDURE GLM used 1.07 minutes.
 95    CLASS EDUC;
 96    MODEL TF1-TF4 = EDUC;
 97    MANOVA H=EDUC/PRINTE PRINTH;
 98    MEANS EDUC;
 99    TITLE 'MANOVA FOR EDUCATION - SUBSCALE ITEMS SUMMED';
100    LABEL F1='Dependable' F2='Ambitious' F3='Considerate'
101          F4='Cooperative';
102  RUN;
103  PROC GLM;
NOTE: The PROCEDURE GLM used 1.08 minutes.
104    CLASS AGE;
105    MODEL TF1-TF4 = AGE;
106    MANOVA H=AGE/PRINTE PRINTH;
107    MEANS AGE;
108    TITLE 'MANOVA FOR AGE - SUBSCALE ITEMS SUMMED';
109    LABEL F1='Dependable' F2='Ambitious' F3='Considerate'
110          F4='Cooperative';
111  RUN;
112
113  PROC FREQ;
NOTE: The PROCEDURE GLM used 1.08 minutes.
114    TABLES JOBCLASS OWNBUS SUPV WKEXP GENDER EDUC AGE;
115    TITLE 'FREQUENCY TABLES FOR INDEPENDENT VARIABLES';
116  RUN;
NOTE: The PROCEDURE FREQ used 45.00 seconds.
```

APPENDIX J

SUMMARY OF RESPONSES FROM PARTICIPATING FIRMS

Type of Firm	#Firms	#Avail.	#Resp.
Accountant	2	9	8
Agricultural Consultant	1	1	1
Agricultural Cooperative	2	4	3
Attorney	4	17	16
Auto Dealer	4	8	8
Auto Parts Store	3	16	15
Auto Body Shop	2	4	4
Auto Repair Shop	4	10	9
Bank	5	45	36
Barber Shop	1	3	3
Beauty Shop	3	4	4
Boat Manufacturer	1	300	205
Book Store	1	2	2
Cabinet Shop	1	4	4
Campground	2	5	3
Chiropractor	3	9	8
City Government	4	17	14
Clothing Manufacturer	1	30	20
Clothing Store	1	4	3
College	1	86	82
Communications Company	1	3	3
Concrete Supplier	1	6	4
Convenience Store	8	36	25
Cosmetics Wholeseller	1	4	4
County Government	4	18	14
Crafts Shop	1	2	2
Cultural Center	1	5	5
Dentist	2	7	6
Electronics Store	2	6	3
Entertainer	1	1	1
Excavation and Paving	3	21	9
Federal Government	1	9	7
Feed Store	1	6	4
Fire Department	1	12	10
Fireworks & Souvenir Store	2	8	7
Florist	1	4	4
Forest Products Manufacturer	1	70	34
Funeral Home	2	4	4
Furniture and Appliance Store	3	5	4
Grocery Store	4	40	16
Gun Shop	1	3	2
Hardware Store	2	9	7
Health Department	1	12	12
Heating & Air Cond. Contractor	1	11	7
Hospital	1	240	75
Insurance Agency	5	18	14

Laundry	2	5	5
Machine Shop	1	3	3
Marble Works	1	4	4
Museum	1	5	3
Medical Doctor	1	5	5
Metal Products Manufacturer	2	25	14
Mobile Home Dealer	2	15	5
Mobile Home Park	1	7	5
Motel	4	81	45
Optometrist	1	3	3
Pharmacy	3	17	17
Police Department	1	18	11
Post Office	1	7	5
Preschool	2	13	10
Printers	1	5	5
Public School	1	45	37
Radio Station	2	8	7
Real Estate Agency	4	18	15
Rental Center	1	3	2
Restaurant	7	94	38
Restaurant Franchise Office	1	2	2
Retirement Home	1	50	6
Service Station	6	22	15
Sewage Plant	1	2	2
Stables	1	1	1
State Government	2	15	14
Textile Manufacturer	1	20	18
Tractor Repair Shop	1	1	1
Trade Union Office	1	2	2
Trophy Shop	1	1	1
Veterinarian	1	6	4
Video Rentals	2	5	5
Wood Products Manufacturer	2	194	160
TOTALS	158	1,840	1,201

APPENDIX K

RESPONSE RATES OF PARTICIPATING FIRMS

Sample Listing by Random Number
Monroe County Business & Industry
Participating Firms Only

Firm Number	Avail.	Resp.	Perc.	City
1	7	5	0.17	Sweetwater
2	5	2	0.40	Sweetwater
3	2	2	1.00	Madisonville
6	3	2	0.67	Sweetwater
9	86	82	0.95	Madisonville
10	2	2	1.00	Tellico Plains
14	2	2	1.00	Madisonville
15	3	2	0.67	Madisonville
19	4	3	0.75	Madisonville
20	14	9	0.64	Madisonville
23	3	3	1.00	Madisonville
25	12	10	0.83	Sweetwater
26	3	3	1.00	Madisonville
27	45	16	0.36	Sweetwater
30	5	5	1.00	Madisonville
32	1	1	1.00	Madisonville
34	4	2	0.50	Sweetwater
35	9	8	0.89	Madisonville
36	1	1	1.00	Madisonville
42	4	4	1.00	Madisonville
45	4	4	1.00	Madisonville
48	1	1	1.00	Sweetwater
49	1	1	1.00	Sweetwater
50	5	2	0.40	Sweetwater
53	12	7	0.58	Sweetwater
54	6	3	0.50	Sweetwater
55	3	3	1.00	Sweetwater
57	7	7	1.00	Sweetwater
75	4	4	1.00	Sweetwater
77	1	1	1.00	Madisonville
80	7	5	0.71	Tellico Plains
81	4	4	1.00	Sweetwater
87	1	1	1.00	Tellico Plains
88	5	3	0.60	Vonore
92	2	2	1.00	Madisonville
93	4	4	1.00	Madisonville
95	2	1	0.05	Sweetwater
98	180	151	0.84	Vonore
101	4	3	0.75	Sweetwater
103	3	3	1.00	Sweetwater
106	7	5	0.71	Sweetwater

120	3	3	1.00	Madisonville
125	5	5	1.00	Sweetwater
127	1	1	1.00	Sweetwater
128	1	1	1.00	Sweetwater
130	5	4	0.80	Sweetwater
137	1	1	1.00	Sweetwater
145	12	7	0.58	Madisonville
152	2	2	1.00	Madisonville
157	12	12	1.00	Madisonville
158	70	34	0.49	Sweetwater
160	2	2	1.00	Madisonville
164	5	5	1.00	Sweetwater
166	3	3	1.00	Sweetwater
170	30	20	0.67	Sweetwater
172	2	2	1.00	Tellico Plains
174	3	3	1.00	Madisonville
176	4	4	1.00	Sweetwater
177	7	5	0.71	Tellico Plains
178	2	2	1.00	Madisonville
181	2	2	1.00	Sweetwater
186	3	3	1.00	Madisonville
190	2	2	1.00	Sweetwater
191	6	4	0.67	Madisonville
199	4	4	1.00	Madisonville
203	5	5	1.00	Sweetwater
204	9	7	0.78	Madisonville
210	3	2	0.67	Madisonville
211	2	2	1.00	Sweetwater
214	7	7	1.00	Sweetwater
225	14	8	0.57	Madisonville
234	1	1	1.00	Sweetwater
239	1	1	1.00	Madisonville
246	8	7	0.88	Madisonville
249	3	2	1.00	Sweetwater
267	10	8	0.80	Madisonville
273	2	1	0.50	Sweetwater
275	2	2	1.00	Madisonville
280	2	2	1.00	Sweetwater
281	6	6	1.00	Vonore
282	45	37	0.82	Madisonville
286	6	5	0.83	Sweetwater
288	20	18	0.90	Madisonville
290	4	3	0.75	Sweetwater
293	240	75	0.31	Sweetwater
294	2	1	0.50	Tellico Plains
296	300	205	0.68	Vonore
298	5	5	1.00	Sweetwater
302	11	7	0.64	Madisonville

308	15	7	0.47	Sweetwater
314	12	11	1.00	Madisonville
322	12	2	0.17	Sweetwater
324	1	1	1.00	Sweetwater
329	8	3	0.38	Vonore
332	4	2	0.50	Sweetwater
337	5	4	0.80	Sweetwater
347	6	4	0.67	Madisonville
349	1	1	1.00	Sweetwater
351	3	3	1.00	Madisonville
352	9	5	0.56	Madisonville
353	1	1	1.00	Tellico Plains
354	2	2	1.00	Sweetwater
356	4	3	0.75	Sweetwater
357	4	2	0.50	Vonore
361	1	1	1.00	Sweetwater
364	50	6	0.12	Sweetwater
372	25	6	0.24	Sweetwater
373	3	3	1.00	Vonore
377	2	2	1.00	Sweetwater
380	4	4	1.00	Sweetwater
381	4	4	1.00	Tellico Plains
384	4	3	0.75	Sweetwater
386	3	3	1.00	Madisonville
387	3	3	1.00	Madisonville
388	4	4	1.00	Tellico Plains
395	5	5	1.00	Sweetwater
419	6	6	1.00	Madisonville
422	2	2	1.00	Madisonville
425	17	11	0.65	Sweetwater
427	4	4	1.00	Madisonville
429	2	1	0.50	Sweetwater
436	3	3	1.00	Madisonville
437	1	1	1.00	Tellico Plains
439	2	2	1.00	Tellico Plains
443	2	2	1.00	Sweetwater
444	6	3	0.50	Sweetwater
446	6	4	0.67	Madisonville
451	2	2	1.00	Madisonville
454	2	2	1.00	Vonore
457	2	2	1.00	Tellico Plains
458	4	4	1.00	Madisonville
461	15	3	0.20	Sweetwater
462	1	11	0.61	Madisonville
464	1	1	1.00	Tellico Plains
466	2	2	1.00	Sweetwater
470	3	3	1.00	Madisonville
474	1	1	1.00	Sweetwater

479	1	1	1.00	Madisonville
480	7	6	0.86	Madisonville
482	3	2	0.67	Madisonville
483	5	5	1.00	Madisonville
497	4	4	1.00	Madisonville
500	1		1.00	Sweetwater
508	10	7	0.70	Sweetwater
511	3	3	1.00	Sweetwater
512	10	4	0.40	Sweetwater
514	1		1.00	Madisonville
517	2	2	1.00	Tellico Plains
521	5	2	0.40	Madisonville
522	2	1	0.50	Madisonville
530	13	13	1.00	Madisonville
531	7	7	1.00	Tellico Plains
552	2	1	1.00	Madisonville
557	30	26	0.87	Sweetwater
560	3	3	1.00	Madisonville
564	7	7	1.00	Madisonville
570	5	4	0.80	Madisonville
576	50	7	0.14	Sweetwater
Total	1840	1201	131.89	

VITA

Roger Brian Hill was born October 16, 1952 in Atlanta, Georgia to Justin Weare Hill, Jr., and Mildred Elura Daniel Hill. He attended primary and secondary schools in Virginia, Georgia, Alabama, and North Carolina prior to graduating from Albemarle Senior High School in 1970. He then attended North Carolina State University, earning a Bachelor of Science Degree in Industrial Arts Education in May of 1974.

After graduating from North Carolina State, Mr. Hill was employed as an instructor of technical drawing a wood technology at Needham Broughton High School. Following four years of experience as a high school instructor, Mr. Hill took a leave of absence from his tenured position with the Wake County Public Schools to pursue a Master's Degree at Northern Illinois University.

From 1978 until 1979 Mr. Hill was a Graduate Teaching Assistant at the NIU Lorado Taft Field Campus, coordinating and providing instruction for elementary age school children in residential outdoor education field experiences and for NIU undergraduate education majors doing internships at the field campus. He earned the Master of Science Degree in Education, with a major in Curriculum and Instruction Outdoor Teacher Education and Educational Administration in August of 1979. At this time he was also received his school principal's certification in Illinois and in North Carolina.

Choosing to pursue a faculty position in higher education, Mr. Hill resigned his position with Wake County Public Schools and accepted an appointment at Hiwassee College as an Assistant Professor, providing instruction for Engineering Graphics and Industrial Education courses. He continues to serve on the Hiwassee faculty as a tenured

Associate Professor teaching courses in computer programming and applications, engineering graphics, and a variety of industrial education courses.

Mr. Hill began his doctoral studies at the University of Tennessee, Knoxville during the winter of 1987 and took a leave of absence from Hiwassee to accept a Graduate Research Assistantship during the 1989-90 term. After completing Ph.D. residency requirements, and working for a summer authoring computer user manuals for a local industry, Mr. Hill returned to his faculty position at Hiwassee College.