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I am submitting herewith a dissertation written by Vivian Jean Bush entitled "Development of a Work-Ethic Scale for Middle School Students." 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.

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**Development of a Work-Ethic Scale
for Middle School Students**

A Dissertation
Presented for the
Doctor of Philosophy
Degree
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Abstract

Attitudes about work coalesce throughout one's childhood to form a person's work ethic. Although a work ethic begins to develop in the early grades, most students do not make the connection until middle school between their attitude toward work and their future success. The purpose of this study was to develop a psychometrically sound Work-Ethic Scale to be utilized with middle school students. This 12-item scale is part of a larger survey called the Middle School Survey and measures work ethic based on the intrinsic and extrinsic benefits of work. The survey also includes 12 items related to the valuing of school and 4 items measuring social desirability.

The Work-Ethic Scale was administered by social studies teachers to 1239 students in three U.S. middle schools (a suburban school in the northeastern United States and an urban and a suburban school in the southeastern United States). Social studies teachers were also asked to rate each student's past academic performance as either "poor," "average," or "outstanding." In addition, teachers filled out a Student Work-Habits Form for the two students in their class they judged to have the best work habits and the two they judged to have the worst work habits. Internal consistency for the 12 work-ethic items was determined by using the Kuder-Richardson formula 20. Social desirability of student responses was investigated by correlating the work-ethic scores with the social-desirability (SD) scores. Work-ethic scores were also analyzed by demographic factors (i.e., gender, grade level, and ethnicity), using analysis of variance and follow-up *t*-tests.

The average work-ethic (WE) score for the total sample was 8.31, well above the midpoint of the 0 to 12 scale. Girls obtained a significantly higher WE mean than boys, and eighth graders obtained significantly higher WE mean than both sixth and seventh graders. For the three largest ethnic groups in the sample, Caucasians scored significantly higher on the WE scale than Hispanics, but not higher than African Americans.

Both classical item statistics and item response theory showed that most WE items tended to yield pro-work responses. Overall, the negatively worded items produced more balanced responding than did the positive items. The item analysis also indicated that most items were moderately correlated with scores on the WE scale. In general, the negative items were more highly correlated with the total WE scores than were the positive items. A test of internal consistency showed that the WE scale was marginally reliable (.70), with all items contributing similarly to the internal consistency of the scale.

The validity of the WE scale was examined via an assessment of both criterion-related and construct-related validity. Concurrent and known-groups validity assessment showed evidence of criterion-related validity. The combined negative items were more strongly linked to the performance ratings than were the combined positive items. Construct validity was examined through a series of exploratory and confirmatory factor analysis. The conclusion from the factor analysis was that the instrument is best represented as a two-factor scale, with the primary factor reflecting the objective benefits of work and the secondary factor reflecting the affective comfort with one's work.

Some differences in trends were found across schools. The suburban school in the Southeast (school 3) had a significantly higher WE mean than the other two schools,

and the urban school in the Southeast (school 2) had the lowest WE mean. All WE means across schools were significantly different from each other (minimum $p < .05$).

Two findings from school 2 (the urban Southeast school) suggest caution in interpreting the data from that school. It had the lowest K-R 20 coefficient and the highest SD mean of any school. Nonetheless, one group comparison in school 2 is worth noting: African American students obtained a significantly higher ($p < .0001$) WE mean (7.83) than did the Caucasian students (6.19). This trend is different from that found in the total sample. The credibility of this ethnic comparison in school 2 is reinforced by the similar SD means for African American and Caucasian students in that school.

The largest number of students in the total sample came from school 3 ($n = 644$). Two features of the data from school 3 gave added confidence in the results: the internal consistency on the WE scale was as high as that obtained in any school, and the SD mean for school 3 was significantly lower than those obtained by the other schools. The most unequivocal evidence for known-groups validity of the WE scale came from this school, with significant differences between all achievement and work-habits groups. In contrast to the ethnic comparison in school 2, Caucasians obtained a slightly higher, although not statistically significant, WE mean (8.70) than did the African Americans (8.48) in school 3.

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CHAPTER I

Introduction

All persons and experiences in a child's life likely play a role in developing values. This diffusion of influence is an advantage, because one or two negative influences are not likely to dictate the child's values. Of the societal institutions that influence children, home and school are the most important. In a school setting, many different individuals (such as teachers, counselors, administrators, and peers) can influence a child. The development of values and attitudes in school can have far reaching effects, affecting individuals' behavior into adulthood.

Statement of the Problem

By the twenty-first century, schools will need to develop programs to integrate high schools and the work force. According to Smith and Rojewski (1993), legislation in some states already requires a "school-to-work" program as part of the curriculum. Although specific job skills are important targets in this program, there is perhaps a greater need to promote a generic work ethic. Failure to see the value of work can lead to a number of adverse consequences. Students may not develop the job skills they need or may not apply the skills they have; they may receive little satisfaction from completing tasks; or they may not appreciate the intrinsic and extrinsic benefits of hard work. Identifying students who do not value work by middle school alerts educators to target these students in the promotion of work values.

A review of relevant literature indicates that previous researchers have defined work ethic differently from each other. Previous scales on work values or work ethics

were largely designed to measure attractiveness of various work situations. Assessment has focused on why various careers are attractive (e.g., Hales & Fenner, 1972; Maguire, Romaniuk, & MacRury, 1982; Perrone, 1965; 1967; Steffire, 1959; Super, 1971; Weber, 1958; Wijting, Arnold, & Conrad, 1977; 1978; Wollack, Goodale, Wijting, & Smith, 1971). For example, a person might value "money" as an important aspect of a job and, therefore, look for a career and a job that paid well. Another person might place emphasis on "prestige" and "independence" and, consequently, be attracted to a job offering these possibilities. The current study takes its meaning of work ethic from Max Weber (1958) and his theory on the Protestant Work Ethic. Work ethic will therefore be defined as the extent to which work is perceived as satisfying and useful.

Another problem in delineating the role of work ethic is that most work value scales have been designed for adults and high school students. This investigator could find no scale that has been developed for middle school children to measure work ethic as a personal value applicable across time and situations. As Hales and Fenner (1972) note, "Unfortunately, efforts to shed light on the value patterns of students in junior high school and the intermediate grades have been somewhat hampered by the lack of appropriate instruments to measure such variables" (p. 199).

One last reason for the current research is that the research on work ethics as originally defined by Weber (1958) is not contemporary. The most recent literature on the topic is in the early 1980s, although most of the information stems from research conducted from the 1950s through the 1970s. Also Weber's research focused primarily on Protestant's work ethic and does not generalize well across religious groups.

The purpose of this research was to develop a psychometrically sound scale to assess the work ethic of middle school students. The development of this scale is an important part of a long-range educational strategy for promoting a healthy regard for the importance and meaning of work. It is hoped that the scale will provide a means of assessing the effectiveness of instructional strategies designed to promote a healthy work ethic in children.

Theoretical Foundation

Humanists assume that all people have certain needs they strive to meet. Abraham Maslow's humanistic theory is based on the premise that all people are basically good. That is, unless culturally deprived, they will naturally strive toward "good" ends. The drive to satisfy basic needs is instinctual, because all human beings innately pursue psychological growth and health (DeCarvalho, 1991). People strive to fulfill the most basic needs first and, once this goal is achieved, higher order needs can become salient. Maslow (1970) believed that a desire cannot emerge unless other prepotent desires are satisfied. Once these needs have been met, individuals would strive to satisfy higher level needs: the highest level being self-actualization and psychological health.

Maslow (1970) broke needs into two types: deficiency needs and growth needs. Deficiency needs include physiological necessities, safety, love and belongingness, and self-esteem needs. Growth needs--which include knowledge, aesthetic needs, and self-actualization--become motivators only after basic needs are met. The more consistently growth needs are met, the greater the quest for additional knowledge and intellectual growth (Maslow, 1970).

Physiological and safety needs are the most basic deficiency needs. Physiological needs primarily relate to hunger and thirst, whereas safety needs include shelter and the drive for "security, protection, structure, law, order, limits, and freedom from fear and chaos" (Ryckman, 1989, p. 347). For most human beings, work plays an important role in meeting these needs. Work enables individuals to have the resources to feed and shelter themselves.

Belongingness and love needs represent the next level of Maslow's hierarchy. These include the drive to affiliate with others, to belong, and to be accepted (Hall, 1983). Maslow believed that everyone receives gratification through some means, whether it is through friends, family life, or organizational memberships (Ryckman, 1989). Work also provides some satisfaction for this need by allowing a person to be included in a group or organization where bonding can occur.

Esteem and positive self-regard needs are the last of the deficiency needs. These needs include two areas: "esteem based on respect for our own competence, independence, and accomplishments, and esteem based on evaluation from others" (Ryckman, 1989, p. 348). Work can be a major avenue for satisfying esteem needs. Work accomplishments and status often contribute to one's sense of personal adequacy (Maslow, 1970). However, this increase in esteem is intimately linked to social feedback. Maslow stressed the point that esteem must be based on earned respect from others. Work is one of life's most powerful arenas for earning and losing respect (Hjelle & Ziegler, 1976).

Once the deficiency needs are met, a person begins striving to fulfill growth needs. The first level includes knowledge needs, i.e., knowing about the world around oneself. The second level is aesthetic needs, which involve an appreciation of the beauty in the world and feeling enjoyment from seeing that beauty (Rothstein, 1990). If Maslow's contention is correct, then one may argue that work can help meet aesthetic needs by providing knowledge through skills learned at a job. Some types of work may also involve an analysis, preservation, or creation of beauty. Some artists, musicians, or writers, for example, may be motivated by the prospect of aesthetic satisfaction in their work.

Although self-actualization is the ultimate life goal, few people achieve this level. The quest for self-actualization begins when a person has consistently satisfied all of the deficiency needs and turned his or her attention to satisfying growth needs. Self-actualization involves knowing one's unique potential and allowing that potential to be creatively expressed. Self-actualized people, among other things, are devoted to "beloved" work or a vocation (Maslow, 1971). Maslow (1971) notes that in talking with a self-actualized person "one gets the feeling of a beloved job . . ." (p. 301). Thus, work becomes increasingly important in fulfilling one's highest psychological needs. As Steers and Porter (1975) state, "From a psychological standpoint, it [work] can be an important source of identity, self-esteem, and self-actualization. It can provide a sense of fulfillment by giving an employee a sense of purpose and by clarifying his value to society" (p. 552).

One weakness in Maslow's theory is that it does not account for some instances when growth needs are pursued even when basic needs have not been met. For example,

mother Teresa, seemed to give greater attention to psychological and spiritual needs than to her basic needs. She appeared to strive to meet higher order needs without regard for fulfilling her basic needs. It is possible, therefore, that the value attached to one's work may exceed the importance of meeting more immediate basic needs.

Research Questions

Given that work can play a significant role in the satisfaction of a variety of human needs, the current study will seek to add to the psychometric development of a middle school measure of work ethic by addressing the following questions:

1. Does this Middle School Work-Ethic Scale provide a reliable and valid assessment of middle schoolers' work ethic?
2. What role do ethnicity, gender, and grade level play in work ethic dynamics?

Overview

In Chapter II, the history of the concept of work ethic will be addressed. This chapter will first address how the term "work ethic" evolved from Max Weber's Protestant Ethic. Cherrington's (1980) continuum of the importance of work will also be described. The points of this continuum go from A (workaholic) to G (mind-numbing violence). Chapter II will also look at the various influences (family and school) that aid in the development of the work ethic and the stages at which each influence is most salient. The chapter also describes prior instruments intended to assess work values and summarizes research utilizing some of these instruments. Finally, research related to ethnic, gender, and grade differences in value development will be examined.

In Chapter III, the methodology used to conduct a preliminary study and the ways in which that study led to the final Work-Ethic Scale of the current study will be explained. The three instruments used in the current study; the Middle-School Survey, the Student Work-Habits Form, and the Teacher Rating Form will be described. Then the participants from the three schools will be identified, as well as the procedures for administration of the instruments.

In Chapter IV, the results of the study will be described narratively and presented in tables. Results for the total group will be given first and then for each school separately. Chapter V will discuss the contributions and limitations of the current study. Implications of the findings and directions for future research in the development of the Work-Ethic Scale will complete this chapter.

CHAPTER II

Relevant Literature

The term “work ethic” has been used since the turn of the century but did not gain popularity until the 1950s. In fact, research in this area proliferated from the 1950s through the 1970s. That research, however, focused mostly on adults. Although research has continued, the middle-childhood (pre-adolescent) age group continues to be ignored by work-ethic investigators. Therefore, the focus of this research is the work ethic of the middle school student.

History of the Concept of Work Ethic

The ancient Greeks viewed work as a necessary evil (Super & Sverko, 1995). During the Reformation period, work began to be glorified. Martin Luther preached that work was a way to serve God. He viewed having a job as a “calling” and the path to salvation (Super & Sverko, 1995). John Calvin further developed this idea by insisting that “all human beings, without exception, must work, but they must not enjoy the products of their effort” (Super & Sverko, 1995, p. 4). This notion became widely accepted and eventually became the moral code known as Protestant Ethic (Super & Sverko, 1995). The term “Protestant Ethic” was introduced by a German, Max Weber (1958), and has become the cornerstone of work ethic literature. Although his work has been translated into English by many different writers, the interpretation of the term tends to be consistent. Weber believed that leisure or a lack of involvement in work was, in principle, the deadliest of all sins (Weber, 1958). Working hard was considered the only

way to avoid other temptations. Weber (1958) also viewed work as a calling that all people must follow in order to be in "God's glory."

The 1920s through the 1940s, Weber observed what he interpreted as a decline in the Protestant work ethic. Because he perceived the Protestant ethic as being replaced by a focus on material goods, he developed the Protestant Work Ethics Scale to measure work ethics of Protestant people (Weber, 1958). Since then numerous studies have been conducted to apply the Protestant Work Ethic to groups other than Protestants and to develop new ways to measure work ethics (Kuldau & Hollis, 1971; Maguire, Romaniuk, & MacRury, 1982; Pryor, 1982; Super, 1971; Wollack, Goodale, Wijting, & Smith, 1971).

To synthesize the diverse perspectives of work ethics, Cherrington (1980) developed a continuum to represent different levels of work values. The points on the continuum (A to G) extend from work that is extremely desirable (point A) to work that is extremely undesirable (point G). Cherrington uses descriptive labels in categorizing the points on his continuum. Point A is labeled Workaholic. Points B and C, the most pertinent to the current study, are the Work Ethic. Points D and E are labeled Worth Ethic, and points F and G are Leisure Ethic.

At point A on the continuum (Workaholic), a person places work above all other considerations, to the detriment of other aspects of life. The person's work is an uncontrollable compulsion. One is addicted to his or her job in the truest sense of the word and will create work if there is nothing productive to do. Unlike the person who

gains extreme pleasure from work, the rewards of work for the workaholic are the removal of fear, uncertainty, or guilt. The workaholic feels uncomfortable if not working.

At point B on the continuum, work is seen as a Terminal Value. This person is dedicated to his or her work because it is a positive virtue. Work is synonymous with good character and it is described with such labels as "industry, perseverance, diligence, initiative, and devotion to one's calling" (Cherrington, 1980, p. 26). A person operating at point B believes he or she must work to be industrious. This moral obligation to work may or may not have religious connotations. Of all the points on the continuum, Terminal Value is the most similar to Weber's (1958) description of the Protestant Work Ethic.

Generalized Instrumental Value is point C on Cherrington's (1980) continuum. At this point, a person works because it contributes to other worthwhile goals. Work is seen as rewarding because of its ability to contribute to society or the community. Work is not rewarding as a virtue in itself. The current study focuses mainly on points B and C of Cherrington's continuum (1980).

Point D is Self-Evaluation. At this point in the continuum, work leads to an increase in self-esteem. A person feels competent and worthy because he or she can master work tasks. Although self-esteem is affected by work at all the points on the continuum, a separate classification is essential to identify work's significant impact on self-esteem.

Cherrington (1980) identified point E as Specific Instrumental Value. A person at this point sees work as positive because it provides such rewards and satisfaction as money, recognition, and status. Points D and E are sometimes referred to as the Worth

Ethic, because work is positive only in terms of how a particular job contributes to the worker. Work is self-serving at point E on Cherrington's continuum.

Unfortunate Obligation is the term used to describe point F on the continuum. Work is seen as undesirable or neutral. A person at this point has primary interests away from work; work is secondary to other life activities and values. Like point E, work is used as a way to obtain money and to achieve other, nonwork, goals and interests. This is why points F and G have been called the Leisure Ethic, because work is primarily used to generate resources that can be applied to leisure pursuits.

The last point on the continuum is G - Mind-Numbing Violence. This person feels work has no rewards or importance and is viewed as punishing and undesirable. According to Cherrington (1980), a person at this point sees work as not exciting in any way--it is mundane and tiring.

Development of Work Ethic

The development of a work ethic is intimately linked to what children experience in their environment. As a part of that environment, parents and school systems have a significant impact on work ethics. Children first learn social attitudes and values from their parents and then from peers and teachers (Super, 1957). Norris (1969) states that teachers and parents are the primary influences on attitude formation.

The assumption that a work ethic develops from what children observe in others is consistent with Bandura's (1977) theory of modeling. Bandura contended that behavior does not have to be directly reinforced to be acquired. Acquisition may be promoted through modeling and observational learning. Children learn by imitating behavior that

someone has performed or modeled (Hall, 1983). Observational learning is defined as learning that occurs when an individual pays attention to the consequences given for performing a particular behavior (Hall, 1983). If favorable consequences follow the model's behavior, the observer may be inclined to repeat the behavior. Thus, children may develop a work ethic by observing people engaged in work and seeing the favorable consequences that follow work activities. Bandura stated, "Modeling has always been acknowledged to be one of the most powerful means of transmitting values, attitudes, and patterns of thought and behavior" (Bandura, 1986, p. 47). The effect of modeling on the acquisition of values begins early in a child's life.

Early Childhood

During the preschool years, parents are the primary influence in young children's lives and "home is the most important social institution in determining the code of behavior that will be established in early life" (Cruze, 1953, p. 253). If parents repeatedly model constructive work habits in a child's presence, the child is more likely to develop a strong work ethic. Once children begin attending school, however, they are increasingly influenced by individuals outside their family (Neff, 1985).

During early childhood, a child uses play to mimic work behavior seen in parents; but the child is not expected to produce a tangible product. As Neff stated, "The young child is not yet being faced with the requirement to do anything that bears directly on the future ability to work" (1985, p. 162). However, one may infer from Bandura's theory that young children begin to develop a work ethic from observations they make of their caretakers' work habits and comments about work.

Middle Childhood

Neff (1985) proposed in his general theory of work that early childhood (pre-school age) sets the stage for value development, but that the critical formation of a work attitude occurs during middle childhood. This theory is supported by Super (1957) and Ginzberg, Ginsberg, Axelrod, and Herma (1951), who contend that vocational development typically begins when the child is around 11 or 12 years old.

The middle childhood years include the ages when the child begins formal schooling (around 6 years old) and extends into early adolescence (13-15 years old). During this time, children come to know what parents expect of them when they grow up. School achievement is either reinforced or discouraged by parents. Children view parents as models for their own future and start to develop a set of values concerning work that closely approximates what they see in their parents. Media, public figures, and later, teenage subcultures also play a significant role in determining values toward work. As Neff (1985) observes, "Depending upon the variable strength and congruence among all these influences, the child develops his individual set of attitudes to work" (p. 164).

Therefore, the middle childhood period (school-age through early adolescence) is a time when a wide range of environmental influences are affecting a child's development of a work ethic (Neff, 1985). This is the time when children leave their family for long periods during the day to interact with other significant role models. At school, children experience a work role usually for the first time and learn much more than cognitive skills. Children learn to meet time demands, such as being at school on time and engaging in and completing tasks in a timely fashion. They learn to be productive, to meet standards, and

to become task-oriented. The child must also learn social skills that are important in school and, eventually, work settings. As Neff (1985) observed, "The child's schooling begins the long process of erosion of the ties that bind him to the parents that ends in the more or less independent existence of the working adult" (1985, p. 162).

In school, the child also begins to discriminate between the demands of work and play. According to Apple and King (1977), work is defined by children as time that is controlled and/or directed by someone else toward an identifiable end. Play offers more opportunity for free choice on the child's part. Children learn that play is engaged in only after work is done (Apple & King, 1977). Through the accumulation of school experiences, children develop longer attention spans and learn "the meanings and values associated with work, the rewards and sanctions for achievement and nonachievement and the effects (both positive and negative) that become associated with being productive" (Neff, 1985, p. 163).

Related Instruments

Many instruments have been developed to measure the construct of the work ethic. Two major problems in measuring work ethic are the absence of a universal definition for the construct and the use of different labels for the same construct. Definitions differ primarily with respect to their emphasis on the intrinsic and extrinsic value of work. Diversity in terminology is illustrated by the use of "job attitude" and "work habits" to represent the same construct as "work ethic." Lawler and Hall (1970) have identified three distinct types of job attitudes: job involvement, job satisfaction, and intrinsic motivation. Although these constructs are conceptually linked to the construct of work

ethic, they do not precisely reflect work ethic as assessed in the current study.

Instruments that can be classified in Lawler and Hall's three categories are described below. Most of the scales were developed for use with high school or adult subjects. A brief description of the psychometric features of the instruments in Lawler and Hall's categories is provided in Table II-1.

Job Involvement

Job involvement is defined as the degree to which the job situation is important to the person's identity. A scale measuring this construct would include items such as, "The most important things that happen to me involve my job" (Lawler & Hall, 1970, p. 309). In this example, the word "job" appears equivalent to the word "work" as used in the current study. Three instruments were identified that primarily measure job involvement. Although only one of these is widely used today, all three were developed for use with older students.

The Work Values Inventory (WVI) developed by Super (1970) is one of the most popular work values surveys used today. This inventory measures the extent to which "values affect satisfaction with a given position" (Zytowski, 1970, p. 179). It assesses fifteen values: Social, Art, Mastery, Variety, Independence, Boss, Security, Theory, Prestige, Way of Life, Associates, Conditions of Work, Planning-Supervision, Creativity, and Economic Material. This scale was developed for grades seven and higher. The respondent is asked to rate the importance of each statement on the WVI. An example of an item on the WVI is "work which provides opportunity for independent thinking and for learning how and why things work" (Super, 1970, p. 9).

Table II-1 Related Instruments: Items and Scales, Reliability, and Validity

INSTRUMENTS	ITEMS & SCALES	RELIABILITY	VALIDITY
Job Involvement			
WVI	45 items 15 scales	test-retest median=.83 range=.74-.88	criterion-measures of intelligence, interest, and achievement
OARS	90 items 5 clusters	KR-20=.66-.80	construct-differentiation among groups in career goals**
AVL	4 items*	split-half=.84-.95	factor analysis = 5 independent clusters
Job Satisfaction			
MIQ	20 scales 5 items each	test-retest=.48-.89 (6 mth & immediate) Internal Consistency = .77-.81	construct-differentiation among 9 occupational groups factor analysis = 6 factors (another study = 2 factors)
WAPS	38 items 13 subscales	not reported	construct-group differentiation factor analysis = 13 scales
JDI	5 variables	split-half > .80	acceptable convergent & discriminatory validity
KODI	40 items 6 factors	not reported	construct-differentiation among sex, community setting, & grade level content-panel of professionals
OWVI	77 items 11 scales	median scale (across grade)=.87	construct-factor analysis=11 factors
VVI	168 items 7 values	range = .69-.91	construct-group differentiation (1 value doesn't differentiate well)
Intrinsic Motivation			
SWV	67 items 6 subscales	test-retest (1 mth)=.65-.76 Alpha range = .53-.66	construct-group differentiation among occupational groups and background
SATW	75 items 15 scales	test-retest (1 mth)=.46-.70	construct-group differentiation among age, sex, work experience, & vocational goals
PWE	19 items	KR-20 = .79	convergent-positive sig. correlation construct-principal component analysis-4 primary factors

* only 4 items related to work.

** Wherry-Gaylord Iterative factor analysis procedure (1951).

Note: Full titles for the instruments are provided in the text.

O'Connor and Kinnane (1961) administered the WVI to college students to examine the adequacy of Super's (1957) fifteen subscale typology and Ginzberg's (1951) three category typology of work values. Ginzberg's three categories of work-derived satisfaction were work itself, the returns of work, and the concomitants of work (e.g., work settings or certain co-workers or supervisors). The intent of O'Connor and Kinnane was to examine whether the WVI factor structure matched either Super or Ginzberg's typology. In conducting their research, O'Connor and Kinnane modified the WVI to be a four-point rating scale, with the points based on level of importance of each item in making a decision about a job. Their analyses resulted in six primary factors and no clear-cut second order factors. These results indicate that Ginzberg's three categories are too broad and Super's (1970) fifteen work value definitions are too discrete. O'Connor and Kinnane did conclude, however, that Super's work values could be classified under Ginzberg's three categories.

The WVI and the Career Maturity Inventory (Crites, 1978) were administered to ninth and eleventh grade boys and girls (Post-Kammer, 1987) to assess intrinsic and extrinsic work values across grades and gender. The researcher found that work values became more intrinsic between the ninth and eleventh grades. There was no significant correlations between grade levels and extrinsic work values. Post-Kammer (1987) also found that girls primarily valued Achievement, Altruism, Way of Life, and Variety, while boys primarily valued Security, Management, Economic Returns, and Independence.

Miller (1974) examined correlations between work values as measured by the WVI and vocational maturity as measured by the Vocational Development Inventory (VDI;

Crites, 1971). Miller hypothesized that vocational maturity was positively correlated with intrinsic work values and negatively correlated with extrinsic work values. Miller grouped the fifteen WVI scales into two categories: intrinsic work values (Achievement, Intellectual Stimulation, Management, Altruism, Esthetics, and Creativity) and extrinsic work values (Variety, Economic Returns, Associates, Prestige, Way of Life, Surroundings, Supervisory Relations, Security, and Independence). Among college students, Miller found that some positive correlations between vocational maturity and work values were significant for females but not for males. For females, two intrinsic work values were positively correlated with vocational maturity. For males, there were no significant positive correlations between vocational maturity and intrinsic work values.

For extrinsic work values, three yielded significant negative correlations with vocational maturity for males and five yielded significant negative correlations with vocational maturity for females. In other words, out of eighteen correlations between extrinsic values and vocational maturity, only eight were statistically significant. The negative correlation between one extrinsic value, Associates, and vocational maturity was significant for both males and females; it also yielded the highest correlation within each gender group. Miller's hypothesis regarding the linkage between vocational maturity and work values was partly supported through the correlations involving extrinsic values, but the correlations involving intrinsic values provided little support. Miller linked his hypothesis to Maslow's hierarchy of needs. Immature subjects need to meet extrinsic needs first. As subjects mature, a person begins to value extrinsic rewards less and intrinsic benefits more.

Using the WVI, Thomas (1974) investigated possible effects of socioeconomic status, race, and gender on work values of ninth grade students. Thomas found significant differences for each demographic variable on at least one of the fifteen WVI scales. For example, black and white students showed significant differences ($p < .01$) in means on the following variables: Associates, Variety, Intellectual Stimulation, and Altruism. Males and females had significant mean differences on Creativity and Altruism ($p < .01$). White subjects in all cases expressed higher work value scores than black students. Similarly, for Creativity and Altruism, females had significantly higher work values than males. High social-position students expressed higher work values on Altruism than did the students with low social positions.

Bolton (1980) evaluated the WVI (Super, 1970) to test whether six second-order dimensions of work-relevant values would offer a better framework than the current 15 WVI scales. Previously, Gable and Pruzek (1971) confirmed that the 45 WVI items were grouped appropriately into fifteen scales, but Bolton intended to show that the WVI items also could be divided into six broader categories as determined by O'Conner and Kinnane (1961). Bolton, using principal components analysis, found that six second-order dimensions emerged: (1) Stimulating Work, (2) Interpersonal Satisfaction, (3) Economic Security, (4) Responsible Autonomy, (5) Comfortable Existence, and (6) Esthetic Concerns.

The Occupational Attitude Rating Scales (OARS; Hammond, 1954) and The Allport-Vernon-Lindzey Study of Values (AVL; Allport, Vernon, & Lindzey, 1960) have both been used to assess college students' job involvement and job satisfaction. The

OARS was developed to measure attitudes toward life, which may influence a person's vocational choice. Items on the OARS are rated on degree of liking/disliking. An example of an item on the OARS is "get ahead rapidly" (Hammond, 1954, p. 472). The AVL which measures life values, was developed for people in grades 10 through adult and has been used for vocational advising.

Job Satisfaction

Job satisfaction, as defined by Lawler and Hall (1970), refers to the amount of control a person perceives he or she has at a job and how important that control is to the person. Job satisfaction scales include such items as "I have opportunities for personal growth and development in my position" (Lawler & Hall, 1970, p. 309). Of the scales currently available to measure job satisfaction, only two were developed for elementary or middle school children. The other instruments were developed for high school students or adults. The reason the two scales that focus on younger children were not used in the current study was that they measure job satisfaction rather than intrinsic work motivation.

The Minnesota Importance Questionnaire (MIQ) was developed to assess what is considered important in an ideal job (Gay, Weiss, Hendel, Dawis, & Lofquist, 1971). An example of an item on this scale for adults is "The job would provide an opportunity for advancement" (p. 327). The MIQ has been used in the study of genetic and environmental contributors to work values (Keller, Bouchard, Arvey, Segal, & Dawis, 1992). Studying monozygotic and dizygotic twins reared apart, the researchers found a significant genetic component that accounted for 40% of the variance in work values. Consequently, 60% of the variance could be attributed to environmental differences and error.

The Work Aspect Preference Scale (WAPS; Pryor, 1982) has items that measure mostly job satisfaction, but it also contains items that address job involvement. It was developed for high school students to assess what they consider important in work. Items include "a concern for the work of others" and "a concern for being able to separate work and its influence from other parts of one's life" (Pryor, 1982, p. 44). The psychometric properties of the WAPS are reported as acceptable (Macnab & Fitzsimmons, 1987). The test-retest reliability coefficients are represented as satisfactory for research purposes (Pryor, 1981), but specific information regarding other psychometric properties is not reported.

Pryor (1982) conducted two studies in the development of the WAPS. The first used a second version of the WAPS (WAPS2), which was subsequently used to develop a final version of the WAPS (WAPS3). The second study used the WAPS3 for its data. The same thirteen subscales were identified in both studies: Self-Development, Security, Independence, Creativity, Altruism, Management, Money, Prestige, Co-Workers, Physical Activity, Detachment, Life-Style, and Surroundings. The remarkable similarity in the two studies indicated that replication of the general structure underlying the data was successful.

Vondracek, Shimizu, Schulenberg, Hostetler, and Sakayanagi (1990) used the WAPS and its thirteen subscales to determine whether the characteristics of work are more important to Japanese or American students. The thirteen subscales were the dependent variables. The full-factorial multivariate analysis of variance used a 2 X 2 X 2 design with country (United States of America vs. Japan), grade level (junior high, grades

7, 8, 9 vs. senior high, grades 10, 11, 12), and gender (male vs. female) as the dimensions of the matrix.

Overall, there were significant differences between grade level, country, and gender. The results showed that American students scored significantly higher on twelve of the thirteen subscales of the WAPS, indicating that American students had stronger work preferences. The only subscale on which Japanese students rated significantly higher than American students was Creativity. Senior high school students rated Independence and Detachment as more important than did the junior high school subjects, but the junior high school students rated Management and Altruism as more important. Females rated Surroundings, Altruism, Self-Development and Co-Workers as more important than did the male students. Males placed more importance on Money, Detachment, Physical Activity, Creativity, and Management. After further analysis, the researchers found that Americans tend to answer questions at greater extremes than the Japanese students; so the results based on a Likert scale may not accurately reflect cultural differences in work values.

Macnab and Fitzsimmons (1987) used the MIQ (Gay et al., 1971), the WVI (Super, 1970), and the WAPS (Pryor, 1982) to assess work needs, values, and preferences in undergraduate students. Eight traits were studied for each of the three instruments. One other instrument used in this study was the Value Scale (not addressed in this study because of its lack of relation specifically to work). The findings indicate that although the instruments were somewhat different, the convergent and discriminant validity analysis

results showed that the eight matched traits on all four instruments measured highly similar constructs.

Several scales measure job satisfaction exclusively: The Job Descriptive Index (JDI; Smith, Kendall, & Hulin, 1969), The Kuldau Occupational Development Inventory (KODI; Kuldau & Hollis, 1971), The Ohio Work Values Inventory (OWVI; Hales & Fenner, 1975), and The Vocational Values Inventory (VVI; Steffle, 1959). Although these scales were developed for different age groups, all attempt to measure some aspect of job satisfaction.

The JDI (Smith, Kendall, & Hulin, 1969) measures job satisfaction in working adults in relationship to such variables as people, supervisor, and pay. All items on the JDI are forced choice: a person answers "Y" if the item describes their job or "N" if the item does not. An example of an item from the JDI is "gives sense of accomplishment" (Smith et al., 1969, p. 83).

Stone and Porter (1975) used the JDI (Smith et al., 1969) to measure several aspects of job satisfaction. In their study, the researchers assessed blue- and white-collar workers holding sixteen different job titles on their level of job satisfaction. The results demonstrated that 53% of the variance in individual's attitudes could be attributed to their particular job.

The KODI was developed to measure children's acquired attitudes toward the world of work in fourth through sixth grades. The six factors that were used as the basis for this instrument's development were Money, Status and Prestige, Working Conditions, Leadership, Independence on the Job, and Self-Expression. Items were correlated with

every other item on the scale. Items had to reach .30 level of item-total correlation to be accepted in the final form of the KODI (Kuldau & Hollis, 1976). Although reliability was reported as "being established through current research" (p. 1230), no such research has been presented. An example of an item on the KODI is "The most important reason a person works is to make money" (Kuldau & Hollis, 1976, p. 1230).

The Ohio Work Values Inventory (OWVI) was also developed to measure work values for elementary and middle school students. An example of an item on the OWVI is "valuing jobs which permit one to work alone" (Hales & Fenner, 1975, p. 20). Hales and Fenner (1972) conducted a study using an experimental form of the OWVI in which they evaluated fifth, eighth, and eleventh grade students' work values. They found that students in all three grades valued work that is dependable and steady, work that permits them to use their interests and skills, pays well, and benefits others. The results also demonstrated that all three grades were relatively consistent in values except that eleventh grade students' values differed from those of fifth and eighth grade students on two of the ten variables. In general, the findings suggest that work values are well developed by fifth grade and are relatively stable throughout adolescence.

Because their prior study indicated that work values are already established by fifth grade, Hales and Fenner (1975) adapted their OWVI instrument to study work values of elementary school children. They found that career education in the elementary grades should focus on self-awareness, because children in the early grades have begun to understand which values are important and which were relatively unimportant to them.

The VVI (Steffle, 1959) was developed to measure job satisfaction in high school students. All the items address the issue of control. The forced choice items on the VVI deal with such issues as Job Freedom and Prestige. In using the VVI with high school seniors, Steffle (1959) found that middle-class backgrounds or achievement was associated with Altruism and Self-Realization, while lower-class background or achievement was associated with a concern for Security or Money. These results would also fit well with Maslow's hierarchy of needs theory previously described.

Intrinsic Motivation

Intrinsic motivation, the third type of job attitude identified by Lawler and Hall (1970), is defined as "the degree to which a job holder is motivated to perform well because of some subjective rewards or feelings that he expects to receive or experience as a result of performing well" (Warr, Cook, & Wall, 1979, p. 131). It is the degree to which higher-order needs are satisfied by performing well. Higher-order needs are the "employee's need for satisfaction and achievement through skilled and autonomous work" (Warr, Cook, & Wall, 1979, p. 131). Scales measuring intrinsic motivation would include such items as "When I perform my job well, it contributes to my personal growth and development" (Lawler & Hall, 1970, p. 309). The three instruments identified that measure intrinsic motivation were all developed to assess the work values of older students or adults.

Two instruments having some items that measure intrinsic motivation and other items that measure job satisfaction are The Survey of Work Values (SWV; Wollack, Goodale, Wijting, & Smith, 1971) and The Student Attitudes Towards Work (SATW;

Maguire, Romaniuk, MacRury, 1982). The SWV contains six subscales to measure attitude toward work. "A man should choose the job that pays the most" is an example of an item measuring job satisfaction. The SWV also contains intrinsic motivation items, such as "There is nothing as satisfying as doing the best job possible" (Wollack, Goodale, Wijting, & Smith, 1971, p. 335). The SWV was standardized with an undergraduate and industrial sample.

Wollack et al. (1971) intended to develop the SWV as a measure of a person's attitude toward work in general. They did so by basing their construct on the Protestant Ethic (Weber, 1958) and looking at the intrinsic aspect of work. They believed that a person high in Protestant Ethics would prefer work rather than unemployment and would gain satisfaction from a job well done. The results yielded six factors: Intrinsic Values, Organization-Man Ethic, Upward Striving, Social Status of job, Conventional Ethic, and Attitude toward Earnings. The results also yielded relatively high internal consistency scores for the subscales, considering the small number of items per subscale.

Using the SWV, Wijting, Arnold, and Conrad (1978) evaluated students in grade levels six, nine, ten, and twelve on work values, as well as their parents' work values. The results indicated that sixth and tenth grade children tended to have values similar to their same-sex parents. However, twelfth grade students of both sexes reported values more similar to their fathers. Ninth grade students had values unlike either parent.

Phillips and Freedman (1985) used the SWV to look at composite intrinsic versus composite extrinsic individuals having different levels of intrinsic motivation and task satisfaction in work with and without pay contingencies. The researchers modified the

SWV so that one score was obtained, with a high score indicative of more extrinsic interest in tasks and a low score indicative of a more intrinsic interest in tasks. They found that the intrinsically oriented individuals focused more on the intrinsic aspects of task completion; although, when compared to extrinsically oriented people, they reported greater task satisfaction when they expected to get paid than when pay was not expected. Pay contingent on accomplishments provided additional satisfaction to the composite intrinsic individuals. The composite extrinsic individuals reported lower levels of task satisfaction under contingent pay conditions, but reported greater satisfaction than the intrinsic participants under a no pay expectancy. This study indicates that a person's intrinsic or extrinsic orientation is an important variable in determining levels of task satisfaction under different work conditions.

The Student Attitudes Towards Work scale (SATW; Maguire, Romaniuk, MacRury, 1982) was designed to measure ninth and twelfth graders' perceptions of their future employment environment. The SATW consists of fifteen scales: Preparation by School, Interest and Variability in Jobs, Diligence, Laziness, Job Security, Positive Employer Characteristics, Independence, Money, Ambition, Locus of Control, Confidence in Succeeding, Negative Employer Characteristics, Social Relations, Attitudes Towards Unemployment, and General Attitudes Towards Earning a Living. Some of these scales, such as Diligence, Ambition, and Confidence in Succeeding, measure intrinsic motivation. An example of an item on the SATW is "I am looking forward to earning my own way" (Maguire et al., 1982, p. 646).

One of the most widely used measures of work ethic is the Protestant Work Ethic Scale (PWE) or the Protestant Ethic Scale (PES; Mirels & Garrett, 1971), as it is otherwise known. One of its two main components is designed to measure intrinsic motivation. A sample item from this component is "There are few satisfactions equal to the realization that one has done one's best at a job" (McHoskey, 1994, p. 52). The other main component contains items measuring job satisfaction and job involvement. One limitation of the PWE is that it was developed for adults and written in a language suitable for that age group. Another limitation is that the PWE is questionable for a diversity of cultural or religious backgrounds (other than Protestant). In commenting on the cultural sensitivity of the PWE, Blood (1969) made the following observation: "Among workers . . . who were predominantly Protestant they found job responses which would be expected from persons ascribing to the ideals of the Protestant Ethic. They found responses which would not be predicted from the Protestant Ethic ideals among workers in urban areas who were predominantly Catholic" (p. 456).

Although the PWE was intended to be a multidimensional construct, it is generally used as a measure of the single construct of overall work ethic (McHoskey, 1994). In investigating the issue of multidimensionality through factor analysis, McHoskey found four primary factors: Success, Asceticism, Hard-Work, and Anti-Leisure. These four factors accounted for 39% of the variance, which was much higher than the 17% accounted for by the single component solution. This analysis indicates that by only looking at the total score, researchers have missed crucial information.

Blood (1969) looked at the relation between work values and job satisfaction using the PES (Mirels & Garrett, 1971). Using factor analysis, Blood found that four items loaded heavily on a proProtestant Ethic scale and four different items loaded heavily on a nonProtestant Ethic score. The latter items were written so that a "yes" response would be indicative of a nonProtestant Ethic view. Blood gave the PES to two groups of airmen, one group of students, and one group of permanently assigned airmen. Blood found that there was a direct relationship between agreement with the Protestant Ethic and job satisfaction. Consequently, agreement with the nonProtestant Ethic was inversely related to satisfaction.

Demographic Variables

Due to the lack of a universal definition of work ethic, literature on the relationship between demographic variables (e.g., ethnic, gender, and grade levels) and work values has been marked by inconsistency. Differences in findings often seem to relate to the instrument used to measure work values. As previously stated, some scales contain items measuring extrinsic properties of a job and others measuring more intrinsic characteristics. The differences in these scales becomes apparent when the results vary from one study using one scale to another study using a different instrument.

Another limitation in the literature is that few studies have examined the relationships between work ethic and the three demographic variables used in this study. The information is so sparse that it limits informed predictions about the relationships between these demographic variables and the work-ethic construct.

Ethnic Differences

The ethnic groups represented in the largest numbers in the current study include African American, Hispanic American, and Caucasian. Because other ethnic groups were small in number, only literature related to these three ethnic groups will be discussed here.

As Davidson and Thomson (1980) argue, studies of work attitudes cross-culturally have not found any substantial differences. One study, conducted by Black (1977), investigated attitudes of inner-city junior high school males toward work. For this study, Black developed an instrument called The Student Opinion Survey that measured a person's opinion about certain activities performed in a job. The results indicated that there were no significant differences between the attitudes of the White and Black students (Black, 1977).

Torres and Kapes (1990) examined the work values of potential minority leaders in a community college setting. These Black and Hispanic subjects were candidates for the Minority Leadership Development Project (MLDP). Using the Minnesota Importance Questionnaire (MIQ), Torres and Kapes found no significant difference between Black and Hispanic minority candidates' work values.

In contrast to the findings by Black (1977) and Torres and Kapes (1990), a few studies have found significant work-ethic differences between ethnic groups (Furnham et al., 1991; Stones, 1988). In one study, Stones (1988) used the Protestant Ethic Scale (PWE; Mirels & Garrett, 1971) to compare Black and White students in South Africa and North America. A change was noted in the Black South African students over time. School-pupil level (high school), Black students from South Africa were significantly less

achievement-oriented than the Black American sample, but at the College level there was no significant difference between the American and the South African Blacks. The White students did not differ across cultures at either the school-pupil level or the college level.

One possible explanation for this cross-cultural pattern is that racial discrimination in South Africa creates a learning environment for young South African Blacks that is quite different from that of American Blacks. On the other hand, the White South African students are perhaps taught similarly to American youth at the school-pupil level. At the college level, apartheid is strongly protested in South Africa; therefore, all students may be taught similarly to the American students. What is suggested is that the Black South African students increase their commitment to work when they reach the college level because they perceive more equitable work opportunities. On the other hand, American Whites may view college more as a right than as a privilege. Consequently, they may not increase their investment in work when they matriculate to the college level (Stones, 1988). Therefore, the pre-college differences in work ethic between the South African and the American Blacks disappear at the college level.

In a study that extended ethnic comparisons across thirteen nations, Furnham et al. (1991) used the Protestant Work Ethic (PWE) and found that Third World countries (e.g., India or Zimbabwe) tended to endorse the PWE more than First World countries (e.g., United States or Germany). Again, perhaps work is viewed as more of a privilege in Third World countries and more of a right in First World countries.

Gender Differences

Gender studies have also yielded varying results. However, several studies suggest that gender makes a difference in work values (Elizur, 1993; Erez, Borochoy, Mannheim, 1989; Goodale & Hall, 1976; Maguire, Romaniuk, MacRury, 1982; Thomas, 1974). Many studies have found that females value occupations that involve social services (e.g., Gribbons & Lohnes, 1965; Singer & Steffire, 1954; Wagman, 1965; Wolfe, 1969) and value extrinsic rewards less than males (e.g., Goodale & Hall, 1976; Prawat, Jones, & Hampton, 1979; Wijting, Arnold, & Conrad, 1977; Wolfe, 1969). Males tend to value power and independence (Singer & Steffire, 1954), salary and prestige (e.g., Gribbons & Lohnes, 1965; Wagman, 1965), and leadership (Kuldau & Hollis, 1971). However, Erez et al. (1989) found that, counter to traditional stereotypes, females in eleventh grade preferred independence more than males. Females also had higher levels of work motivation than males.

A few studies (Elizur, 1993; Maguire et al., 1982) have found differences between males and females in specific values. Maguire et al. (1982), using their Student's Attitude Toward Work (SATW) inventory with ninth and twelfth grade students, found that boys were higher in mean ratings of laziness than girls, and girls were higher in interest, social and general. Elizur (1993) used his own questionnaire with Hungarian, Dutch, and Israeli adults and found that although overall work value scores were similar between males and females, each gender valued different items on the SATW. Females tended to value the affective domains (such as self-esteem, fair and considerate supervisors, and opportunity

for interaction with people) more than males. Males tended to value independence, responsibility, and work and organizational influence more than females.

What accounts for the differences in findings on independence? For example, Erez et al. (1989) found that females valued independence more than males, whereas Maguire et al. (1982) found the opposite. One possible explanation is that Erez et al. (1989) investigated eleventh grade high school students and Maguire et al. (1982) studied ninth and twelfth graders. The Maguire et al. (1982) study did not indicate whether the ninth and twelfth grade males both valued independence more than females. It is possible that males and females may have different values at different grade levels. Another explanation may be that Erez et al. developed their own scale for their study, whereas Maguire et al. used the SATW. The SATW measures intrinsic motivation, but it is not clear what Erez et al.'s scale measures and whether it is compatible with the SATW.

A number of studies have found no significant differences between males and females in work values (e.g., Buchholz, 1978; Mottaz, 1986; Rowe & Snizek, 1995). Using three items pulled from previous research to measure work values, Mottaz (1986) found that gender and overall work satisfaction were unrelated and there was no significant difference in overall work satisfaction between men and women in either the upper-level or lower-level categories of occupations. He concluded that both men and women perceived their jobs as fulfilling important work values, even if some of the individual values were perceived more for men and others for women.

Grade Differences

The findings on grade-level differences in work values are also inconsistent. Some studies have compared work values at the adult level and others at the school-age level. The findings from some studies indicated that by the middle school age (pre-adolescence) children have already established a work ethic. Using the Kuldau Occupational Development Inventory (KODI), Kuldau and Hollis (1971) concluded that children have likely formed attitudes toward work by the fourth grade. This was also evidenced in a study by Wijting, Arnold, and Conrad (1977). In the latter article, the sixth grade subjects were found to have an intrinsic work orientation according to the Survey of Work Values (SWV; Wollack et al., 1971). They placed high values on "activity, involvement, and taking pride in one's work and a devaluing of extrinsic rewards" (Wijting et al., 1977, p. 63). Prawat, Jones, and Hampton (1979) found that pre-adolescence is the period of greatest turbulence and of the most dramatic change in attitudes toward work.

Gibbons and Lohnes (1965) conducted a longitudinal study comparing the work values of students in the eighth, tenth, and twelfth grades. They interviewed each subject with questions developed by the authors and found that values considered high in the eighth grade sample remained consistently high throughout the five-year period. The males were interested in salary and prestige at all three age levels, and the females were more interested in personal contact and social services over the five-year period. There was a decreasing concern over the five-year period with personal goals, geographic location, and travel but an increasing concern with preparation, ability, and advancement.

Walsh, Vacha-Haase, Kapes, Dresden, Thomson, and Ochoa-Shargey (1996) compared the work values of ninth graders, twelfth graders, and college students. Using the Values Scale (Nevill & Super, 1986) to measure work values, the researchers found that ninth graders valued physical prowess and prestige more than the college students. Ninth graders were also more interested in being recognized for their accomplishments. Twelfth graders were more interested in having leadership roles in the workplace and having a variety in their jobs than were the college students. According to Walsh et al. (1996), the twelfth graders were also more likely to value Ability Utilization and Personal Development than were the ninth grade students.

Across gender, grade, and ethnic studies, the findings appear to be contradictory. This lends support to the issue of different ways to define work ethic and the different focus of previous scales to measure it. Further research is obviously needed using one scale in order to compare results.

Focus of Current Study

This study assessed the psychometric properties of an instrument designed to measure the work ethic of middle school students. The analysis focused on the internal consistency and criterion-related and construct-related validity of this instrument. The study also analyzed the relationship of gender, ethnic, and grade variables to work ethic. The items on this scale relate largely to intrinsic motivation for work (i.e., the satisfaction derived from working hard and working well). Certain outcomes (such as completing a task, solving problems, and being successful) identified in some items, however, could be interpreted either as intrinsic or extrinsic. Five of the items on the current instrument

measure intrinsic affinity with work and the remaining items could be interpreted to measure either intrinsic or extrinsic motivation. There are no items, however, that measure extrinsic motivation exclusively. The current instrument was written specifically for middle school students. There are no identifiable instruments in the literature that attempt to assess the generic valuing of work (as opposed to preferences for specific types or dimensions of work) at the middle school level.

CHAPTER III

Method

The purpose of this study was to develop a scale that measures work ethic in middle school students. Work ethic as used in this study represents the perception that work is both satisfying and useful. The work ethic scale is part of a larger survey that also measures school values. This larger study is ongoing and is developing the Middle School Survey (MSS) over several administrations.

The first administration was conducted in the spring of 1996 and is identified in this dissertation as the Original Middle School Survey (OMSS; Appendix A). The second administration, the primary focus of this study, was conducted in the spring of 1997 and is identified in this dissertation as the Middle School Survey (MSS).

This chapter first describes the development of the Original Middle School Survey. The second section of the chapter describes the instruments used in the current study. The participants and procedures used in data collection are then described.

Development of the Original Work-Ethic Scale

In the spring of 1996, the research team (of which I was a member) began the first stage of instrument development. The work ethic items on the Original Middle-School Survey (OMSS; see Appendix A) were selected from previous measures of work ethics, such as the Protestant Work Ethic Scale (Weber, 1958) and the Survey of Work Values (Wollack, Goodale, Wijting, & Smith, 1971). Other items were developed for the school valuing and social desirability portions of the survey. The OMSS consisted of forty items using a five-point Likert response format. Fifteen of these items related to the work-ethic

construct. The inventory was administered to sixth through eighth grade students in two rural east Tennessee schools.

The data for each of the three constructs (i.e., work ethic, school valuing, and social desirability) were then analyzed in a variety of ways. For the purposes of this study, only the analyses pertaining to work ethics and social desirability are reported (see Table III-1). This survey was given on two separate occasions, one month apart, to a total of 548 participants for the first administration and 500 participants for the second administration.

A factor analysis of the 15 work-ethic items indicated that six items loading on a primary factor accounted for more than 80% of the common variance on both the first and second test administrations. Item loadings on the primary factor ranged from .40 to .61. The secondary factors accounted for little variance and were subsequently dropped from the scale. A shortened version of the work-ethic scale was then developed including the six items that loaded on the primary factor of the original version. Items were analyzed for test-retest reliability, internal consistency, and social desirability. Findings were quite similar for the original and short versions of the work-ethic scale. The test-retest reliability was .53 on the long version and .49 for the short version.

Cronbach's Alpha computations indicated that the original longer version (15 items) was more reliable than the shortened version. The number of items in an inventory affects the variation in scores, which typically affects internal consistency measures. Internal consistency is typically not as great when fewer items are included in an inventory. Thus, the low internal consistency values for the shortened version did not warrant

Table III-1 First and Second Administrations of the Original Middle School Survey; the Long and the Short Versions

Version of Test	<u>First administration (n = 548)</u>		<u>Second administration (n = 500)</u>	
	Long	Short	Long	Short
Internal Consistency	.83	.68	.85	.69
WE ^a & SD ^b Correlation	.13	.04	.19	.07
Gender Mean Scores				
Males	76.15	20.01	74.28	19.80
Females	79.31	21.70	80.36	22.33
Grade Mean Scores				
Sixth	78.94	21.45	78.04	21.75
Seventh	77.64	20.80	78.76	21.37
Eighth	76.40	19.90	75.91	20.20

^aWE = Work Ethic

^bSD = Social Desirability

Note - Test-Retest Reliability for the long version was .53 and the short version was .49.

limiting the scale to the six items loading on the primary factor. Hollander (1967) noted that "the internal consistency of an attitude measure usually is a sufficient basis for permitting adequate validity" (p. 146).

The correlations between work ethic and the social desirability construct were low for both the longer and shortened versions of the middle school survey. This suggest that students did not answer the questions primarily on the basis of what was socially acceptable.

The work-ethic scores were also compared across various demographic dimensions. The mean scores were higher for females than males on the work-ethic construct. This was true for the original and shortened versions on both the first and second administrations of the test. The gender differences on the original versions were significant at the .0001 level for both the first and second test administration. Although the differences were in the same direction as for the original version, the gender means for the shortened versions were not statistically different on either the first or second administration.

The mean scores across grades decreased slightly on both the longer and shortened forms as grade level increased. For the longer form the decrease was more pronounced for male participants than for female subjects. On the shortened form, for both administrations, most of the differences in grade-level means were slight and statistically non-significant.

In the first stage of instrument development, the work-ethic scores were also examined in relationship to grade point average (GPA), free or reduced lunch status,

handicap versus non-handicap, level of mainstreaming, attendance, and disciplinary history. Students who were receiving free or reduced lunches, who were handicapped, or who were not in a regular education classroom all day tended to score lower than their counterparts on the work-ethic scale. As expected, students with higher GPAs scored higher on the work-ethic scale ($p < .005$ on the first administration level) than those with lower GPAs. Those with little to no disciplinary history tended to score higher than students with moderate to substantial discipline history. However, because of highly disproportionate number of students in the disciplinary categories, no tests of statistical significance were run. Although students with the poorest attendance records tended to score lower than the students with good attendance, these differences were not statistically significant.

Instruments in the Current Study

The three instruments included in the current study were the Middle School Survey, the Student Work-Habits Form, and the Teacher Rating Form. The Middle School survey was filled out by students and the latter two instruments were filled out by the students' teachers.

Middle School Survey

This study is the second stage of the development of the work-ethic portion of the Middle School Survey. In this stage, the shortened version of the Work-Ethic Scale in the original study was expanded to 12 items. Because the six work-ethic items from the OMSS were all positively written, six negatively worded items were added for the same concepts. This was done to improve the internal consistency of the instrument, which was

low for the shortened version. An example of a positively worded item to measure work ethic is "Having good work habits increases my chances of being successful." The negatively worded item opposite to that item is "Having good work habits doesn't mean I will be successful" (see Appendix B).

The entire Middle School Survey (MSS) now contains 30 items -- 2 filler items (used as samples to get the child comfortable with the format), 12 items related to work ethic (items 3-14), 12 items related to school value (items 15-26), and 4 items related to social desirability (items 27-30). The MSS uses a yes-no response format rather than the five-point Likert scale used in the OMSS. The intent was to simplify response instructions and make response options clearer for the middle school participants. Each participating student was assigned a number according to the teacher's roll book. Students were instructed to put their demographic information (i.e., grade, gender, and ethnic information) and answers on a scan form, which was later machine scored.

Student Work-Habits Form

Participating teachers were asked to identify two students per class who exhibited the best work habits and two students who exhibited the worst work habits. The teachers were told to fill in one form per student (four forms per class). Teachers were told to identify the student only by the assigned roll book number given on the Middle-School Survey.

The Student Work-Habits Form contains 20 items relating to work-related behaviors (see Appendix C). Ratings were done on a five point Likert scale format with

answers ranging from “(1) a lot like this student” to “(5) very unlike this student.” This scale includes items such as, “does good quality work” and “takes initiative to keep busy.”

Teacher Rating Form

Participating teachers were asked to assign the same student numbers on this form as were used on the Middle School Survey and Student Work-Habits Form. Then teachers were asked to rate each student’s past academic performance as “poor,” “average,” and “outstanding” (see Appendix D). The use of this rating form was based both on efficiency concerns (it required little time to complete) and past research on the validity of teacher ratings of student performance.

Past research suggests that teacher ratings of student performance are moderately strong predictors of actual performance. For example, Hoge and Coladarci (1989) conducted a meta-analysis of sixteen studies that used teacher assessments of students. Teachers in these studies were asked to rate specific academic performances of students, and then these results were compared to standardized achievement test scores. The median correlation of these findings was .62, indicating a moderate to strong correspondence between teacher ratings and actual performance. Another meta-analysis (Follman, 1990) examined 42 studies that compared teacher estimates of student performance on standardized tests with actual test scores. The median correlation for this study was .50. Although this correlation was lower than the first, the findings of both studies indicate that teacher judgement and students’ actual academic performance have “considerable congruence.”

Participants

The sample consisted of 1239 participants from three middle schools in the United States. Grades six through eight from one northeastern and two southeastern middle schools were included. The northeastern school (School 1) was in a suburban area with a population of approximately 55,000 people (Cumberland County Department of Planning and Development, 1990). The two southeastern schools were from a city with a population of approximately 150,000. One of the southeastern middle schools was an urban school (School 2) and the other a suburban school (School 3). Demographic data for each school and the total are contained in Table III-2.

Although the largest number of subjects came from School 3, all three schools were well represented. Female and male subjects were similar in number, but the seventh grade was less well represented than either the sixth or eighth grades. The total ethnic breakdown was 45% Caucasian, 30% African American, 12% Hispanic American, 3% Asian American, 2% Native American, and 7% Other participants. Because of small numbers of Asian Americans, Native Americans, and Others, the statistical analysis focused on the three largest samples (Caucasian, African American, and Hispanic American). Some students did not complete the demographic information, although they are included in the total sample. This is why the total for the demographic groups does not match the total for the sample.

Procedures

The survey was given by teachers to students in their social studies classes. All students present on the day of administration were asked to participate. Each teacher was

Table III-2 Demographic Information for all Participants From the Three Schools

<u>Demographic information</u>	<u>School 1</u>	<u>School 2</u>	<u>School 3</u>	<u>Total</u>
Participants	341	254	644	1239
Gender				
Males	160	105	314	579
Females	180	148	323	651
Ethnicity				
Caucasian	79	43	435	557
African American	63	185	124	372
Hispanic American	145	1	7	153
Asian American	4	8	31	43
Native American	4	8	11	23
Other	45	8	29	82
Grade				
Sixth	135	99	213	447
Seventh	63	93	203	359
Eighth	143	62	227	432

Note - Because some demographic information was incomplete; subgroups ns may not always add up to the total N.

assigned a different class number for each class taught by that teacher. Students within each class were assigned a number according to the teacher's roll book. The teacher then filled out the Work-Habits Form (see Appendix C) and the Teacher Rating Form (see Appendix D), using only the class and student numbers as identifiers. On the day of the administration of the Middle School Survey, the students were given a number 2 pencil and a scan form to be utilized as the answer form (see Appendix E). The teacher assigned a number to each student (same number as on other forms) to be placed at the top of the answer form.

The survey was administered via transparencies so that the students received oral instruction and could also read the questions for themselves. The teacher first demonstrated how to fill in the demographic information on the scan form, pausing after each step for the students to respond. After reading all of the directions to the students, the teacher then uncovered statement number one and read it aloud slowly to the students two times. The teacher proceeded with statement number two after the students answered number one. The teacher revealed only one statement at a time so that students would not work ahead. The students marked "yes" and "no" on their answer sheets in response to each statement. Teachers read the items on the survey so that reading levels would not limit student understanding of the items. This was done even though Flesch-Kincaid's readability statistics indicate the MSS to be at a 4.9 grade reading level. For the three Spanish classes in School 1, translated copies of the Middle School Survey were provided.

After the thirty items were completed, the teacher collected the scan forms in the order of the roll book to check accuracy of the demographic information, student number,

and completion of the survey. The reason for the assignment of class and student numbers was to preserve confidentiality. This study was conducted as a service to the school and, therefore, the teachers were the only ones who knew the students by name. After the data were analyzed for the schools, the researcher requested the use of the data for this research and for possible further studies. Permission was requested and received from the principal of each school. Permission to proceed with the research was subsequently granted by the Institutional Review Board at the University of Tennessee, Knoxville.

CHAPTER IV

Results

This chapter provides the results of the work ethic portion of the Middle School Survey and the related forms filled out by the teachers. The findings are first presented for the total sample and then for each school separately, with special attention given to differences in findings across schools. The work-ethic items on the MSS are presented in Table IV-1.

Composite Findings

The findings presented in this section are based primarily on data for the total sample. The composite findings include WE descriptive data for the demographic groups, individual item analysis, scale reliability, criterion-related validity assessment, construct-related validity assessment, and related findings.

Descriptive Data

The average WE score for the total sample was 8.31, which is well above the midpoint of the 0 to 12 scale. This finding indicates that students generally reported work to be satisfying and useful. The high WE mean in combination with a standard deviation of 2.46 suggests that the WE scale has more potential for discriminating levels of work commitment at the low than the high end of the scale.

Table IV-2 presents the means and standard deviations for the WE scale by demographic group. The WE gender means included in Table IV-2 were significantly different ($p < .0001$), with females obtaining a mean of 8.58 and males of 8.00.

Table IV-1 Work-Ethic Items in the Middle School Survey

Item #	Item
1.	Having to put forth a lot of effort to get a job done is a real pain.
2.	Having good work habits increases my chances of being successful.
3.	Many problems can't be solved no matter how hard I try.
4.	I enjoy a task that requires a lot of effort.
5.	Success comes more from luck than from effort.
6.	I feel good when I work hard to complete a task.
7.	Having good work habits doesn't mean I will be successful.
8.	Many problems can be solved if I keep trying.
9.	The best job is one where I could take it easy.
10.	Good outcomes result more from effort than from luck.
11.	Having to work hard to complete a task discourages me.
12.	I like a job where I can work hard to achieve goals.

Note: These items were numbered 3-14 in the Middle School Survey (Appendix B)

Table IV-2 Descriptive Data for Composite Sample

Demographic variables	Quantitative Variables					WH ^d <u>mean</u>
	WE ^a <u>mean</u>	WE <u>std. dev.</u>	WE <u>K-R 20^b</u>	SD ^c <u>mean</u>	Achvmt. <u>mean</u>	
Gender						
Males (<u>n</u> = 587)	8.00	2.50	.70	1.40	1.80	62.08
Females (<u>n</u> = 651)	8.58	2.39	.69	1.41	2.10	81.70
Grade Level						
Sixth (<u>n</u> = 447)	8.19	2.55	.71	1.45	1.97	72.51
Seventh (<u>n</u> = 359)	8.09	2.54	.71	1.51	1.87	69.01
Eighth (<u>n</u> = 432)	8.62	2.27	.66	1.26	2.04	73.75
Ethnic Group						
Native American (<u>n</u> = 23)	8.14	2.82	.76	1.57	1.73	50.50
African American (<u>n</u> = 372)	8.16	2.39	.66	1.86	1.94	70.41
Asian American (<u>n</u> = 43)	8.95	2.19	.65	1.53	2.37	92.50
Hispanic American (<u>n</u> = 153)	7.81	2.32	.63	1.65	1.72	60.89
Caucasian (<u>n</u> = 557)	8.50	2.49	.73	1.01	2.04	72.00
Other (<u>n</u> = 82)	8.35	2.70	.75	1.46	1.83	65.00

^aWE = Work Ethic

^bK-R 20 = Kuder-Richardson 20

^cSD = Social Desirability

^dWH = Work Habits

Note: Data regarding sample size, SD mean, Achievement mean, and Work Habits mean are the same as those included in Yvonne Malone's dissertation (1998).

Note: Ns refers to all variables except the WH mean which was based on teacher ratings of four students per class.

Grade-level means also yielded some significant differences, with the 8th grade mean (8.62) being significantly higher than both the 6th (8.19) and 7th grade mean (8.09).

Small sample sizes for some groups did not justify statistical comparisons across all ethnic groups. In absolute terms, Asian Americans ($n = 43$) obtained the highest WE mean (8.95) of any ethnic group. The WE means of the three largest ethnic groups in the study--African Americans ($n = 372$), Hispanics ($n = 153$), and Caucasians ($n = 557$)--were compared via an F test and Tukey's Studentized Range. Caucasians scored significantly higher (mean = 8.50) than Hispanics (7.81), but not higher than African Americans (8.16).

Item Analysis

The first step in evaluating the adequacy of the items included in the WE scale was to correlate responses to each WE item with the total social desirability scores (SD). These correlations ranged from -.18 to .23. Although some of these correlations were statistically significant, most accounted for a negligible amount of the variance (5% or less) in the relationship between the WE item responses and the total SD. Eight of these correlations were negative, suggesting that social desirability tendencies may have had a slight suppressive effect on pro-work responses to WE items.

Both classical item statistics and item response theory were then used in evaluating the inclusion of the WE items in the total scale (see Table IV-3). The range of p -values (.441 to .912) included in the classical item statistics showed that most items produced affirmative responses toward a work ethic. For example, more than 90% of the students gave an affirmative response for item 2--"Having good work habits increases my chances of being successful." The four items that produced the best balance between pro and con

Table IV-3 Classical Item Statistics and IRT Item Parameter Estimates for WE

Item	Classical item statistics				IRT item parameter estimate				
	g-value ^a	Correlation		K-R 20 ^d = 70 K-R 20 if item deleted	One PL ^e		Two PL ^f		
		Point	Item		b	Resid-	b	a	Resid-
		biserial ^b	remainder ^c		(difficulty)	uals ^g	(difficulty)	(slope)	uals ^g
1 (Neg.)	0.559	0.40	0.40	0.66	-0.267	1.878	-0.244	0.804	0.904
2 (Pos.)	0.912	0.25	0.25	0.69	-2.525	1.269	-2.479	0.672	1.423
3 (Neg.)	0.580	0.30	0.30	0.68	-0.361	2.198	-0.437	0.512	0.757
4 (Pos.)	0.441	0.25	0.26	0.64	0.260	3.278	0.348	0.431	1.641
5 (Neg.)	0.830	0.38	0.39	0.67	-1.742	3.295	-1.415	0.928	1.484
6 (Pos.)	0.870	0.39	0.39	0.67	-2.069	3.682	-1.641	0.961	0.798
7 (Neg.)	0.504	0.20	0.20	0.70	-0.022	5.051	-0.047	0.311	2.134
8 (Pos.)	0.889	0.34	0.34	0.68	-2.259	2.775	-1.928	0.837	1.179
9 (Neg.)	0.458	0.36	0.36	0.67	0.191	0.520	0.175	0.703	0.918
10 (Pos.)	0.846	0.34	0.34	0.68	-1.870	1.751	-1.611	0.831	0.904
11 (Neg.)	0.673	0.46	0.46	0.65	-0.812	4.279	-0.638	1.029	1.575
12 (Pos.)	0.749	0.35	0.35	0.67	-1.207	2.461	-1.192	0.673	2.605

^aThe g-value is a proportion of examinees who responded "yes" to a positive item or "no" to a negative item.

^bPoint biserial correlation is a popular item discrimination index, a computationally simplified Pearson's r between the dichotomously scored item and the total score.

^cItem-remainder coefficient is the correlation of an item with the sum of the remaining items.

^dKuder-Richardson.

^eOne-parameter logistic or Rasch model.

^fTwo-parameter logistic model.

^gA root mean square standard posterior residual greater than 2.5 may be taken as an indication of a problem in fit.

responses were the following: Item 1-“Having to put forth a lot of effort to get a job done is a real pain,” item 4-“I enjoy a task that requires a lot of effort,” item 7-“Having good work habits doesn’t mean I will be successful,” and item 9-“The best job is one where I could take it easy.” Overall, the negative items tended to produce more balanced responding than did the positive items.

The classical item statistics also indicated that most items were moderately correlated with scores on the WE scale. Both the point biserial and item-remainder correlations ranged from about .20 to .46. Overall, the negative items tended to be more highly correlated with the total scores than were the positive items. The item most highly correlated with both the total score and the sum of the remaining items was item 11-“Having to work hard to complete a task discourages me.” The item least correlated with both the total and the remaining sum was item 7-“Having good work habits doesn’t mean I will be successful.”

Because item responses were yes or no, the feasibility of applying item response theory (IRT) for dichotomous data was explored. The BILOG 3 (Mislevy & Bock, 1990) was used for the IRT approach. The one-parameter logistic model included an assessment of difficulty, whereas the two-parameter model examined both difficulty and slope. Difficulty values usually range from about -2.0 to +2.0, with values close to -2.0 representing easier items (i.e., items likely to yield responses consistent with a higher score on an inventory) and values close to +2.0 representing harder items (Hambleton, Swaminathan, & Rogers, 1991). Like the classical item analysis, the IRT analysis of difficulty pointed to low difficulty for most of the items (especially positive items).

Values for slope typically range from 0 to 2, with items having a steeper slope (higher value) being "more useful for separating examinees into different ability levels than are items with less steep slopes" (Hambleton et al., 1991, P. 15). Because only one of the slope values exceeded 1.0, it appears that most of the items did not strongly discriminate between levels of work ethic.

As expected, a two-parameter model yielded a better model-data fit than did the one-parameter model. This conclusion is based primarily on the root mean square posterior residual values for the one-parameter and the two-parameter models. Normally, residual values that exceed 2.5 may suggest a problem in model-data fit. For the one-parameter model, 6 items (3 positive and 3 negative) yielded residuals above 2.5. In contrast, for the two-parameter model, only one item yielded a residual value above 2.5 (item 12, residual = 2.605).

Reliability

The internal consistency of the WE scale was assessed by computation of Kuder-Richardson Formula 20 (K-R 20). An obtained coefficient of .70 barely met the minimum of .70 recommended by Nunally (1978) for acceptable internal consistency. The classical item analysis summarized in Table IV-3 indicated that most of the items contributed similarly to the overall K-R 20 value. A comparison of the internal consistency values for the three ethnic groups having substantial sample sizes revealed that the internal consistency for Caucasians (.73) was considerably higher than that for the African Americans (.66) and Hispanics (.63). Grade level comparisons for internal consistency coefficients revealed that internal consistency was somewhat lower for 8th graders (.66)

than for 6th and 7th graders (.71). Internal consistency measures for males and females were virtually the same.

Validity Assessment

The validity of the WE scale was assessed through two major types of validity: criterion-related and construct related. The criterion-related validity was assessed through both concurrent and known groups procedures. The construct-related validity was established via a series of factor analyses, including both exploratory and confirmatory factor analysis.

Criterion-related validity. To assess the concurrent validity of the WE scale, the WE scores were correlated with two criterion measures: academic achievement ratings and work habits ratings. The N for work habit rating was based on 239 students. The correlation with achievement ratings was .23 ($p < .0001$) and the correlation with work habits ratings was .39 ($p < .0001$). Because the item analysis suggested that positively worded WE items were more likely to yield pro-work responses than were the negatively worded items, WE scores computed separately for the positive and negative items were correlated with the criterion measures. Compared to the positive total, the negative WE total produced higher correlations with both achievement (.24 versus .15) and work habits ratings (.40 versus .27).

Criterion-related validity was also assessed by contrasting the WE scores of known groups (i.e., the three achievement groups and the two work habits groups). Teacher ratings produced an approximate normal distribution for achievement: 368 students were rated as poor achievers, 537 as average achievers, and 323 as outstanding achievers. The

average achievement rating of 1.96 was near the midpoint of the 1 to 3 achievement scale. The WE means for the three achievement groups were all statistically different ($p < .05$): 7.57 for the low group, 8.39 for the average group, and 9.08 for the high group. The known-groups validity of the WE was further supported by contrasting the WE means for the high ($n = 130$) and low ($n = 108$) work habits groups. The high mean (9.36) was significantly higher than the low mean (7.47) at a .0001 level of significance.

Construct-related validity. A combination of exploratory and confirmatory factor analyses were computed to determine whether the WE scale is best represented as a one-factor or multi-factor scale. The exploratory factor analysis included a principal factor analysis and a maximum likelihood factor analysis using an oblique rotation. The last phase of the factor analysis was a confirmatory analysis to verify whether the factors generated by the series of exploratory analyses provided a good fit for the data.

All of the factor analyses used a cross-validation procedure that involved randomly splitting the sample into two subsamples. However, the sample split used for the confirmatory analysis was not the same as that used for the exploratory analyses.

The cross-validation analysis used in the principal factor analysis showed that the two subsamples and the total sample yielded a similar factor pattern (see Table IV-4). With the exception of one item, which loaded in the mid-twenties, all items loaded around .30 and above on the first extracted factor for the subsamples and the total sample. Also, the percentage of common variance explained by this one-factor model was similar (63% to 65%) across the samples. However, a scree test suggested the possibility of a secondary factor in addition to the primary factor.

Table IV-4 Factor Pattern for WE Scale: One-Factor Solution From the Three Sets of Data

Item	Principal factor analysis			Maximum likelihood		
	factor pattern			factor pattern		
	Analysis ^a	Validation ^b	Total ^c	Analysis ^a	Validation ^b	Total ^c
	Factor 1	Factor 1	Factor 1	Factor 1	Factor 1	Factor 1
1 (Neg.)	0.54	0.46	0.50	0.53	0.45	0.49
2 (Pos.)	0.30	0.35	0.32	0.30	0.35	0.32
3 (Neg.)	0.34	0.40	0.37	0.33	0.40	0.37
4 (Pos.)	0.32	0.29	0.30	0.31	0.28	0.29
5 (Neg.)	0.46	0.55	0.51	0.44	0.53	0.49
6 (Pos.)	0.42	0.54	0.47	0.41	0.52	0.46
7 (Neg.)	0.22	0.26	0.24	0.21	0.26	0.24
8 (Pos.)	0.45	0.39	0.42	0.43	0.37	0.40
9 (Neg.)	0.46	0.42	0.44	0.46	0.41	0.43
10 (Pos.)	0.45	0.45	0.46	0.44	0.44	0.44
11 (Neg.)	0.59	0.57	0.57	0.58	0.55	0.56
12 (Pos.)	0.39	0.48	0.43	0.38	0.44	0.40
n	627	586	1,213	627	586	1,213
Exp. var. ^d	65%	63%	65%	66%	63%	67%
χ^2 Test ^e	NA	NA	NA	190.24*	260.91*	387.40*
Tucker & Lewis ^f	NA	NA	NA	0.78	0.70	0.75

^aThe analysis data set was randomly selected from the total data set.

^bThe validation data set was remainder of random selection for the analysis data set. This data set was used for the cross-validation study.

^cThe total data set consists of all subjects with complete information.

^dExplained common variance.

^eThis χ^2 test results from the maximum likelihood analysis. H_0 : One factor is sufficient.

^fTucker and Lewis's Reliability Coefficient.

*Significant at $p < .0001$.

The next step in determining whether a one-factor model adequately represented the data was to do a maximum likelihood factor analysis (see Table IV-4). The item loadings generated in this analysis were highly consistent with those in the principal factor analysis, with the primary factor explaining from 63% to 67% of the common variance in the samples. However, the high chi-square values, all significant at the .0001 level, raised further questions about the adequacy of the fit between the one-factor model and the data. This uncertainty about the adequacy of the one-factor model was underscored by the Tucker and Lewis (1973) values, which ranged from .70 to .78. The recommended value for the Tucker and Lewis coefficient is .90 and above.

Because of the possibility that a two-factor model would represent the data better than a one-factor model, a rotated factor analysis (using an oblique rotation) was done next (see Table IV-5). Although not presented in Table IV-5, the loadings for the maximum likelihood solution were virtually the same as those presented for the principal factor analysis represented in the upper half of Table IV-5. In the maximum likelihood solution, factor one explained from 63% to 66% of the common variance, whereas factor two explained from 17% to 18% of the common variance. Although still significant at the .0001 level, the chi-square values for the two-factor model were considerably lower than those for the one-factor model (compare Tables IV-4 and IV-5). The Tucker and Lewis values were also higher for the two-factor model, approaching or exceeding the recommended .90 minimum. Thus, the conclusion from the series of exploratory factor analyses was that a two-factor model may represent a better fit for the data than a one-factor model.

Table IV-5 Rotated Factor Pattern and Structure for WE: Two-Factor Solution From the Three Sets of Data

Item	Factor pattern (structure ^a)					
	Analysis data		Cross-validation		Total	
	Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2
1 (Neg.)	0.18(.39)	0.45(.54)	0.21(.37)	0.33(.43)	0.20(.38)	0.39(.48)
2 (Pos.)	0.41(.38)	-0.06(.13)	0.44(.42)	-0.05(.16)	0.41(.39)	-0.05(.15)
3 (Neg.)	0.43(.41)	-0.04(.17)	0.35(.40)	0.11(.28)	0.40(.40)	0.03(.21)
4 (Pos.)	-0.16(.10)	0.53(.46)	-0.10(.12)	0.46(.42)	-0.13(.11)	0.50(.44)
5 (Neg.)	0.58(.56)	-0.05(.22)	0.65(.63)	-0.04(.27)	0.62(.60)	-0.06(.24)
6 (Pos.)	0.24(.36)	-0.24(.36)	0.30(.46)	0.33(.48)	0.27(.41)	0.28(.41)
7 (Neg.)	0.18(.21)	0.07(.16)	0.24(.27)	0.06(.18)	0.20(.24)	0.07(.17)
8 (Pos.)	0.41(.47)	0.11(.31)	0.45(.45)	-0.01(.21)	0.43(.46)	0.05(.26)
9 (Neg.)	0.13(.32)	0.41(.47)	0.03(.27)	0.47(.49)	0.09(.30)	0.44(.48)
10 (Pos.)	0.52(.52)	0.00(.25)	0.54(.52)	-0.04(.23)	0.53(.52)	-0.02(.24)
11 (Neg.)	0.20(.43)	0.48(.58)	0.28(.46)	0.39(.52)	0.24(.45)	0.43(.54)
12 (Pos.)	-0.11(.16)	0.57(.51)	-0.08(.24)	0.66(.63)	-0.09(.20)	0.61(.57)
<i>n</i>	627		586		1,213	
Inter-factor <i>r</i>	0.47		0.49		0.48	
Exp. var. ^b	65%	19%	63%	17%	65%	18%
Maximum Likelihood Solution						
Inter-factor <i>r</i>	0.46		0.38		0.45	
Exp. var. ^b	66%	18%	63%	17%	66%	18%
χ^2 Test	$\chi^2(43) = 88.61, p < .0001$		$\chi^2(43) = 155.97, p < .0001$		$\chi^2(43) = 194.02, p < .0001$	
Tucker & Lewis	0.91		0.80		0.86	

^aThe factor structure is the matrix of correlations between items (or variables) and common factors. If the common factors are uncorrelated, the factor structure is equal to factor pattern.

^bExplained common variance.

Inasmuch as a two-factor solution looked promising, the last step in the factor analysis was to do a confirmatory factor analysis (see Table IV-6) to verify the relative fit for a one-factor and a two-factor solution. PRELIS2 (Joreskog & Sorbom, 1993a) was used in calculating tetrachoric correlations and asymptotic covariances, and LISREL8 (Joreskog & Sorbom, 1993b) was used in the confirmatory factor analysis. The modification index was used as an estimate or prediction of the decrease in chi-square that would be obtained if a particular path was used in the construction of a model.

Most of the model fit indexes (i.e., RMSEA, GFI, AGFI, PGFI, and CFI) yielded values more supportive of a two-factor than a one-factor model. RMSEA values below .05 suggest a good fit, whereas GFI, AGFI, and CFI values greater than .90 generally indicate a good fit. An additional fit index, PGFI, also aided in choosing a superior model. Although still statistically significant ($p < .0001$), the chi-square values were substantially lower for the two-factor than the one-factor model. The fit indexes for the two-factor model with correlated measurement error for items 11 and 8 were superior to those for the various one-factor models included in the confirmatory factor analysis.

The factor pattern that appears to provide the best fit for the data consists of a primary and a secondary factor. Using .30 as the minimal factor loading, one may conclude that 9 items loaded on the primary factor and 6 on the secondary factor. Three items loaded above the .30 level on both factors. Of these three items, one loaded substantially higher on factor 2 (item 1 = .391 versus .573 loading), one loaded substantially higher on factor one (item 6 = .671 versus .447), and one loaded equally on the two factors (item 7 = .547 versus .551).

Table IV-6 Summary Results of Confirmatory Factor Analyses of 12 WFL Items

Item	Analysis data ($n = 602$)						Validation data ($n = 611$)						Total ($N = 1,221$)			
	Model 1-1		Model 1-2		Model 2-1		Model 2-2		Model 1-3		Model 2-2		Model 1-3		Model 2-2	
	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI	PI
1 (Neg.)	0.858	0.838	0.831	0.258	0.583	0.286	0.546	0.739	0.330	0.567	0.910	0.391	0.573	0.881	0.826	0.716
2 (Pos.)	0.831	0.801	0.808	0.747		0.732		0.899	0.842		0.745	0.716		0.626	1.000	0.447
3 (Neg.)	0.791	0.794	0.790	0.776	0.730	0.785	0.723	0.501	0.501	0.698	0.802	0.951	0.551	1.003	0.528	0.565
4 (Pos.)	0.739	0.735	0.726					1.000	1.000		0.912	0.870		0.889	1.000	1.000
5 (Neg.)	1.000	1.000	1.000	1.000	0.643	0.350	0.379	0.937	0.642	0.401	0.674	0.951	0.951	1.003	0.528	0.565
6 (Pos.)	0.996	0.994	0.984	0.517	0.537	0.532	0.532	0.518	0.525		0.834	0.409	0.546	1.061	0.528	0.565
7 (Neg.)	0.521	0.517	0.537	1.101	0.961	1.054	0.987	0.674	0.933		0.912	0.802	0.889	1.000	1.000	1.000
8 (Pos.)	1.181	1.132	1.146	1.101	0.940	1.054	0.987	0.674	0.933		0.912	0.802	0.889	1.000	1.000	1.000
9 (Neg.)	1.029	1.043	1.043	0.976	0.949	0.943	0.943	0.951	0.934	0.467	0.917	0.951	0.951	1.003	0.528	0.565
10 (Pos.)	1.085	1.045	1.045	0.460	0.582	0.638	0.467	0.834	0.409	0.546	1.061	0.528	0.528	1.000	1.000	1.000
11 (Neg.)	1.090	1.137	1.146	0.460	0.582	0.638	0.467	0.834	0.409	0.546	1.061	0.528	0.528	1.000	1.000	1.000
12 (Pos.)	1.068	1.051	0.938	0.938	1.000	1.000	1.000	0.750	0.750	1.000	0.889	1.000	0.889	1.000	1.000	1.000
Model description	One-factor		One-factor		Two-factor		Two-factor		One-factor		Two-factor		One-factor		Two-factor	
	TD 11.8	TD 11.8	TD 11.8 & TD 12.9	TD 11.8	TD 11.8	TD 11.8	TD 11.8	TD 11.8 & TD 12.9	TD 11.8	TD 11.8	TD 11.8	TD 11.8	TD 11.8 & TD 12.9	TD 11.8	TD 11.8	TD 11.8
Factor 1	NA	NA	NA	0.566	0.552	0.552	0.552	NA	NA	0.535	NA	NA	NA	0.505	0.505	0.505
χ^2 Test	191.10* (df = 54)	171.23* (df = 53)	151.91* (df = 52)	124.91* (df = 50)	104.89* (df = 49)	104.89* (df = 49)	104.89* (df = 49)	166.81* (df = 52)	105.99* (df = 49)	105.99* (df = 49)	270.17* (df = 52)	172.71* (df = 49)	270.17* (df = 52)	172.71* (df = 49)	172.71* (df = 49)	172.71* (df = 49)
RMSRA ^a	0.065	0.060	0.056	0.050	0.043	0.043	0.043	0.060	0.044	0.044	0.059	0.046	0.059	0.046	0.046	0.046
GFI ^b	0.975	0.961	0.966	0.972	0.976	0.976	0.976	0.963	0.976	0.976	0.969	0.980	0.969	0.980	0.980	0.980
AGFI ^c	0.938	0.943	0.948	0.956	0.962	0.962	0.962	0.944	0.962	0.962	0.953	0.968	0.953	0.968	0.968	0.968
PGFI ^d	0.662	0.653	0.644	0.623	0.613	0.613	0.613	0.642	0.613	0.613	0.646	0.616	0.646	0.616	0.616	0.616
CPI ^e	0.807	0.833	0.859	0.894	0.921	0.921	0.921	0.847	0.924	0.924	0.832	0.905	0.832	0.905	0.905	0.905

Note. The analysis and cross-validation data sets are not the same data sets used for exploratory factor analyses. This study employed weighted least squares with tetrachoric correlations and asymptotic covariance matrix. All factor loadings are statistically significant at $p < .01$.

^aRMSRA = Root Mean Square Error of Approximation, as a measure of discrepancy per degree of freedom.

^bGFI = Goodness of Fit Index, measuring how much better the model fits compared with no model at all.

^cAGFI = Adjusted Goodness of Fit Index, adjusting GFI to incorporate a penalty function for the inclusion of additional parameters.

^dPGFI = Parsimonious Goodness of Fit Index, a single index that simultaneously reflects both the fit and the parsimony of the model.

^eCPI = Comparative Fit Index, measuring the proportionate improvement in fit by comparing a target model with a more restricted, nested baseline model.

*Significant at $p < .0001$.

Excluding the items that loaded on both the primary and secondary factors leaves 6 items that loaded cleanly on the primary factor and 3 that loaded cleanly on the secondary factor. The 6 items that loaded exclusively on factor one (items 2, 3, 5, 7, 8, and 10) all appear to represent the objective value of work (refer to Table IV-1). Examples of this theme are "having good work habits increases my chances of being successful," "many problems can't be solved no matter how hard I try," and "success comes more from luck than from effort." In contrast, the 3 items that loaded exclusively on the secondary factor (items 4, 9, and 12) relate more to the comfort level of one's work ("I enjoy a task that requires a lot of effort," "the best job is one where I could take it easy," and "I like a job where I can work hard to achieve goals"). Thus, factor one appears to represent more the objective benefits of work and factor two the affective response to work.

Related Findings

Other findings that may be useful in evaluating the potential of the WE scale are (a) the relationship between WE scores and social desirability and (b) an analysis of the best predictors of WE scores.

Relationship of WE scores to social desirability. Overall, the subjects appeared to be conservative in stating their positive characteristics, with the average score on the social desirability items being 1.4 out of a possible 4. A majority of the students answered no to all the social desirability items ("I have never said unkind things to someone else," "I never forget to say please and thank you," "When I make a mistake, I always admit it") except the item "I always wash my hands before every meal." Slightly more than 50% of the students claimed they washed their hands before every meal.

A comparison of the SD means for the achievement and work habits groups suggests that WE differences between these groups are probably understated. In general, students with poor achievement and work habits ratings obtained higher SD means. The SD means for the achievement groups were 1.53 for the low group, 1.36 for the average group, and 1.27 for the high group. The SD means for the low and high achievement groups were significantly different ($p < .05$). Although not significantly different, the SD means for work habits groups were 1.63 for the low group and 1.43 for the high group.

The correlation (-.03) between the WE and SD scores suggests that the overall WE scores were probably not influenced by social desirability response tendencies. However, an examination of correlations between individual WE items and SD scores revealed that some items were significantly correlated with the SD scores. Most of these significant correlations tended to be minimal, with the highest being .23. Because the item correlations varied in directionality, the net effect was to reduce the correlation between the total WE scores and SD.

Multiple regression analysis. Group analyses described earlier indicated that the WE scores differed by work habits, achievement, ethnicity, gender, and grade level. Dichotomous groupings were formed in order to run a multiple regression analysis. Some of the groupings were already dichotomous but for the others, the following groups were formed; achievement was broken into outstanding versus average and poor, ethnicity became Caucasian versus African American and Hispanic, and grade level was divided into eighth versus seventh and sixth grade students. Using these dichotomous groupings as predictor variables for WE scores, work habits and ethnicity emerged as the only

significant predictors (see Table IV-7). These two variables both had significant beta weights and uniqueness indices. However, the equation containing the five predictor variables accounted for only 18% of the variance in the WE scores. Work habits group accounted for 5% more of the variance than did the remaining predictors, whereas ethnicity accounted for 2% more of the variance than did the other variables. This equation suggests that having high work habits ratings and identifying oneself as Caucasian contributed to higher WE scores.

Findings in Separate Schools

This section highlights the principal trends within each school, with special emphasis on deviations from trends in the total sample and in other schools. Table IV-8 provides a summary of the major findings by school. It is apparent that the WE means differed by school. The suburban school in the Southeast (School 3) had a significantly higher mean than did the other two schools, and the urban school in the Southeast (School 2) had the lowest WE mean. All WE means across schools were significantly different (minimum $p < .05$).

Finding for School 1

The WE mean, the SD mean, and the K-R 20 coefficient for School 1 were similar to those in the total sample (see Table IV-9). However, the composition of School 1 was quite different from that of the total sample. The major sampling difference was in the ethnic distribution of the School 1. Approximately 90% of the Hispanics in the total sample came from this school. It should be noted that the WE mean for Hispanics in the

Table IV-7 Beta Weights and Uniqueness Indices Obtained in Multiple Regression Analyses
Predicting Work-Ethic Scores

Predictor	Beta weights ^a		Uniqueness indices ^b	
	Beta	t ^c	Unique index	F ^d
1. Work habits	-0.602	-0.3546**	0.0509	12.415**
2. Ethnicity	-0.137	-2.124*	0.0182	4.439*
3. Achievement	0.269	1.577	0.0100	2.439
4. Grade	-0.060	-0.936	0.0035	0.854
5. Gender	-0.015	-0.225	0.0002	0.049

^aBeta weights are standardized multiple regression coefficients obtained when WE was regressed on all five predictors.

^bUniqueness indices indicate the ratio of variance in WE scores accounted for by a given predictor variable beyond the variance accounted for by the other four predictors.

^cFor t tests that tested the significance of the beta weights df = 203.

^dFor F tests that tested the significance of the uniqueness indices df = 1, 203.

*p < .05.

**p < .01.

Table IV-8 Descriptive Data for Separate Schools

<u>Comparative Variables</u>						
School	Sample Size	K-R 20	SD ^a Mean	WE ^b Mean	Ach. ^c Mean	WH ^d Mean
1	341	.70	1.52	8.19	1.86	68.35
2	254	.65	2.22	7.50	1.98	72.91
3	644	.70	1.02	8.69	2.01	73.58

^aSD = Social Desirability

^bWE = Work Ethic

^cAch = Achievement

^dWH = Work Habits

Note: Sample size, SD mean, Achievement mean, and Work Habits mean are the same as those included in Yvonne Malone's dissertation (1998).

Note: Ns refers to all variables except the WH mean which was based on teacher ratings of four student per class.

total sample was lower in absolute terms than the WE means for the African American and Caucasians.

The gender difference in the WE means in School 1 was in the same direction as that in the total sample, with females in School 1 obtaining a higher mean (8.27) than males (8.09). However, unlike the significant gender difference in the total sample, the gender difference in School 1 was not significantly different.

Grade-level differences in WE for School 1 were different than those in the total sample, where 8th graders obtained a significantly higher mean than did 6th and 7th graders. In School 1, the 6th grade WE mean (8.60) was significantly higher than the 7th

Table IV-9 Descriptive Data for Demographic Groups in School 1

Demographic groups	Sample size	Comparative Variables			
		Social Des. mean	Work Ethic mean	Achievement mean	Work Habits mean
Ethnic Groups					
Native American	4	1.25	8.50	1.75	-----
African American	63	1.68	8.52	1.87	68.43
Asian American	4	3.00	8.75	2.00	79.00
Hispanic American	145	1.66	7.87	1.72	60.84
Caucasian	79	1.16	8.62	2.09	85.65
Other	45	1.42	7.91	1.87	71.10
Gender					
Male	160	1.53	8.09	1.75	67.08
Female	180	1.52	8.27	1.94	71.62
Grade					
Sixth	135	1.55	8.60	1.94	67.56
Seventh	63	1.86	7.44	1.82	65.93
Eighth	143	1.35	8.13	1.79	69.97
Achievement Level					
Low	103	1.74	7.80	---	45.87
Average	181	1.46	8.11	---	75.38
Outstanding	54	1.30	9.39	---	93.40
Work Habits Level					
Low	34	1.76	7.47	1.12	-----
High	37	1.41	9.65	2.68	-----

Note: Sample size, SD mean, Achievement mean, and Work Habits mean data are the same as Yvonne Malone's dissertation (1998).
 Note: Ns refers to all variables except the WH mean which was based on teacher ratings of four students per class.

grade mean (7.44). No other grade level differences in WE means in School 1 were significant.

Teacher ratings of academic achievement in School 1 produced an approximately normal distribution: 103 students classified as low achievers, 181 as average achievers, and 54 as outstanding achievers. This distribution was slightly more skewed toward the low end of the achievement scale than the distribution for the total sample. WE comparisons for School 1 produced a significantly higher WE mean (9.39) for the high average and the low WE means did not differ significantly.

The WE difference between the students rated as having the best and the poorest work habits in School 1 was highly similar to that in the total sample. The high group's achievement group than for both the average (8.11) and the low groups (7.80). The WE mean of 9.65 was significantly ($p < .0001$) greater than the low group's mean of 7.47. and 54 as outstanding achievers. This distribution was slightly more skewed toward the low end of the achievement scale than the distribution for the total sample. WE comparisons for School 1 produced a significantly higher WE mean (9.39) for the high achievement group than for both the average (8.11) and the low groups (7.80). The average and the low WE means did not differ significantly. The combination of the achievement and work habits comparisons for School 1 supports the conclusion of criterion-related validity for the WE scale found in the sample as a whole.

Findings for School 2

Two findings from School 2 suggest caution in interpreting the data from this school. School 2 had the lowest K-R 20 coefficient (.65) on the WE scale on any school

(.70 for each of the other schools). In contrast, this school had the highest SD mean (2.22) of any school (compared to 1.52 for School 1 and 1.02 for School 3). It appears that students in School 1 tended to be more inconsistent in their responses across items and to overstate their positive characteristic to a greater extent than students in the other schools.

Despite its high SD mean, School 2 obtained the lowest WE mean (7.50) of the three schools (8.19 for School 1 and 8.69 for School 3). Differences between the WE mean for School 1 and the WE means for the other schools were statistically significant ($p < .05$).

WE differences in the achievement and work habits groups for School 1 were in the same direction as those for the total sample (see Table IV-10). However, most of these differences were not statistically significant. Teacher ratings of achievements produced a flatter distribution (low $\bar{n} = 81$, average $\bar{n} = 88$, high $\bar{n} = 78$) than that found for the total sample. The WE means for these three groups were 7.00 for the low group, 7.66 for the average group, and 7.92 for the high group. Only the difference between the low and high group was statistically significant ($p < .05$). Although the WE means for the low (6.92) and high (7.97) work habits groups were different in absolute terms, they were not statistically different. Thus, the evidence for the WE's criterion-related validity was weaker in School 2 than in the sample as a whole.

In contrast to the gender comparison in the composite sample, males and females in School 2 did not differ in their WE means. Grade level WE differences in School 2 were the opposite of those obtained in School 1, where the 6th grade mean was

Table IV-10 Descriptive Data for Demographic Groups in School 2

<u>Comparative Variables</u>					
Demographic groups	Sample size	Social Des. mean	Work Ethic mean	Achievement mean	Work Habits mean
Ethnic Groups					
Native American	8	1.88	6.88	1.38	44.00
African American	185	2.24	7.83	2.03	77.03
Asian American	8	2.13	7.13	2.00	74.00
Hispanic American	1	2.00	12.00	2.00	-----
Caucasian	43	2.23	6.19	1.95	63.82
Other	8	1.89	7.75	1.75	35.00
Gender					
Male	105	2.21	7.30	1.75	56.57
Female	148	2.22	7.66	2.15	84.66
Grade					
Sixth	99	2.61	6.46	1.85	78.18
Seventh	93	1.85	7.99	1.75	66.88
Eighth	62	2.16	8.44	2.52	76.86
Achievement Level					
Low	81	2.19	7.00	---	46.48
Average	88	2.07	7.66	---	82.80
Outstanding	78	2.35	7.92	---	90.34
Work Habits Level					
Low	24	2.13	6.92	1.17	-----
High	31	2.45	7.97	2.90	-----

Note: Sample size, SD mean, Achievement mean, and Work Habits mean data are the same as Yvonne Malone's dissertation (1998).
 Note: Ns refers to all variables except the WH mean which was based on teacher ratings of four students per class.

significantly higher than the 7th grade mean. In School 2 both the 7th (7.99) and 8th grade (8.44) WE means were significantly higher than the 6th grade mean (6.46).

One of the most important school differences emerged in the comparison of African American and Caucasian students in School 2. This school had the highest percentage of African Americans (73%) of any participating school. Caucasians made up 17% of its sample, and all other ethnic groups were negligibly represented. In contrast to the trend found in the sample as a whole, African American students in School 2 obtained a significantly ($p < .0001$) higher WE mean (7.83) than did the Caucasian students (6.19). The credibility of this difference is strengthened by the equivalent SD means for these ethnic groups in School 2 (2.24 for African Americans and 2.23 for Caucasians).

Findings for School 3

School 3's (the Southeast suburban school) contributions to the data set for this study were substantial. Slightly more than half of the participants came from this school. School 3's internal consistency on the WE scale was on par with that of School 1 (.70), with both being higher than the internal consistency coefficient for School 2 (.65). The SD mean of 1.02 for School 3 was significantly ($p < .05$) lower than those for School 1 (1.52) and School 2 (2.22). Because of the large sample, substantial internal consistency, and low SD mean, considerable confidence can be attached to the findings in School 3.

The strongest case for the criterion-related validity of the WE scale comes from School 3 (see Table IV-11). The WE achievement level means (7.69 for low, 8.83 for average, and 9.50 for high) were all significantly different ($p < .05$). The work habits means (7.74 for low and 9.89 for high) were also significantly different ($p < .0001$).

Table IV-11 Descriptive Data for Demographic Groups in School 3

Comparative Variables					
Demographic groups	Sample size	Social Des. mean	Work Ethic mean	Achievement mean	Work Habits mean
Ethnic Groups					
Native American	11	1.45	9.18	2.00	57.00
African American	124	1.39	8.48	1.85	55.65
Asian American	31	1.19	9.45	2.52	98.11
Hispanic American	7	1.43	6.00	.76	-----
Caucasian	435	.86	8.70	2.04	75.63
Other	29	1.41	9.21	1.79	57.25
Gender					
Male	314	1.06	8.19	1.85	62.08
Female	323	.98	9.19	2.17	86.38
Grade					
Sixth	213	.86	8.73	2.05	73.32
Seventh	202	1.25	8.33	1.92	71.50
Eighth	227	.96	8.98	2.07	75.78
Achievement Level					
Low	181	1.11	7.69	----	43.65
Average	264	1.08	8.83	----	83.50
Outstanding	189	.85	9.50	----	96.87
Work Habits Level					
Low	50	1.32	7.74	1.06	-----
High	62	.94	9.89	2.95	-----

Note: Sample size, SD mean, Achievement mean, and Work Habits mean data are the same as Yvonne Malone's dissertation (1998).

Note: Ns refer to all variables except the WH mean which was based on teacher ratings of four students per class.

The demographic comparisons in School 3 were generally consistent with those in the sample as a whole. Females scored significantly higher (mean = 9.19) than males (mean = 8.19) on the WE scale ($p < .0001$). The 8th grade WE mean (8.98) was significantly ($p < .05$) higher than the 7th grade mean (8.33) but not higher than the 6th grade mean (8.73). This is slightly different from the grade-level differences in the total sample, where the 8th grade mean was significantly higher than both the 6th and 7th grade means.

The WE comparison between African American and Caucasian students in School 3 yielded results quite different from those of School 2. Although not significantly different, the WE mean for Caucasians (8.70) in School 3 was higher than that for African Americans (8.48). As in the composite sample, African Americans and Caucasians did not differ significantly in WE scores.

CHAPTER V

Discussion

The major purpose of this study was to develop a psychometrically sound instrument to measure middle school students' work ethic. Although several instruments are available for measuring work values at the adult level, none is currently available to assess middle-schoolers' perceptions of the intrinsic and extrinsic value of work. It is assumed that a strong work ethic at the middle school level would not only contribute to success in school but would also lay the foundation for eventual success in adulthood.

Psychometric Adequacy of the Work-Ethic Scale

Because none of the WE items accounted for more than 5% of the variance in the relationship between item responses and SD scores, all items were considered acceptable for further analysis. Classical item analysis indicated that most items, especially positive items, were likely to elicit pro-work responses. The likelihood of answering the WE items in a way that yields a high score on the WE scale was further confirmed by the difficulty values in the item response theory analysis. The slope values in the item response theory analysis suggests that most of the work ethic items do not stringently discriminate among students' levels of work commitment.

It follows that the stringency of the items may need to be increased. One way to accomplish this would be to change the wording of the items to make it more difficult to say yes to positively worded items and no to negatively worded items. For example, the wording of the item that was answered in a pro-work fashion by over 90% of the students might be changed from "Having good work habits increases my chances of being

successful” to “I need good work habits to be successful” or “I must have good work habits to be successful.”

Responses to all items were moderately correlated with the total WE score, and all items contributed similarly to the internal consistency of the scale. Because the internal consistency measure for the total scale (.70) was marginally acceptable, our research team will attempt to improve this aspect of the scale by sharpening the wording of some items and by using a Likert-type answer format that allows for greater variability in responses. Clearer wording may be especially helpful with certain ethnic groups, such as African Americans and Hispanics, who had considerably lower internal consistency coefficients than Caucasians. Using a 4-point Likert scale will likely also elevate internal consistency because it will increase the variability in scores.

The assessment of the WE's validity involved both criterion-related and construct-related validity. Criterion-related validity assessment included both concurrent and known groups validity. Although the concurrent validity assessment yielded significant correlations between the WE scores and teacher ratings, these correlations are considered low to moderate. Increasing the precision and range of performance measures by using numerical grades and achievement test scores may increase future concurrent validity of the WE scale.

Concurrent validity may also be affected by the positive vs. negative wording of the items. Correlating a WE score for the negative items with the teacher ratings yielded considerably higher correlations than did correlating a score for the positive items with teacher ratings. Because negatively worded items may prove more predictive of important

performance variables than do positively worded items, revision of the scale may need to emphasize negatively worded items regarding the value of work (e.g., "Having to put forth a lot of effort to get a job done is a real pain," "many of my problems cannot be solved no matter how I try," "success comes more from luck than from effort"). Increasing the number of negative worded items would also increase the difficulty of the scale, which should improve discrimination between levels of WE.

An analysis of known groups validity indicated that the three achievement groups all differed with respect to WE means--the high group's WE mean was significantly higher than the average group's WE mean, which in turn was significantly higher than the low achievement group's WE mean. Known groups validity was further supported by the difference in the WE means of the low and high work habits groups, which significantly favored the high group over the low group. Although direct observation of student work habits would be a stronger method of assessing this variable, the work habits rating scale used by the teachers appeared psychometrically sound (for example, the internal consistency value for this scale was .975).

A multiple regression analysis of the variables that were significantly linked to WE scores showed that teacher ratings of student work habits was the best predictor of WE scores. Of the various demographic and criterion variables used in this study, one would assume that work habits would be the most strongly associated with work ethic. A work ethic that has no association with work habits would be an anemic work ethic.

Although not as powerful as work habits, ethnicity was also a significant predictor of WE scores. Greater participation from ethnic groups that may represent more the

extremes of the work ethic continuum, such as Native Americans and Asian Americans, could increase the predictive potential of this variable. In order to expand the ethnic variability, large groups of Native American and Asian American students need to be assessed. Levels of acculturation and assimilation should also be assessed by asking students how long his or her family has lived in the United States.

The series of factor analyses employed in this study points to a two-factor solution. Of the 12 items on the WE scale, nine ultimately loaded acceptably on a primary factor and six on a secondary factor. Three of the items loaded acceptably on both the primary and secondary factor, leaving six items that loaded exclusively on the primary factor and three on the secondary factor. The six items that loaded cleanly on the primary factor share the theme of the objective value of work (i.e., hard work pays off). These items might represent an approximation of the extrinsic value of work. The three items that loaded cleanly on the secondary factor have more of an affective theme (i.e., the degree of comfort attached to hard versus easy work). This factor seems more closely aligned with an intrinsic valuing of work (satisfaction from work itself). Because only nine WE items loaded exclusively on one factor or the other, more items will likely need to be developed—especially along the lines of intrinsic satisfaction derived from one's work. A scale with only nine items is unlikely to yield adequate internal consistency.

The current WE scale was designed to measure a generic orientation to work. However, more domain-specific WE scales (such as in school, athletics, and job) might better predict performance in those areas. It is possible that one might have a strong work

ethic in some domains and a weak work ethic in other domains. A generic WE scale may blur those distinctions and consequently lose predictive potential.

Thus, the psychometric development of the middle school work ethic scale is not considered complete. Work remains to be done in the following areas: (a) change the response format from yes or no to a Likert scale; (b) expand the item pool, especially increasing the number of negatively worded items and items related to intrinsic satisfaction from work; (c) improve the clarity of wording for some of the current items; (d) increase the stringency of wording for some items to make it more difficult to answer them in a pro-work fashion; (e) use more precise measures of student performance, such as numerical grades, achievement test scores, and standardized test scores; (f) include observational measures of student work habits as validity variables; (g) get more adequate representations of some ethnic groups, such as Native Americans and Asian Americans; and (h) examine the predictive impact of linking WE items to specific domains. The work ethic scale is a work in progress. It could currently be considered a research instrument rather than a clinical instrument with prescriptive and diagnostic utility.

Linkage of the Work-Ethic Scale to Demographic Variables

Although the focus of this study was on the development of a work-ethic scale, demographic information was also investigated. The findings from this study and previous studies that have included demographic variables are compared in this section.

Ethnic Findings

Previous research on work ethic differences between ethnic groups has yielded somewhat inconsistent results. Although several studies have found no significant

differences between ethnic groups (Black, 1977; Davidson & Thomson, 1980; Torres & Kapes, 1990), a few studies have found work ethic differences between ethnic groups (Furnham et al., 1991; Stones, 1988). Furnham et al. (1991) found that Third World countries endorsed the PWE more than First World countries. Stones (1988) found that Black South African students increased their work ethic to equal White American students as their grade level increased, whereas White American students' work ethic did not change. One possible reason why researchers have gotten contrasting results is that Black (1977) and Torres and Kapes (1990) conducted their studies with subjects only in the United States of America, whereas Furnham et al. (1991) and Stones (1988) conducted their research between ethnic groups outside of this country.

Ethnic comparisons in the current study were computed for only the three largest ethnic samples: Caucasian (n=557), African American (n=372), and Hispanic (n=153). The results indicated that the Caucasian sample scored significantly higher on the work-ethic scale than Hispanics but not higher than African Americans. One explanation of these results, which is consistent with previous research findings, is that the Caucasian and African American samples in the current study were most likely from the United States. Although living in the U.S. at the time of the study, some Hispanics had likely not been reared in the U.S. and may have had limited assimilation of the U.S. culture. Some were administered the WE scale in Spanish. Therefore, comparisons between American born and reared students with the Hispanic sample may be equivalent to previous comparisons between foreign and American students.

Gender Findings

Previous research on work ethic differences between males and females has also found contrasting results. One possible contributor to the inconsistent results may be in the diversity of values measured. Some researchers have compared males and females on extrinsic values (Gribbons & Lohnes, 1965; Kuldau & Hollis, 1971; Wagman, 1965) and others on intrinsic values (Goodale & Hall, 1976; Prawat, Jones, & Hampton, 1979; Wijting, Arnold, & Conrad, 1977; Wolfe, 1969). These studies have generally found females to have higher intrinsic values and males to have higher extrinsic values. Studies that have found no significant differences between males and females have tended to look at work values as a whole (Buchholz, 1978; Mottaz, 1986; Rowe & Snizek, 1995). Although the latter studies found no significant differences between males and females in overall means, Mottaz (1986) did state that males and females differ in which values are most important.

The current study found significant differences between males and females, with females mean scores significantly higher than males on the work-ethic scale. This gender difference may be partly related to the emphasis in the WE scale on the intrinsic valuing of work. Although this theme is most clearly reflected in the secondary factor, the limited number of items loading exclusively on that factor suggests that gender differences on the WE scale may be diminished without the addition of more intrinsic valuing items.

Grade Level Findings

As with gender and ethnic studies, previous research findings related to grade level differences are inconsistent. Some studies found that by the pre-adolescent period (middle

school age) children have established their work values (Kulda & Hollis, 1971; Wijting, Arnold, & Conrad, 1977; Wollack et al., 1971), while others (Prawatt, Jones, & Hampton, 1979) found that pre-adolescence is a time of turbulence when the most dramatic changes in work attitudes takes place. In one longitudinal study, Gribbons and Lohnes (1965) found that work values remained consistent from eighth through twelfth grades.

In contrast, Walsh et al. (1996) found that students in grades nine, twelve, and college had different work values. There was no directionality across grades as students in different grades placed significance on different values, not necessarily increasing or decreasing values. This pattern may be related to the cross-sectional nature of the Walsh et al. study. Although the three grade groups differed, the students may have maintained the same values across those years. Longitudinal research is needed to explore this possibility.

The current study shows that the eighth graders scored significantly higher on the work-ethic scale than both the sixth and seventh graders. This may be because intrinsic valuing tends to increase with age (Miller, 1974) or because pre-adolescents increasingly see the benefits of hard work as they get closer to career decisions and adult work roles.

School Comparisons

The demographic composition of three schools differed mainly with respect to ethnicity, size, and socioeconomic status (not systematically assessed in the current study). School 1 (the northeastern suburban school) was quite different from the other schools in that it contained 90% of the Hispanics in the total sample. School 2 (the southeastern urban school) was located in an urban area and School 3 had a largely suburban sample.

School 3 (the southeast suburban school) was also about twice as large as the other two schools. The suburban southeast school (School 3) had a significantly higher WE mean than both the suburban northeast school (School 1) and the urban southeast school (School 2), although all three means were significantly different from each other.

Across all schools, females scored higher than males on WE, achievement, and work habits. In addition, results from Schools 2 and 3 showed females to be lower in social desirability means than males. Also, in all schools, the WE means increased as achievement and work habit levels increased. In contrast, grade level differences in WE were not consistent across schools. This inconsistency may be linked to the turbulence of the middle school period as characterized by Prawatt, Jones and Hampton's (1979) research conclusion that work values are not stable in the middle grades.

Some differences in WE means were found across schools. The suburban school in the Southeast (School 3) had a significantly higher WE mean than did the other two schools, and the urban school in the Southeast (School 2) had the lowest WE mean. All WE means across schools were significantly different from one another. This variation across schools may reflect both community differences in support for education and the quality of the educational programs in the schools. Suburban schools may have more community support and better quality education than urban schools.

Although School 2 had the highest SD mean of any school, which suggests that the data be interpreted with caution, African American students obtained a significantly higher WE mean (7.83) than did the Caucasian students (6.19). This is different than the pattern found in the total sample. However, the similarity of the SD means for African American

and Caucasian students in School 2 suggests that the tendency to overstate positive characteristics was equivalent for these ethnic groups, adding credibility to this ethnic comparison in School 2.

School 3 had the largest number of students in the total sample ($n = 644$). This school's findings have added dependability because the internal consistency on the WE scale was high and the SD mean for School 3 was significantly lower than those obtained by the other schools. Significant differences were found between all achievement and work habits groups in School 3. In contrast to the ethnic comparison in School 2, Caucasians obtained a slightly higher WE mean (8.70) than did the African Americans (8.48) in School 3.

The Role of the WE Scale in Future Educational Practice and Research

Students' work ethic is an important construct to assess in evaluating school programs designed to teach constructive values. However, previous research on work values has focused on high school or elementary students and largely ignored the middle school students. Future research should not only include middle school students but should follow those students through early adulthood to ascertain if WE is a stable trait or not. Along with this longitudinal perspective, different school programs should be implemented and tested for their impact on students' work ethic. Theoretically, programs can be designed along the lines of intrinsic and extrinsic benefits of work, and then evaluated relative to their effects on these dimensions of work ethic. More research is required to determine how best to develop such programs.

The generalizability of findings in the current study is somewhat limited because of inadequate samples for some important ethnic groups. Future research should expand the ethnic base to incorporate more Asian and Native Americans. When comparing ethnic groups, more attempt should be made to equate the groups relative to their levels of acculturation and assimilation into the American culture. Also, the work ethic of ethnic groups in their own countries and cultures should be investigated.

The combined predictor variables used in the multiple regression analysis accounted for a relatively small percentage of the variance in work ethic scores. Undoubtedly, many variables not investigated in this study may also affect students' work ethic. Among the most promising of these predictor variables would likely be those related to the students' parents. For example, parents' educational level, career achievement levels, and socio-economic status may be good predictors of their children's work ethic. Perhaps the most powerful parental predictors of their children's work ethic would be parents' work ethic, work habits, and assignment of work responsibilities to their children within the home.

Within the school setting there are other potential predictor variables that should be investigated. Students' absenteeism records, disciplinary reports, and academic histories may play a role in students' work ethic, although it would be difficult to determine the direction of causality within these relationships. Most likely a reciprocal relationship exists between these variables and work ethic.

Although many factors may contribute to students' work ethic, one of the main goals of education should be to identify variables modifiable in the context of school that

will strengthen students' work ethic. A weak work ethic may cause students' to miss out on important learning opportunities at school, thus undermining the development of skills that may be crucial to adult success. The development of a strong work ethic itself should be a high priority of schooling. If a strong work ethic contributes to adult success, it is important to develop that orientation in childhood. A child who does not appreciate the intrinsic and extrinsic benefits of work is unlikely to become an adult who has a strong commitment to work.

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APPENDICES

APPENDIX A
ORIGINAL MIDDLE SCHOOL SURVEY

MIDDLE-SCHOOL SURVEY

Instructions: This is not a test. There are no right or wrong answers. We simply want to know how you feel about certain work and school activities. Your opinions are really important in helping us find ways to make school more enjoyable and useful to you. We request that you put your answers on an answer sheet so we can computer score your responses. You will first need to understand each item on the survey and then indicate on the answer sheet how strongly you agree or disagree with that statement. Please use the following scale in marking your response to each item:

1 = Totally agree, 2 = Agree more than disagree, 3 = Don't agree or disagree, 4 = Disagree more than agree, 5 = Totally disagree.

Before starting with the survey, you need to provide certain information about yourself. You need not provide your name, but we do need to have you mark your sex on the answer sheet. At the top, middle part of the answer sheet, find the little box that says SEX and darken in the circle with an M if you are a male and the circle with an F if you are a female. We have put an ID number on the board that you should copy and bubble in under columns A through G under the Identification Number on the answer sheet. Add to that number your personal number under columns H and I. If you respond to this survey again in a few weeks, we will use this same ID number for you. In scoring and recording your responses to the survey, we will not use your name.

You can help us most by indicating how you really feel about each of the statements on this survey. We will read the statements together. If any statement is unclear to you, raise your hand and I will explain it to you. Before marking your response to each statement, be sure that the item number on the answer sheet is the same as the number of the statement on the survey. Answer each item 1 through 5.

1 = Totally agree, 2 = Agree more than disagree, 3 = Don't agree or disagree, 4 = Disagree more than agree, 5 = Totally disagree.

Examples:

- a. Lunch time is one of the most enjoyable parts of the school day.
- b. School starts too early in the morning.
- c. Our school building is really nice.
- d. I like math more than any subject.

1 = Totally agree, 2 = Agree more than disagree, 3 = Don't agree or disagree, 4 = Disagree more than agree, 5 = Totally disagree.

1. Most things that are taught at school will not help me be successful as an adult.
2. Learning to get along with my classmates will help me know how to get along with others when I become an adult.
3. Paying attention to my teachers will increase my chances for having a good job as an adult.
4. Getting in trouble at school has nothing to do with what kind of life I am likely to have as an adult.
5. Much of what I learn at school will make my life better as an adult.
6. Pestering other students has nothing to do with how successful I am likely to be as an adult.
7. Doing my homework is a good way to develop skills that will help me as an adult.
8. Missing school will hurt my chances of getting what I want as an adult.
9. When I don't do my assignments at school, I am hurting my chances of being successful as an adult.
10. How well I learn to read and write will not have much effect on how far I will go as an adult.
11. Sleeping in class has nothing to do with what I will accomplish as an adult.

1 = Totally agree, 2 = Agree more than disagree, 3 = Don't agree or disagree, 4 = Disagree more than agree, 5 = Totally disagree.

12. Getting in fights at school will hurt my chances of having a good life as an adult.
13. Quitting school as soon as I can is the best thing for me to do.
14. Doing well in school will greatly increase my chances for success as an adult.
15. Talking to classmates instead of doing my school work will decrease my opportunities for success as an adult.
16. I really enjoy doing a good job on a task.
17. Having to put forth a lot of effort to get a job done is a real pain.
18. Having good work habits doesn't mean I will be successful.
19. Being a skilled worker is one way to make a better life for myself.
20. Most every problem can be overcome if I don't give up.
21. Having to work hard to complete a task depresses me.
22. Nothing is impossible if I keep working at it.
23. Receiving a welfare check is a better way of getting money than working would be.
24. Many problems can't be solved no matter how hard I try.
25. Success comes more from luck than from effort.

1 = Totally agree, 2 = Agree more than disagree, 3 = Don't agree or disagree, 4 = Disagree more than agree, 5 = Totally disagree.

26. Healthy people who don't try hard to get and keep a job are hurting society.
27. The best job is one where I could take it easy.
28. When I get through with one task, I usually look for another task to do.
29. I try to do my work very carefully.
30. Having a good job is the best way for an adult to stay off welfare.
31. It is good to work no matter what the job is.
32. I want people to know that I am a good worker.
33. If everyone worked, we could have a better society.
34. One should avoid work whenever possible.
35. I don't like to work.
36. I always wash my hands before every meal.
37. I have never said unkind things to someone else.
38. I sometimes feel angry when I don't get my way.
39. I never forget to say "please" and "thank you."
40. When I make a mistake, I always admit it.

CHECK YOUR ANSWER SHEET TO BE SURE YOU HAVE PROVIDED ALL THE INFORMATION REQUESTED AND HAVE ANSWERED ALL 40 ITEMS. IF YOU USED ONE OF OUR PENCILS, PLEASE TURN IT IN WITH THE ANSWER SHEET.

APPENDIX B
MIDDLE SCHOOL SURVEY

MIDDLE-SCHOOL SURVEY

Instructions: Before you begin responding to the statements on this survey, indicate at the top of the answer sheet you school number, class number, student number, gender, grade level, and ethnic origin. The school number and class number have been written on the board. I will give you instructions regarding your student number.

In responding to each statement in the survey, fill in the circle in the yes column if you agree and in the no column if you disagree with that statement. There are no right or wrong answers. Indicating your honest opinion will help the school determine how best to serve your needs. Be sure to erase all stray marks or changes in answers before you turn in your answer sheet. Also be sure you have given only one answer to each item.

1. Lunch time is the most enjoyable part of the school day.
2. School starts too early in the morning.
3. Having to put forth a lot of effort to get a job done is a real pain.

4. Having good work habits increases my chances of being successful.
5. Many problems can't be solved no matter how hard I try.
6. I enjoy a task that requires a lot of effort.
7. Success comes more from luck than from effort.
8. I feel good when I work hard to complete a task.
9. Having good work habits doesn't mean I will be successful.
10. Many problems can be solved if I keep trying.
11. The best job is one where I could take it easy.
12. Good outcomes result more from effort than from luck.
13. Having to work hard to complete a task discourages me.

14. I like a job where I can work hard to achieve goals.
15. Learning to get along with my classmates will help me know how to get along with others when I become an adult.
16. Listening to my teachers won't affect my chances for a good job as an adult.
17. Doing my homework is a good way to develop skills that will help me as an adult.
18. What I'm learning in school won't help me be successful as an adult.
19. Getting along with my classmates won't affect how I get along with others as an adult.
20. When I don't do my assignments at school, I am hurting my chances of being successful as an adult.
21. Homework is unrelated to the skills I will need as an adult.

22. Paying attention to my teachers will increase my chances for having a good job as an adult.
23. Fighting in school will have no effect on whether I have a good life as an adult.
24. Much of what I learn at school will make my life better as an adult.
25. My success as an adult is not related to completing my assignments at school.
26. Getting in fights at school will hurt my chances of having a good life as an adult.
27. I always wash my hands before every meal.
28. I have never said unkind things to someone else.
29. I never forget to say "please" and "thank you."
30. When I make a mistake, I always admit it.

Before you turn in your answer sheet, check to be sure you have indicated your school number, class number, student number, gender, grade level, and ethnic origin. Also be sure that you have left no question unanswered and that you have given only one answer to each question. If you have changed any of your answers, be sure that your old answers are completely erased. Thank you for taking your time to give us your opinions.

APPENDIX C
STUDENT WORK-HABITS FORM

School Number_____Grade Level_____Class Number_____Student Number_____

Check One: Best Work Habits_____Or Worst Work Habits_____

INSTRUCTIONS: For the student identified above, please rate that student on each of the characteristics listed below. To help us understand how student work habits may be linked to attitudes and performance, you should be very candid in rating the work habits of this student. To do this, think of a typical day for the student and indicate whether the work habit in question is (1) a lot like this student, (2) somewhat like this student, (3) neither like nor unlike this student, (4) somewhat unlike this student, or (5) very unlike this student. Please put your rating number in the blank prior to each statement.

- _____1. Follows rules regarding classroom behavior.
- _____2. Cooperates with other students.
- _____3. Needs much supervision.
- _____4. Arrives at class on time.
- _____5. Easily gets upset.
- _____6. Adapts easily to different kinds of school work.
- _____7. Keeps promises.
- _____8. Expresses needs clearly and comfortably.
- _____9. Takes good care of books and other classroom materials.
- _____10. Addresses teachers in a respectful fashion.
- _____11. Practices good attendance.
- _____12. Keeps work space well organized.
- _____13. Expresses enthusiasm about school work.
- _____14. Takes initiative to keep busy.
- _____15. Pestern other students.
- _____16. Makes good use of teacher feedback.
- _____17. Does good quality work.
- _____18. Follows instructions well.
- _____19. Works at a steady pace.
- _____20. Is easily distracted.

APPENDIX D
TEACHER RATING FORM

SCHOOL NUMBER _____ GRADE LEVEL _____ CLASS NUMBER _____

TEACHER RATING FORM

INSTRUCTIONS: Using the corresponding number in your roll book to identify each student, please rate each student on the basis of that student's past academic performance in your class. Check the column below that best describes the academic performance of each student. Rate all the students in each class, even those who do not take the Middle-School Survey. However, for those who do take the Middle-School Survey, be sure that their number on this rating form is consistent with the number on the student answer sheet.

Student Number	Poor Performance	Average Performance	Outstanding Performance
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____
11.	_____	_____	_____
12.	_____	_____	_____
13.	_____	_____	_____
14.	_____	_____	_____
15.	_____	_____	_____

Student Number	Poor Performance	Average Performance	Outstanding Performance
16.	_____	_____	_____
17.	_____	_____	_____
18.	_____	_____	_____
19.	_____	_____	_____
20.	_____	_____	_____
21.	_____	_____	_____
22.	_____	_____	_____
23.	_____	_____	_____
24.	_____	_____	_____
25.	_____	_____	_____
26.	_____	_____	_____
27.	_____	_____	_____
28.	_____	_____	_____
29.	_____	_____	_____
30.	_____	_____	_____
31.	_____	_____	_____
32.	_____	_____	_____
33.	_____	_____	_____
34.	_____	_____	_____
35.	_____	_____	_____
36.	_____	_____	_____
37.	_____	_____	_____
38.	_____	_____	_____

APPENDIX E
SCAN FORM

MIDDLE-SCHOOL SURVEY Answer Form

Use a #2 lead pencil and darken appropriate circles completely. Be sure to erase all stray marks or changes in answers.

NAME	CLASS	STUDENT	GENDER:	ETHNIC ORIGIN:
			Male ☐	Native American ☐
			Female ☐	African American ☐
				Asian American ☐
			GRADE LEVEL:	Hispanic ☐
			6th ☐	Caucasian ☐
			7th ☐	Other ☐
			8th ☐	

- Yes No
1. ☐ ☐
 2. ☐ ☐
 3. ☐ ☐
 4. ☐ ☐
 5. ☐ ☐
 6. ☐ ☐
 7. ☐ ☐
 8. ☐ ☐
 9. ☐ ☐
 10. ☐ ☐

- Yes No
11. ☐ ☐
 12. ☐ ☐
 13. ☐ ☐
 14. ☐ ☐
 15. ☐ ☐
 16. ☐ ☐
 17. ☐ ☐
 18. ☐ ☐
 19. ☐ ☐
 20. ☐ ☐

- Yes No
21. ☐ ☐
 22. ☐ ☐
 23. ☐ ☐
 24. ☐ ☐
 25. ☐ ☐
 26. ☐ ☐
 27. ☐ ☐
 28. ☐ ☐
 29. ☐ ☐
 30. ☐ ☐

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Vita

I was born and raised in a suburb in Northern New Jersey with my two older sisters and my parents. Although my family moved to southern New Jersey when I was 15, we remained extremely close to my mother's family who still reside in the northern area of New Jersey. After high school, I attended Elon College in North Carolina with a major in Psychology. I graduated from Elon in May of 1989 and went home to New Jersey.

I worked for the state of New Jersey in an institution for mentally retarded males for six years as a Behavior Modification Program Technician and a Psychologist Trainee before returning to the south for my Ph.D. During my six year tenure with the state, I also achieved a Master's degree in School Psychology.

In 1995, I came to the University of Tennessee, Knoxville, to pursue a doctorate degree in School Psychology. I will achieve this goal in the summer of 1999 after completing an internship with the Devereux Foundation in Philadelphia, Pennsylvania.