Journal of Vocational Behavior **60**, 451–489 (2002)
doi:10.1006/jvbe.2001.1838, available online at http://www.idealibrary.com on IDEAL®

MONOGRAPH

The Meaning and Measurement of Work Ethic: Construction and Initial Validation of a Multidimensional Inventory

Michael J. Miller

Department of Management, Western International University

David J. Woehr

Department of Management, The University of Tennessee

and

Natasha Hudspeth

Texas A&M University

This monograph presents a brief historical and conceptual review of the work ethic construct, suggests a general conceptual definition of work ethic, and reports a series of empirical studies to construct and evaluate a new multidimensional measure of work ethic. The Multidimensional Work Ethic Profile (MWEP) is a 65-item inventory that measures seven conceptually and empirically distinct facets of the work ethic construct. A series of six studies, using both student and nonstudent samples, examined the psychometric properties of the MWEP. The first study replicates previous research demonstrating the multidimensionality of the work ethic construct. The second study describes the construction and initial psychometric evaluation of the MWEP. The third study examines relations between the MWEP subscales as well as relations with measures of general cognitive ability, personality, and manifest needs. The fourth study examines the generalizability of the MWEP from a student sample to a nonstudent working sample. The fifth study provides further evidence about the generalizability of the MWEP to an organizational sample and examines the relations of the MWEP subscales to other organizationally relevant attitudinal variables (i.e., job satisfaction, organizational commitment, and job involvement). Finally, the sixth study examines the criterion-related validity of the MWEP

Portions of this monograph were presented at the 15th annual meeting of the Society for Industrial/Organizational Psychology, New Orleans, LA, April 2000. The first two authors contributed equally to the writing of the article, order of authorship among the first two authors was determined on a basis other than relative contribution.

Addressed correspondence and reprint requests to David J. Woehr, Department of Management, The University of Tennessee, 419 Stokely Management Center, Knoxville, TN 37996-0545. E-mail: djw@utk.edu.

0001-8791/02 $35.00

scales in an organizational context. Implications and directions for future research are discussed.

More and more members of the business community are expressing concerns about the work ethic—a commitment to the value and importance of hard work—among potential employees. Some believe that work ethic is declining both in America as well as other industrialized countries (Ali & Azim, 1995; Eisenberger, 1989; Sacks, 1998). Concern has been expressed that the decline in work ethic corresponds to lower levels of job performance (Yandle, 1992), higher levels of absenteeism and turnover (Klebnikov, 1993; Shimko, 1992), and increases in counterproductive behavior ranging from unauthorized breaks to employee theft (Sheehy, 1990). Others have argued that work ethic is not in decline; rather, the work ethic among those classified as "Generation X" is different than that of previous generations (Allerton, 1994; Corbo, 1997; Spiegler, 1997). Regardless of the point of view, the importance of work ethic to employers is apparent. Flynn (1994) states that in a survey of hiring managers more than 50% reported that they were more concerned about an applicant's attitude than aptitude. Flynn also indicates that in another survey of 150 American managers, nearly 60% of the respondents ranked work ethic as the most important factor when hiring an administrative employee, assuming the candidate had the basic skills necessary to perform the job. Work ethic was ranked higher than other employee characteristics such as intelligence (23%), enthusiasm (12%), and education (4%).

While it appears that the concept of work ethic is ingrained in popular culture and acknowledged as an important determinant of work-related behavior, little recent attention has been given to the construct in the applied psychological literature. We believe that the lack of research attention in the contemporary literature may be due to the fact that previous studies reported equivocal results in the exploration of the relations of work ethic to organizationally relevant variables. These equivocal results may at least be explained partially by the fact that previous researchers have used different instruments which each measure different components of work ethic and not the construct in its entirety.

The present monograph provides a brief historical and conceptual review of the work ethic construct, suggests a general conceptual definition of work ethic, and reports a series of empirical studies focusing on the development and psychometric evaluation of a multidimensional measure of work ethic. We hope that the introduction of such a measure will facilitate future research to examine the relation between work ethic and work-related behavior.

The term "work ethic" was coined centuries ago by post-Reformation intellectuals who opposed the practice of social welfare and professed the importance of individualism (Byrne, 1990). These intellectuals espoused the belief that human beings must assume full responsibility for their lot in life, and the poor were no exception. As such, hard work was viewed as a panacea and through it, one could improve his or her condition in life. Implicit in this assumption was the belief that the poor simply needed to help themselves through diligent labor and all life's ills would vanish. Such were the harsh origins of the construct.

Modern formulations of the work ethic construct stem from the work of the German scholar Max Weber. In 1904 and 1905 Weber wrote the now classic two-part essay entitled "The Protestant Ethic and the Spirit of Capitalism." In this essay Weber advanced the thesis that the introduction and rapid expansion of capitalism and the resulting industrialization in Western Europe and North America was *in part* the result of the Puritan value of asceticism (i.e., achieving personal discipline through the scrupulous use of time and strict self-denial of luxury, worldly pleasure, ease, and so on) and the belief in a calling from God (Byrne, 1990; Charlton, Mallinson, & Oakeshott, 1986; Fine, 1983; Furnham, 1990a; Green, 1968; Lehmann, 1993; Maccoby, 1983; Nord, Brief, Atieh, & Doherty, 1988; Poggi, 1983). Further, an individual's economic role was prescribed by the belief in a calling (Gilbert, 1977). As Weber (1958) explains: "The religious valuation of restless, continuous, systematic work in a worldly calling, as the highest means to asceticism, and at the same time the surest and most evident proof of rebirth and genuine faith, must have been the most powerful conceivable lever for the expansion of that attitude toward life which we have here called the spirit of capitalism" (p. 172).

The manifestation of occupational rewards through success in one's calling came to be revered as a sign of being one of the elect, that is, chosen by God, to receive salvation. Thus, economic activity was a vehicle toward economic success and economic success a sign of salvation. It was the application of these values that Weber believed led to the "work ethic"—the complete and relentless devotion to one's economic role on earth (Lessnoff, 1994). Weber maintained that other Protestant faiths shared common theological underpinnings that stressed the value and importance of work for its own sake (Bouma, 1973; Nelson, 1973); thus the term "Protestant Work Ethic."

Despite Weber's original thesis, the premise that work ethic is a religiously oriented concept was contested then and since. Weber (1958) himself argued that while the Puritan ethos might be the origin of work ethic, which in turn partially drove the rapid expansion of capitalism, once established capitalism would no longer need the support of the religious beliefs that helped create it. He states, "To-day the spirit of religious asceticism. . . has escaped from the cage. But victorious capitalism, since it rests on mechanical foundations, needs its support no longer" (pp. 181–182). In short, people would strive for success and wealth because the values associated with the work ethic would become entrenched in society and therefore considered expected behavior and not aligned with any one set of religious beliefs (Weber, 1958). In fact, research has failed to find a consistent relation between religious orientation and work ethic beliefs (Beit-Hallahmi, 1979; Cameron, 1969; Crespi, 1963; Featherman, 1971; Giorgi & Marsh, 1990; Glenn & Hyland, 1967; Greeley, 1964; Kim, 1977; Lenski, 1961; McHoskey, 1994; Ray, 1982). Ray (1982) concluded that all religious orientations currently share to the same degree the attributes associated with the work ethic. He states that the Protestant ethic ". . . is certainly not yet dead; it is just no longer Protestant" (p. 135). This coincides with Pascarella's (1984) contention that all major religions have espoused the importance of work. Thus, it appears that what was conceived

as a religious construct is now likely secular and is best viewed as general work ethic and not a Protestant work ethic.

While it appears clear that work ethic is not a surrogate for religious orientation, the definition of work ethic is far from clear. In his essay, Weber (1958) states that the foundation of this ethic was hard work and the shunning of leisure as "... the earning of more and more money, combined with the strict avoidance of all spontaneous enjoyment of life" (p. 53), and the avoidance of "... ostentation and unnecessary expenditure" (p. 71) became the accepted way of life. He goes on to suggest that delay of gratification was also found in this ethic as "... the comfortable attitude toward life gave way to a hard frugality... because they did not wish to consume but to earn" (p. 68). This prudent approach to the making and spending of money led to a sense of independence and self-reliance that aided the rise of capitalism. Specifically, individuals did not rely on others to invest in their business but used instead the money that they had earned. As Weber asserts, "... it was not generally in such cases a stream of new money invested in industry which brought about this revolution ... but the new spirit, the spirit of modern capitalism, had set to work" (p. 68). This cycle perpetuated itself as "the restraints which were imposed upon the consumption of wealth naturally served to increase it by making possible the productive investment of capital" (p. 172). Thus, individuals, through industriousness and frugality, became increasingly self-reliant. Indeed, this independence, "where it appears and is able to work itself out, it produces its own capital and monetary supplies as the means to its ends" (pp. 68–69). Weber then stresses the centrality of work to peoples' lives as demonstrated by the view that "they are mere men who had grown up in the hard school of life... shrewd and completely devoted to their business" (p. 69) and "... man exists for the sake of his business, instead of the reverse" (p. 70). Simply put, these individuals worked hard and lived frugally due to an emphasis on the importance of work for work's sake. Not surprisingly, a prominent component of this work ethic concerns the constructive use of time. Specifically, "waste of time is thus the first and in principle the deadliest of sins ... Loss of time through sociability, idle talk, luxury, even more sleep than is necessary for health ... is worthy of absolute moral condemnation" (pp. 157–158). Last, Weber addresses the high moral fiber that individuals with this ethic demonstrated in their day-to-day affairs as it was "... only by virtue of very definite and highly developed ethical qualities that it has been possible for him to command the absolutely indispensable confidence of his customers and workmen" (p. 69). An individual subscribing to these beliefs also "... avoids ostentation and unnecessary expenditure, as well as conscious enjoyment of his power" (p. 71).

Originating in Weber's work, current conceptualizations tend to view work ethic as an attitudinal construct pertaining to work-oriented values. An individual espousing a high work ethic would place great value on hard work, autonomy, fairness, wise and efficient use of time, delay of gratification, and the intrinsic value of work (Cherrington, 1980; Dubin, 1963; Furnham, 1984; Ho & Lloyd, 1984; Weber, 1958; Wollack, Goodale, Wijting, & Smith, 1971). Thus, consistent with Weber's early formulation, "work ethic" seems to be a multidimensional set of values, yet researchers in the social sciences have traditionally

emphasized a unidimensional definition of the construct. As noted by Furnham (1990a): "Psychologists have chosen to conceive of and measure the PWE [Protestant Work Ethic] as a coherent, bi-polar belief system similar to the locus of control or just world belief constructs. Indeed there is striking similarity between PWE and other individual difference variables . . . " (p. 31).

The dimensionality of the work ethic construct raises an important concern that has manifested itself in attempts to operationally define "work ethic." That is, while work ethic is most often viewed as a single construct, it seems to be made up of multiple components. Research examining the structure of various measures of work ethic indicates several clearly identifiable dimensions (Furnham, 1990b; Heaven, 1989; McHoskey, 1994**;** Mirels & Garrett, 1971; Tang, 1993). For example, McHoskey (1994) factor analyzed Mirels and Garrett's Protestant Ethic scale. His analysis yielded a four-factor solution, which he labeled "success," "asceticism," "hard-work," and "anti-leisure." However, McHoskey was quick to point out that though this scale was multidimensional, other important aspects of work ethic were absent. Specifically, it in no way measured an individual's attitudes toward morality, self-reliance, or delay of gratification. This lack of comprehensiveness in measuring the construct characterizes other scales as well and limits their utility (Furnham, 1984, 1990a, 1990b; McHoskey, 1994). In perhaps the most comprehensive effort to date, Furnham (1990b) factor analyzed seven questionnaire measures of work ethic and identified five interpretable factors, which he labeled "belief in hard work," "leisure," "religious and moral beliefs," "independence from others," and "asceticism."

Given the apparent multidimensionality of the work ethic construct and the absence of a firmly accepted conceptual definition, we posit that "work ethic" reflects a constellation of attitudes and beliefs pertaining to work behavior. Characteristics of the work ethic construct are that it (a) is multidimensional; (b) pertains to work and work-related activity in general, not specific to any particular job (yet may generalize to domains other than work—school, hobbies, etc.); (c) is learned; (d) refers to attitudes and beliefs (not necessarily behavior); (e) is a motivational construct reflected in behavior; and (e) is secular, not necessarily tied to any one set of religious beliefs.

Of paramount concern for research on the work ethic construct as well as the relations between work ethic and work behavior is the ability to measure the construct. There are at least seven measures specifically developed to assess work ethic (see Table 1). Of these seven, by far the most frequently cited is Mirels and Garrett's (1971) Protestant Work Ethic Scale. In addition, there are several other measures designed to assess various work-related attitudes and values ranging from constructs such as job involvement and organizational commitment to other more specific measures of "work values." Wollack et al. (1971), for example, developed the Survey of Work Values. They note, however, that while the Survey of Work Values was intended to provide a multidimensional, secularized interpretation of work ethic, the dimensions assessed generally represent a very broad interpretation of the work ethic construct. In fact, only two of the dimensions assessed (pride in work and activity preference) appear to easily correspond to Weber's original

TABLE 1
Previous Work Ethic Measures Included in Initial Factor Analysis

Scale	Number of items
Protestant Ethic Scale (Goldstein & Eichorn, 1961)	4
Pro-Protestant Ethic Scale (Blood, 1969)	8
Protestant Work Ethic Scale (Mirels & Garrett, 1971)	19
Spirit of Capitalism Scale (Hammond & Williams, 1976)	6
Work and Leisure Ethic Scales (Buchholz, 1978)	
Work Ethic Subscale	7
Leisure Ethic Subscale	8
Eclectic Protestant Ethic Scale (Ray, 1982)	18
Australian Work Ethic Scale (Ho & Lloyd, 1984)	7

conceptualization. A third dimension (job involvement) may be viewed more as a consequence of work ethic. The remaining three dimensions (social status of the job, attitude toward earnings, and upward striving) are less directly related, corresponding more to value placed on extrinsic rewards associated with work rather than the intrinsic factors associated with Weber's traditional model of work ethic. While all work-related attitudes and values should to some extent be related to the idea of a "work ethic"(e.g., high levels of work ethic should be related to high levels of job involvement), we limit our consideration to those measures that explicitly address the work ethic construct based on Weber's thesis. Specifically, work ethic as it is reflected in the intrinsic values of asceticism, self-reliance, hard work, the careful use of time, delay of gratification, and personal honesty/integrity.

The seven work ethic measures presented in Table 1 were all developed to measure Weber's work ethic construct. However, there are a number of problems common to these measures. First and foremost, despite the considerable evidence of the multidimensionality of work ethic, they typically focus on the measurement of a unidimensional construct and yield a global "work ethic" score. Although using a global or composite score in itself is not problematic, ignoring the multidimensionality of work ethic is troubling from an operational as well as a conceptual perspective. The exclusive use of an overall score may result in the loss of information with regard to the different components of work ethic as well as their relations to other constructs (Carver, 1989; McHoskey, 1994). Further, the use of a single score in studies using different instruments to measure work ethic may at least partially explain the equivocal results often found in the literature (Furnham, 1984). For example, Blood (1969) reported that the greater an individual's work ethic beliefs the more satisfied they were with their job as well as life in general. However, Ganster (1980) found no evidence to support this outcome. Merrens and Garrett (1975) concluded that individuals with high work ethic beliefs worked longer on a monotonous task and also were significantly more productive than individuals with low ethic beliefs. In an attempt to replicate this finding, Ganster (1981) failed to find any relation between work ethic beliefs and time engaged

in a mundane task. Great difficulty is encountered in attempting to interpret these findings as one cannot be sure if the conflicting results are due to a lack of robustness in the studies or deficiencies in terms of construct relevance and psychometric properties of the measure used (Furnham, 1990b).

A second concern across the various measure of work ethic is that the measures appear to tap different components of work ethic and not the construct in its entirety. For example, in a content analysis of seven measures of work ethic, Furnham (1990b) concluded that the items in the different questionnaires were best represented by seven distinct dimensions. Furnham demonstrated that the different questionnaires focused on different aspects of the work ethic construct. To further substantiate this claim, he then administered the measures to 1021 participants and found that correlations between the various measures ranged from 0.19 to 0.66 with a mean r of 0.36. One would expect the values to be much higher if the scales were indeed measuring the same thing. Furnham concluded that previously developed measures of work ethic have been more concerned with issues pertaining to reliability than with those of validity. Specifically, these earlier measures did not assess the complete construct of work ethic as it was originally conceptualized by Weber. For example, attitudes and beliefs regarding time and delay of gratification were absent from the majority of the previous measures. It would seemingly be important, therefore, to develop an instrument that measured the work ethic construct in its entirety.

Finally, another problem with existing work ethic measures is that these measures are relatively dated. Specifically, the range of publication dates for the scales presented in Table 1 is from 1961 to 1984. While the age of the measures certainly does not necessarily make them less valid, it does raise some concern over their relevance for current populations (e.g., "Generation X-ers"), for which much debate on declining work ethic has centered. While there is no direct evidence that the meaning or endorsement of work ethic has necessarily changed over the years, the issue is that the earlier measures have many dated items. For example, some of the items contain sex-biased language such as "Hard work makes a man a better person" (Blood, 1969), "The man who can approach an unpleasant task with enthusiasm is the man who gets ahead" (Mirels & Garrett, 1971), and "To be superior a man must stand alone" (Buchholz, 1978). Thus, we argue that these, and other such items, need revision to make them more contemporary.

Numerous authors have noted problems with existing measures of work ethic. Referring to existing measures of work ethic, Jones (1997) states "Only a tiny majority of these, unfortunately, have been subjected to psychometric validation, and many seem to have been designed without any effort to ground items in the Weber thesis (Furnham, 1990). Furnham (1984) observes that "few psychologists seem to have studied the works of Weber with any care" (p. 764).

Furnham (1990b) recommends that future research should concentrate on constructing and developing a psychometrically sound, multidimensional measure of work ethic that captures the construct in its entirety. More specifically, as noted by Furnham (1990b), almost all previously identified facets of work ethic are found

to some extent in a combination of the previous measures. The potential utility of measurement that combines all or a number of different scales, however, is questionable. Both the potential number of items and the lack of adequate psychometric data combine to limit the utility of such an approach. Rather, it would be beneficial to construct a multidimensional scale that adequately measures all aspects of the work ethic construct with a minimum number of items. Such a measure would provide an important operational definition of Weber's work ethic construct as well as a springboard for future research.

Our primary objective in the present project was to construct a new measure of work ethic, the Multidimensional Work Ethic Profile (MWEP), and to conduct initial studies of its reliability and validity. We sought to (1) develop a measure that reliably assessed each of the components or dimensions of work ethic reported in the literature; (2) assess the extent to which measures of these dimensions demonstrate convergent and discriminant validity with measures of other constructs such as cognitive ability, personality, manifest needs, and other organizationally relevant attitudinal variables (i.e., job satisfaction, organizational commitment, and job involvement); (3) assess the relations between various components of work ethic; and (4) provide initial criterion-related validity evidence. Six studies are reported in the present monograph. The first study replicates previous research demonstrating the multidimensionality of the work ethic construct. The second study describes the construction and initial psychometric evaluation of the MWEP. The third study examines relations between the MWEP subscales as well as convergent and discriminant validity with measures of general cognitive ability, personality, and manifest needs. The fourth study examines the generalizability of the MWEP from a student sample to a nonstudent working sample. The fifth study provides further evidence about the generalizability of the MWEP to an organizational sample and examines the relations of the MWEP subscales to other organizationally relevant attitudinal variables (i.e., job satisfaction, organizational commitment, and job involvement). Finally, the sixth study examines the criterion-related validity of the MWEP scales.

STUDY 1

Study 1 empirically assessed the dimensionality of the work ethic construct across previous measures. In essence, this study replicates the work of Furnham (1990b) in that items from the seven work ethic scales factor analyzed by Furnham are also analyzed in the present study.

Method

Participants. The participants consisted of 1415 undergraduate students (62% female and 38% male) from a large Southwestern university. The mean age of participants was 18.5 years ($SD = 1.24$) with a minimum and maximum age of 17 and 33 years respectively. Participation was voluntary and participants received partial course credit for taking part in the study.

Materials. A representative pool of work ethic related items was generated based on a thorough review of existing measures of work ethic. As mentioned above, there are at least seven existing inventories designed to measure work ethic (see Table 1 for a list of these scales and references). Items from each of these inventories were content analyzed by the authors to determine readability and clarity. Items were rewritten or revised, if needed, to make them more contemporary. Specifically, we attempted to ensure that items were as gender neutral as possible (e.g., "Hard work makes a man a better person" to "Hard work makes one a better person"). This resulted in an item pool of 77 randomly ordered items (Table 1 provides an indication of the number of items from each of the seven scales).

Procedure. Participants were recruited and randomly assigned to one of several 60-min sessions. During each session participants were given the total pool of work ethic items along with written instructions. Responses to each item were made on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Instructions asked participants to respond to each of the items on scannable response sheets.

Results

We used exploratory factor analysis to empirically examine the factor structure across the pool of 77 items. Responses to the items were subjected to a principal components analysis with a varimax rotation to maintain orthogonality among the factors. Although 22 eigenvalues were greater than unity, an inspection of the scree plot suggested a six-factor solution. These six factors accounted for approximately one-third of the total variance.

Seventy-three of the 77 items loaded cleanly on one of the six factors (a factor loading of .3 or greater on only one factor). Sixteen items loaded on the first factor which accounted for 22% of the explained variance and which we labeled Hard Work. Items loading on this factor pertained to attitudes toward and beliefs about the value of hard work (e.g., "If one works hard enough, one is likely to make a good life for oneself").

Thirteen items loaded on the second factor which accounted for 18% of the explained variance. Items loading on this factor, which we labeled Leisure, pertained to the importance of leisure activity (e.g., "People should have more leisure time to spend in relaxation").

The third factor, which we labeled Centrality of Work, accounted for 17% of the explained variance. The 16 items loading on this factor express the importance of work in one's life (e.g., "Even if I were financially able, I couldn't stop working").

The fourth factor, which we labeled Wasted Time, accounted for 15% of the explained variance. The theme of the nine items loading on this factor concern a distaste for the unproductive use of time (e.g., "Most people spend too much time in unprofitable amusements").

The fifth factor, which we labeled Religion/Morality, accounted for 14% of the explained variance. The 10 items loading on this factor were concerned with religion and morality (e.g., "I believe in life after death" and "Stealing is all right as long as you don't get caught").

We labeled the final factor Self-Reliance. This factor also accounted for 14% of the explained variance. The nine items loading on this factor stress independence from others (e.g., "To be superior a person must stand alone").

Discussion

The factor analytic results of study one demonstrate the multidimensionality of the work ethic construct. Indeed, six readily interpretable factors emerged. As expected our results were quite similar to those of Furnham (1990b). The primary difference between our results and those reported by Furnham is that we found evidence for six factors while Furnham reported five factors. Specifically, we found evidence for two dimensions pertaining to the value of work (i.e., Hardwork and Centrality of Work) while Furnham reported only one. The remaining dimensions, however, were generally equivalent to those reported by Furnham.

It should also be noted that these dimensions are also quite similar to those found in Weber's original work: belief in hard work, the role of leisure, religious and moral beliefs, self-reliance, and asceticism. It appears that the six dimensions found in the present study are fairly representative of the work ethic construct in general. However, another construct that is fundamental to Weber's conceptualization of work ethic and that is typically discussed in the literature (e.g., Furnham, 1984, 1987; McClelland, 1961; McHoskey 1994; Weber 1958) pertains to delay of gratification. For example, Furnham (1987) investigated the determinants of work ethic beliefs in a sample of 406 adults. He found that delay of gratification was significantly related to endorsement of the work ethic. Furnham argues that this result is consistent with Weber's (1958) and McClelland's (1961) contention of the strong relation between delay of gratification and work ethic beliefs. In essence, delay of gratification is a critical component of the work ethic construct. Delay of gratification is consistently included in the literary conceptualization of work ethic but largely omitted in most operationalizations of the work ethic construct. Thus, we argue that a more comprehensive representation of the work ethic would include a dimension representing delay of gratification as well as those dimensions identified in the factor analytic results.

At this point it should be noted that although six dimensions emerged from the factor analysis of items stemming from previous measures, no single previous measure includes items pertaining to all of the dimensions. Specifically, there currently exists no measure that provides either (a) a comprehensive measurement of the work ethic construct and/or (b) a measure of each of the multiple dimensions comprising work ethic.

STUDY 2

Given the results of Study 1, as well as the congruence between these results and previous research, and the fact that no measure exists that explicitly assesses each of the dimensions identified, we next sought to construct a new measure of work ethic containing practical and reliable subscales tapping each of the seven dimensions described in Study 1 (the six identified through the factor analysis and

Delay of Gratification). Our goal was to construct a measure that demonstrated reliable subscale scores with a minimum number of items for each of the seven dimensions.

Method

Participants. A second independent (i.e., no individuals served as participants in study one and study two) sample of undergraduate psychology students ($N = 1058$, 53% female and 47% male) participated in this study. Participants ranged in age from 17 to 30 years with a mean age of 18.79 ($SD = 1.19$).

Materials. We generated a new pool of approximately 20 to 25 items for each of the seven dimensions of work ethic discussed in Study 1. Items were generated to tap each of the dimensions with the exception of the Religion/Morality dimension. Here, due to the increasing secularization of the work ethic construct, we decided to exclude items with specific religious connotation (e.g., "I believe in God" and "I believe in life after death"). Items developed for this dimension focused on beliefs pertaining to a just and moral existence and thus we reconceptualized this dimension as Morality/Ethics.

To ensure content relatedness, all of the items were content analyzed by five upper level (postmaster's) graduate students in Industrial/Organizational psychology. These students attended a group meeting and were provided background information on the work ethic construct to clarify their knowledge. They were then given a randomly ordered list of all the items and asked to place each item under one of the seven work ethic dimensions that best represented the content of that item. Raters worked independently on this exercise and were provided with no guidance or outside help. Interrater agreement across raters for this task was approximately 98% (expressed as the mean percentage of agreement in dimensional assignments across raters). Items for which there was lack of agreement or other problems of interpretation were excluded from the item pool. In addition, a number of the items retained on the basis of interrater agreement were revised and/or rewritten for clarity and readability based on the suggestions of the raters.

A final item pool of 145 items was compiled. These items were randomly ordered and administered to participants.

Procedure. Participants were recruited and randomly assigned to one of several 60-min sessions. During each session participants were given the total pool of work ethic items along with written instructions. Responses to each item were made on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Instructions asked participants to respond to each of the items on scannable response sheets.

Results

Two separate analyses were performed: (1) exploratory factor analysis and (2) an item analysis and estimation of the internal consistency (coefficient α) for each of the resulting sets of items. To ensure the independence of the analyses, the data were randomly partitioned into two sets. Set one contained 800 cases (approximately 75% of the sample) and was used for the exploratory factor analysis; set 2 contained the remaining 258 cases and was used for the item analysis.

TABLE 2
Factor Analytic Results for the Seven Work Ethic Dimensions

Factor	Proportion of variance accounted for				Relative Difference[b]
	Eigenvalue	1st factor	2nd factor	Difference[a]	
Hard Work	6.60	0.33	0.09	4.70	7.01
Self-Reliance	6.42	0.31	0.07	4.91	17.54
Leisure	5.70	0.29	0.08	4.23	12.82
Centrality of Work	5.62	0.28	0.10	3.70	4.90
Morality/Ethics	3.90	0.26	0.10	2.40	8.17
Delay of Gratification	3.80	0.19	0.12	1.48	3.97
Wasted Time	3.90	0.20	0.09	2.04	4.08

Note. $N = 700$.

[a] Difference is the difference between the first and second eigenvalues. The larger the difference the larger the drop in the scree plot between the first and second factors.

[b] Relative Difference represents the difference between eigenvalues 1 and 2 relative to the difference between 2 and 3. The larger this difference the larger the difference in the slope of the scree plot from the first to second factor relative to the slope from the second to third factors.

Exploratory factor analysis. We used exploratory factor analysis both to examine the degree of first factor saturation (unidimensionality) for each dimension and to empirically identify the most relevant subsets of scale items (Briggs & Cheek, 1986). Analysis of the items was performed separately by dimension. That is, responses to items corresponding to each of the seven dimensions were factor analyzed separately. These analyses were intended to identify the subset of items with the cleanest loadings on each factor.

Summary factor analytic results for the seven dimensions of work ethic are shown in Table 2. These results indicate that the first factor extracted for each dimension accounted for 19 to 33% of the total variance. Further examination of eigenvalues corresponding to the first factor and potential second factors demonstrate a relatively steep drop providing support for the unidimensionality of each dimension.

To reduce the total number of items, factor analytic results were also used to select a subset of 10 items corresponding to each dimension. Thus, we selected the 10 items demonstrating the highest loadings on the first principal-axis factor within each dimension. These 10 items represent those sharing the largest proportion of common variance and this common variance best represents the factor of interest.

Item analysis. Coefficient alpha and item-total correlations were calculated, using the second sample, for each dimension based on the set of 10 items selected for each dimension. Alpha values were at least 0.80 for all of the dimensions with the exception of both Delay of Gratification ($\alpha = 0.73$) and Wasted Time ($\alpha = 0.75$). Further examination of the results for these dimensions indicated two Wasted Time items and three Delay of Gratification items with relatively low item–total correlations. Deletion of these items increased α values to 0.76 for Delay of Gratification and 0.80 for Wasted Time. Final coefficient α values for each dimension

are 0.83 (Hard Work), 0.89 (Self-Reliance), 0.85 (Leisure), 0.81 (Centrality of Work), 0.80 (Morality/Ethics), 0.76 (Delay of Gratification), and 0.80 (Wasted Time).

Discussion

The specific aim of Study 2 was to construct a psychometrically sound measure of work ethic. Rather than an overall assessment of work ethic, we sought to construct a measure that provided separate subscale scores for each of the seven dimensions of work ethic previously identified. Toward this end we developed a pool of items designed to assess each dimension. Based on the results of the exploratory factor analysis as well as an independent item analysis, we selected the subset of those items that best assessed each of the dimensions. This process resulted in a final set of 10 items corresponding to each dimension, with the exception of Delay of Gratification and Wasted Time with 7 and 8 items respectively. Thus, a total of 65 items were included in the final measure. We labeled this measure the Multidimensional Work Ethic Profile.

All seven dimensions of the MWEP and sample items associated with each dimension are summarized in Table 3. As noted the MWEP is composed of seven subscales each assessing a different component of the overall work ethic construct. Independent estimates of the internal consistency of each subscale indicated adequate levels of reliability. A copy of the measure as administered along with the scoring key is presented in the Appendix.

STUDY 3

The results of study two provide preliminary support for a reliable multidimensional measure of work ethic. However, more evidence is certainly needed regarding the validity of the measure. The purpose of study three was to provide preliminary construct-related validity evidence for the MWEP. Here we sought to (1) provide a confirmatory test of the factor structure of the MWEP and (2) compare scores on the MWEP with scores on measures of other potentially related constructs. Specifically, we examined the relation of work ethic scores to measures of general cognitive ability, personality, and manifest needs. Evidence for the construct-related validity of the MWEP scales would be reflected in the pattern of relations between the work ethic scale scores and scores on measures of the other constructs. Specifically, the work ethic scale scores in general should be significantly related to the personality construct conscientiousness and the manifest needs variable need for achievement while at the same time demonstrating no significant relation to the other personality and needs variables. Very little if any relation between the work ethic scores and general cognitive ability would be expected. Predictions can also be made with respect to several of the individual MWEP subscale scores. Specifically, scores on the Self-Reliance subscale should relate significantly and positively to need for autonomy and relate significantly and negatively to need for affiliation.

TABLE 3
MWEP Dimensions, Dimension Definitions, and Sample Items[a]

Dimension	Definition	Sample items
Centrality of Work	Belief in work for work's sake and the importance of work.	Even if I inherited a great deal of money, I would continue to work somewhere. It is very important for me to always be able to work. I feel content when I have spent the day working.
Self-Reliance	Striving for independence in one's daily work.	I strive to be self-reliant. Self-reliance is the key to being successful. One must avoid dependence on other persons whenever possible.
Hard Work	Belief in the virtues of hard work.	If you work hard you will succeed. By simply working hard enough, one can achieve their goals. Hard work makes one a better person.
Leisure	Proleisure attitudes and beliefs in the importance of nonwork activities.	People should have more leisure time to spend in relaxation. The job that provides the most leisure time is the job for me. Life would be more meaningful if we had more leisure time.
Morality/Ethics	Believing in a just and moral existence.	People should be fair in their dealings with others. It is never appropriate to take something that does not belong to you. It is important to treat others as you would like to be treated.
Delay of Gratification	Orientation toward the future; the postponement of rewards.	The best things in life are those you have to wait for. If I want to buy something, I always wait until I can afford it. A distant reward is usually more satisfying than an immediate one.
Wasted Time	Attitudes and beliefs reflecting active and productive use of time.	I try to plan out my workday so as not to waste time. Time should not be wasted, it should be used efficiently. I constantly look for ways to productively use my time.

[a] A complete version of the scale and scoring key is presented in the appendix.

In summary, the following hypotheses are examined in study three:

H1: Scores on each of the seven work ethic scales relate significantly to conscientiousness,

H2: Scores on each of the seven work ethic scales are not related significantly to cognitive ability,

H3: The MWEP Self-Reliance scale is related positively to need for autonomy and negatively related to need for need for affiliation,

H4: A seven factor model of the MWEP subscales provides an adequate representation of the data.

Method

Participants

The participants consisted of 598 undergraduate psychology students (52% female and 48% male) from a large Southwestern university. They ranged in age from 17 years to 27 years with a mean age of 19.20 years ($SD = 1.27$).

Measures

Work ethic. Work ethic was assessed using the MWEP measure constructed in Study 2. Responses to each item were made on a 5-point Likert scale (1 = s*trongly disagree* to 5 = s*trongly agree*). Scores for each of the dimensions, with the exception of Delay of Gratification and Wasted Time, were calculated as the sum of the responses to each of the items corresponding to the dimension. To express the Delay of Gratification and Wasted Time dimensions on the same scale as the other dimensions, scores for these two dimensions were calculated as the mean item response across each item corresponding to the dimension multiplied by 10. Thus scores on each of the dimensions range from 10 to 50. All of the work ethic dimensions except Leisure were scored so that higher scores indicated higher endorsement of the corresponding items. The Leisure dimension was scored so that higher scores indicated lower levels of item endorsement. For summary purposes an overall work ethic score was also computed as the sum of the dimension scores. This score in essence represents a unit weighted composite of the subscale scores.

Advanced progressive matrices test (APM)—short form. The APM short form (Arthur & Day, 1994) is a 12-item paper-and-pencil measure of higher-order general mental ability derived from the original 36-item Raven's Progressive Matrices scale (Raven, Raven, & Court, 1994). The test is made up of a set of homogeneous items that become progressively more difficult to solve. The examinee is required to choose which piece (from eight available options) best completes a pattern series presented across three rows of designs. Arthur and Day (1994) report a 7- to 10-day test–retest reliability of 0.75 for the APM short form and an internal consistency coefficient α of 0.69.

NEO five-factor inventory (NEO-FFI) (Form S; Costa & McCrae, 1985). The NEO-FFI is a 60-item paper-and-pencil measure of the Big Five personality factors, with 12 items per personality dimension. Items are responded to on a 5-point Likert-type scale (*strongly disagree to strongly agree*). The internal consistencies for the NEO-FFI scales are 0.79 (Extraversion), 0.74 (Agreeableness), 0.84 (Conscientiousness), 0.89 (Neuroticism), and 0.76 (Openness) (Costa & McCrae, 1991).

Manifest needs questionnaire (MNQ). The MNQ (Steers & Braunstein, 1976) is a 20-item paper-and-pencil measure of four needs: Achievement, Affiliation, Autonomy, and Dominance. Each scale consists of five items which are responded to on a 7-point Likert-type format (Always to Never) and the scale score is the mean of its component item scores. Steers and Braunstein (1976) report coefficient

TABLE 4
Correlational Analysis between Dimensions of Work Ethic and Coefficient Alpha Values[a] for Each MWEP Dimension

Dimension	Mean	*SD*	1	2	3	4	5	6	7	8
1. Hard Work	22.09	5.9	(.85)							
2. Self-Reliance	26.20	6.8	0.37	(.89)						
3. Leisure	31.32	5.9	0.08	0.12	(.87)					
4. Centrality of Work	24.34	6.0	0.33	0.18	0.48	(.84)				
5. Morality/Ethics	16.06	4.5	0.30	0.06	0.14	0.23	(.77)			
6. Delay of Gratification	24.29	6.4	0.33	0.20	0.12	0.38	0.29	(.79)		
7. Wasted Time	24.98	5.9	0.38	0.30	0.29	0.57	0.31	0.40	(.75)	
8. Total Score[b]	169.21	25.4	0.66	0.52	0.46	0.74	0.51	0.65	.076	(.72)

Note. $N = 598$. All correlations greater than 0.11 are significant ($p < .05$). Mean dimension intercorrelation = 0.28.

[a] Coefficient alpha values are shown in parentheses.

[b] Total Score is the sum of the seven work ethic subscales. The coefficient alpha is based on the seven subscales scores rather than the 65 individual items.

alphas and 2-week test–retest correlations of 0.66 and 0.72 (Achievement), 0.56 and 0.75 (Affiliation), 0.61 and 0.77 (Autonomy), and 0.83 and 0.86 (Dominance).

Procedure. Participants were recruited and randomly assigned to one of several 60-min sessions. During each session participants were given the work ethic measure, APM short form, NEO-FFI, and the MNQ along with written instructions. The administration of the measures was counterbalanced across experimental sessions. Participants responded to each of the items on scannable response sheets.

Results

Table 4 presents summary data and correlations for the MWEP scores. These results indicate similar coefficient alpha consistency estimates to those obtained with the developmental sample (Study 2). In addition to estimates of internal consistency, we also examined estimates of the temporal stability of the dimension scale scores. We readministered the MWEP to a small subset of the participants ($N = 34$) approximately 4 weeks after the initial administration. Test–retest reliability estimates for the MWEP subscales were Hard Work (.92), Self-Reliance (.92), Leisure (.93), Centrality of Work (.92), Morality/Ethics (.92), Delay of Gratification (.83), and Wasted Time (.95).

We used a confirmatory factor analytic application of Jöreskog and Sörbom's (1999) LISREL 8.30 to test a model in which each of the 65 MWEP items loaded on one of 7 latent variables representing the 7 MWEP dimensions. Results of this analysis indicate a χ^2 value of 4970.59 ($df = 1994$; $p < .01$). The significant χ^2 value indicates that the seven-factor model does not provide an exact fit to the data. However, the use of the χ^2 value as an indication of fit is based on the assumption

that the model holds exactly in the population. Several authors have noted that a consequence of this assumption is that models which hold approximately (i.e., provide a close fit) in the population will be rejected in large samples and with large numbers of degrees of freedom. Consequently, Browne and Cudeck (1993) present a number of fit measures which take particular account of the error of approximation in the population and the precision of the fit measure itself. Browne and Cudeck (1993) recommend using Steiger's (1990) root mean square error of approximation (RMSEA) as a measure of lack of fit per degree of freedom. They further suggest that an RMSEA value of 0.05 or less indicates a close fit and that values up to 0.08 represent reasonable errors of approximation in the population. They also present a 90% confidence interval for the RMSEA. Values falling within this interval indicate models providing a reasonable level of fit in the population. Results of the MWEP seven-factor model analysis indicates an RMSEA of 0.063 (90% confidence interval = 0.061 to 0.065). Given these results, it appears that the seven-factor model provides a reasonable fit with the data.

The correlations between the work ethic scores and the personality, manifest needs, and cognitive ability measures appear in Table 5. The mean correlation between the seven work ethic dimension scores (.28) is larger than the mean correlation of the work ethic scores with the personality variables (.10), the manifest needs variables (.15), and cognitive ability (.03). In addition, as predicted the work ethic dimension scores were related significantly to both conscientiousness (mean $r = .34$) and need for achievement (mean $r = .29$) while at the same time demonstrating little, if any, relation to the other personality and needs variables. Convergent validity is demonstrated with respect to several of the individual work ethic subscale scores as well. Self-Reliance, for example, is significantly

TABLE 5
Correlations between the MWEP Scales and the Cognitive Ability, Personality, and Manifest Needs Variables

		Personality					Manifest needs			
	Raven	E	A	O	C	N	Ach.	Aut.	Aff.	Dom.
Hard Work	.07	.19	−.05	−.01	.31	−.02	.31	.02	−.10	.16
Centrality of Work	−.01	.14	.03	.09	.39	.01	.36	−.06	−.10	.19
Self-Reliance	.12	−.11	−.27	−.01	.21	.04	.16	.35	−.35	.14
Wasted Time	.04	.18	−.03	.04	.52	.04	.39	.07	−.21	.28
Delay of Gratification	.03	.10	.03	.08	.29	.01	.26	−.02	−.03	.07
Leisure	−.02	.05	−.10	.01	.23	−.08	.15	−.21	−.13	.03
Morality/Ethics	−.05	.26	.32	.06	.28	−.09	.22	−.22	.07	.10
Total Score	.05	.17	.01	.06	.51	−.01	.43	.01	−.21	.23
Mean	.03	.12	.00	.04	.34	−.01	.29	−.01	−.15	.15

Note. $N = 598$. All r's greater than .10 are significant ($p < .01$). E = Extraversion; A = Agreeableness; O = Openness; C = Conscientiousness; N = Neuroticism; Ach. = Achievement; Aut. = Autonomy; Aff. = Affiliation; Dom. = Dominance.

positively related to need for autonomy and negatively related to need for affiliation. In addition, conscientiousness is most strongly related to the work ethic dimension Wasted Time (which focuses on the importance of the constructive use of time).

Discussion

The specific goal of study three was to provide preliminary construct-related validity evidence for the MWEP. Toward this goal it was demonstrated that work ethic as measured by the MWEP shows expected convergence with conscientiousness and need for achievement and discrimination from other measures of personality, cognitive ability, and manifest needs. In addition, reliability estimates for each of the MWEP subscales were nearly identical to those found in the initial developmental sample and confirmatory factor analysis supported the MWEP seven dimensions. These findings provide considerable additional psychometric support for the MWEP as a multidimensional measure of work ethic. A major limitation of these studies, however, is that they are all based on a university student sample. Evidence supporting the MWEP in nonstudent samples is lacking. Study 4 addressed this issue.

STUDY 4

The primary objective of Study 4 is to empirically determine the extent to which the psychometric properties of the MWEP that were found with a university student sample would generalize to a nonstudent working sample. Measurement stability across the samples would allow for greater confidence with regard to measurement equivalence and provide an initial indication of the generalizability of the MWEP.

The comparison sample used was composed of U.S. Air Force enlisted personnel. Results using Air Force personnel are compared to the student sample used in Study 3. This comparison focused on (1) the mean score levels on each dimension, (2) score variability for each dimension, (3) the reliability for each dimension, and (4) the overall pattern of correlation among dimensions. If the MWEP functions similarly across the two samples no differences in dimension variability, dimension reliability, or the overall pattern of correlations among dimensions should be found. However, differences in mean levels on each dimension are possible given actual potential differences between the two samples. That is, the student sample is composed primarily of 18- to 22-year-old college students. Alternately, the Air Force sample represents a non-college-bound sample of roughly the same age. It is possible that actual differences in work ethic attitudes and beliefs exist between the two groups. Such differences would be reflected in mean dimension score differences.

Method

Participants. Participants in the present study were 741 U.S. Air Force enlisted personnel that participated in the study during Basic Military Training (BMT). The participants were 48% male. Further, 68% were White, 19% Black, 6% Hispanic,

3% Asian, and 4% Other. Mean age of the participants was 18.76 ($SD = 1.75$) and ranged from 18 to 35.

Multidimensional work ethic profile measure. The MWEP was originally developed as a 65-item paper-and-pencil measure. The measure requires responses to items on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). To facilitate data collection in the present study the MWEP was included as part of a computer-administered battery of questionnaires. Thus, a computer-administered version of the MWEP was developed that was highly similar to the paper-and-pencil version. Both items and response options were displayed in the same manner in both forms. Participants were asked to respond to each of the items using the numbers on the computer keyboard.

Procedure. The MWEP was administered as part of an extensive battery of computer-administered questionnaires completed in a single 4-h session during the first week of BMT. Participants were seated at individual computer terminals and given the measures. Administration of the measures was counterbalanced across experimental sessions.

Results

Comparison of the MWEP in the two samples focused on (1) the mean score levels on each dimension, (2) score variability for each dimension, (3) the reliability for each dimension, and (4) the overall pattern of correlations among dimensions. Mean scores for each of the 7 work ethic dimensions for both the Air Force and student samples appear in Table 6.

We used a set of independent sample t tests to examine dimension mean score differences across samples. Results of these are also presented in Table 6. These results indicate significant mean differences for all dimensions. Further, means are

TABLE 6
Means and Standard Deviations for the Seven MWEP Scales by Sample

	Student Sample ($N = 598$)		Air Force Sample ($N = 741$)		Organizational Sample 1 ($N = 174$)		Organizational Sample 2 ($N = 124$)	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Centrality of Work	24.34^{A}	6.04	20.34^{B}	5.77	36.78^{C}	6.34	39.17^{D}	5.11
Delay of Gratification	24.29^{A}	6.43	19.42^{B}	5.76	33.88^{C}	7.36	35.09^{C}	6.12
Hard Work	22.09^{A}	5.86	16.41^{B}	5.23	37.81^{C}	6.94	40.48^{D}	5.45
Leisure	28.63^{A}	5.86	27.91^{B}	5.75	29.33^{C}	6.78	30.34^{C}	5.93
Morality/Ethics	16.08^{A}	4.45	13.49^{B}	3.22	44.55^{C}	5.90	46.53^{D}	3.41
Self-Reliance	26.11^{A}	6.88	24.48^{B}	7.13	34.64^{C}	7.13	35.10^{C}	6.29
Wasted Time	24.98^{A}	5.89	20.08^{B}	5.37	37.08^{C}	6.27	38.80^{D}	5.00
Total[a]	169.31^{A}	25.4	142.11^{B}	24.7	255.89^{C}	28.76	265.50^{D}	24.37

Note. Means within the same row with different superscripts are significantly different ($p < .05$).
[a] Total Score is the sum of the seven work ethic subscales.

TABLE 7
Test for Equality of Variances across Student and Air Force Samples

Dimension	Student Sample Variance	Air Force Sample Variance	Levine's Test for Equality of Variances	
			F	Significance (p)
Centrality of Work	36.48	33.29	.927	.336
Delay of Gratification	41.34	33.18	6.84	.009
Hard Work	34.46	27.35	3.64	.057
Leisure	34.33	33.06	.338	.561
Morality/Ethics	19.98	10.34	52.75	.000
Self-Reliance	46.79	50.71	2.26	.133
Wasted Time	34.69	28.84	3.94	.047

higher for the student sample than for the Air Force sample for all dimensions. These scores indicate a higher level of work ethic in the student sample compared with the Air Force sample potentially reflecting actual differences between the two samples. For example, it might be expected that a college sample would have higher Delay of Gratification scores when compared with a sample of similar age in the work force.

Table 7 provides the results of a comparison of the variance of each dimension across samples. These results indicate relatively small but significant differences for the Delay of Gratification and Wasted Time dimensions and a large and significant difference across samples for the Morality/Ethics dimension such that there was much less variability for the Air Force sample.

Dimension reliabilities (coefficient α) for both samples appear in Table 8. Examination of these results indicate no differences in dimension reliabilities across samples except for the Morality/Ethics dimension. Specifically, all dimension reliabilities are within .03 of each other across samples except for the Morality/Ethics dimension, for which the reliability is substantially lower in the Air Force sample.

TABLE 8
Reliability Estimates (Coefficient α) by Sample

Dimension	Student Sample ($N = 598$)	Air Force Sample ($N = 741$)	Organizational Sample 1 ($N = 166$)	Organizational Sample 2 ($N = 127$)
Centrality of Work	.84	.84	.81	.79
Delay of Gratification	.79	.77	.81	.78
Hard Work	.85	.86	.89	.87
Leisure	.87	.86	.86	.88
Morality/Ethics	.78	.57	.85	.77
Self-Reliance	.89	.87	.86	.87
Wasted Time	.79	.76	.76	.76

TABLE 9
Work Ethic Dimension Intercorrelations for the Student and Air Force Samples

	1	2	3	4	5	6	7
Student Sample ($N = 598$)							
1. Centrality of Work	1.0						
2. Delay of Gratification	.38	1.0					
3. Hard Work	.33	.33	1.0				
4. Leisure	.47	.12	.08	1.0			
5. Morality/Ethics	.17	.25	.22	.08	1.0		
6. Self-Reliance	.20	.21	.38	.10	.13	1.0	
7. Wasted Time	.56	.40	.38	.28	.21	.32	1.0
Air Force Sample ($N = 741$)							
1. Centrality of Work	1.0						
2. Delay of Gratification	.52	1.0					
3. Hard Work	.48	.56	1.0				
4. Leisure	.44	.26	.23	1.0			
5. Morality/Ethics	.34	.44	.48	.16	1.0		
6. Self-Reliance	.20	.11	.23	.02	.18	1.0	
7. Wasted Time	.62	.55	.59	.34	.46	.26	1.0
Organizational Sample 1 ($N = 166$)							
1. Centrality of Work	1.0						
2. Delay of Gratification	.43	1.0					
3. Hard Work	.50	.58	1.0				
4. Leisure	.25	.16	.02	1.0			
5. Morality/Ethics	.33	.31	.33	.04	1.0		
6. Self-Reliance	.28	.42	.51	.15	.23	1.0	
7. Wasted Time	.61	.55	.57	.18	.43	.32	1.0
Organizational Sample 2 ($N = 126$)							
1. Centrality of Work	1.0						
2. Delay of Gratification	.43	1.0					
3. Hard Work	.40	.46	1.0				
4. Leisure	.41	.24	.22	1.0			
5. Morality/Ethics	.30	.29	.46	.28	1.0		
6. Self-Reliance	.23	.23	.38	.05	.25	1.0	
7. Wasted Time	.50	.41	.47	.22	.38	.42	1.0

The lower internal consistency for this dimension is likely the result of the highly reduced variability in Air Force sample scores.

Finally, the dimension correlations for both the Air Force and student samples appear in Table 9. To assess the extent to which relations between the dimensions differed across samples, we used LISREL 8.30 (Jöreskog & Sörbom, 1999) to provide an overall test of the equivalence of the covariance matrices derived from the two samples. Specifically, we tested a model in which covariances among the seven work ethic dimensions were set equal to the student sample based covariances and the covariances for the Air Force sample were constrained to be equal to those from the student sample. Using this approach, the overall model fit indices derived from the LISREL analyses provide an indication of the overall equality of the

covariances across samples. Results of this analysis indicate that the two sets of covariances are generally equivalent [$\chi^2(21) = 61.17$, RMSEA = 0.05, GFI = 0.99, NFI = 0.97, CFI = 0.98, RFI = 0.95].

Discussion

Study 4 presents a comparison of the psychometric properties of the Multidimensional Work Ethic Profile between a student-based and a non-student-based sample. Results indicate that the MWEP does in fact demonstrate highly similar psychometric characteristics among Air Force enlisted personnel as with the student-based sample on which the measure was developed.

Specifically, results of the present study found little or no differences across samples for the dimension variances, reliabilities, and correlations across dimensions. One exception to these findings was for the Morality/Ethics dimension. For this dimension the results indicated significantly less variance as well as substantially lower reliability with the Air Force sample relative to the student sample. One possible explanation for this finding may lie in differences in the work settings of the two samples. That is, the student sample was assessed in a non-job setting while the Air Force sample was assessed in an actual job setting. It is possible that the items comprising the Morality/Ethics dimension are fairly transparent and actual job incumbents may not respond as truthfully as nonincumbents. Higher levels of socially desirable responding might explain the restricted variance found in the Air Force sample. This reduced variance would in turn result in a lower reliability estimate. Counter to this explanation, however, was our finding that the mean response for the Morality/Ethics dimension was actually significantly lower in the Air Force sample relative to the student sample. If the items were relatively transparent and the incumbent sample was simply responding in a more socially desirable manner then one would expect a higher mean score. It is difficult at this point to determine the exact reasons for the differences found across samples for this dimension. However, the lack of differences across the other dimensions is encouraging.

The results of the present study do indicate significant mean score differences for all of the seven dimensions across samples. These differences are not unexpected and do not call into question the measurement equivalence of the MWEP in either sample. Rather these differences are to a certain extent consistent with expected differences between the two samples. The student sample represents young adults attending college. Alternately, the Air Force sample represents young adults not attending college but directly entering the work force. Thus, differences in work ethic scores most likely reflect actual differences between samples.

STUDY 5

Results of the previous four studies provide support for a reliable, multidimensional measure of work ethic across relatively divergent samples. These results also provide preliminary evidence for construct validity with respect to measures

of other potentially related constructs. However, given our definition of work ethic as a set of individual difference attitudinal constructs, two important questions emerge. First, to what extent, if any, are these constructs related to other commonly assessed measures of work-related attitudes? Second, given the recent emphasis in the literature on the personality variable conscientiousness (Barrick & Mount, 1991; Moon, 2001; Salgado, 1997), can the work ethic scales explain variance in other organizationally relevant measures over and above that explained by conscientiousness? Thus, the primary goal of the present study is to examine the degree of overlap among the seven work ethic dimensions and three additional work-related attitudinal measures (job involvement, organizational commitment, and job satisfaction). A secondary goal is to examine the extent to which the work ethic dimensions explain variance in other organizationally relevant attitudinal measures over and above that explained by conscientiousness.

Finally, all of the previous studies have focused on relatively young samples (mean age was 19.2 and 18.76 for the university and Air Force samples respectively) with little work experience (i.e., recent high school graduates). A final goal of the present study is to further examine the generalizability of the MWEP measure to an older, more experienced sample of working individuals**.** We hypothesize the following:

H5: Reliability estimates for the seven MWEP dimension scales are consistent with those in previous samples.

H6: In general, the work ethic dimensions relate significantly to job involvement, organizational commitment, and job satisfaction (i.e., taken together the MWEP dimension scores are significant predictors of each of the three attitudinal variables).

H7: Despite significant overall relations between the work ethic dimensions and the three attitudinal measures, there is a substantial amount of unique variance across the different constructs (i.e., evidence of construct divergence).

H8: There are different patterns of relations among the seven work ethic dimensions and each of the other three attitudinal measures.

H9: Finally, the work ethic dimensions account for a significant amount of variance in job involvement, organizational commitment, and job satisfaction over and above that accounted for by conscientiousness.

Method

Participants. The sample in the present study consisted of 166 employees recruited from three different organizations: (1) a financial institution ($N = 58$), (2) a car dealership ($N = 81$), and (3) a newspaper ($N = 27$). Participants were 42% male with a mean age of 36.12 ($SD = 12.34$). In addition, 76% of the participants were white, 19% Hispanic, and 4% black. Forty-seven percent indicated that they were high school graduates, 40% indicated some college, and 27% indicated that they were college graduates. Finally, 70% of the participants indicated that they had been employed in their current organization for over 2 years.

Procedure. An investigator contacted each organization individually for an initial meeting with a representative of management. The managers received a brief

written description of the current project as well as a sample questionnaire packet to review for any questions or concerns. Upon agreement to participate, a separate presentation time for the employees was scheduled. On the second visit to the organizations, the employees were informed that their participation was voluntary and that all responses would be anonymous. Employees were presented with the same information presented to management regarding the questionnaire packet and materials. Approximately 300 questionnaires were distributed and 174 were returned for a response rate of 58%.

Measures

Each participant completed a questionnaire packet comprised of instruments to measure the following constructs.

Work ethic. The Multidimensional Work Ethic Profile, as described above, was used to assess work ethic.

Job involvement. We used Lodahl and Kejner's (1965) 20–item measure to assess job involvement. This scale was designed to assess an individual's psychological identification with their job (i.e., the extent to which a person's work performance affects their self-esteem). Sample items include "You can measure a person pretty well by how good a job he does," "For me mornings at work really fly by," and "I live, eat and breathe my job." Each item is rated on a 4-point scale (*strongly agree* to *strongly disagree*). Previous research has indicated acceptable levels of reliability [coefficient $\alpha = 0.88$ (Lodahl & Kejner, 1965)] and validity (e.g., Brown, 1996).

Organizational commitment. We used Cook and Wall's (1980) 9-item measure to assess organizational commitment (coefficient $\alpha = 0.80$). This measure was developed to assess the extent to which an individual is committed to the specific organization in which they work and taps three components of organizational commitment: organizational identification, organizational involvement, and organizational loyalty. Sample items include "I am quite proud to tell people who it is I work for," "I'm not willing to put myself out just to help the organization," and "Even if the firm was not doing too well financially, I would be reluctant to change to another employer." Each item is rated on a 7-point scale (*strongly disagree* to *strongly agree*). Previous research has indicated acceptable levels of reliability and validity (e.g., Cohen, 1992).

Job satisfaction. We used Warr, Cook, and Wall's (1979) 15-item measure of overall job satisfaction. Respondents indicate on a 7-point scale their satisfaction or dissatisfaction scale (*extremely dissatisfied* to *extremely satisfied*) with each of 15 features of their job (e.g., the physical work conditions, the recognition you get for good work, your rate of pay, and the way your firm is managed). Previous research has indicated acceptable levels of reliability (coefficient $\alpha = 0.88$) and validity (e.g., Clegg & Wall, 1981).

Conscientiousness. We used Goldberg's (1992) 100 Unipolar Markers measure to assess conscientiousness (coefficient $\alpha = 0.90$). Goldberg's 100 Unipolar Markers is a general measure of the personality dimensions that comprise the five-factor

model of personality. The measure is comprised of 20 adjectives characterizing each of the five factors. Respondents are asked to describe how accurately each of the 100 trait-descriptive adjectives applies to them using a 9-point scale (1 = *extremely inaccurate* to 9 = *extremely accurate*). Extensive reliability and validity evidence for the measure is provided by Goldberg (1992,1999).

Results

Reliability estimates for each of the seven MWEP dimension scores appear in Table 8 (organizational sample 1). Examination of these estimates indicates that all are quite similar to those obtained in both the student and Air Force samples. It is important to note that the reliability estimate for the Morality/Ethics dimension is similar to that from the student sample and is substantially higher than that found in the Air Force sample.

Descriptive data for each of the seven MWEP scales appear in Table 6 (organizational sample 1). It is interesting to note that the mean scores are substantially higher for the present organizational sample than for either the student or Air Force samples. Dimension correlations for the current sample (organizational sample 1) appear in Table 9. We used LISREL 8.30 (Jöreskog & Sörbom, 1999) to provide an overall test of the equivalence of the covariance matrix derived from the current sample with the covariances derived from both the student and Air Force samples. Results of this analysis indicate that the covariances derived from the present sample are generally equivalent to both the student [$\chi^2(21) = 48.61$, RMSEA = 0.06, GFI = 0.94, NFI = 0.96, CFI = 0.98, RFI = 0.92] and Air Force [$\chi^2(21) = 57.89$, RMSEA = 0.07, GFI = 0.93, NFI = 0.98, CFI = 0.98, RFI = 0.94] samples.

To examine the overall relation of the seven MWEP dimension scores with the other work-related attitudinal measures, each of the three measures was regressed on the seven MWEP dimension scores. Results of the multiple regression (presented in Table 10) support the hypothesis that the work ethic dimension

TABLE 10
Zero-Order and Multiple Correlations between the Seven MWEP Scales and Job Satisfaction, Job Involvement, Organizational Commitment, and Conscientiousness

	Job Satisfaction	Job Involvement	Organizational Commitment	Conscientiousness
Centrality of Work	0.17*	0.41*	0.27*	.11
Delay of Gratification	0.20*	0.29*	0.23*	.05
Hard work	0.24*	0.46*	0.14*	.16*
Leisure	0.27*	0.30*	0.27*	.11
Morality/Ethics	0.32*	0.12	0.20*	.37*
Self-Reliance	0.02	0.29*	−0.10	.07
Wasted Time	0.25*	0.34*	0.25*	.32*
Mean *r*	0.21	0.32	0.18	.17
Multiple *R*	0.50*	0.65*	0.48*	.45*

* $p \leq .05$.

TABLE 11
Hierarchical Regression of Job Satisfaction, Job Involvement, and Organizational Commitment on the Seven MWEP Scale Scores

Model*	R	R^2	Adjusted R^2	SE of the estimate	Change statistics: R^2 change	F change	$df1$	$df2$	Sig. F change
Dependent Variable: Job Satisfaction									
1	.257	.066	.060	15.88	.066	11.55	1	163	.001
2	.503	.253	.215	14.52	.187	5.58	7	156	.000
Dependent Variable: Job Involvement									
1	.084	.007	.001	7.57	.007	1.15	1	162	.284
2	.653	.426	.397	5.88	.419	16.17	7	155	.000
1	.336	.113	.108	8.34	.113	20.76	1	163	.000
2	.498	.248	.210	7.85	.135	4.00	7	156	.000

* Model 1: Conscientiousness. Model 2: Conscientiousness, Delay of Gratification, Leisure, Self Reliance, Morality/Ethics, Centrality of Work, Hardwork, Wasted Time.

scores relate significantly to the three attitudinal variables. Multiple correlation coefficients were all relatively large and significant (.65 for job involvement, .50 for job satisfaction, and .48 for organizational commitment). Not surprisingly, the work ethic scales were most closely related to job involvement. As predicted, however, these values indicate substantial unique variance among the attitudinal variables and the work ethic dimension scores. Thus providing evidence of discriminant validity across the work ethic measures and job satisfaction, organizational commitment, and job involvement. Examination of the zero-order correlations among the seven MWEP scale scores and each of the three attitudinal variables (also presented in Table 10) indicate different patterns of relations among the measures.

Finally, to examine the extent to which the work ethic dimensions explain variance in the three other attitudinal measures over and above that explained by conscientiousness, each of the three attitudinal measures was regressed first on conscientiousness then on conscientiousness and the seven MWEP dimensions. Results (presented in Table 11) indicate that (a) conscientiousness was a significant predictor of job satisfaction and organizational commitment but not of job involvement and (b) the seven MWEP scales accounted for significant unique variance in all three of the attitudinal measures.

Discussion

The present study examined the relation between the seven MWEP scale scores and three organizationally related attitude measures. The primary question of interest was to what extent are the MWEP scales related to measures of job involvement, job satisfaction, and organizational commitment. Here it may be argued that the set of attitudes and beliefs reflected in the MWEP scales should in fact be

predictive of the other attitude measures, especially job involvement. Alternately, it may be argued that the attitudes and beliefs reflected in the MWEP scales are simply alternative measures of the other more common organizational attitude measures. Data from the present study suggests that the MWEP scales are in fact related significantly to the other attitude measures. This is especially the case with job involvement with a multiple R with the seven work ethic scales of .66. However, the data also suggest substantial amounts of unique variance between the work ethic scales and the other measures. It appears that while the work ethic scales relate to the other attitude measures, they provide unique additional information with respect to differences across individuals. Certainly a key remaining question focuses on the extent to which these differences relate to actual work behavior.

STUDY 6

While the previous studies provide evidence for the reliability and construct-related validity of the MWEP scale scores, a key issue that has not been addressed is the extent to which work ethic, as measured with the MWEP, relates to actual work behavior. Individual differences in work ethic, as measured by the MWEP, should reflect differences among individuals in terms of their attitudes and beliefs with respect to the value of work. Certainly an important consideration is the relation between these attitudes and beliefs and actual work behavior. Indeed, while previous research has often explored the relation of work ethic to other attitudinal variables such as job satisfaction (e.g., Aldag & Brief, 1975; Blood, 1969; Stone, 1975, 1976; Wanous, 1974), job involvement (e.g., Blau, 1987; Randall & Cote, 1991; Saal, 1978), and organizational commitment (e.g., Kidron, 1978; Morrow & McElroy, 1987), there have been relatively few studies (e.g., Khaleque, 1992; Orpen, 1986) focusing on the relation of work ethic to actual job performance. Thus, the objective of this final study is to provide an initial examination of the criterion-related validity of the MWEP dimension scores. Toward this end, we present a concurrent validation study using the MWEP dimension scores to predict supervisory performance ratings.

Method

Participants and procedure. The MWEP measure was administered to 126 current employees in a large financial management organization. All of the employees occupied customer service positions within the organization. These positions involved working in a call center environment responding to phone calls from financial advisors and customers regarding customer accounts. Fifty-two percent of the participants were female and 48% were male.

Approximately concurrent with the MWEP administration, participants were rated by their direct supervisor. The job performance rating form used consisted of 28 individual rating items. On the performance rating form, each item was presented and behaviorally defined. Ratings were made using a 5-point Likert-type scale with anchors ranging from *Failed to achieve expectations* to *Exceeded expectations in all areas*.

Results

MWEP dimension scale internal consistency estimates based on the current sample appear in Table 8 (organizational sample 2) and are highly similar to the reliability estimates found with the previous samples. In addition, descriptive data for each of the seven MWEP scales appear in Table 6. Again, it is interesting to note that the mean scores are substantially higher for the present organizational sample than for either the student or Air Force samples, but very similar to those found in the previous organizational sample. Finally, dimension correlations for the current sample (organizational sample 2) appear in Table 9. Again, we used LISREL 8.30 (Jöreskog & Sörbom, 1999) to provide an overall test of the equivalence of the covariance matrix derived from the current sample with the covariances derived from the student, Air Force, and previous organizational samples. Results of this analysis indicate that the covariances derived from the present sample are equivalent to the student [$\chi^2(21) = 14.33$, RMSEA = 0.00, GFI = 0.95, NFI = 0.99, CFI = 1.0, RFI = 0.99], Air Force [$\chi^2(21) = 9.54$, RMSEA = 0.00, GFI = 0.96, NFI = 0.99, CFI = 1.0, RFI = 0.99], and previous organizational [$\chi^2(21) = 25.64$, RMSEA = 0.03, GFI = 0.93, NFI = 0.95, CFI = 0.99, RFI = 0.90] samples.

Given the large number of rating items, we performed an exploratory factor analysis in an attempt to identify a smaller number of performance factors. Results of this analysis indicated one predominant factor accounting for approximately 45% of the variance across rating items. Given the apparent unidimensionality of the ratings, we calculated an internal consistency estimate of reliability (coefficient α) across the 28 rating items. Results of this analysis indicated a high level of internal consistency ($\alpha = 0.95$). Consequently, we calculated a composite "summed performance rating" as the sum of 28 individual ratings.

To assess the predictive validity of the MWEP dimensions with respect to job performance, we regressed the overall performance score on the seven MWEP scale scores. Results of the regression analysis are presented in Table 12. These results indicate a significant overall relation between the MWEP dimensions and the overall performance rating ($R = .37$, $p < .05$). Examination of the individual regression weights indicates that three of the seven MWEP dimension scores (Self-Reliance, Leisure, and Delay of Gratification) relate significantly to the overall performance rating. A second regression analysis using only these three dimension scores indicates a multiple correlation of .36. Finally, we examined the extent to which each of the three dimension scores contributed uniquely to the job performance rating score. Here we conducted a hierarchical regression entering each dimension score in subsequent steps. Results are presented in Table 13 and indicate that each of the three dimensions accounts for a significant unique portion of the variance in the job performance score.

Discussion

The objective of the final study was to provide an initial examination of the criterion-related validity of the MWEP dimension scores. Despite being limited

TABLE 12
Results of the Multiple-Regression Analysis Regressing the Summed Performance Rating on the Seven MWEP Scales

	Unstandardized coefficients		Standardized coefficients		Correlations			
	B	*SE*	β	*t*	Sig.	Zero-order	Partial	Part
Self Reliance	.744	.306	.276	2.432	.017	.205	.248	.238
Morality/Ethics	−.009	.613	−.002	−.015	.988	.102	−.002	−.001
Hard Work	.146	.416	.046	.350	.727	.050	.037	.034
Centrality of Work	.007	.420	.002	.016	.988	.038	.002	.002
Wasted Time	.395	.428	.119	.923	.358	.012	.097	.090
Delay of Gratification	.642	.361	.217	1.780	.078	.123	.184	.174
Leisure	.783	.333	.273	2.353	.021	.206	.241	.230

to a single organization, our results are quite positive with respect to the predictive validity of the MWEP measure in several ways. First, a significant and fairly large multiple correlation was demonstrated between three of the MWEP dimension scores and supervisory ratings of job performance. Second, results of the current validation also provide additional support for the construct validity of a multidimensional approach to work ethic. That is, each of the three dimensions of work ethic that were significant predictors of supervisory ratings accounted for significant unique aspects of the ratings. These dimensions tap different constructs, each of which has some relation to job performance. In addition, four of the MWEP dimension scales were not related to job performance in this situation. This highlights the potential problems with using a single composite measure of work ethic discussed in the introduction and reinforces the need, both conceptually and empirically, to consider work ethic as a multidimensional construct.

TABLE 13
Hierarchical Regression of the Summed Performance Rating on Self-Reliance, Leisure, and Delay of Gratification MWEP Scale Scores

					Change statistics				
Model	*R*	R^2	Adjusted R^2	*SE* of the estimate	R^2 change	*F* change	*df*1	*df*2	Sig. *F* change
1	.205[a]	.042	.032	17.29	.042	4.19	1	96	.043
2	.288[b]	.083	.064	17.00	.041	4.29	1	95	.041
3	.362[c]	.131	.103	16.64	.048	5.15	1	94	.026

[a] Model 1: Self Reliance.
[b] Model 2: Self Reliance and Leisure.
[c] Model 3: Self Reliance, Leisure, and Delay of Gratification.

GENERAL DISCUSSION

Jones (1997) suggests that two indices of a theory's importance are the length of time it continues to attract attention and the number of scholars who investigate it. One might add to these the extent to which a theory captures attention in popular as well as scientific culture. Using these indices the ideas of Max Weber (1904/1905) with regard to the origin of modern economic ideals have certainly been among the most influential. As Jones (1997) notes, the role of a religiously based ethos in the appearance of capitalism has been the focus of scholars in history, sociology, anthropology, and political science.

Unfortunately, both the conceptual and operational adequacy of previous measures of work ethic have continuously been called into question. Thus, the primary purpose of this project was to (a) conceptually and empirically identify the structure of work ethic beliefs; and (b) develop a current, practical, and psychometrically sound measure of work ethic. Our intent was to construct and develop a measure that was conceptually based on Weber's original ideas yet current and applicable across religious orientations. While we stressed the dimensionality inherent in Weber's conceptualization of work ethic, we also sought to focus on a more secularized interpretation of work ethic. Our emphasis on the multidimensionality of the work ethic construct has important implications. First, in addition to an overall index of work ethic any measure should also allow for reliable measurement of each of the relevant dimensions. This is one of the characteristics of the MWEP that distinguishes it from previous measures. Second, and more importantly, if the dimensions actually represent differentiable aspects of the general construct, then they should allow for differential prediction with respect to other constructs. To a limited extent this was demonstrated in the present study by the differential relationship of the MWEP dimensions with the manifest needs, personality, and other work-related attitude variables. It is important that future research demonstrate similar differential relations with other criterion measures.

While we believe that the results of the present research provide considerable support for both conceptual and empirical approaches to work ethic as a multidimensional construct, we also hope that it serves as a springboard for future research on work ethic. A number of potentially valuable avenues of future research are suggested by the present study. For example, our results indicate that the MWEP measure generally performs well across all of the samples studied. However, our results also indicate substantial mean differences for the work ethic scales between the university student and Air Force enlisted personnel samples on the one hand and the two organizational samples on the other hand. The magnitude of these differences is reflected in Fig. 1. Several explanations for these findings might be postulated. It might be argued that there was a higher level of socially desirable responding in the organizational samples and thus substantially higher mean scores. A number of factors, however, argue against this explanation. First, the measures were completed under the same conditions across all samples. That is, all responses were made anonymously and it was emphasized that the

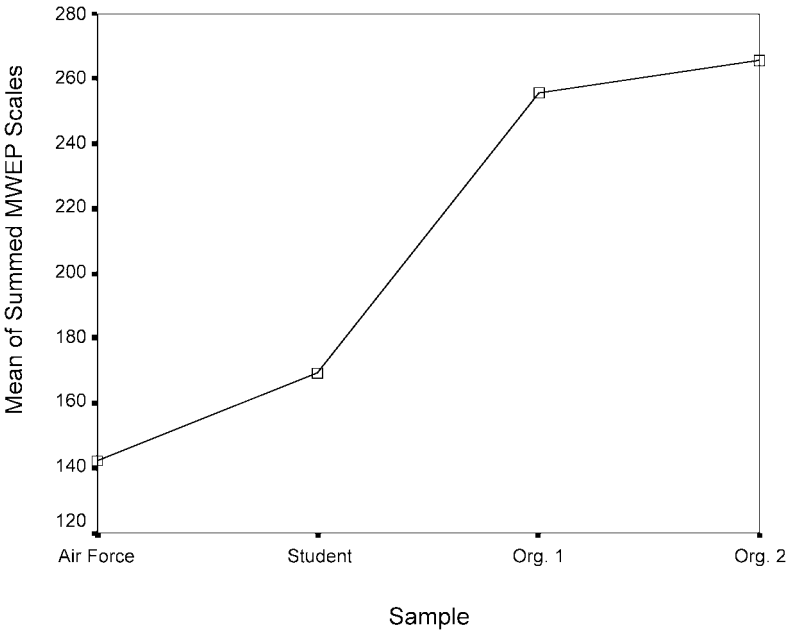

FIG. 1. Plot of the summed mean MWEP scales by sample.

data were strictly for research purposes. In addition, if the higher means in the organizational samples simply reflected socially desirable responding, it would seem that this would serve to reduce the variability in the responses (more positively skewed distribution of responses). This was not the case. Alternately, it may be argued that the mean differences reflect actual differences across the samples. Here two potential possibilities emerge. First, a crucial difference across the samples was the age of the respondents. In both the student and Air Force samples the mean age was approximately 19 with very little variability ($SD < 2$). For the organizational samples the mean age was approximately 36 with much more variability ($SD > 10$). Thus it is possible that the mean differences represent a cohort effect. This explanation would be consistent with hypothesized generational differences in work ethic. Alternately, it may be argued that the mean differences are the result of differences in the amount of work experience. More specifically, perhaps the attitudes and beliefs associated with work ethic change or develop with actual work experience. Unfortunately, the age differences are completely confounded with work experience. Certainly an interesting question for future research would be the disentangling of these effects.

Another potentially valuable avenue of future research would be a more systematic examination of the different work ethic dimensions as potential individual difference predictors of various aspects of job performance. This is especially the case given recent models of job performance. Specifically, job performance has traditionally been conceptualized solely in terms of job-specific task related behavior.

Recently, however, several models of job performance have been proposed which attempt to expand the job performance domain (Borman & Motowidlo, 1993; Campbell, 1990; Campbell, McCloy, Oppler, & Sager, 1993). Campbell (1990), for example, argues that performance across all jobs can be categorized into eight factors or dimensions: job-specific task proficiency, non-job-specific task proficiency, written and oral communication, demonstrating effort, maintaining personal discipline, facilitating team and peer performance, supervision/leadership, and management/administration. Motowidlo and Van Scotter (1994) argue for a simplification of Campbell's formulation such that there are really only two dimensions of performance: behavior that contributes to organizational effectiveness through its focus on task proficiency (formally prescribed by the organization) and behavior that helps the organization in other ways (not necessarily a formal requirement of the job).

This distinction between task and contextual aspects of performance may prove to be important with respect to work ethic. That is, it may be argued that the work-related beliefs and attitudes reflected in the work ethic construct should have little, if any, *direct* relation to measures of performance that focus on knowledge, skills, and abilities. These attitudes and beliefs, however, are likely to have a direct effect on the contextual aspects of performance. Researchers have already begun to examine the validity of the different conceptualizations of work performance (e.g., Arthur, Tubre, & Bennett, 1998; Collins, Woehr, & Johnson, 1998) and to develop measures specifically formulated to tap different aspects of performance (Arthur, Tubre, & Bennett, 1998; Johnson, 1996). We believe that future research should also examine the relation of work ethic to more contextual aspects of performance.

In summary, we sought to conceptually and empirically identify the structure of work ethic beliefs, and to develop a current, practical and psychometrically sound measure of work ethic. Our intent was to develop and evaluate a measure that was conceptually grounded in Weber's original ideas yet current and applicable across religious orientations. The result was the Multidimensional Work Ethic Profile. Our results provide considerable support indicating that the MWEP provides psychometrically sound measurements of the multiple dimensions shown to comprise work ethic. In addition, work ethic as measured by the MWEP demonstrates expected patterns of convergence and discrimination with other personality and cognitive ability variables. We hope that the introduction of a measure such as the MWEP will serve as a springboard for future research examining the relations between work ethic and work-related behavior.

APPENDIX

MWEP Scale and Scoring Key

Instructions

This booklet lists a series of work-related statements. Please circle the alternative that best represents your opinion to the right of each item. For example, if you

strongly agree with item number one in the booklet you would circle SA to the left of the item. This booklet contains **65** statements. Please read each statement carefully. For each statement circle the response that best represents your belief or opinion.

Circle **SA** if you *strongly agree* with the statement.
Circle **A** if you *agree* with the statement.
Circle **N** if you *neither agree nor disagree* with the statement.
Circle **D** if you *disagree* with the statement.
Circle **SD** if you *strongly disagree* with the statement.

1.	It is important to stay busy at work and not waste time.	**SD**	**D**	**N**	**A**	**SA**
2.	I feel uneasy when there is little work for me to do.	**SD**	**D**	**N**	**A**	**SA**
3.	If I want to buy something, I always wait until I can afford it.	**SD**	**D**	**N**	**A**	**SA**
4.	I feel content when I have spent the day working.	**SD**	**D**	**N**	**A**	**SA**
5.	Life would be more meaningful if we had more leisure time.	**SD**	**D**	**N**	**A**	**SA**
6.	To be truly successful, a person should be self-reliant.	**SD**	**D**	**N**	**A**	**SA**
7.	One should always take responsibility for one's actions.	**SD**	**D**	**N**	**A**	**SA**
8.	I would prefer a job that allowed me to have more leisure time.	**SD**	**D**	**N**	**A**	**SA**
9.	Time should not be wasted, it should be used efficiently.	**SD**	**D**	**N**	**A**	**SA**
10.	Even if I were financially able, I would not stop working.	**SD**	**D**	**N**	**A**	**SA**
11.	I get more fulfillment from items I had to wait for.	**SD**	**D**	**N**	**A**	**SA**
12.	I schedule my day in advance to avoid wasting time.	**SD**	**D**	**N**	**A**	**SA**
13.	A hard days work is very fulfilling.	**SD**	**D**	**N**	**A**	**SA**
14.	The more time I can spend in a leisure activity, the better I feel.	**SD**	**D**	**N**	**A**	**SA**
15.	One should always do what is right and just.	**SD**	**D**	**N**	**A**	**SA**
16.	I would take items from work if I felt I was not getting paid enough.	**SD**	**D**	**N**	**A**	**SA**
17.	Nothing is impossible if you work hard enough.	**SD**	**D**	**N**	**A**	**SA**
18.	The less time one spends working and the more leisure time one has, the better.	**SD**	**D**	**N**	**A**	**SA**

19.	Things that you have to wait for are the most worthwhile.	**SD**	**D**	**N**	**A**	**SA**
20.	Working hard is the key to being successful.	**SD**	**D**	**N**	**A**	**SA**
21.	Self-reliance is the key to being successful.	**SD**	**D**	**N**	**A**	**SA**
22.	If one works hard enough, one is likely to make a good life for oneself.	**SD**	**D**	**N**	**A**	**SA**
23.	I constantly look for ways to productively use my time.	**SD**	**D**	**N**	**A**	**SA**
24.	Hard work makes one a better person.	**SD**	**D**	**N**	**A**	**SA**
25.	One should not pass judgment until one has heard all of the facts.	**SD**	**D**	**N**	**A**	**SA**
26.	People would be better off if they depended on themselves.	**SD**	**D**	**N**	**A**	**SA**
27.	Work takes too much of our time, leaving little time to relax.	**SD**	**D**	**N**	**A**	**SA**
28.	One should live one's own life independent of others as much as possible.	**SD**	**D**	**N**	**A**	**SA**
29.	A distant reward is usually more satisfying than an immediate one.	**SD**	**D**	**N**	**A**	**SA**
30.	It is very important for me to always be able to work.	**SD**	**D**	**N**	**A**	**SA**
31.	More leisure time is good for people.	**SD**	**D**	**N**	**A**	**SA**
32.	One must avoid dependence on other persons whenever possible.	**SD**	**D**	**N**	**A**	**SA**
33.	Even if I inherited a great deal of money, I would continue to work somewhere.	**SD**	**D**	**N**	**A**	**SA**
34.	I do not like having to depend on other people.	**SD**	**D**	**N**	**A**	**SA**
35.	By working hard a person can overcome every obstacle that life presents.	**SD**	**D**	**N**	**A**	**SA**
36.	I try to plan out my workday so as not to waste time.	**SD**	**D**	**N**	**A**	**SA**
37.	You should never tell lies about other people.	**SD**	**D**	**N**	**A**	**SA**
38.	Any problem can be overcome with hard work.	**SD**	**D**	**N**	**A**	**SA**
39.	How a person spends their time is as important as how they spend their money.	**SD**	**D**	**N**	**A**	**SA**
40.	Even if it were possible for me to retire, I would still continue to work.	**SD**	**D**	**N**	**A**	**SA**
41.	Life without work would be very boring.	**SD**	**D**	**N**	**A**	**SA**
42.	I prefer to save until I can afford something and not buy it on credit.	**SD**	**D**	**N**	**A**	**SA**

43.	The world would be a better place if people spent more time relaxing.	**SD**	**D**	**N**	**A**	**SA**
44.	I strive to be self-reliant.	**SD**	**D**	**N**	**A**	**SA**
45.	If you work hard you will succeed.	**SD**	**D**	**N**	**A**	**SA**
46.	The best things in life are those you have to wait for.	**SD**	**D**	**N**	**A**	**SA**
47.	Anyone who is able and willing to work hard has a good chance of succeeding.	**SD**	**D**	**N**	**A**	**SA**
48.	Stealing is all right as long as you don't get caught.	**SD**	**D**	**N**	**A**	**SA**
49.	The job that provides the most leisure time is the job for me.	**SD**	**D**	**N**	**A**	**SA**
50.	Having a great deal of independence from others is very important to me.	**SD**	**D**	**N**	**A**	**SA**
51.	It is important to treat others as you would like to be treated.	**SD**	**D**	**N**	**A**	**SA**
52.	I experience a sense of fulfillment from working.	**SD**	**D**	**N**	**A**	**SA**
53.	A person should always do the best job possible.	**SD**	**D**	**N**	**A**	**SA**
54.	It is never appropriate to take something that does not belong to you.	**SD**	**D**	**N**	**A**	**SA**
55.	Only those who depend on themselves get ahead in life.	**SD**	**D**	**N**	**A**	**SA**
56.	Wasting time is as bad as wasting justified.	**SD**	**D**	**N**	**A**	**SA**
57.	There are times when stealing is	**SD**	**D**	**N**	**A**	**SA**
58.	People should have more leisure time to spend in relaxation.	**SD**	**D**	**N**	**A**	**SA**
59.	It is important to control one's destiny by not being dependent on others.	**SD**	**D**	**N**	**A**	**SA**
60.	By simply working hard enough, one can achieve one's goals.	**SD**	**D**	**N**	**A**	**SA**
61.	People should be fair in their dealings with others.	**SD**	**D**	**N**	**A**	**SA**
62.	The only way to get anything worthwhile is to save for it.	**SD**	**D**	**N**	**A**	**SA**
63.	Leisure time activities are more interesting than work.	**SD**	**D**	**N**	**A**	**SA**
64.	A hard days work provides a sense of accomplishment.	**SD**	**D**	**N**	**A**	**SA**
65.	A distaste for hard work usually reflects a weakness of character.	**SD**	**D**	**N**	**A**	**SA**

Multidimensional Work Ethic Profile Scoring

Dimension	Item numbers
Self Reliance	6, 21, 26, 28, 32, 34, 44, 50, 55, 59
Morality/Ethics[a]	7, 16, 15, 25, 37, 48, 51, 54, 57, 61
Leisure[b]	5, 8, 14, 18, 27, 31, 43, 49, 58, 63
Hard Work	17, 20, 22, 24, 35, 38, 45, 47, 53, 60
Centrality of Work	2, 4, 10, 13, 30, 33, 40, 41, 52, 64
Wasted Time	1, 9, 12, 23, 36, 39, 56, 65
Delay of Gratification	3, 11, 19, 29, 42, 46, 62

Note. Dimensions are typically scored as the mean item response $\times 10$. This reflects a summing of the items for the first five dimensions and puts Wasted Time and Delay of Gratification on the same scale as the other dimensions. Individual dimensions may be used separately or summed to form composite score.

[a] Underlined items are reverse scored.

[b] As scored leisure is negatively correlated with the other dimensions. It may be reverse scored in order to combine it with other dimensions.

REFERENCES

Aldag, R. J., & Brief, A. P. (1975). Some correlates of work values. *Journal of Applied Psychology,* **60,** 757–760.

Ali, A. J., & Azim, A. (1995). Work ethic and loyalty in Canada. *Journal of Social Psychology,* **135,** 31–37.

Allerton, H. (1994). Working life: Getting a life. *Training and Development,* **48,** 80.

Arthur, W., Jr., & Day, D. V. (1994). Development of a short form for the Raven advanced progressive matrices test. *Educational and Psychological Measurement,* **54,** 394–403.

Arthur, W., Jr., Tubre, T. C., & Bennett, W., Jr. (1998). Development of a general measure of job performance: Results of an initial psychometric assessment. In *Proceedings of the Annual Meeting of the Academy of Management*. San Diego, CA: Academy of Management.

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology,* **44,** 1–26.

Beit-Hallahmi, B. (1979). Personal and social components of the Protestant ethic. *Journal of Social Psychology,* **109,** 263–267.

Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology,* **74,** 478–494.

Blau, G. J. (1987). Using a person–environment fit model to predict job involvement and organizational commitment. *Journal of Vocational Behavior,* **30,** 240–257.

Blood, M. R. (1969). Work values and job satisfaction. *Journal of Applied Psychology,* **53,** 456–459.

Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel selection in organizations* (pp. 71–98). San Francisco: Jossey–Bass.

Bouma, G. D. (1973). Beyond Lenski: A critical review of recent "Protestant Ethic" research. *Journal for the Scientific Study of Religion,* **12,** 141–155.

Briggs, S. R., & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality,* **54,** 106–148.

Brown, S. P. (1996) A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin,* **120,** 235–255.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing of structural equation models*. Thousand Oaks, CA: Sage.

Buchholz, R. (1978). An empirical study of contemporary beliefs about work in American society. *Journal of Applied Psychology,* **63,** 219–227.

Byrne, E. F. (1990). *Work, inc.: A philosophical inquiry*. Philadelphia: Temple Univ. Press.

Cameron, P. (1969). Attitudes toward capitalism among Protestants and Catholics. *Journal for the Scientific Study of Religion,* **8,** 165–166.

Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 1, 2nd ed., pp. 687–732). Palo Alto, CA: Consulting Psychologists Press.

Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A theory of performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel selection in organizations* (pp. 35–70). San Francisco: Jossey–Bass.

Carver, C. S. (1989). How should multifaceted personality constructs be tested? *Journal of Personality and Social Psychology,* **56,** 577–585.

Charlton, W., Mallinson, T., & Oakeshott, R. (1986). *The Christian response to industrial capitalism*. London: Sheed & Ward.

Cherrington, D. J. (1980). *The work ethic: Working values and values that work*. New York: AMACOM.

Clegg, C. W., & Wall, T. D. (1981). Note on some new scales for measuring aspects of psychological well-being. *Journal of Occupational Psychology,* **52,** 221–225.

Cohen, A. (1992). Antecedents of organizational commitment across occupational groups—A meta-analysis. *Journal of Organizational Behavior,* **13,** 539–558.

Collins, J. M., Woehr, D. J., & Johnson, J. W. (1998). Stepping out on a performance limb: A structural equations analysis of Campbell's (1990) Theory of Job Performance. Paper presented at the 13th annual meeting of the Society for Industrial/Organizational Psychology, Dallas, TX.

Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology,* **53,** 39–52.

Corbo, S. A. (1997). The X-er files. *Hospitals and Health Networks,* **71,** 58–60.

Costa, P. T., & McCrae, R. R. (1985). *The NEO Personality Inventory Manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (1991). *The NEO/FFI Manual Supplement*. Odessa, FL: Psychological Assessment Resources.

Crespi, I. (1963). Occupational status and religion. *American Sociological Review,* **28,** 131.

Dubin, R. (1963). Industrial worker's worlds: A study of the 'central life interests' of industrial workers. In E. O. Smigel (Ed.), *Work and leisure* (pp. 53–72). New Haven, CT: College and University Press.

Eisenberger, R. (1989). *Blue monday: The loss of the work ethic in America*. New York: Paragon House.

Featherman, D. L. (1971). The socioeconomic achievement of white religio-ethnic subgroups: Social and psychological explanations. *American Sociological Review,* **36,** 207–222.

Fine, R. (1983). The Protestant ethic and the analytic ideal. *Political Psychology,* **4,** 245–264.

Flynn, G. (1994). Attitude more valued than ability. *Personnel Journal,* **73,** 16.

Furnham, A. (1984). The Protestant work ethic: A review of the psychological literature. *European Journal of Social Psychology,* **14,** 87–104.

Furnham, A. (1987). Predicting Protestant work ethic beliefs. *European Journal of Personality,* **1,** 93–106.

Furnham, A. (1990a). *The Protestant work ethic: The psychology of work-related beliefs and behaviours*. London: Routledge.

Furnham, A. (1990b). A content, correlational, and factor analytic study of seven questionnaire measures of the Protestant work ethic. *Human Relations,* **43,** 383–399.

Ganster, D. (1980). Individual differences and task design: A laboratory experiment. *Organizational Behavior and Human Performance,* **26,** 557–565.

Ganster, D. (1981). Protestant ethic and performance: A re-examination. *Psychological Reports,* **48,** 335–338.

Gilbert, J. B. (1977). *Work without salvation: America's intellectuals and industrial alienation, 1880–1910*. Baltimore: Johns Hopkins Univ. Press.

Giorgi, L., & Marsh, C. (1990). The Protestant work ethic as a cultural phenomenon. *European Journal of Social Psychology,* **20,** 499–517.

Glenn, N. D., & Hyland, R. (1967). Religious preference and worldly success: Some evidence from national surveys. *American Sociological Review,* **32,** 73–85.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment,* **4,** 26–42.

Goldberg, L. R. (1999). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. J. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg, The Netherlands: Tilburg Univ. Press.

Goldstein, B., & Eichhorn, R. (1961). The changing Protestant ethic: Rural patterns in health, work and leisure. *American Sociological Review,* **26,** 557–565.

Greeley, A. (1964). The Protestant ethic: Time for a moratorium. *Sociological Analysis,* **25,** 20–33.

Green, A. W. (1968). *Sociology: An analysis of life in modern society*. New York: McGraw–Hill.

Hammond, P., & Williams, R. (1976). The Protestant ethic thesis: A social psychological assessment. *Social Forces,* **54,** 579–589.

Heaven, P. C. L. (1989). Structure and personality correlates of the Protestant work ethic among women. *Personality and Individual Differences,* **10,** 101–104.

Ho, R., & Lloyd, J. I. (1984). Development of an Australian work ethic scale. *Australian Psychologist,* **19,** 321–332.

Johnson, J. W. (1996, May). *A brief summary of the development of the Questar Panorama 360 Multiple Perspective Feedback Instruments*. Unpublished report, Questar Data Systems, Inc. Minneapolis, MN: Author.

Jones, H. B. (1997). The Protestant ethic: Weber's model and the empirical literature. *Human Relations,* **50,** 757–778.

Jöreskog, K. G., & Sörbom, D. (1999). *LISREL 8.30*. Chicago: Scientific Software.

Khaleque, A. (1992). Work values, attitudes and performance of industrial workers in Bangladesh. *Social Indicators Research,* **27,** 187–195.

Kidron, A. (1978). Work values and organizational commitment. *Academy of Management Journal,* **21,** 239–247.

Kim, H. C. (1977). The relationship of Protestant ethic beliefs and values to achievement. *Journal for the Scientific Study of Religion,* **16,** 255–262.

Klebnikov, P. (1993, May 24). The Swedish disease. *Forbes,* 78–80.

Lehmann, H. (1993). The rise of capitalism: Weber versus Sombart. In H. Lehmann & G. Roth (Eds.), *Weber's Protestant ethic: Origins, evidence, contexts* (pp. 195–208). Washington, DC: Cambridge Univ. Press.

Lenski, G. (1961). *The religious factor: A sociological study of religious impact on politics, economics, and family life*. Garden City, NY: Doubleday.

Lessnoff, M. H. (1994). *The spirit of capitalism and the Protestant ethic: An enquiry into the Weber thesis*. Brookfield, VT: E. Elgar.

Lodahl, T. M., & Kejnar, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology,* **49,** 24–33.

Maccoby, M. (1983). The managerial work ethic in America. In J. Barbash, R. J. Lapman, S. A. Levitan, & G. Tyler (Eds.), *The work ethic—A critical analysis* (pp. 183–196). Madison, WI: Industrial Relations Research Association.

McClelland, D. (1961). *The achieving society*. Princeton, NJ: Van Nostrand.

McHoskey, J. W. (1994). Factor structure of the Protestant work ethic scale. *Personality and Individual Differences,* **17,** 49–52.

Merrens, M. R., & Garrett, J. B. (1971). The protestant ethic scale as a predictor of repetitive work performance. *Journal of Applied Psychology,* **60,** 125–127.

Mirels, H. L., & Garrett, J. B. (1971). The Protestant ethic as a personality variable. *Journal of Consulting and Clinical Psychology,* **36,** 40–44.

Moon, H. (2001). The two faces of conscientiousness: Duty and achievement striving in escalation of commitment dilemmas. *Journal of Applied Psychology,* **86,** 533–540.

Morrow, P. C., & McElroy, J. C. (1987). Work commitment and job satisfaction over three career stages. *Journal of Vocational Behavior,* **30,** 330–346.

Motowidlo, S. J., & Van Scotter, J. R. (1994). Evidence that task performance should be distinguished from contextual performance. *Journal of Applied Psychology,* **79,** 475–480.

Nelson, B. (1973). Weber's Protestant ethic: Its origins, wanderings, and foreseeable future. In C. Glock & P. Hammond (Eds.), *Beyond the classics* (pp. 71–130). New York: Harper & Row.

Nord, W. R., Brief, A. P., Atieh, J. M., & Doherty, E. M. (1988). Work values and the conduct of organizational behavior. *Research in Organizational Behavior,* **10,** 1–42.

Orpen, C. (1986). Work values as a moderator of the effect of participation in budget-setting on employee satisfaction and performance. *Psychological Studies,* **31,** 42–47.

Pascarella, P. (1984). *The new achievers: Creating a modern work ethic*. New York: Free Press.

Poggi, G. (1983). *Calvinism and the capitalist spirit: Max Weber's Protestant ethic*. Amherst: Univ. of Massachusetts Press.

Randall, D. M., & Cote, J. A. (1991). Interrelationships of work commitment constructs. *Work and Occupations,* **18,** 194–211.

Raven, J. C., Raven, J., & Court, J. H. (1994). Section 4: The advanced progressive matrices. In *Manual for Raven's progressive matrices and vocabulary scales*. Oxford, UK: Oxford Psychologists Press.

Ray, J. J. (1982). The Protestant ethic in Australia. *Journal of Social Psychology,* **116,** 127–138.

Saal, F. E. (1978). Job involvement: A multivariate approach. *Journal of Applied Psychology,* **63,** 53–61.

Sacks, P. (1998). No. . .generation X is not ok. *American Enterprise,* **9,** 46–48.

Salgado, J. F. (1997). The five factor model of personality and job performance in the European community. *Journal of Applied Psychology,* **82,** 30–43.

Sheehy, J. W. (1990, June). New work ethic is frightening. *Personnel Journal,* 28–36.

Shimko, B. W. (1992, May–June). Pre-hire assessment of the new work force: Finding wheat (and work ethic) among the chaff. *Business Horizons,* 60–65.

Spiegler, M. (1997). Slack attack. *American Demographics,* **19,** 35.

Steers, R. M., & Braunstein, D. N. (1976). A behaviorally-based measure of manifest needs in work settings. *Journal of Vocational Behavior,* **9,** 251–266.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research,* **25,** 173–180.

Stone, E. F. (1975). Job scope, job satisfaction, and the Protestant ethic: A study of enlisted men in the U.S. Navy. *Journal of Vocational Behavior,* **7,** 215–234.

Stone, E. F. (1976). The moderating effect of work-related values on the job scope-job satisfaction relationship. *Organizational Behavior and Human Performance,* **15,** 147–167.

Tang, T. L.-P. (1993). A factor analytic study of the Protestant work ethic. *Journal of Social Psychology,* **133,** 109–111.

Wanous, J. P. (1974). Individual differences and reactions to job characteristics. *Journal of Applied Psychology,* **59,** 616–622.

Warr, P., Cook, J., & Wall, T. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology,* **52,** 129–148.

Wayne, F. S. (1989). An instrument to measure adherence to the Protestant Ethic and contemporary work values. *Journal of Business Ethics,* **8,** 793–804.

Weber, M. (1958). *The Protestant Ethic and the spirit of capitalism* (T. Parsons, Trans.). New York: Scribners. [Original work published 1904–1905].

Wollack, S., Goodale, J. G., Wijting, J. P., & Smith, P. C. (1971). Development of the Survey of Work Values. *Journal of Applied Psychology,* **55,** 331–338.

Yandle, B. (1992, September). Does anyone still care? *Supervision,* 14–16.

Received February 15, 2001; published online December 19, 2001