

A New Look at Selected Employability Skills: A Factor Analysis of the Occupational Work Ethic

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Abstract

This study was conducted to identify key themes which characterize the occupational work ethic. The constructs derived provide a research-based guide for development of instructional materials and activities to encourage employability skills related to work ethic. The factors identified also will serve as a basis for further refining the Occupational Work Ethic Inventory (OWEI) used to gather data in this study.

A factor analysis was performed on data collected from 1,151 respondents using the OWEI. Participants in the study consisted of workers from a broad cross-section of occupations. A four factor solution was interpreted consisting of interpersonal skills, initiative, being dependable, and a factor comprised of negative descriptors included on the instrument. Recommendations were provided for making practical use of these factors

As the year 2000 approaches, the human race is reflecting on the past and anticipating the future. With the approach of this milestone, the enterprise of preparation for work and the role schools play in that process has not escaped scrutiny. The SCANS Report for America 2000 (Secretary's Commission, 1991) is just such an example. This document identified a three-part foundation employers expect schools to develop in students--basic skills (reading, writing, mathematics, listening, and

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speaking), thinking skills (creative thinking, making decisions, solving problems, visualization, learning to learn, and reasoning), and personal qualities (individual responsibility, self-esteem, sociability, self-management, and integrity).

Schools have recently focused considerable attention on improved instruction of basic skills and thinking skills, but addressing the issue of personal qualities has been a special challenge to most who have considered it. This area of emphasis is broadly referred to as employability skills. Lankard (1990) defined employability skills as including personal image, interpersonal skills, and good habits and attitudes. With respect to work attitudes, the concept of work ethic is related to the desirable characteristics for a potential employee (Custer & Claiborne, 1991; Hill, 1992). In essence, the employability skills needed for the high-performance workplace are a tangible expression of the underlying work ethic, often mentioned in contemporary conversation but seldom clearly defined.

The work ethic is a cultural norm that advocates being personally accountable and responsible for the work that one does and is based on a belief that work has intrinsic value (Cherrington, 1980; Colson & Eckerd, 1991; Quinn, 1983; Yankelovich & Immerwahr, 1984). The work ethic, as we know it today, is a secularized construct derived from Weber's (1904, 1905) Protestant work ethic (PWE) theory. The PWE, asserting that Calvinist theology encouraged accumulation of wealth, has been widely used as an explanation for the success of capitalism in Western society. Over the years, however, attitudes and beliefs supporting hard work have blended into the norms of Western culture, and are no longer attributable to a particular religious sect (Lipset, 1990; Rodgers, 1978; Rose, 1985). The elements of work ethic that are of greatest significance in the preparation of people for work are the attitudes and behaviors ascribed to work ethic rather than a sectarian belief system that inculcates these characteristics. Those elements are the focal point for this study.

Work ethic is an often mentioned attribute employers want their employees to have, but one they often say is hard to find. Boardman (1994) reported the efforts in one community in response to employer complaints that they were "unable to locate employees who were reliable, drug-free, motivated, and possessing a work ethic." In response to the problem, programs were established to provide technical preparation,

apprenticeships, Partners in Education projects, curriculum review, mentoring programs, and employability certification. Five years later, however, employers still said they were unable to find a dependable work force.

Again and again work ethic and employability skills are listed as something needed for job success and are an area that schools in general and vocational education programs specifically are expected to address. Efforts in this area, however, often fail or fall short of anticipated outcomes. The study reported herein is based on the premise that while educators recognize the need to include work ethic in the curriculum of the school, research-based guidance to target key concepts for instruction has not been adequately provided.

The task of addressing such an ethereal construct as work ethic cannot be successfully undertaken without clear objectives to guide instruction. The basis for these objectives should not be anecdotes or opinions; this only invites controversy in today's eclectic communities. The basis for work ethic and work attitudes instruction and the content for related instructional materials should be derived from sound research which has examined the characteristics of successful workers in the real world of work.

Previous research has identified numerous affective characteristics considered desirable for working people. Beech, Kazanas, Sapko, Sisson, and List (1978) identified 63 affective work competencies considered important by industry leaders and educators and clustered them into 15 categories. Petty (1993), building on the line of research conducted by Kazanas (1978), identified 50 work ethic descriptors and developed the Occupational Work Ethic Inventory (OWEI). The OWEI was used to gather data for the study reported here and provided a well-grounded basis for identifying key characteristics for success at work.

This study, as well as the line of research on which it was built, concentrated on the characteristics or outcomes expected of a person who embraces the work ethic. The stem used on the OWEI, "At work I can describe myself as:", frames the responses for 50 descriptive terms contained in the instrument. The items which serve as a basis for the OWEI would likely be desirable personal traits in any circumstance, but the instrument makes a clear connection between the items and work, therein casting responses within the purview of employability skills or

occupational work ethic attributes.

The purpose of this study was to condense the collective meanings of the 50 OWEI descriptors into a manageable list of the key themes which characterize the occupational work ethic, using data derived from the contemporary workplace. The practical intent was to provide a concise list of concepts upon which to base work ethic and employability skills instruction and to provide a basis for refining the OWEI itself. The research question developed to guide the process of the study was "What factors embody the key themes which comprise the work ethic in the contemporary workplace?"

Method

Subjects

The population for this study consisted of workers in public and private businesses and industries in a single geographic area in the southeastern United States. The boundaries of the study were limited to control costs and to maximize the rate of return. To provide a mechanism through which to gather data from a broad range of occupations, participants in the study were selected through their place of work. A master database of 1,011 businesses and industries was compiled using the white pages of telephone directories for the communities involved in the study along with industrial and business directories provided through chambers of commerce.

A random sample of 285 (Krejcie and Morgan, 1970) was selected from the master database of businesses and industries using a random number generator. The sample was sorted by geographic location and efforts were made to contact each firm to request participation in the study. Persons from a total of 158 (55.4%) firms agreed to take part in the research. Of the remaining firms, 62 (21.8%) were either cross-listed, out-of-business, or not actually located within the bounds of the study. The other 65 (22.8%) did not accept the invitation to participate.

In most instances a manager or owner was selected as the contact person for firms participating in the study. Contact was made with this person to determine how many instruments would be needed and copies of the OWEI were counted and distributed. A total of 1,840 instruments were delivered and 1,151 (62.6%) completed instruments were collected over a two month period of time. Frequency counts for respondents

grouped by gender, age, and full-time work experience are provided in Table 1.

Table 1.
Frequency Counts for Respondents by Gender, Age, and Full-Time Work Experience.

Grouping Variable	Frequency	Percent
Gender		
females	570	49.5
males	581	50.5
Age		
19 or under	43	3.7
20 - 26	194	16.9
27 - 35	330	28.7
36 - 55	459	39.9
Over 50	125	10.9
Full-time Work Experience		
Less than two years	117	10.2
Two to eight years	378	32.8
More than eight years	656	57.0

Design and Instrumentation

The research design used in this study was ex-post facto with data collected using the survey method. The instrument used to collect data in this study was the Occupational Work Ethic Inventory (OWEI). Petty (1993) developed the OWEI to provide a succinct, but accurate measure of work ethic endorsement by building on extensive prior research related to work ethic. A panel of experts was used to select the list of items included on the instrument and the process followed was similar to one used by Kazanas (1978) in his development of the Affective Work Competencies Inventory and reported by Petty and others (Petty, Kazanas,

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& Eastman, 1981).

The OWEI has been used in previous studies by Hatcher (1995), Hill (1992), Petty & Hill (1994), and Petty (1995). The correlation alpha for the instrument has ranged from .90 (Hatcher, 1995) to .95 (Hill, 1992) in previous use. The 50 items contained on the OWEI represented key work ethic and work attitude concepts identified from previous research. The instrument used a stem of "At work I can describe myself as:", followed by the following scale for rating their standards for each item: 1 = Never; 2 = Almost Never; 3 = Seldom; 4 = Sometimes; 5 = Usually; 6 = Almost Always; and 7 = Always. This scaling is similar to that recommended by Nunnally (1978). The Likert scale responses for each OWEI item provided the raw data for this study.

To derive a concise list of explanatory constructs from the responses collected, a factor analysis was completed. This process was similar to that used in a study by Petty (1995) and was implemented to address the research question developed to guide the study. Factor analysis is a technique for achieving parsimony by identifying the smallest number of descriptive terms to explain the maximum amount of common variance in a correlation matrix (Tinsley & Tinsley, 1987). The descriptive terms generated encompass the meaning of the 50 items within a shorter, more practicably useful list.

Data Analysis

To extract the initial factors, a principal-components analysis was used. To eliminate error variance that would be included along with common variance and specific variance at this stage, Kaiser's criterion was applied prior to factor rotation, thus retaining only those factors with an eigenvalue of 1.0 or greater. Orthogonal rotation using a Varimax procedure was employed in this study to minimize the number of loadings on a factor, thus simplifying its structure and making it more interpretable. Extracted factors were examined and named based on an analysis of the instrument items which loaded on each one.

Using squared multiple correlations as the initial communality estimates, principal-components analysis of the data yielded 4 factors which met the Kaiser's criterion to be retained. Generating factor solutions with a greater number of factors resulted in some which had an eigenvalue which was less than 1. A scree test was performed and it also

supported a four-factor solution. To further refine and focus the results, however, orthogonal rotation using a Varimax procedure was used. The factor matrix produced by this process provided a meaningful and concise list of constructs representative of the items included on the OWEI.

Findings

In response to the research question developed to guide this study, a four-factor solution was identified after careful analysis of the data. For three of the factors, a label which captured a key work ethic or employability skills construct was identified after examining the items which loaded on each factor; the labels chosen were interpersonal skills, initiative, and being dependable. The fourth factor consisted of items on the instrument which had been reversed.

In interpreting the items which loaded on each factor, the .30 level is a generally accepted minimum factor loading because it indicates that approximately 10% of the variance for a corresponding variable has been explained by a factor (Tinsley & Tinsley, 1987). Using this criteria, the four factors collectively explained 48 of the 50 items contained on the OWEI and accounted for 38.86% of the total variance. The end result was a manageable list of factors which embody the meaning of the items on the OWEI and can be used to provide a practical focus for efforts to influence or assess key work ethic characteristics.

Factor 1. Interpersonal skills. This factor was comprised of items related to working relationships with other people. The descriptors which loaded here included personal characteristics which would facilitate good interpersonal relationships and would contribute to job performance in a setting where cooperation was important. Table 2 provides factor loadings, item means, standard deviations, and the actual items which loaded on this factor.

Factor 2. Initiative. The items which loaded on this factor were descriptive of characteristics which would facilitate "moving up the ladder" on a job and not being satisfied with "status quo" performance. Some of the descriptors which loaded on this factor also encompassed the concept of sticking with a job situation that might not be going smoothly. The factor loadings, item means, standard deviations, and the actual items which loaded on factor 2 are provided in Table 3.

Table 2.

Variable Loadings and Item Means for OWEI Factor 1: Interpersonal Skills.

Loading Item	Mean	SD	Item
.74885	6.08	.94	courteous
.70891	6.17	.90	friendly
.69405	5.76	.97	cheerful
.69228	6.01	.99	considerate
.69181	5.84	.92	pleasant
.60692	6.12	.86	cooperative
.56613	6.12	.90	helpful
.56563	5.83	1.01	likeable
.49082	5.93	1.05	devoted
.44978	6.21	.92	loyal
.43422	5.87	1.08	well groomed
.41809	5.24	1.27	patient
.40013	6.11	1.04	appreciative
.38695	6.23	.98	hard working
.30002	5.06	1.57	modest
.29153	5.94	1.12	emotionally stable
.28949	4.61	1.52	stubborn

Table 3.

Variable Loadings and Item Means for OWEI Factor 2: Initiative.

Loading Item	Mean	SD	Item
.61675	5.52	1.12	perceptive
.55578	5.89	1.03	productive
.54785	5.85	1.01	resourceful
.54100	4.97	1.35	initiating
.53514	5.75	1.21	ambitious
.53220	5.79	1.10	efficient
.51460	5.84	.98	effective
.47193	5.59	1.10	enthusiastic
.45995	5.96	1.11	dedicated
.43767	5.61	1.16	persistent
.43510	5.72	.93	accurate
.42191	6.02	1.05	conscientious
.37523	5.59	1.39	independent
.37428	5.86	1.02	adaptable
.35362	5.22	1.42	persevering
.31365	5.51	1.32	orderly

Factor 3. Being dependable. This factor was made up of items which had to do with fulfilling the expectations and the implicit agreement to perform certain functions at work. The combined meaning involved at least meeting the minimum expectations for satisfactory job performance, but did not necessarily include going "beyond the call of duty." Table 4 provides factor loadings, item means, standard deviations, and the actual items which loaded on the third factor.

Factor 4. Reversed items on instrument. This factor was made up of items which were reversed and stated in the negative on the OWEI. These reversed items were part of the instrument design to prevent research participants from developing a response pattern based on quickly marking a rating on the Likert scale without reading or actually responding to the actual item. The outcome with respect to the factor analysis, however, was to generate a factor based on the common element of items which were negative descriptors. The factor loadings, item means, standard deviations, and the reversed items which loaded on the fourth factor are provided in Table 5.

Table 4.
Variable Loadings and Item Means for OWEI Factor 3: Being Dependable.

Loading Item	Mean	SD	Item
.62190	6.27	.92	following directions
.61913	6.16	.97	following regulations
.56434	6.36	.88	dependable
.55856	6.36	.91	reliable
.48035	6.09	.92	careful
.45666	6.53	.90	honest
.37526	5.82	1.18	punctual

Table 5.
Variable Loadings and Item Means for OWEI Factor 4: Reversed Items.

Loading Item	Mean	SD	Item
.61901	5.79	1.51	hostile
.61539	5.95	1.28	rude
.56033	5.66	1.50	selfish
.56015	5.35	1.73	devious
.51296	5.99	1.45	irresponsible
.50584	5.67	1.47	careless
.48138	5.79	1.54	negligent
.39634	5.17	1.41	depressed
.33160	5.40	1.70	tardy
.31373	4.16	1.92	apathetic

Conclusions and Recommendations

Based on the results of this study, constructs were identified and labelled which provided a concise definition of those work ethic attributes measured by the OWEI. Examination of the instrument items which loaded on factors representative of these constructs resulted in three of them being labelled interpersonal skills, initiative, and being dependable. A fourth factor, consisting of items which had been reversed during construction of the OWEI, was interpreted as a response pattern that emerged as a result of the negative perceptions communicated by these

descriptors.

The work ethic factors identified in this study provide a research-based guide for educators who are endeavoring to prepare students for the transition from school to work. School curriculum should be examined to determine if and how these issues are being addressed. While there may not be specific "lessons" or "assignments" dedicated to these items, a conscious effort should be made to address these constructs and their relevance to the workplace wherever possible in the learning processes of the school.

Several specific suggestions are offered for consideration by vocational educators. One of the ways students can be encouraged to consider their own work ethic is by being administered the OWEI. The instrument can then be scored, not for purposes of testing students, but as a launching point for discussing work ethic and the various aspects of this concept that are important for success in work. Figure 1 provides an example scoring sheet which could be used for this activity.

Figure 1.

Occupational Work Ethic Inventory Scoresheet

In the blank beside each item, write your answer from the OWEI. The items are grouped by categories of work ethic characteristics for discussion purposes. Total the answers for each category and divide by the number indicated to determine a score for each.

Factor 1	Factor 2	Factor 3
_____ 17. appreciative	_____ 5. independent	_____ 1. dependable
_____ 22. patient	_____ 6. ambitious	_____ 3. following regulations
_____ 28. likeable	_____ 7. effective	_____ 4. following directions
_____ 29. helpful	_____ 10. initiating	_____ 8. reliable
_____ 31. pleasant	_____ 11. perceptive	_____ 12. honest
_____ 32. cooperative	_____ 14. efficient	_____ 16. careful
_____ 33. hard working	_____ 15. adaptable	_____ 23. punctual
_____ 37. cheerful	_____ 18. accurate	
_____ 41. devoted	_____ 20. conscientious	_____ Total
_____ 42. courteous	_____ 27. persevering	_____ Score
_____ 43. considerate	_____ 35. orderly	(total divided by 7)
_____ 46. well groomed	_____ 36. enthusiastic	
_____ 47. friendly	_____ 38. persistent	
_____ 48. loyal	_____ 40. dedicated	
_____ 50. modest	_____ 45. productive	
	_____ 49. resourceful	
_____ Total	_____ Total	
_____ Score	_____ Score	
(total divided by 15)	(total divided by 16)	

The importance of work ethic should be enunciated, with both students and colleagues, as an aspect of preparation for work. A cumulative effort to model and emphasize appropriate work ethic characteristics can best influence students to embrace these important skills for the high-performance workplace. Through deliberate efforts to have conversation about interpersonal skills, initiative, and being dependable, within the context of all subject matter addressed in the curriculum, maximum effectiveness can be achieved. The approach here should not, however, be one of encouraging blind acceptance of these characteristics, but should rather be a give-and-take exchange of ideas where individual choices are explored.

Another place these constructs find relevance for vocational educators is for consideration when making recommendations to potential employers on behalf of students. Prior research has clearly shown that work ethic is of concern to employers. The factors identified in this study can guide those who are asked to evaluate work ethic as a part of the employability skills needed for success at work.

Educators in all content areas should seek ways to embed consideration of work ethic throughout the instructional program. For many vocational program areas, however, opportunities for dealing with work ethic constructs are more prevalent because of the nature of the existing curriculum. Vocational education, perhaps more than some other program areas, utilizes semi-structured and ill-structured problems within the learning activities presently used. Problems students deal with are often set by using a case study or a realistic work environment. Answers may be a choice of many possible solutions and approaches to solving these problems may differ from person to person. It is within this setting that work ethic can best be addressed. Lecturing about the merits of interpersonal skills, initiative, and being dependable will likely have little lasting impact. Facilitating a situation where students must mentally grapple with choices about these issues for themselves, with others, and thereby weigh the merits of these issues within a social context is likely to have the greatest benefit.

One final consideration for vocational educators is the opportunity for encouraging development of work ethic through student organizations. These students groups have sometimes been viewed by others in the school community strictly as an extracurricular activity; expendable in

times of tight budgets and reduced funding. Conscious recognition and promotion of the educational significance of these organizations with regard to employability skills should be a salient strategy for advisors of student organizations.

This study represents another step along a continuum of work ethic research. Further work is needed to better understand the processes through which work ethic is inculcated and how schools can successfully integrate these constructs into the curriculum. These efforts will lead to educational experiences which address the full range of preparation for work including not only learning of academic content and problem solving skills, but also strengthening personal employability skills.

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