

A Comparison of the Multidimensional Work Ethic Profile across Two Countries

Agata Chudzicka-Czupala^a, Irina Cozma^b, Damian Grabowski^c, and David J. Woehr^d

^a Department of Psychology, University of Silesia, Poland

e-mail: agata.chudzicka-czupala@us.edu.pl

^b Department of Management, University of Tennessee, USA

e-mail: icozma@utk.edu

^c Department of Psychology, University of Silesia, Poland

e-mail: damian.grabowski@us.edu.pl

^d Department of Management, University of North Carolina at Charlotte, USA

e-mail: dwoehr@uncc.edu

Abstract

This study compares the equivalence of a tool, developed by Miller, Woehr, & Hudspeth (2002), for measuring work ethic (the Multidimensional Work Ethic Profile, MWEP) across two nations: American and Polish. Owing to the fact the cultures of the east and the west clash in Poland, as well as the fact it is a post-communist country (although capitalistic patterns are not entirely unfamiliar), Poland may be recognized as a culturally specific country. The Polish language version of the MWEP was developed and evaluated relative to the original English version. The equivalence of the tool was verified for all the dimensions of the work ethic construct.

The present study represents an extension of previous research examining the measurement equivalence of the MWEP across groups. To date, research has supported the measurement equivalence of the MWEP between English, Spanish, and Korean language versions of the MWEP (Woehr et al., 2007); between male and female respondents (Meriac et al., 2009; Meriac, 2010), and across generational cohorts. The present study extends this research by reporting the development of a Polish language version of the MWEP as well as through an examination of the equivalence of the MWEP across U.S. and Polish respondents.

To test the measurement equivalence/invariance (ME/I) of the MWEP we used a multi-group confirmatory factor analytic (MGCFA) application of AMOS 16.0 and tested two models representing configural and metric invariance. All models were operationalized as seven-factor models (corresponding to the seven MWEP dimensions) with the factors allowed to correlate and uncorrelated errors. Although a number of approaches have been used to evaluate measurement equivalence (Hui and Triandis, 1985; Vandenberg and Lance, 2000), there is general agreement that the MGCFA model (Joreskog, 1971) provides the most powerful and versatile technique for testing cross-group measurement invariance.

Our goal in the present study was to extend the work of Miller et al. (2002) and Woehr et al. (2007) by developing and evaluating a new version of Miller et al.'s measure of work ethic. In addition, we applied a detailed CFA approach to the assessment of the measurement equivalence (ME/I) of the measure of work ethic across Polish, and U.S. samples. The importance of providing evidence for ME/I across countries should not be underestimated. Nevertheless, it appears to be a prevailing notion among cross-cultural researchers that the replicability of factorial structure

across countries represents adequate evidence of ME/I (Paunonen and Ashton, 1998). Such evidence, however, is not sufficient. Although the factorial structure of a measuring instrument may yield a similar pattern when tested *within* each of two or more countries, such findings represent no guarantee that the instrument will operate equivalently *across* these countries (Byrne and Watkins, 2003). The results indicate that Polish MWEP was equivalent, and there are both substantive differences and similarities between the U.S. and Polish participants with respect to work ethic. These results should be considered preliminary, but they surely represent a step forward in the cross-cultural literature pertaining to work ethic.

Introduction

Modern formulations of the work ethic construct stem from the work of 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 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). 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). Recent literature has suggested that one of the primary factors limiting this research is the lack of common conceptualizations and measurement systems for the work ethic construct. In an attempt to address this limitation, Miller, Woehr, & Hudspeth (2002) recently developed the Multidimensional Work Ethic Profile (MWEP). The MWEP is a multidimensional inventory assessing conceptually and empirically distinct components of work ethic. Our goal in the present study is to extend the work of Miller et al (2002) by further examining the construct validity of the MWEP. Specifically, we: a) report on the development of a Polish language version of the MWEP; b) provide an assessment of the degree of measurement equivalence between the original English and the new Polish language versions with a multinational sample; and, c) explore potential substantive differences with respect to work ethic as measured with the MWEP between Polish and U.S. samples.

The Multidimensional Work Ethic Profile

Miller, et al. (2002) present a historical and conceptual review of the work ethic construct. Drawing on the large body of literature stemming from Weber’s original work, they posit that work ethic is not a single unitary construct but a constellation of attitudes and beliefs pertaining to work behavior. They suggest that the work ethic construct: (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. Based on previous literature as well as original empirical research, Miller et al. (2002) identify seven components or dimensions that they argue comprise the work ethic construct. The dimensions posited are centrality of work, self-reliance, hard work, leisure, morality/ethics, delay of gratification, and wasted time.

Miller et al (2002) also argue that previous measures of work ethic have been deficient to the extent that they do not sufficiently assess and/or differentiate among the various facets of work ethic. Consequently, they developed and provided initial support for a multidimensional work ethic inventory - the Multidimensional Work Ethic Profile (MWEP). The MWEP purports to measure seven conceptually and empirically distinct (i.e., divergent) facets of work ethic. While, Miller et al. provide a great deal of evidence pertaining to the psychometric evaluation of the MWEP, they provide little or no evidence with respect to the appropriateness of the MWEP as a measurement tool across cultures (i.e., cross-cultural measurement invariance). This question of measurement invariance is a particularly critical one. Several authors (Furnham, 1990b; Jones, 1997; Miller, et al., 2002; Niles, 1999) have argued that previous measures of work ethic are inadequate both conceptually and psychometrically.

Assessing Measurement Equivalence/Invariance

Establishing the measurement equivalence/invariance of an instrument is a logical prerequisite to conducting any meaningful substantive cross-group and/or cross-cultural comparisons. This is especially true for complex constructs such as work and organizational values, and when the cultures or groups compared are quite different (e.g. language, predominant religion, economic growth, educational system, etc.). In a recent review and integration of the literature on measurement equivalence in organizational research, Vandenberg and Lance (2000) state: “violations of measurement equivalence assumptions are as threatening to substantive interpretations as is an inability to demonstrate reliability and validity” (p. 6). Specifically, a lack of equivalence between groups indicates that a measure is not functioning the same across the groups and any substantive interpretation of similarities or differences is suspect at best.

When comparing measures, varying levels or degrees of measurement equivalence are possible (Cheung, 1999; Cheung & Rensvold, 1999). Conceptual equivalence refers to the extent to which individuals respond to a measurement instrument from a common conceptual frame of reference. That is, are the various items that comprise a measure seen as tapping the same construct(s) (i.e., configural invariance) and do the items relate to the construct(s) in the same way across groups (i.e., metric invariance). From a measurement perspective, configural invariance is reflected in the extent to which there is a common factor structure (i.e., items load on the same factors) across groups. Similarly, metric invariance is reflected in the extent to which items are interpreted similarly across groups (i.e., factor loadings for like items are the same across groups). Both configural and metric invariance have been identified as necessary conditions for measurement equivalence (Cheung, 1999; Steenkamp & Baumgartner, 1998; Vandenberg & Lance, 2000). That is, these tests provide a basis for ascertaining whether measures are conceptually equivalent across groups.

Although a number of approaches have been used to evaluate measurement equivalence (cf. Hui and Triandis, 1985; Vandenberg and Lance, 2000), there is general agreement that the multi-group confirmatory factor analytic (CFA) model (Joreskog, 1971) provides the most powerful and versatile technique for testing cross-group measurement invariance. Based on their review, Vandenberg and Lance (2000) call for an increased application of measurement equivalence techniques before substantive comparisons are considered. Given the limitations of classical test theory approaches for assessing measurement equivalence, they also recommend the use of multi-group CFA techniques.

Present Study

The present study represents an extension of previous research examining the measurement equivalence of the MWEP across groups. To date, research has supported the measurement equivalence of the MWEP between English, Spanish, and Korean language versions of the MWEP (Woehr et al., 2007); between male and female respondents (Meriac et al., 2009; Meriac, 2010), and across generational cohorts. The present study extends this research by reporting the development of a Polish language version of the MWEP as well as through an examination of the equivalence of the MWEP across U.S. and Polish respondents.

Poland is a country, which has experienced significant economic, cultural, and political changes. Biernacka (2009, p.183) states that “Foreigners who represent foreign capital and the corporation standards of professional engagement have been heard saying for two decades ‘There is no work ethic in Poland!’”. It is argued that this may be the case because Poland has not gone through a system of transformations typical of capitalistic economy. Yet such contentions are based on little if any empirical data. Thus, the development and evaluation of a Polish language version of the MWEP serves as an important step toward the empirical study of work values in Poland.

Participants

U.S. samples. The U.S. sample consisted of 236 employees and 203 students. The employee sample was recruited from several different private, non-military organizations. The mean age was 34.94 (SD = 9.73 years, range = 18 to 76). The student sample was recruited from a large Southeastern University, and the mean age was 22.07 (SD = 3.85 years, range = 20 to 56, with 95% of the sample below 27 years). Participants voluntarily and anonymously completed the original English-language version of the 65-item MWEP.

Polish sample. The Polish sample consisted of 236 employees and of 298 students living in the Upper Silesia region, the most industrialized part of Poland. The Polish sample of employees consisted of 148 (63%) female and 88 (37%) male participants from different organizations in the Upper Silesia region. The mean age was 34.35 years (SD=10.80, range = 19 to 56). The Polish sample of students consisted of 123 (41%) female and 175 (59%) male participants from the University of Silesia and the Silesian University of Technology. The mean age was 20.90 years (SD=2.79, range = 18 to 31).

Measure

The MWEP (Miller et al., 2002) is a 65-item self-report scale that measures seven dimensions of work ethic. Self-reliance, morality/ethics, leisure, hard work and centrality of work are each measured with 10 items and wasted time and delay of gratification with 8 and 7 items. A five-point Likert scale was used ranging from “*strongly disagree*” (1) to “*strongly agree*” (5).

Translation

The Polish translation of the MWEP followed the same procedure as the one used by Woehr et al. (2007), namely the translation - back-translation process (Brislin, 1986). Three Polish native speakers with advance English level (an English translator and two university lecturers) have translated independently the questionnaire into Polish. They kept in mind to use a simple language and terminology that would be understood by teenagers. As a result, two versions of the measure were made. In the next step a dozen or so psychology students, also with

a good command of English, worked with the lecturers in two independent groups to compare the two versions and choose the best statements. In this way two primary Polish versions of the measure were made. The methods devised in this manner were back-translated into English by two experienced translators. Then the researchers together with the students compared the translation with the original, analyzed, corrected it and chose the best-sounding statements. As the last step, ten undergraduate students matched the items based on their contents with the seven dimensions measured by the MWEF.

Data analysis

To test the measurement equivalence/invariance (ME/I) of the MWEF across the four samples, we used a multigroup CFA (MGCFA) application of AMOS 16.0 and tested two models representing configural, and metric invariance. All models were operationalized as seven-factor models (corresponding to the seven MWEF dimensions) with the factors allowed to correlate and uncorrelated errors.

The global goodness of fit of the model was assessed via the root mean square error of approximation (RMSEA), and the comparative fit index (CFI), (Steenkamp & Baumgartner, 1998; Cheung & Rensvold, 2002). The RMSEA provides an overall test of model fit that compensates for the effect of model complexity. Browne & Cudeck (1993) suggested that an RMSEA value of .05 or less indicates a close fit and that values up to .08 represent reasonable errors of approximation in a population. In addition, CFI is an incremental (comparative) measure of fit providing an indication of fit relative to a null model, ranging from 0 to 1, with higher values indicating better fit and values of .90 or greater typically interpreted as indicating acceptable levels of fit. More important, Cheung and Rensvold demonstrated that when testing across two groups, a change in the value of CFI smaller than or equal to .01 indicates that the null hypothesis of invariance should not be rejected (i.e., measurement equivalence).

Given the relatively small sample sizes for each of the groups, the large number of scale items, and the difficulties inherent in factor analyzing categorical item-level data (for detailed discussions of these problems, see Bernstein & Teng, 1989; Nunnally & Bernstein, 1994), we did not analyze item-level responses. Rather, we constructed three “item parcels” (composites based on subsets of items) to serve as manifest indicators for each of the seven work-ethic factors. The rationale for this approach was to avoid the difficulties associated with categorical item level data and to achieve a higher level of reliability for each of the scores on which the confirmatory factor analyses were based than would be realized from responses on each of the 65 individual items. The literature provides a good deal of support for this approach and suggests that the use of composite-level indicators leads to far more interpretable and meaningful results than an analytic approach based on large numbers of individual items (e.g., Bagozzi & Heatherton, 1994; Gibbons & Hocevar, 1998; Hall, Snell, & Foust, 1999; Landis, Beal, & Tesluk, 2000; Paik & Michael, 1999; Woehr et al, 2007). In the present study, we formed the item parcels by summing 2 to 4 randomly selected items from each of the dimension scales. Specifically, for each scale containing 10 items, three parcels were formed as one set of 4 items and two sets of 3 items. If the scale contained 8 items, three parcels were formed as two sets of 3 items and one set of 2 items. If the scale contained 7 items, three parcels were formed as one set of 3 items and two sets of 2 items. Although the set of items comprising each of the indicators was randomly selected within dimensions, the same sets of items were used to form indicators across samples. Previous research has demonstrated that this random approach to parceling items is appropriate to the extent that all items are equivalent measures of the focal construct (Hall et al., 1999; Landis et al.,

2000). Miller et al. (2002) provided evidence supporting the unidimensionality of each of the MWEP dimensions as well as the equivalence of items corresponding to each dimension. Thus, this random-item-parceling approach is appropriate with respect to the MWEP items.

Results

Before proceeding to interpret the MGCFA results, we checked the normality of the data. First we performed the analysis for the multivariate outliers using Mahalanobis distance on the U.S. and Poland samples. According to Byrne (2010), a case is considered as outlier if their Mahalanobis distances is well separated from other Mahalanobis distances. Based on this rule, we identify and delete six outliers in the U.S. dataset and four outliers in the Poland dataset. Further the skewness and kurtosis analysis indicated that Morality dimension did not behave normally (above +/- 2) in both U.S. and Poland samples. Also Mardia's coefficient for multivariate kurtosis exceeds critical standards.

This preliminary analysis indicates that there is a problem with the Morality dimension. The following analysis will take this information into account.

We ran five MGCFA (Table 1): 1) U.S. and Poland sample; 2) U.S. and Poland student samples; 3) U.S. and Poland employee samples; 4) Poland student and employee samples; and 5) U.S. student and employee samples.

Table 1. ME/I tests for MWEP

	<i>df</i>	χ^2^*	$\Delta\chi^2^a$	RMSEA	CFI	ΔCFI^a	NCI	ΔNCI	Gamma Hat	Δ Gamma Hat
<i>Poland and U.S.</i>										
Configural invariance	336	967.33	---	.044	.94	---	.72	---	.994	---
Metric invariance	350	1049.68	82.35	.046	.93	.01	.70	.03	.990	.004
<i>Poland student and employee</i>										
Configural invariance	336	832.19	---	.053	.91	---	.63	---	.980	---
Metric invariance	350	862.04	29.85	.053	.90	.01	.62	.01	.973	.007
<i>U.S. student and employee</i>										
Configural invariance	336	642.21	---	.046	.94	---	.71	---	.985	---
Metric invariance	350	693.31	51.10	.047	.93	.01	.68	.03	.978	.007
<i>Poland and U.S. student</i>										
Configural invariance	336	555.44	---	.036	.96	---	0.80	---	.996	---
Metric invariance	350	621.57	66.13	.040	.95	.01	0.76	.04	.993	.003
<i>Poland and U.S. employee</i>										
1										
Configural invariance	336	918.89	---	.061	.89	---	.54	---	.989	---
Metric invariance	350	985.12	66.23	.062	.88	.01	.51	.03	.982	.006
2										
Configural invariance	332	876.48	---	.059	.89	---	.56	---	.989	---
Metric invariance	346	947.11	70.63	.061	.88	.01	.53	.03	.983	.006
3										

Configural invariance	240	640.74	---	.060	.91	---	.65	---	.992	---
Metric invariance	252	708.40	67.66	.062	.90	.01	.62	.04	.987	.005
4										
Configural invariance	234	565.49	---	.055	.93	---	.70	---	.994	---
Metric invariance	246	639.75	74.26	.059	.92	.01	.66	.04	.989	.005

Legend: χ^2 = chi-square; RMSEA = root mean square error of approximation; CFI = comparative fit index, NCI = non-centrality index, * p = .000, a. Difference for each model is relative to the previous one, 1 - full model, 2 - errors correlated, 3 - without Morality dimension, 4 - without Morality dimension and errors correlated.

U.S. and Poland samples. Both configural and metric equivalence were reached (configural - CFI= .94, RMSEA = .044; metric - CFI= .93, RMSEA = .046; Δ CFI: .01).

Poland student and employee samples. Both configural and metric equivalence were reached (configural - CFI= .91, RMSEA = .053; metric - CFI= .90, RMSEA = .053; Δ CFI: .01).

U.S. student and employee samples. Both configural and metric equivalence were reached (configural - CFI= .94, RMSEA = .046; metric - CFI= .93, RMSEA = .047; Δ CFI: .01).

U.S. and Poland student samples. Both configural and metric equivalence were reached (configural - CFI= .96, RMSEA = .036; metric - CFI= .95, RMSEA = .040; Δ CFI: .01).

U.S. and Poland employee samples. Neither configural nor metric equivalence was reached (configural - CFI= .89, RMSEA = .061; metric - CFI= .88, RMSEA = .062; Δ CFI: .01). Using the modification indices (M.I.) we allowed for some error terms to correlate (e5 - e10 and e10 - e14), but the overall fit did not change.

Thus, it appears that the MWEP measure was conceptually equivalent across four of the five groups analyzed. The above analyses indicate that the ME/I was not reached for the U.S. employees and Poland employees samples. When full ME/I is not achieved, the strategy is to eliminate from the measure the dimension that is problematic and try to reach partial ME/I. Due to the fact the Morality dimension showed lack of normality, we run the analysis without this dimension.

US and Poland employee samples. Both configural and metric equivalence were reached (configural - CFI= .91, RMSEA = .060; metric - CFI= .90, RMSEA = .062; Δ CFI: .01). Using the modification indices (M.I.) we allowed for some error terms to correlate (e12 = e16, e10 - e14, e14 - e15) and the model slightly improved (configural - CFI= .93, RMSEA = .055; metric - CFI= .92, RMSEA = .059; Δ CFI: .01). These set of analysis, excluding the Morality dimension, did improve the overall fit and helped reach configural and metric equivalence for the U.S. and Poland employee sample.

At this point, the results suggest that the full MWEP measure was conceptually equivalent across four of the five groups analyzed, and in the case of employee samples the ME/I was reached after eliminating one dimension (Morality). With this difference in mind, we next examined the potential differences across groups with respect to the actual scores on each dimension.

First, the internal consistency reliability estimates for each of the seven MWEP dimension scores presented in Table 2. Examination of the estimates indicated that reliabilities were generally acceptable for all scale scores across samples (i.e., range .67 to .90). More specifically, all but two of the reliabilities were higher than the value of .70 often cited as indicative of a reasonable level of reliability (Nunnally & Bernstein, 1994). The remaining two reliability estimates were not significantly different from .70 (Delay of Gratification was .69 and .67 in the overall Poland sample and Poland employee sample).

Table 2. Coefficient *a* reliability by sample

Dimensions	Poland N = 443	U.S. N = 530	Poland Employee N = 234	Poland Student N = 295	U.S. Employee N = 236	U.S. Student N = 203
Self-Reliance	.84	.86	.82	.85	.85	.86
Morality/Ethics	.79	.77	.74	.79	.80	.79
Leisure	.89	.88	.87	.90	.88	.86
Hard Work	.84	.87	.87	.77	.88	.85
Centrality of Work	.81	.81	.78	.83	.79	.83
Wasted Time	.73	.77	.72	.72	.76	.77
Delay of Gratification	.69	.80	.67	.73	.81	.78

Legend: *a*=Cronbach reliability coefficient, N=number of participants.

Second, given the demonstrated level of measurement equivalence between the English, and Polish versions of the MWEP, we next examined potential differences across groups with respect to the actual scores on the dimension subscales. Mean scores by sample for each of the MWEP dimensions and each pair of samples are presented in Table 3 to 7. In the case of the overall U.S. vs. Poland sample only one dimension was not statistically significant (i.e., Self-Reliance). Regarding the sub-samples, the most similar were the U.S. student vs. U.S. employee samples (with three not significant dimensions: Hard Work, Centrality of Work, Delay of Gratification), and the U.S. students and Poland students (with two not significant dimensions: Self-reliance, Delay of Gratification). The Polish student vs. Polish employee sample had one not significant dimension (i.e., Morality), and this also was the case for the U.S. employee vs. Poland employee samples (i.e., Self-reliance).

Table 3. Means and Standard Deviations for MWEP Scales – U.S. vs. Poland

	U.S. (N= 443)		Poland (N= 530)	
	Mean	SD	Mean	SD
Self-Reliance	3.48 ^A	.65	3.48 ^A	.60
Morality / Ethics	4.43 ^A	.45	4.25 ^B	.53
Anti – Leisure	3.14 ^A	.66	3.36 ^B	.67
Hard Work	3.86 ^A	.60	3.33 ^B	.58
Centrality of Work	3.73 ^A	.57	3.31 ^B	.60
Wasted Time	3.72 ^A	.57	3.46 ^B	.58
Delay of Gratification	3.50 ^A	.67	3.59 ^B	.63

Legend: Means within the same row with different superscripts are significantly different ($p < .01$), *a*Total Score is the sum of the seven work ethic subscales.

Table 4. Means and Standard Deviations for MWEP Scales – U.S. student vs. U.S. employee

	U.S. students (N= 202)		U.S. employee (N= 235)	
	Mean	SD	Mean	SD
Self-Reliance	3.35 ^A	.61	3.60 ^B	.67
Morality / Ethics	4.36 ^A	.43	4.48 ^B	.48
Anti – Leisure	3.30 ^A	.57	3.00 ^B	.71
Hard Work	3.85 ^A	.55	3.87 ^A	.66
Centrality of Work	3.69 ^A	.56	3.77 ^A	.58
Wasted Time	3.59 ^A	.57	3.82 ^B	.57
Delay of Gratification	3.51 ^A	.64	3.50 ^A	.71

Legend: Means within the same row with different superscripts are significantly different ($p < .01$), *a*Total Score is the sum of the seven work ethic subscales.

Table 5. Means and Standard Deviations for MWEP Scales – Poland student vs. Poland employee

	Poland student (N= 295)		Polandemployee (N= 234)	
	Mean	SD	Mean	SD
Self-Reliance	3.41 ^A	.62	3.58 ^B	.57
Morality / Ethics	4.23 ^A	.53	4.30 ^A	.48
Anti – Leisure	3.42 ^A	.67	3.29 ^B	.64
Hard Work	3.43 ^A	.50	3.22 ^B	.64
Centrality of Work	3.27 ^A	.62	3.37 ^B	.56
Wasted Time	3.36 ^A	.58	3.60 ^B	.55
Delay of Gratification	3.46 ^A	.64	3.31 ^B	.62

Legend: 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 6. Means and Standard Deviations for the Seven MWEP Scales by U.S. student vs. Poland student

	U.S. student (N=203)		Poland student (N=295)	
	Mean	SD	Mean	SD
Self-Reliance	3.35 ^A	.61	3.41 ^A	.62
Morality / Ethics	4.36 ^A	.43	4.23 ^B	.53
Anti – Leisure	3.30 ^A	.57	3.42 ^B	.67
Hard Work	3.85 ^A	.55	3.43 ^B	.50
Centrality of Work	3.69 ^A	.56	3.27 ^B	.62
Wasted Time	3.59 ^A	.57	3.36 ^B	.58
Delay of Gratification	3.51 ^A	.64	3.46 ^A	.64

Legend: 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. Means and Standard Deviations for MWEP Scales by U.S. employee vs. Poland employee (without Morality)

	U.S. employee (N=235)		Poland employee (N=234)	
	Mean	SD	Mean	SD
Self-Reliance	3.60 ^A	.67	3.58 ^A	.57
Anti – Leisure	3.00 ^A	.71	3.29 ^B	.64
Hard Work	3.87 ^A	.66	3.22 ^B	.64
Centrality of Work	3.77 ^A	.58	3.37 ^B	.56
Wasted Time	3.82 ^A	.57	3.60 ^B	.55
Delay of Gratification	3.50 ^A	.71	3.31 ^B	.62

Legend: Means within the same row with different superscripts are significantly different ($p < .01$), *a*Total Score is the sum of the seven work ethic subscales.

Discussion

In summary, our results suggest that the newly developed Polish language versions of the MWEP demonstrate measurement equivalence with the original English version. Specifically, a seven-factor measurement model corresponding to the seven MWEP dimensions with three man-

ifest indicators(based on three summed item composites) and factor pattern coefficients constrained to be equal across groups provided a good representation of the MWEP data across four of the five pairs of samples. In addition, scale score reliability estimates were generally high and consistent across versions. Finally, we found several statistically non-significant differences on the work ethic dimensions across samples, which match in a certain extent the findings of Woehr et al. (2007). For example, in Woehr et al. (2007) Hard Work and Delay of Gratification indicate no statistically significant differences across U.S., Mexican, and Korean samples. In our research Delay of Gratification was not statically significant for the U.S. vs. Poland student samples and U.S. students vs. U.S. employee samples. Moreover Hard Work was not significant between the U.S. student and U.S. employee samples. But there are also differences, the main one being that in the present research Self Reliance was the dimension that indicate no statically significant difference across the overall U.S. and Polish samples (and also for the U.S. students vs. Poland students, and U.S. vs. Poland employees).

The samples that showed more similarities were the two U.S. samples (students and employees) and the two student samples (U.S. and Poland). Probably the most different samples were the U.S. employees vs. Poland employees. In this case the full ME/I was not reached, but just partial ME/I, with the Morality dimension dropped out.

Our goal in the present study was to extend the work of Miller et al. (2002) and Woehr et al. (2007) by developing and evaluating a new version of Miller et al.'s measure of work ethic. In addition, we applied a detailed CFA approach to the assessment of the measurement equivalence(ME/I) of the measure of work ethic across Polish, and U.S. samples. The importance of providing evidence for ME/I across countries should not be underestimated. Nevertheless, it appears to be a prevailing notion among cross-cultural researchers that the replicability of factorial structure across countries represents adequate evidence of ME/I (Paunonen and Ashton, 1998). Such evidence, however, is not sufficient. Although the factorial structure of a measuring instrument may yield a similar pattern when tested *within* each of two or more countries, such findings represent no guarantee that the instrument will operate equivalently *across* these countries (Byrne and Watkins, 2003). Our results indicate that Polish MWEP was equivalent, and there are both substantive differences and similarities between the U.S. and Polish participants with respect to work ethic. These results should be considered preliminary, but they surely represent a step forward in the cross-cultural literature pertaining to work ethic.

References

- Bagozzi, R.P. and Heatherton, T. T., (1994), "A general approach to representing multi-faceted personality constructs: Application to self-esteem", *Structural Equation Modeling*, Vol. 1, pp: 35-67.
- Bernstein, I. H. and Teng, G., (1989), "Factoring items and factoring scales are different: Spurious evidence for multidimensionality due to item categorization", *Psychological Bulletin*, Vol. 105, pp: 467-477.
- Biernacka, M. (2009). *Człowiek korporacji. Od normatywizmu do afirmacji własnego Ja, (Corporation Man. From Normative to Affirmative Attitude towards Own Ego)*, Wydawnictwo Naukowe Scholar, Warszawa.
- Brislin, R. W., (1986), "The wording and translation of research instruments", In W. J. Lonner and J. W. Berry (Eds.), *Field methods in cross-cultural research*. Sage, Newbury Park, CA, pp: 137-164.

- Browne, M. W. and Cudeck, R., (1989), "Single sample cross-validation indices for covariance structures", *Multivariate Behavioral Research*, Vol. 24, pp: 445-455.
- Byrne, E. F., (1990), *Work, inc.: A philosophical inquiry*. Temple University Press, Philadelphia.
- Byrne, B., & Watkins, D., (2003), "The Issue Of Measurement Invariance Revisited", *Journal Of Cross-Cultural Psychology*, Vol. 34, pp: 155-175.
- Charlton, W., Mallinson, T. and Oakeshott, R., (1986), *The Christian response to industrial capitalism*. London, Sheed & Ward.
- Cheung, G. W., (1999), "Multifaceted conceptions of self-other ratings disagreement", *Personnel Psychology*, Vol. 52, pp: 1-36.
- Cheung, G. W. and Rensvold, R. B., (1999), "Testing factorial invariance across groups: A reconceptualization and proposed new method", *Journal of Management*, Vol. 25, No.1, pp: 1-27.
- Cheung, G. W. and Rensvold, R. B., (2002), "Evaluating goodness-of-fit indexes for testing measurement invariance", *Structural Equation Modeling*, Vol. 9, No. 2, pp: 233-255.
- Fine, R., (1983), "The Protestant ethic and the analytic ideal", *Political Psychology*, Vol. 4, pp: 245-264.
- Furnham, A., (1990a), *The Protestant work ethic: The psychology of work-related beliefs and behaviors*. Rutledge, London.
- Furnham, A., (1990b), "A Content, Correlational and Factor Analytic Study of Seven Questionnaire Measures of the Protestant Work Ethic", *Human relations*, Vol. 43, No. 4, pp: 383-399.
- Gibbons R. and Hocevar D., (1998), "Levels of aggregation in higher level confirmatory factor analysis", *Structural Equation Modeling*. Gibbons and Hocevar 5, pp: 377-390.
- Green, A. W., (1968), *Sociology: An Analysis of life in modern society*. McGraw-Hill, New York.
- Hall, R.J., Snell, A.F., and Foust, M.S., (1999), "Item parceling strategies in SEM: Investigating the subtle effects of unmodeled secondary constructs", *Organizational Research Methods*, Vol. 2, pp: 233-256.
- Hui, C.H. and Triandis, H.C., (1985), "Measurement in cross-cultural psychology: A review and comparison of strategies", *Journal of Cross-Cultural Psychology*, Vol. 16, pp: 131-152.
- Jones, H. B., (1997), "The protestant ethic: Weber's model and the empirical literature", *Human Relations*, Vol. 50, pp: 757-778.
- Jøreskog, K. G., (1971), "Simultaneous factor analysis in several populations", *Psychometrika*, Vol. 36, pp: 409-426.
- Landis, R. S., Beal, D.J. and Tesluk, P.E., (2000), "A comparison of approaches to forming composite measures in structural equation models", *Organizational Research Methods*, Vol. 3, pp: 186-207.
- Lehmann, H., (1993), "The rise of capitalism: Weber versus Sombart", In H. Lehmann and G. Roth (Eds.), *Weber's Protestant ethic: Origins, evidence, contexts*. (pp: 195-208). Cambridge University Press, Washington, DC.
- Lessnoff, M. H., (1994), *The spirit of capitalism and the Protestant ethic: An enquiry into the Weber thesis*. Brookfield, VT: E. Elgar.

- Lim, D. H., Woehr, D. J., You, Y. M., and C. A. Gorman., (2007), “The Translation and Development of a Short Form of the Korean Language Version of the Multidimensional Work Ethic Profile”, *Human Resource Development International*, Vol. 10, No. 3, pp: 319-331.
- Maccoby, M., (1983), “The managerial work ethic in America”, In J. Barbash, R. J. Lapman, S. A. Levitan and G. Tyler (Eds.), *The work ethic--A critical analysis* (pp. 183-196). Madison, WI: Industrial Relations Research Association.
- Miller, M. J., Woehr, D. J. and Hudspeth, N., (2002), “The meaning and measurement of work ethic: Construction and initial validation of a multidimensional inventory”, *Journal of Vocational Behavior*, Vol. 60, pp: 451-489.
- Niles, F.S., (1999), “Toward a Cross-Cultural Understanding of Work-Related Beliefs”, *Human Relations*, Vol. 52, pp: 55-867.
- Meriac, J. P., Poling, T. L. and Woehr, D. J., (2009), “Are there gender differences in work ethic?: An examination of the measurement equivalence of the multidimensional work ethic profile”, *Personality and Individual Differences*, Vol. 47, pp: 209–213.
- Meriac, J. P., Woehr, D. J. and Banister C., (2010), “Generational Differences in Work Ethic: An Examination of Measurement Equivalence Across Three Cohorts”, *Journal of Business Psychology*, Vol. 25, pp: 315–324.
- Nunnally, J.C. and Bernstein, I.H., (1994), *Psychometric Theory (3rd edition)*. New York: McGraw-Hill, Inc.
- Paik, C. and Michael, W. B., (1999), “A construct validity investigation of scores on a Japanese version of an academic self-concept scale for secondary school students”, *Educational and Psychological Measurement*, Vol. 59, No. 1, pp: 98-110.
- Steenkamp, J.B. and Baumgartner, H., (1998), “Assessing measurement invariance in cross-national consumer research”, *Journal of Consumer Research*, Vol. 25, pp: 78-90.
- Vandenberg, R. J. and Lance, C. E., (2000), “A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research”, *Organizational Research Methods*, Vol. 3, pp: 4-69.
- Woehr, D.J., Arciniega, L.M. and Lim, D.H., (2007), “Examining Work Ethic Across Populations. A Comparison of the Multidimensional Work Ethic Profile across Three Diverse Cultures”, *Educational and Psychological Measurement*, Vol. 67, No.1, pp: 154-168.
- Weber, M., (1958), *The Protestant ethic and the spirit of capitalism* (T. Parsons, Trans.), New York: Scribner. (Original work published 1904-1905).