DISSERTATION

ACHIEVEMENT MOTIVATION IN BULGARIA AND THE UNITED STATES: A CROSS-COUNTRY COMPARISON

Submitted by

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In partial fulfillment of the requirements

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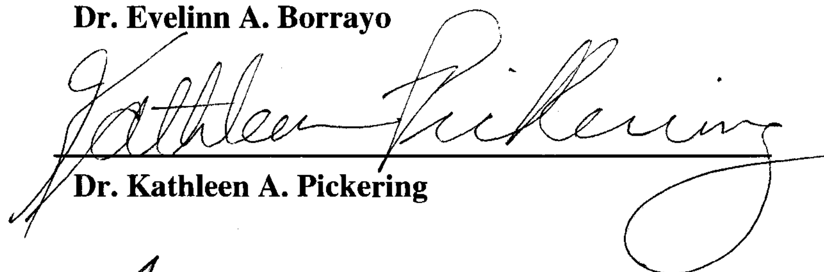

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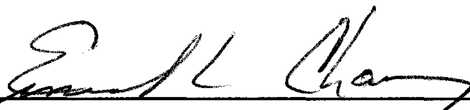

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ABSTRACT OF DISSERTATION

ACHIEVEMENT MOTIVATION IN BULGARIA AND THE UNITED STATES: A CROSS-COUNTRY COMPARISON

The present study used the multifaceted Achievement Motivation Inventory (AMI: Schuler, Thornton, Frintrup, & Mueller-Hanson, 2004) to compare the achievement motivation of college students from Bulgaria (n = 465) and the United States (n = 1022) at the facet level. Multiple group confirmatory factor analyses revealed that 11 of the 17 AMI scales exhibited measurement invariance across the two samples. Results from the latent and observed mean differences analyses were consistent to indicate that, compared to students from the United States, Bulgarian students reported higher levels of Compensatory Effort, Flow, Persistence, Preference for Difficult Tasks, Pride in Productivity, and Self-Control; lower levels of Fearlessness and Internality; and similar levels of Competitiveness, Confidence in Success, and Status Orientation. These findings illustrate the importance of establishing measurement invariance prior to making mean comparisons and the usefulness of multifaceted assessment in examining and comparing the achievement motivation profiles of individuals with different backgrounds and characteristics. Implications of the results, limitations, as well as recommendations for future research are discussed.

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TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION 1

II. BACKGROUND 9

A. Achievement Motivation in Bulgaria: Historical, Economic, and Cultural Influences 9

i. Bulgarian History 9

1. Early history 9

2. The Ottoman rule 10

3. Between the independence and World War II 11

4. The communist regime 12

5. After the fall of communism 14

ii. Bulgarian Economy and Society in Transition 14

1. Negative trends 14

2. Positive trends 17

iii. Bulgarian Culture 17

1. Individualism-collectivism 18

2. Power distance 19

3. Uncertainty avoidance 19

4. Masculinity-femininity 20

5. Long- versus short-term orientation 20

6. Summary 21

B. Classic and Contemporary Approaches to Achievement Motivation 22

i. The Murray/McClelland/Atkinson Approach 22

ii. The Achievement Goal Approach 25

iii. The Personality-Taxonomy Approach 26

iv. The Achievement Motivation Approach 28

v. The Onion Model of Achievement Motivation 31

vi. The Achievement Motivation Inventory 32

C. Specific Hypotheses and Research Questions 37

i. Compensatory Effort 37

ii. Competitiveness 39

iii. Confidence in Success 40

iv. Dominance 41

v. Eagerness to Learn 42

vi. Engagement 44

vii. Fearlessness 45

viii. Flexibility 46

ix. Flow 47

x. Goal Setting 48

xi. Independence 48

xii. Internality 50

xiii. Persistence 51

xiv. Preference for Difficult Tasks 51

xv. Pride in Productivity 52

xvi. Self-Control 53

xvii. Status Orientation 54

III. METHOD 55

A. Participants 55

i. Bulgarian sample 55

ii. U.S. sample 56

B. Procedure 57

C. Measure 58

D. Testing for Country Differences 58

E. Statistical Analyses 60

i. Measurement invariance 60

ii. Latent mean differences 64

iii. Observed score mean differences 65

IV. RESULTS 66

A. Within-Group Tests of One-Factor Measurement Model 67

B. Between-Group Tests of Invariance of One-Factor Measurement Model 67

C. Tests of Latent Mean Differences 71

D. Tests of Observed Score Mean Differences 71

V. DISCUSSION 73

A. AMI Translation 74

B. AMI Revision 74

C. Measurement Invariance 75

D. Latent and Observed Mean Differences 82

E. Implications for Research and Practice 88

F. Strengths, Limitations, and Directions for Future Research 90

G. Conclusion 95

REFERENCES 97

TABLES 118

APPENDICES 129

A. Appendix A 129

B. Appendix B 136

i. Tables for Appendix B 153

LIST OF TABLES

Table | Page

Table 1: Scales of the Achievement Motivation Inventory 118

Table 2: Differences Between Bulgarian and U.S. Samples on Observed and Latent Means 120

Table 3: Coefficients Alpha for the Original and Revised AMI Scales Across Bulgarian and U.S. Samples 121

Table 4: Intercorrelations for the Revised AMI Scales Across the Bulgarian and U.S. Samples and Combined Sample Coefficients Alpha 122

Table 5: Tests of Within-Sample Measurement Model Fit of the AMI Scales for Bulgarian and U.S. Samples 123

Table 6: Tests of Measurement Invariance for Multiple Group Measurement Model of the AMI Scales Across Bulgarian and U.S. Samples 125

Table 7: Summary of Between-Group Measurement Invariance Results for the Revised AMI Scales 128

Table B1: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Compensatory Effort Scale Across Three U.S. Student Samples 153

Table B2: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Competitiveness Scale Across Three U.S. Student Samples 154

Table B3: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Confidence in Success Scale Across Three U.S. Student Samples 155

Table B4: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Dominance Scale Across Three U.S. Student Samples 156

Table B5: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Eagerness to Learn Scale Across Three U.S. Student Samples 157

Table B6: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Engagement Scale Across Three U.S. Student Samples 158

Table B7: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Fearlessness Scale Across Three U.S. Student Samples 159

Table B8: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Flexibility Scale Across Three U.S. Student Samples 160

Table B9: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Flow Scale Across Three U.S. Student Samples 161

Table B10: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Goal Setting Scale Across Three U.S. Student Samples 162

Table B11: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Independence Scale Across Three U.S. Student Samples 163

Table B12: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Internality Scale Across Three U.S. Student Samples 164

Table B13: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Persistence Scale Across Three U.S. Student Samples 165

Table B14: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Preference for Difficult Tasks Scale Across Three U.S. Student Samples 166

Table B15: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Pride in Productivity Scale Across Three U.S. Student Samples 167

Table B16: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Self-Control Scale Across Three U.S. Student Samples 168

Table B17: Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Status Orientation Scale Across Three U.S. Student Samples 169

Table B18: Retained Components from Principle Component and Parallel Analyses of the AMI Original and Revised Scales Across Three U.S. Student Samples 170

Table B19: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Compensatory Effort and Competitiveness Scales Across Three U.S. Student Samples 173

Table B20: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Confidence in Success and Dominance Scales Across Three U.S. Student Samples 174

Table B21: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Eagerness to Learn and Engagement Scales Across Three U.S. Student Samples 175

Table B22: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Fearlessness and Flexibility Scales Across Three U.S. Student Samples 176

Table B23: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Flow and Goal Setting Scales Across Three U.S. Student Samples 177

Table B24: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Internality and Persistence Scales Across Three U.S. Student Samples 178

Table B25: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Preference for Difficult Tasks and Pride in Productivity Scales Across Three U.S. Student Samples 179

Table B26: Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Self-Control and Status Orientation Scales Across Three U.S. Student Samples 180

Table B27: Correlation Coefficients of the Original and Revised AMI Scales with GPA Across Two U.S. Samples 181

Table B28: Correlation Coefficients of the Original and Revised AMI Scales with the Big Five in a U.S. Sample 182

CHAPTER I

INTRODUCTION

As economic markets and workforces become increasingly global and competitive (Cascio & Aguinis, 2005; Drucker, 2001), the need for cross-country and cross-cultural research on key psychological and organizational variables is being recognized (Adler, 1997; Ghorpade, Hattrup, & Lackritz, 1999). One such variable is achievement motivation, which has recently re-emerged on the radar of organizational and cultural researchers (Byrne, Mueller–Hanson, Cardador, Thornton, Schuler, Frintrup, & Fox, 2004; Chang, Wong, Teo, & Fam, 1997; Heine, 2007; Lanik, Thornton, & Hoskovcova, in press; Potemra, 2007; Sagie, Elizur, & Yamauchi, 1996). Achievement motivation has been considered an important construct because of its positive relationships with individual academic and work performance outcomes (Heckhausen, 1991; Kanfer, 1990; Spangler, 1992; Spence, Pred, & Helmreich, 1989), entrepreneurial behavior (Collins, Hanges, & Locke, 2004), national well-being (Kirkcaldy, Furnham, & Martin, 1998), as well as national economic development (Kirkcaldy et al., 1998; McClelland, 1961, 1987; Singh, 1979). Given the above relationships, studies of achievement motivation in countries facing challenging political, economic, and sociocultural transitions, such as those in post-communist Eastern Europe (including Bulgaria), may hold much utility (Hampden-Turner & Trompenaars, 2000).

Studies of achievement motivation may be of particular importance and use to Bulgaria, which has been undergoing a challenging transition to an open-market economy and democratic society (Angelov, 2007; Vassilev, 2003). Since the beginning of the transition in 1989, Bulgarians have suffered socioeconomic setbacks and deprivations amidst deep economic stagnation, high unemployment and inflation, increasing inequality of incomes, poverty, widespread organized crime and corruption, as well as neglect of the social and economic rights of the population on part of governments (Vassilev, 2003). After being fully accepted in the European Union (EU) in January 2007, Bulgaria has been holding the unenviable position of the country with the lowest Gross Domestic Product (GDP) per capita, lowest productivity and competitiveness, least competent and effective administration, least effective business environment and strategies, highest poverty, and lowest economic, financial, social, demographic, health, institutional, ecological, and corruption indicators among EU members (Angelov, 2007). These socioeconomic challenges, along with deeply rooted historical and cultural tendencies of Bulgarians to exhibit counterproductive work attitudes, values, and behaviors (Genov, 2004; Genov & Karabeliova, 2001; Karabeliova, 1998), make a strong case for studying achievement motivation in Bulgaria. There is initial evidence that Western models of motivation may be valid, applicable, and useful in the Bulgarian context (Deci et al., 2001).

What are the meaning and levels of achievement motivation of Bulgarian contemporaries compared to their Western counterparts? Not only is this question theoretically important because it concerns the establishing of universals of human behavior (Church & Lonner, 1998), but it is also of practical significance because it may

have implications for improving (a) productivity, competitiveness, and economic growth and development; (b) employee work motivation and values; (c) quality of work and employment; (d) management practices and strategies; as well as (e) educational and professional development experiences in Bulgaria and other countries in similar circumstances (Bakacsi, Sándor, András, & Victor, 2002; Genov, 2004; Karabeliova, 1998; Hofstede, 2001; MacClelland, 1987; Roe, Zinovieva, Dienes, & Ten Horn, 2000).

Societies with different cultural norms and values may produce personality characteristics consistent with these societies (Ben-Porath, Almagor, Hoffman-Chemi, & Tellegen, 1995; Larsen, Groberg, Simmons, & Ommundsen, 1993), which in turn may determine how working people from these different societies respond to achievement-oriented situations, motivational techniques, and managerial practices (Erez & Earley, 1993; Liargovas & Chionis, 2002). Globalization processes have stimulated interactions between individuals of different nationalities and cultures (Landy & Conte, 2007). Consequently, an increasing number of Western companies are opening facilities in former communist countries, including Bulgaria, which has the lowest wages among EU countries (Angelov, 2007). These companies are strategically employing qualified and cheaper host nationals in order to maintain competitive advantage on the global market (Marin, 2006). Thus, understanding the meaning and level of achievement motivation of host national employees will be invaluable to these companies for implementing effectively a variety of human resource management practices (Landy & Conte, 2007).

Traditionally, achievement motivation has been conceptualized and operationalized in narrow terms, as either an implicit unitary motive measured indirectly by projective techniques, such as the Thematic Apperception Test (McClelland,

Atkinson, Clark, & Lowell, 1953), or as a personality trait (i.e., an explicit motive) measured directly by scales included in comprehensive personality inventories, such as the Revised NEO Personality Inventory (Costa & McCrae, 1992) and the Personality Research Form (Jackson, 1984). Recent research, however, has indicated that achievement motivation is a complex motivational trait, which encompasses multiple components (e.g., desire to learn, persistence, competitiveness, fear of failure) (Byrne et al., 2004; Cassidy & Lynn, 1989; Heggestad & Kanfer, 2000; Sagie, Elizur, & Yamauchi, 1996), and thus requires a broader conceptualization and operationalization. Sagie et al. (1996) concluded that "although differences in outlook exist, all multivariate conceptualizations of achievement motive agree that it is composed of distinct and relatively independent components" (p. 432).

In light of this broader perspective, researchers have begun to develop multidimensional measures of achievement motivation, such as the Work and Family Orientation Scale (Spence & Helmreich, 1983), the Work Preference Inventory (Amabile, Hill, Hennessey, & Tighe, 1994), the Motivational Traits Questionnaire (Heggestad & Kanfer, 2000), and the Achievement Motivation Inventory (AMI: Schuler, Thornton, Frintrup, & Mueller-Hanson, 2004). Among these measures, the AMI is the most comprehensive as it was developed to capture 17 facets (see Table 1) of a broad construct of achievement motivation based on the Onion Model of Achievement Motivation (Schuler, 1998). This is also the measure used in the present study.

Although it has been suggested that achievement motivation is a universal human characteristic which may be manifested differently in different countries and cultures (Chang, Wong, Teo, & Fam, 1997; Maehr, 1974; McInerney, 1995), the vast majority of

studies on the multidimensional structure and strength of achievement motivation have been conducted in Western countries (see Byrne et al., 2004; Cassidy & Lynn, 1989; Heggestad & Kanfer, 2000; Spence et al., 1989; Schuler & Prochaska, 2000). Only a handful of studies have examined the measurement invariance and levels of achievement motivation as a multidimensional personality trait in Eastern European countries (e.g., Lanik et al., in press). Moreover, no published study, to the author's best knowledge, has compared the measurement invariance and levels of various facets of achievement motivation between Bulgarian and United States (U.S.) nationals.

This study concentrates on the young generation of Bulgarians, using college students as the samples. The study of achievement motivation of the post-communist generation (i.e., born in 1988-90) may have important implications for the future economic development in Bulgaria (Bojinova & Panov, 2000; Genov, 2004). Therefore, the current study takes a comparative, imposed-etic approach (Katigbak, Church, & Akamine, 1996; Ryan, Chan, Ployhart, & Slade, 1999) with two main objectives: (a) to determine the extent to which Bulgarian and U.S. students differ on various facets of achievement motivation, and (b) to examine the measurement invariance of the 17 AMI scales (Schuler et al., 2004) between samples of Bulgarian and U.S. college students. Initial cross-national research with the AMI has found some preliminary evidence for measurement invariance, as well as for observed and latent mean differences and non-differences across samples from several countries - Germany, U.S., Israel, Brazil, Czech Republic, and Singapore (Byrne et al., 2004; Cigularov, Lanik, Thornton, & Singh, 2007; Lanik et al., in press; Potemra, 2007). Based on the prior research (e.g., Zinovieva, Ten Horn, & Roe, 1993), rigorous translation process of the English AMI to Bulgarian, and

consistent with the view of achievement motivation as a universal phenomenon (Chang et al., 1997; Maehr, 1974; McInerney, 1995), we expect to observe adequate measurement invariance for the 17 AMI scales between the Bulgarian and U.S. samples.

Regarding the comparison of the levels of achievement motivation between Bulgarian and U.S. nationals, as measured by the AMI scales, there are two competing expectations. On one hand, there are economic, political, historical, and cultural reasons to expect differences in the achievement motivation between Bulgarian and U.S. nationals (Genov, 2004; Roe et al., 2000). These will be discussed in more detail in the next section. In fact, research does suggest that Bulgarian nationals may differ significantly from their Western counterparts (including U.S.) in terms of achievement motivation, cultural characteristics, definition of work, as well as family and work values (Baytchinska, 1998; Durankev, 2000; Genov, 2004; Genov & Karabeliova, 2001; Georgas, Berry, van de Vijver, Kagitcibasi, & Poortinga, 2006; Hampden-Turner & Trompenaars, 2000; Inglehart & Baker, 2000; Larsen, Groberg, Simmons, & Ommundsen, 1993; Lynn, 1991; Ruiz-Quintanilla & England, 1996). This is consistent with research suggesting that national differences in cultural values are related to differences in economic development, organizational behavior, and motivation (Bond, 1988; Georgas, van de Vijver, & Berry, 2004; Hofstede, 1980, 2001; Huntington, 1996; Inglehart & Baker, 2000; Kirkcaldy et al., 1998; Weber, 1996).

There are also reasons to expect few or no differences in achievement motivation between Bulgarian and U.S. nationals. Recent globalization and modernization processes, as well as the emergence of a global communications network, may result in a convergence of values across countries and cultures (Evans, 1995; Friedman, 2005;

Silver, 2003). Inkeles' (1998) modernization theory argues that norms and values in the industrial societies are shifting towards individualism. Furthermore, proponents of globalization argue that international competition, global division of labor, and outsourcing have positive effects on employment and economic growth in less-advanced countries (Evans, 1995; Silver, 2003). This is in line with economists and sociologists who have shown that high levels of trade and foreign investment from economically advanced countries were associated with higher economic growth and welfare in less-advanced countries (DeSoya & Oneal, 1999; Dollar, 1992; Firebaugh, 1992, 1999; Firebaugh & Beck, 1994; Hein, 1992). Friedman (2005), in his recent book "The World is Flat: A Brief History of the 21st Century," similarly argues that globalization processes are "flattening" the world as economically less-advanced countries are given the opportunity and are highly motivated to catch up with the Western world.

Since 1989, the borders between Bulgaria and the Western world have been continuously dissolving and Bulgarians have been extensively exposed to Western popular culture and values through movies, television, traveling, and the Internet. In addition, young Bulgarians' increased access to the global consumer market has brought to them new possibilities to express their freedom, independence, individualism, and choice (Adnanes, 2004; Jones & Wallace, 1992; Wallace & Kovatcheva, 1996). As Adnanes (2004) states, "consumerism as an idea or ideology has definitely reached Bulgaria, offering a dream to strive for" (p. 800). Consequently, it is possible that Bulgarians (especially young Bulgarians) are adopting Western (i.e., individualistic) values and are strongly motivated to work hard in order to achieve their Western counterparts' ways and standard of living.

In light of the above, a comparison of the Bulgarian and U.S. achievement motivation at the facet level will provide useful and in-depth information regarding possible differences and similarities across the two countries. Therefore, the current study examined and compared the profiles of Bulgarian and U.S. nationals along 17 facets of achievement motivation, as conceptualized in the Western world. To obtain a deeper and more valid understanding of the achievement motivation in Bulgarians and to derive appropriate hypotheses regarding possible differences and similarities between Bulgarian and U.S. respondents, the current study followed a polycontextual approach, as recommended by cross-cultural researchers (Shapiro, Von Glinow, & Xiao, 2007; Tsui, Nifadkar, & Ou, 2007). Polycontextual research incorporates multiple contexts when studying a particular phenomenon, rather than relying on a single context (Shapiro et al., 2007). Consequently, this study examined several national contexts, which were considered central to a better understanding of the development, expression, and levels of achievement motivation among contemporary Bulgarians. These are discussed in the Background section and include historic (e.g., sovereignty and authoritarian oppression), political (e.g., political system), social (e.g., educational system, religion), economic (e.g., economic system and development), and cultural contexts (e.g., beliefs and values) (see Tsui et al., 2007). In addition, past empirical research from psychology, sociology, and anthropology was reviewed to strengthen the formulation of specific hypotheses.

CHAPTER II

BACKGROUND

Achievement Motivation in Bulgaria: Historical, Economic, and Cultural Influences

Bulgarian scholars have suggested that the historical path of Bulgaria, along with economic, social, and cultural factors, have played a significant role in the current status of economic culture, organizational behavior, and motivation (see Genov, 2004; Karabeliova, 2004; Kolev, 2002; Minkov, 2002). The following sections contain a review of these factors and how they place more or less emphasis on key beliefs pertaining to the achievement motivation of Bulgarians. Then, a brief overview of classic and contemporary theories of achievement motivation is provided, followed by a description of the Onion Model of Achievement Motivation (Schuler, 1998) and the Achievement Motivation Inventory (AMI: Schuler et al., 2004). Finally, specific hypotheses are presented pertaining to expected differences in the mean levels of Bulgarian and U.S. nationals on the AMI facets.

Bulgarian History

Early history. Bulgaria was first established in 681 A.D. as one of the oldest independent states in Europe (Genov, 2004). However, Bulgaria has been ruled by foreign powers for almost half of its history - by the Byzantine Empire from 1018 until 1185 (i.e., 167 years), and by the Ottoman Empire from 1396 until 1878 (i.e., 482 years). As Kolev (2002) described, the first rulers of the independent Bulgarian state were mostly interested in accumulating wealth through politics and wars, rather than economic

development (e.g., crafts) and innovation. The predominant orientation was towards quick and one-time profits from conquering and pillaging new territories. During the 10th century, as a result of social discontent among the Bulgarian peasantry, Bogomilism emerged, as an opposition movement against the Byzantine culture and Christianity (Obolensky, 1971). The followers of Bogomilism rejected everything that was material and socially created and devalued and refused to work, pay taxes, or fight for their state (Genov, 2004). This movement spread into the Byzantine Empire, Serbia, Bosnia, Italy and France. Genov suggested that some Bulgarian national traits such as negativism, passivity, as well as disassociation from the state and the organization, might date back to those early days.

The Ottoman rule. There is a consensus among Bulgarian scholars that the 500-year Ottoman rule had a tremendous negative effect on Bulgarian economic development, culture, as well as work attitudes and behavior (Hadjiiski, 1974a, 1974b; Kolev, 2002). Once in power, the Ottomans removed entirely the Bulgarian state, administration, and institutions; eliminated the elite; and enclosed the remaining people within the Empire, distancing them from the developments in the Western World. As a result of the harsh and oppressive Ottoman rule, for centuries the life of the average Bulgarian was dominated by the fear and need for safety and physical survival, as well as obedience and passivity (Genov, 2004). These, along with the de-emphasis on hard work and production in the Ottoman oriental culture, had shaped the Bulgarian national character for centuries to come (Genov, 2004). The espoused values and behaviors became strong collective solidarity against everything uncertain, unknown, or new; preoccupation with satisfying primary needs, such as food and safety (see Maslow, 1943); lack of individualism,

initiative, and innovation; unwillingness to take charge and responsibility; lack of persistence at work to create more than what is sufficient for survival; disassociation from and opposition to the state or authority; fear of power; and helplessness, submissiveness, agreeableness, cooperativeness, and patience (Genov, 2004, Hadjiiski, 1974b; Kolev, 2002). Genov (2004) further observed a strong resemblance between the above profile and the contemporary Bulgarian collectivism, characterized by lack of personal responsibility and initiative outside the family. Also, he described a tendency in Bulgarians, dating back to this period, to show significant discrepancies between their words, thoughts, and behaviors. In order to physically and psychologically survive the Ottoman rule and preserve their identity, Bulgarians adapted by showing overt obedience, while harboring negative feelings and thoughts toward authority (Genov, 2004).

Between the independence and World War II. The strong influence of Orthodox Russia during and after the liberation from the Ottoman rule in 1878 further distanced Bulgaria from the Western European cultures. According to Kolev (2002), even half a century after the independence, the short-term orientation of Bulgarians, focusing on the day-by-day survival, precluded the modern capitalistic culture from planting its roots in the Bulgarian way of life and work. Work values, such as entrepreneurship, efficiency, and rationality, remained foreign to the average Bulgarian (Kolev, 2002). For more than three-quarters of Bulgarians, agriculture remained a means to survival, rather than a business. The share of industrial production was only 6% (Popov, 1907, as cited in Kolev, 2002). Genov (2004) described Bulgarian society at the dawn of World War II as egalitarian, paternalistic, collectivistic, and aversive to capitalism and modernization.

Furthermore, during that time, the government first introduced the agricultural collectives in Bulgaria to avoid the less attractive capitalistic-type of enterprises.

The communist regime. After World War II, a communist regime was established by a military coup and was endorsed by the Soviet Union. This regime, which ruled until 1989, severely limited individual freedom and self-expression (Kemmelmeier et al., 2003). As Genov (2004) pointed out, Bulgarians were freed but not free and their connection with the "civilized" world was once again forcefully terminated. This was one of the harshest times in Bulgarian history, as many of the Bulgarian elite (e.g., government officials, businessmen, bankers, journalists), who were not sharing the views of the communists, were persecuted and eliminated (Genov, 2004). Other maneuvers of the new ruling party included: collectivization of the agriculture; nationalization of industry and the land; confiscation and reduction of private property; and emphasis on mass industry production (Krasteva & Marinova-Schmidt, 2006). According to Kolev (2002), the communist ideology and practices were appealing to a large group of Bulgarians, who were poor and were only interested in meeting their primary needs through collectivism, egalitarianism, and paternalism. Similar to previous periods in Bulgarian history, Bulgarians' lack of control over their own life and the low standard of living during the communist years made needs like security, physical comfort, and income most prominent, resulting in the collapse of work motivation (Zinovieva, Ten Horn, & Roe, 1993). Many Bulgarians then believed that the only way for the poor to have a better life was to take the fortune away from the rich (Kolev, 2002). This belief seems to persist even nowadays, as indicated by a recent survey showing that over 95%

of Bulgarian contemporaries believe that the only way to win is if somebody else loses (Genov & Karabeliova, 2003).

A number of researchers have argued that the communist regime in the Eastern European countries (including Bulgaria) have negatively affected work motivation, morale, and values (Frese, Kring, Soose, & Zempel, 1996; Genov, 2004; Klicperova-Baker, Feierabend, & Hofstetter, 1999; Larsen, Groberg, Simmons, & Ommundsen, 1993; Liargovas & Chionis, 2002; Roe, Zinovieva, Dienes, & Ten Horn, 2000). These countries had totalitarian rather than democratic political systems and state-owned companies operated by central planning principles rather than privately owned companies operated by market-economy principles. In Bulgaria, terms like "competition," "market," and "customer" were non-existent; employment was guaranteed to everyone; and the quality of products and services was not an issue (Genov & Karabeliova, 2003). Because Bulgarians were not allowed to own their business and show personal initiative, they were de-motivated to work, create, innovate, and achieve things (Minkov, 2002). Instead they shifted their energy and efforts towards obtaining higher social status through gaining higher education. Furthermore, there was lack of feedback on performance - although poor performance was punished, good performance was not valued (Bures, 1992). This may have also decreased personal involvement, achievement motivation and aspirations, and work efforts. Living and working in a hierarchical, command society resulted in workers being socialized to rely on the "system" for decisions concerning their careers and to show obedience rather than initiative at work (Liargovas & Chionis, 2002; Roe et al, 2000). This is consistent with Frese, Kring, Soose, & Zempel (1996), who found lower work initiative among workers from Eastern Germany compared to workers

from West Germany. They described a pattern labeled as the motivational after-effect of communism, which predicted that workers from former communist countries would be less responsive to work, would emphasize extrinsic job factors, and would show less involvement in work. To further perpetuate these unproductive values and behaviors, Bulgarian traditional child-rearing and educational practices promoted and continue to promote obedience and conformity, discipline and cleanliness, suppression of emotions, inconsistencies of rewards and punishments, low self-esteem, fear of uncertainty and failure, conservatism, no appreciation of work, and low motivation to achieve and compete with others (Genov, 2004).

After the fall of communism. In 1989, the communist regime in Bulgaria ended, like in other Eastern European countries. Since then, Bulgaria has held democratic elections and has begun its transition from a central-planned to an open-market economy. Bulgaria joined the North Atlantic Treaty Organization in 2004 and the European Union (EU) in 2007. Because of ineffective economic and social reforms and economic hardships, over 800,000 Bulgarians, most of them well-educated and professionally qualified have decided to emigrate since 1989 (Adnanes, 2004). In the next section, I will describe the status and characteristics of the Bulgarian economy and society in transition (i.e., 1989 – present).

Bulgarian Economy and Society in Transition

Negative trends. The economic and social indicators suggest that Bulgaria has performed poorly in its transition to an open-market economy and a democratic, capitalistic society (Adnanes, 2004; Angelov, 2007; Genov, 1998; Vassilev, 2003). In fact, shortly after the beginning of the transition, Bulgaria reached disturbingly high

levels of de-industrialization, forced retirement and unemployment, poverty, growing income disparity, mass immigration, crime and corruption (Vassilev, 2003; see also Bell, 1998; Bristow, 1996; Genov & Krasteva, 2001; Minassian 1994, 1998; Mishev, 2005; Zloch-Christy, 1996). Vassilev (2003) reported that the Bulgarian Gross National Product (GNP) per capita in 1999 was $1,380, slightly above the average of $1250 GNP per capita among the Third-World countries (The World Bank, 2001). He estimated that during the period from 1989 until 1994, the prices of goods and services increased more than 23 times. The level of employment fell by almost 30% for the same period.

In the fall of 1996, Bulgaria fell into the deepest economic crisis faced by any post-communist country in Europe. In 1996 and 1997, the annual inflation rates were 311% and 579%, respectively, the highest among all post-communist countries (Vassilev, 2003). There were long bread lines and a wave of social discontent. The poor socioeconomic situation led to strikes and mass demonstrations. These culminated in a nationwide unrest in January-February of 1997, when thousands of frustrated people, led by college students, placed the Bulgarian Parliament under siege and forced the discredited socialist government to resign (Vassilev, 2003). Since then, Bulgaria has tamed the inflation rate (with the assistance of a Currency Board), which had already taken a devastating toll on the income and savings of the population, as well as on their trust in the financial system and institutions (Vassilev, 2003).

Despite the recent macroeconomic stability and the full membership in the EU, Bulgaria continues to rank at the bottom among the EU nations on important criteria, such as Gross Domestic Product (GDP) per capita, productivity and competitiveness, competent and effective administration, effective business environment and strategies,

poverty, health, and corruption (Angelov, 2007). Angelov further reported that Bulgarian productivity was only 33% of the average for the 25 members of the EU and has the slowest growth. According to the Global Competitiveness Index, reported by the World Economic Forum (2007), the Bulgarian economy ranked 79th in 2007-2008 in terms of competitiveness out of 131 countries. Bulgaria's ranking continued to descend from 61st in 2005 and 72nd in 2006. More specifically, Bulgaria ranked 92nd in business sophistication, 88th in business innovation, 73rd in labor market efficiency, and 83rd in business competitiveness (World Economic Forum, 2007).

As suggested earlier, the cataclysmic economic changes in Bulgaria during the years of transition to a market economy were accompanied by a social crisis, characterized by widespread poverty, increased social deprivation and income inequality, escalation of street crime, deteriorating health statistics, and drug addiction (Genov, 1998; Hassan & Peters, 1996; Vassilev, 2003; Verwiebe & Wegener, 2000). According to the National Statistical Institute of Bulgaria (as cited in Angelov, 2007), 70% of Bulgarians were barely making ends meet. The Human Development Index, devised by the United Nations Development Programme, ranked Bulgaria as 27th in the world in 1990, 33rd in 1991, and 48th in 1994, downgrading its human development status from high to medium. Bulgaria dropped to 63rd in 1999. The most recent data show that Bulgaria is 53rd in 2007/2008, still in the medium range (United Nations Development Programme, 2007). Angelov (2007) further reported that Bulgarian wages continued to be the lowest in the EU – the average hourly wage was 1.62 Euro in Bulgaria, 1.90 Euro in Rumania, compared to 28 Euro in Germany, and 32 Euro in Denmark.

Positive trends. Contrary to the low economic and social rankings, Bulgaria ranks very high in terms of intellectual and academic ability (Genov, 2004). Recent Bulgarian achievements included: 1st place at the Mathematics Olympics in Tokyo in 2003; 2 gold medals at the U.S. Mathematics Olympics in 2003; 2nd in intelligence (according to Mesa International) and SAT scores worldwide; a literacy rate of over 98%; 8th in certified IT professionals and 3rd in certified IT professionals per capita worldwide (Genov, 2004; Mitova, 2006; Raytchev, n.d.). Genov (2004) suggested that this paradox (i.e., low socioeconomic development and high intellect) is at the crux of the "Bulgarian problem." In his view, the main problem lies in the traditional, unproductive, and counter-capitalistic cultural values and norms, which have continued to reproduce themselves throughout the years through inadequate parenting and educational practices. Genov (2004) has not been alone in recognizing the critical role of Bulgarian cultural values and traditions in the formation of organizational behavior and business practices in Bulgaria (see Alexandrova, n.d.; Karabeliova, 2004; Kolev, 2002; Minkov, 2002).

Bulgarian Culture

There is a strong consensus that national culture plays an important role in the economic development of countries and the organizational behavior and motivation of their citizens (Bond, 1988; Georgas, van de Vijver, & Berry, 2004; Hofstede, 1980, 2001; Huntington, 1996; Inglehart & Baker, 2000; Kirkcaldy et al., 1998; Weber, 1996). As suggested earlier, this is also the case for Bulgaria (Genov, 2004; Kolev, 2002; Minkov, 2002). In my reviews of the history and economic and social developments of Bulgaria, some explanations for the formation and effects of Bulgarian cultural values and norms were offered. In this section, I use Hofstede's (1980, 2001) model, which is one of the

most established and validated models of cultural values, to distinguish between the characteristics of contemporary Bulgarian and U.S. cultures[1] and their relevance to achievement motivation.

In his seminal study of IBM employees across 50 countries, Hofstede (1980) identified four dimensions of national culture, which he labeled: individualism-collectivism, power distance, uncertainty avoidance, and masculinity-femininity. An additional analysis of student data from 23 countries, collected by Bond (1988), yielded a fifth dimension, which was named long- versus short-term orientation. This model has been extensively validated (for description of validation studies see Hofstede, 2001).

Individualism-collectivism. Individualism-collectivism refers to the degree to which the identity and behavior of individuals are shaped primarily by personal choices and achievements or by the groups of which they are members.

> "Individualism stands for a society in which the ties between individuals are loose; Everyone is expected to look after him/herself and her/his immediate family only. Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede, 2001, p. 225).

This dimension has been considered the most robust finding in cross-cultural psychology (Smith, Dugan, & Trompenaars, 1996). Lukes (1973) described the main principles of individualism as self-sufficiency of personality, autonomy, right of privacy, and self-realization. Growth processes of individualism included promotion of the ideology of success, self-reliance, independence, and openness. In addition, individualism has been linked to Protestantism, which has been considered a major driver of economic success in some Western countries, including the U.S. (Weber, 1996).

[1] The term "U.S. culture" is used throughout this manuscript to refer to mainstream U.S. culture. The author recognizes the diversity and complexity of U.S. culture (Renshon, 2000).

Hofstede (2001) summarized findings indicating that high individualism has been associated with preference for freedom and challenges in jobs; high personal responsibility; high achievement motivation; preference for individual decisions; autonomy; planning and achievement; emphasis on individual initiative and achievement; personal and financial independence; emphasis on self-expression and being confrontational; high self-confidence; less conformity; preference for tasks with uncertain outcomes; high organizational commitment; more economic growth and development; internal locus of control; and a history of individualistic thinking and actions.

Power distance. Power distance refers to the degree of inequality in a society, which is considered to be normal. As Hofstede (2001) stated, this is "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (p. 98). Low power distance has been associated with less authoritarian values; high achievement motivation; high extraversion; preference for independence and freedom; positive associations with "power" and "wealth;" effective participative management; student-centered education; equal value of white-collar and blue-collar jobs; less traditional agriculture and more modern industry; more questioning of authority; and high individualism (Hofstede, 2001).

Uncertainty avoidance. Uncertainty avoidance refers to the degree to which "members of a culture feel threatened by uncertain or unknown situations" (Hofstede, 2001, p. 161). Low uncertainty avoidance has been associated with lower work stress and higher subjective well-being; more ambition for advancement and management positions; acceptability of individual decisions and competition among employees; high openness to

new experiences, change, and innovation; high extraversion; more willingness to take unknown risks; more trust; tolerance for ambiguity and chaos; internal locus of control; high achievement motivation; low fear of failure; and preference for tasks with uncertain outcomes, calculated risks, and requiring problem solving (Hofstede, 2001).

Masculinity-femininity. Masculinity-femininity refers to the degree to which values, such as assertiveness, performance, success, and competition prevail over values such as quality of life, maintaining warm personal relationships, service, care for the weak, and solidarity (Hofstede, 2001). High masculinity has been associated with importance of challenges and recognition in jobs, importance of advancement and income; beliefs in individual decisions; centrality of work in one's life; high mastery (i.e., ambitious, daring, and independent); survival values; greater need for wealth and recognition; lower emotional stability; stress on performance and competition in school and at work; negative attitudes towards failing; stress on mutual competition and performance; and expectations of managers to be decisive, firm, assertive, aggressive, competitive, and just.

Long- versus short-term orientation. High long-term orientation has been associated with high persistence and perseverance, as well as personal adaptability. It refers to the "fostering of virtues oriented towards future rewards, in particular, perseverance and thrift" (Hofstede, 2001, p. 359). Short term orientation, on the other hand, refers to fostering of virtues oriented toward the past and present, such as respect for tradition, preservation of "face," and fulfilling social obligations.

The above discussion suggests that, in general, values emphasizing high individualism and low power distance and low uncertainty avoidance may be particularly

important for developing and expressing high levels of achievement motivation (McClelland, 1961). In addition, long-term orientation and high masculinity may be especially beneficial for developing countries, such as Bulgaria (Genov, 2004).

Research indicates that the contemporary Bulgarian cultural profile is characterized with high collectivism, power distance, uncertainty avoidance, femininity, and short-term orientation (Genov, 2004; Hofstede, 2001; Kolev, 2002; Minkov, 2002; Reeves-Ellington, 1998). By contrast, U.S. society emphasizes high individualism and masculinity and low power distance and uncertainty avoidance (Hofstede, 2001). U.S values are similar to Bulgarian values in terms of short-term orientation.

Summary. As suggested earlier, there are many historical, political, social, and economic factors that may explain some of the differences between Bulgarian and U.S. cultural values and possibly achievement motivation. Some of these include, respectively: authoritarian oppression (e.g. Ottoman and communist rules) versus independence and civic freedom (e.g., American Revolution); dominance of the collectivistic Eastern Orthodox Church versus the individualism of Protestantism; traditional emphasis on small farming as a means to survival versus modernization, technological advancements, increased productivity and wealth; and lack of capitalistic traditions versus strong capitalistic traditions (Genov, 2004; Hadjiiski, 1974a, 1974b; Kolev, 2002; McClelland, 1961; Minkov, 2002; Schumpeter, 1961; Topalova, 1997; Weber, 1996). Despite the deep roots of the Bulgarian cultural values, researchers also acknowledge that there are noticeable signs of the increasing influence of individualism in recent years, especially among young urban Bulgarians (Adnanes, 2004; Genov, 2004; Kolev, 2002; Topalova, 1997). These changes are occurring as a result of globalization processes, Bulgaria's

transition to a market economy, the integration of Bulgaria in the European Union, as well as increases in income and traveling and educational opportunities abroad for Bulgarians (Genov, 2004). However, their extent has not been well documented. Thus, there may be contradictory expectations about the relative strength of various aspects of achievement motivation. Empirical research on the current differences in achievement motivation is sorely needed.

Classic and Contemporary Approaches to Achievement Motivation

Achievement motivation, as an individual difference variable, has been conceptualized from a variety of increasingly complex perspectives and approaches (Heggestad & Kanfer, 2000). This section describes the key steps in the evolution of this field, which have served as the basis for the development of the conceptualization of achievement motivation used in this study, and the Achievement Motivation Inventory (AMI: Schuler et al., 2004) used as the measure in this study. The historical review of the literature reveals an increasingly complex set of variables subsumed under the rubric of achievement motivation, accompanied by increasingly complex measurement instruments.

The Murray/McClelland/Atkinson Approach

Murray (1938) pioneered the concept of achievement motivation as an individual difference variable identifying it as one of several major elements of personality, which he conceptualized as needs. Within his classification of 20 needs were two achievement-related needs – need for achievement and need for infavoidance. Murray described need for achievement as the desire to

> "accomplish something difficult. To master, manipulate, or organize physical objects, human beings, or ideas. To do this as rapidly, and as independently as

possible. To overcome obstacles and attain a high standard. To excel in one's self. To rival and surpass others. To increase self-regard by successful exercise of talent" (Murray, 1938, p. 164).

Individuals with a strong need for achievement were described by Murray as ambitious, competitive, and aspiring, who exhibited tendencies

> "to make intense, prolonged and repeated efforts to accomplish something difficult. To work with singleness of purpose towards a high and distant goal. To have the determination to win. To try to do everything well. To be stimulated to excel by the presence of others, to enjoy competition. To exert will power; to overcome boredom and fatique" (Murray, 1938, p. 164).

Murray defined need for infavoidance as the desire to "… avoid humiliation. To quit embarrassing situations or to avoid conditions which may lead to belittlement: the scorn, derision or indifference of others. To refrain from action because of a fear of failure" (Murray, 1938, p. 192).

Murray viewed the needs for achievement and infavoidance as distinct but related needs, which played important roles in the achievement-related behavior of individuals. He theorized that the two needs might have conflicting effects, as individuals might refuse to make strong efforts to satisfy their need for achievement because of strong fear of failure. On the other hand, he suggested that if an individual accomplished something difficult and important, this might simultaneously satisfy that individual's need for achievement, as well as his/her need to avoid failure.

Following Murray's work, McClelland (1951; McClelland, Atkinson, Clark, & Lowell, 1953) viewed achievement motivation as a motive. He theorized that a strong achievement motive was a result of affective reactions associated with achievement-related behavior, whereas the lack of such affective reactions resulted in a weak achievement motive. He further argued that when positive affective reactions were

associated with achievement-related situations, approach behaviors ensued, which aimed to "continue, maintain, or pursue a certain kind of stimulation" (McClelland et al., 1953, p. 35). Alternatively, he argued that a strong achievement motive characterized by negative affective reactions would result in avoidance behaviors, which aimed to "discontinue, remove, or escape from a certain type of stimulation" (McClelland et al., 1953, p. 35). Consequently, McClelland et al. postulated the existence of two types of achievement motivation. The first type was concerned with positive affect and the achievement of success, and was termed "hope for success." The second type was concerned with negative affect and the avoidance of failure, and was called "fear of failure." Both were conceptualized as mutually exclusive ways to express one's strong achievement motive.

Based on his work with McClelland, Atkinson (1957; Atkinson & Feather, 1966) proposed the Risk-Taking model, in which the motivation to act was determined by the interaction between the difference in an individual's levels of the motives to approach success and to avoid failure and their expectation of success. The motive to approach success was defined as a stable disposition to strive for success and to experience satisfaction when successful (Atkinson, 1957). On the other hand, the motive to avoid failure was defined as "a disposition to avoid failure, and/or a capacity for experiencing shame and humiliation as a consequence of failure" (Atkinson, 1957, p. 360).

In sum, each of the three early perspectives described above distinguished between an approach aspect of achievement motivation, which was characterized by a striving for success and an avoidance aspect, characterized by a fear of failure. In addition, Murray's (1938, p 164) definition of need for achievement reveals two other

components, a reference to the self (e.g., "to excel in one's self" and "to accomplish something difficult") and a reference to others (e.g., "rival and surpass others" and "enjoy competition").

The Achievement Goal Approach

The theoretical and empirical work on achievement goals incorporates the above two distinctions in achievement motivation, i.e., self-referent versus other-referent and approach versus avoidance (e.g., Dweck & Leggett, 1988; Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001; VandeWalle, 1997). A central postulate of this approach is that individual differences in personality influence individuals' motivational processes and behavior through the adoption of different types of goals (Elliot & Church, 1997). Initial theorizing and research focused on two types of achievement goals, mastery versus performance (Dweck & Leggett, 1988). Mastery goals emphasized the development of competence through task mastery and were associated with a "mastery" motivational pattern, characterized by task persistence in the face of failure, preference for moderately challenging tasks, and increased task enjoyment. On the other hand, performance goals focused on the demonstration of competence relative to others and were associated with the so-called "helpless" pattern of behaviors in achievement situations, including giving up in the face of failure, preference for easy or very difficult tasks, and decrease task enjoyment (Ames & Archer, 1988; Dweck & Leggett, 1988; Nicholls, 1989).

Elliot and his colleagues (Elliot & Church, 1997; Elliot & Harackiewicz, 1996) revised the achievement goal dichotomy by splitting the performance goals into performance-approach and performance-avoidance goals, while leaving intact the

mastery goal orientation. In this trichotomous framework, performance-approach goals were defined as goals "directed toward the attainment of favorable judgments of competence" from others, whereas performance-avoidance goals "focused on avoiding unfavorable judgments of competence" (Elliot & Church, 1997, p. 218). Subsequently, the approach/avoidance distinction was also introduced to the conceptualization of mastery goals, suggesting a 2 x 2 achievement goal framework (Elliot & McGregor, 2001). In this most current framework, the performance versus mastery distinction was reflected in the definition of competence (in terms of a normative standard or a task-based/intrapersonal standard, respectively), while the approach versus avoidance distinction was construed based on how competence was perceived (in terms of positive possibilities or negative possibilities, respectively) (see Elliot, 1999). The resultant four achievement goals included: mastery-approach (focused on the attainment of task-based/intrapersonal competence), performance-approach (focused on the attainment of normative competence), mastery-avoidance (focused on the avoidance of task-based/intrapersonal incompetence), and performance-avoidance (focused on the avoidance of normative incompetence).

The Personality-Taxonomy Approach

This approach aimed to provide a general taxonomy of personality traits, as a continuation of Murray's (1938) work. Most such taxonomies identified achievement motivation as an important personality trait, which was considered unidimensional (Costa & McCrae, 1992; Hough, 1992; Tellegen & Waller, 2000). A closer examination of the conceptualization and operationalization of achievement motivation by these taxonomies, however, indicate some degree of multidimensionality.

In the Five-Factor model of personality, achievement motivation has been generally considered a facet of the broad trait of Conscientiousness (Costa & McCrae, 1988; Hough 1992). In their measure of Conscientiousness, as part of the Revised NEO Personality Inventory, Costa and McCrae (1992) include a scale to measure an Achievement Striving facet. Costa and McCrae described individuals who score high on this scale as having

> "high aspiration levels and work hard to achieve their goals. They are diligent and purposeful and have a sense of direction in life. Very high scorers, however, may invest too much in their career and become workaholics. Low scorers are lackadaisical and perhaps even lazy. They are not driven to succeed. They lack ambition and may seem aimless, but they are often perfectly content with their low levels of achievement" (p. 18).

The personality taxonomy developed by Hough (1992), specifically to predict job performance, included an achievement motivation trait among eight other traits. Hough described the achievement motivation construct as

> "the tendency to strive for competence in one's work. The achievement/work oriented person works hard, sets high standards, tries to do a good job, endorses the work ethic, and concentrates on, and persists in, completion of the task at hand. This person is also confident, feels success from past undertakings, and expects to succeed in the future. The less achievement-oriented person has little ego involvement in his or her work, feels incapable and self-doubting, does not expend undue effort, and does not feel that hard work is desirable" (p. 144).

A similar conceptualization of achievement motivation is adopted by Tellegen and Waller (2000) in their personality taxonomy and respective measure (i.e., the Multidimensional Personality Questionnaire), consisting of 11 primary traits/scales, one of which is Achievement. Tellegen and Waller described a high scorer on the Achievement scale as one who "works hard, drives self; enjoys working hard; welcomes difficult and demanding tasks; persists where others give up; is ambitious, puts work and accomplishments before many other things; sets high standards, is a perfectionist" (p.

59). On the other hand, a low scorer on the Achievement scale "does not like to work harder than is strictly necessary; avoids very demanding projects; see no point in persisting when success seems unlikely; is not terribly ambitious or a perfectionist" (p. 59).

As Heggestad (1997) notes, the definitions of achievement motivation in the above-discussed taxonomies of personality reveal two components of achievement motivation – a tendency to be goal-directed and a tendency to be hard working and ambitious.

The Achievement Motivation Approach

Researchers following the achievement motivation approach explicitly adopted a multidimensional perspective of achievement motivation and were interested in identifying and defining its various dimensions (e.g., Cassidy & Lynn, 1989; Heggestad & Kanfer, 2000; Jackson, Ahmed, & Heapy, 1976; Kanfer & Heggestad, 1997; Spence & Helmrech, 1983).

Jackson et al. (1976) conducted a conceptual analysis of the literature and suggested that the construct of achievement motivation consisted of six basic dimensions, which included Status with Experts, Acquisitiveness, Achievement via Independence, Status with Peers, Competitiveness, and Concern for Excellence. Their research indicated that these six dimensions could be collapsed into three higher-order factors, which they labeled Competitive Acquisitiveness, Status, and Excellence. Individuals who score high on Competitive Acquisitiveness are likely to "display the traditional virtues of rugged individualism, an eye for profit and a desire to improve one's competitive position" (Jackson et al., 1976, p. 16). A high scorer on the Status factor is expected to seek

"achievement goals in terms of the esteem in which he is held by significant others" (p. 16). Finally, individuals who score high on the Excellence factor "aspire to outstanding performance in fields in which entrepreneurial goals are not paramount and in which the excellence of the product is important" (p. 17).

Spence and Helmreich's (1983) research led to the development of the Work and Family Orientation Questionnaire (WOFO), a multidimensional self-report measure of achievement motivation. Their analyses revealed three factors of achievement motivation, which were labeled Work Orientation, Mastery, and Competitiveness. Spence and Helmreich described these factors as follows:

> "The work factor represents an effort dimension, the desire to work hard and to do a good job at what one does. The mastery factor reflects a preference for difficult, challenging tasks and for meeting internally prescribed standards of performance excellence. The competitiveness factor describes the enjoyment of interpersonal competition and the desire to win and be better than others. Unlike mastery, which involves a task-oriented standard of excellence, competitiveness involves pitting oneself against other individuals" (p. 41).

In an effort to further investigate the primary dimensions of achievement motivation, Cassidy and Lynn (1989) conducted a review of the theoretical and measurement literatures on achievement motivation and identified six dimensions. The first dimension was Work Ethic, which reflected Weber's (1996) concept of the Protestant work ethic and was related to the preference for hard work. Pursuit of Excellence, the second dimension, reflected the motivation to perform "to the best of one's ability (Cassidy & Lynn, 1989, p. 302). The third dimension, Status Aspiration, referred to the striving for high social status and leadership. Competitiveness was defined as the enjoyment of competition and the desire to win and be better than others. Acquisitiveness captured the desire to attain material wealth, while Mastery was defined

as competitiveness with oneself and a strong desire to overcome difficulties and succeed. Based on their analyses, Cassidy and Lynn identified an unexpected seventh factor, which reflected the desire to lead or dominate, and which they labeled Dominance.

More recently, Kanfer and Heggestad (1997) used a trait clustering approach in their thorough review of the literature related to achievement motivation, to define and organize that construct domain. In the resultant taxonomic framework of individual differences in motivation, they distinguished between motivational traits and motivational skills. Motivational traits were conceptualized as relatively stable, trans-situational tendencies to engage in or avoid goal-directed behavior. They were proposed to have distal influences on behavior (Kanfer & Heggestad, 1997). On the other hand, motivational skills were viewed as specific, self-regulatory competencies engaged during goal striving, which have proximal influences on behavior. In their Motivational Traits and Skills Model, Kanfer and Heggestad conceived of motivational traits and skills as distinct but related, with traits and environment influencing skills development.

In line with early conceptualizations of achievement motivation and recent focus on approach and avoidance goal orientations, Kanfer and Heggestad (1997) identified two broad complexes of motivational traits, which they named Achievement and Anxiety. The Achievement trait complex included approach-oriented traits, such as mastery (i.e., the desire to improve and do well on tasks) and competitive excellence (i.e., the desire to "rival and surpass others," Murray, 1938, p. 164). The motivational traits, comprising the Anxiety trait complex, reflected avoidance-oriented tendencies and included general anxiety, test anxiety, and fear of failure.

After reviewing the extant measures of achievement motivation, Kanfer and Heggestad (1997) concluded that no instrument provided an adequate, independent assessment of each of the identified motivational traits, most of them neglecting individual differences in competitive excellence and avoidance-oriented motivational traits. To address this, the Motivational Trait Questionnaire (MTQ: Heggestad & Kanfer, 2000) was developed to assess 9 different facets of achievement motivation. Factor analyses of scores on the MTQ scales provided support for the multidimensional structure of achievement motivation, revealing three broad motivational trait factors (Heggestad & Kanfer, 2000). These were identified as Personal Mastery, Competitive Excellence, and Achievement Anxiety. Failure Avoidance, which was theorized as a motivational trait within the Anxiety complex, was not empirically distinguished as a separate factor (Heggestad & Kanfer, 2000).

The Onion Model of Achievement Motivation

Parallel to but independent from Kanfer and Heggestad's (1997) work, Schuler and his colleagues (1998; Schuler & Prochaska, 2000, 2001) conducted a comprehensive review of the achievement motivation literature, aiming to integrate and synthesize the extant knowledge regarding achievement motivation. The initial search resulted in the identification of over 100 concepts and facets relevant to achievement motivation. Schuler's analysis revealed that the most important facets (i.e., those that were most commonly mentioned in the literature) included constructs like Goal Setting, Eagerness to Learn, Persistence, Hard Work, Competitiveness, Hope of Success, and Fear of Failure. Schuler labeled them "core facets," as he considered them fundamental to defining achievement motivation. Other facets like Independence and Status Orientation,

which were less frequently used in the literature but could be integrated in a wider conceptualization of achievement motivation, were named "peripheral facets." Yet, other constructs (e.g., Locus of Control, Self-Confidence, Dominance, and Flow), which were found to be theoretically related to achievement motivation, were also integrated into Schuler's wide conceptualization of achievement motivation.

Based on these findings, Schuler and his colleagues (1998; Schuler & Prochaska, 2000, 2001; Schuler et al., 2004) conceived of achievement motivation as a wide construct incorporating many different, interrelated facets, some of which were related to traditional personality concepts. Achievement motivation was viewed as "a complex construct consisting of different layers of facets or dimensions forming it," and therefore was defined as "a general orientation of the person towards the topic of achievement or performance" (Schuler et al., p. 4). Consequently, this model of achievement motivation was named the Onion Model of Achievement Motivation (Schuler, 1998).

The Achievement Motivation Inventory (AMI)

The Achievement Motivation Inventory (AMI) is the English version of the Leistungsmotivationsinventar (LMI) developed at the University of Hohenheim in Germany by Schuler and Prochaska in 1997 (Schuler et al., 2004). The instrument reflects a broad understanding of achievement motivation as a global behavioral orientation, integrating important facets of various achievement motivation theories and measurements (Schuler & Prochaska, 2000, 2001). The AMI development was based on the Onion Model of Achievement Motivation (Schuler, 1998) and was a response to the need for a new comprehensive measure to adequately capture the various aspects of this wide concept of achievement motivation. The original LMI was developed from an initial

pool of 728 items arranged into 38 scales. To ensure that the final scales "fully represented the construct of achievement motivation while eliminating redundancy" (Schüler et al., 2004, p. 12), a series of pilot tests, item analyses, and subject matter expert ratings were conducted, which resulted in a final set of 170 items arranged into 17 scales (see Table 1). These included scales measuring concepts that were most frequently mentioned and used in the various approaches to achievement motivation, which were previously reviewed, and in other theories of personality, such as Persistence (Mitchell, 1987), Confidence in Success (Atkinson & Litwin, 1960), Status Orientation (Cassidy & Lynn, 1989), Need for Dominance and Power (Cassidy & Lynn, 1989; McClelland, 1975; Murray, 1938), Flow (Csikszentmihalyi, 1990), Competitiveness (Cassidy & Lynn, 1989; Spence & Helmreich, 1983; Murray, 1938), Fear of Failure (Atkinson, 1957; Atkinson & Litwin, 1960; McClelland, 1951; McClelland et al., 1953; Murray, 1938), Goal Setting (Locke & Lantham, 1984), and Locus of Control (Rotter, 1966). As Byrne et. al. (2004) stated, the authors of the AMI sought to create an instrument that: (a) measured all the facets of a global construct of achievement motivation, (b) could be used for both psychological research and practical applications, such as personnel selection, personnel development, or professional counseling, and (c) could be used across a variety of countries and cultures.

Results from second-order exploratory factor analyses on both the original German LMI (Schuler & Prochaska, 2000, 2001) and the English AMI scales (Byrne et al., 2004; Frintrup, 1999) have suggested the existence of three higher-order factors, which were labeled Self Assurance, Ambition, and Self-Control (Schuler et al., 2004). Schuler et al. described Self Assurance as a general ambition and achievement striving,

which was defined by positive loadings from Independence, Fearlessness, Flexibility, and Preference for Difficult Tasks, Confidence in Success, Dominance, and Eagerness to Learn. The latter three, however, also demonstrated cross-loadings larger than .30 with the second factor, Ambition. Ambition was defined by positive primary loadings from Goal Setting, Compensatory Effort, Status Orientation, Pride in Productivity, Engagement, Competitiveness, and Flow, representing a general tendency to be motivated by competitive situations and by the prospect of professional progression. The third factor, Self-Control, was defined by positive loadings from Internality, Self-control, and Persistence, and was described as the tendency to persevere and exert great effort on a task, as well as to believe in the internal causes of success (Schuler et al., 2004).

However, when this three-factor structure was tested using confirmatory factor analyses, the results indicated a less than optimal fit (e.g., Byrne et al., 2004; Potemra, 2007; Sintek, 2006). For example, in their study of the measurement invariance of the AMI across samples from Germany, U.S., and Israel, Byrne et al., as reported in Schuler et al. (2004), obtained goodness-of-fit indices for each country, which were below the established standards for a good model fit (i.e., GFI = .81, NFI = .80, and RMSEA = .13 for Germany; GFI = .82, NFI = .79, and RMSEA = .13 for Israel; and GFI = .81, NFI = .77, and RMSEA = .13 for U.S) (see Byrne, 2006; Hu & Bentler, 1999). Similarly, Potemra (2007) found less than adequate goodness-of-fit indices for the same three-factor model when tested within Brazilian and U.S. samples (i.e., CFI = .82, NFI = .77, and RMSEA = .10 for Brazil, and CFI = .78, NFI = .75, and RMSEA = .11 for U.S.). These findings indicated that there was a need for further research to examine alternative models, which might more accurately represent the complexity of the construct of

achievement motivation as measured by the AMI (Byrne et al., 2004; Potemra, 2007). The findings also suggested that future research should also focus on assessing the measurement invariance of the AMI at the scale level (Lanik et al., in press; Sintek, 2006).

Research with the AMI scales has yielded initial support for the criterion-related validity of its scores (Byrne et al., 2004; Cigularov & Thornton, 2006; Firme, 2000; Frintrup, 1999; Mueller-Hanson & Thornton, 2000). Firme (2000) found significant correlations for a sample of 84 U.S. students between scores on 8 of the AMI scales and academic achievement, including Engagement (r = .36), Internality (r = .36), Compensatory Effort (r = .36), Persistence (r = .33), Confidence in Success (r = .33), Competitiveness (r = .26), Goal Setting (r = .24), and Preference for Difficult Tasks (r = .21). Positive academic attitude, popularity, and early rewards and successes were also positively and significantly correlated with 5, 8, and 10 of the AMI scales, respectively (Firme). Mueller-Hanson and Thornton (2000) reported a correlation of .22 between the total score on the AMI and college grade point average for a sample of 201 U.S. students. Schuler et al. (2004) reported that scores on a subset of AMI items were found to predict assessment center performance.

Convergent and discriminant validity evidence were provided by Mueller-Hanson and Thornton (2000), who investigated the empirical relationships between scores on the AMI scales and the Big Five personality traits, as measured by the Revised NEO Personality Inventory (Costa & McCrae, 1992). They found that the AMI scale scores were differentially related to the personality traits scores. Scores on conceptually similar scales (e.g., Persistence and Conscientiousness, r = .55) showed higher correlations than

scores on scales that were judged conceptually dissimilar (e.g., Confidence in Success and Agreeableness, $r = -.06$), thus demonstrating convergent and discriminant validity (Mueller-Hanson & Thornton, 2000).

In an attempt to provide additional evidence for the convergent and discriminant validity of the AMI scale scores, Cigularov and Thornton (2006) examined the conceptual and empirical similarities and differences between the facets and corresponding scales of the AMI (Schuler et al., 2004) and MTQ (Heggestad & Kanfer, 2000), based on the Onion Model of Achievement Motivation (Schuler, 1988) and the Motivational Traits and Skills Model (Heggestad & Kanfer, 2000), respectively. At the conceptual facet level, subject matter expert ratings indicated that all of the MTQ facets were adequately mapped by conceptually similar AMI facets. Scores on all nine MTQ scales were hypothesized to relate empirically to scores on at least one conceptually similar AMI scale (i.e., convergent validity). At the empirical level, results supported the convergent validity of the AMI scale scores, as all convergent correlations of AMI scales with conceptually related MTQ scales were statistically significant ($p < .01$) and 88 percent of these validity coefficients exceeded .40. Furthermore, results indicated the presence of unique components in the AMI. Several AMI facets were considered conceptually unrelated to any of the MTQ facets (e.g., Dominance, Flexibility, and Flow), which was supported by the data (i.e., discriminant validity). Overall, Cigularov and Thornton (2006) illustrated the conceptual and empirical overlap between the AMI and MTQ and provided support for the comprehensiveness of the former.

The AMI was selected for this study over other measures of achievement motivation for two main reasons. First, the substantive objective of this study was to

understand the degree to which Bulgarian and U.S. college students were similar or different on various facets of achievement motivation. Since the focus of the current study was on the facet level at which a more in-depth examination of cross-country differences was possible, it was decided that the AMI was most suitable because it provided a comprehensive coverage of different facets of achievement motivation (Cigularov & Thornton, 2006; Schuler & Prochaska, 2001). And second, this study provided an opportunity to extend prior research on the factor structure and the measurement invariance of the AMI at the scale level across samples from different countries (Byrne et al., 2004; Potemra, 2007; Sintek, 2006).

Specific Hypotheses & Research Questions

The above review suggests that Bulgarian and U.S. nationals may differ on various facets of achievement motivation. Considering the negative historical, economic, social, and cultural influences on Bulgarian motivation (Genov, 2004), it is speculated that for most of the facets that show differences, Bulgarians will show lower levels than their U.S. counterparts. In the following section, specific hypotheses are formulated and rationale is provided about expected differences in achievement motivation at the construct or facet level.

Compensatory Effort

Compensatory effort is defined as the "willingness to expend extra effort in order to avoid failing at a work task, even if this effort results in over-preparation" (Schuler et al., 2004, p. 21). This definition suggests two elements, which need to be present, in order for an individual to exert the so-critical extra effort: (1) fear of failure (Atkinson & Litwin, 1960), and (2) strong desire and determination to work hard in order to succeed at

the task, which is similar to the concept of work ethic (Cassidy & Lynn, 1989; Spence & Helmreich, 1983; Weber, 1996). While fear of failure is a necessary condition, it is not sufficient. For example, someone, who fears failure, but does not particularly care about working hard to complete the task successfully, will probably not exert the extra effort needed. The Bulgarian cultural profile suggests that Bulgarians exhibit high uncertainty avoidance (Genov, 2004; Minkov, 2002), which has been positively associated with fear of failure (Hofstede, 2001). Genov (2004) stated that the traditional collectivistic features of the Bulgarian society and the communist regime suppressed and punished individuality and the desire to achieve, and thus contributed to Bulgarians' low self-confidence and high fear of failure. In fact, Liargovas & Chionis (2002) found that fear of failure, among other fears, was a top barrier to economic transition and development for managers in post-communist countries (including Bulgaria). Regarding the desire and determination to work hard among Bulgarians, Kolev (2002) noted that traditional Bulgarian characteristics included the tendency to exert the least amount of work effort and lack of persistence on tasks. Past research also suggests that Bulgarians may have low work motivation and engagement (Deci et al., 2001; Econ.bg, 2004; Genov, 2004; Genov & Karabeliova, n.d.; Jeleva, 2005; Lynn, 1991; Reeves-Ellington, 1998). In Lynn's (1991) study of 43 countries, Bulgarian students scored lower on work ethic than their U.S. counterparts. Furthermore, Deci et al. (2001) found that Bulgarian workers had lower work engagement than U.S. workers. Reeves-Ellington (1998) described Bulgarians as harboring a dislike for demanding work with tight time schedules. In addition, Genov (2004) reported findings from a national survey, according to which, only 11% of Bulgarians enjoyed work and considered it an important part of their lives

and only 15% always made maximum efforts at work, regardless of pay. These findings are consistent with Frese et al.'s (1996) assertion that individuals in former communist countries may be less responsive to and involved in work. In light of the above research, I expect that Bulgarian nationals will have stronger fear of failure than U.S. nationals, but lower desire and determination to work, which will make them less likely to make compensatory effort.

Hypothesis 1: Bulgarian nationals will show lower levels of compensatory effort than U.S. nationals.

Competitiveness

Competitiveness is the "desire to win and be better and faster than others" (Schuler et al., 2004, p. 21). Competitiveness has been included in Hofstede's (2001) conceptualization of high masculinity, as well as in Triandis' (1995) conceptualization of high vertical individualism. Bulgarians have scored lower on both masculinity and individualism than U.S. nationals (Genov, 2004; Hofstede, 2001). In addition, Genov (2004) argued that Bulgarians traditionally showed low competitiveness. This may be the result of the five decades of communist regime, which explicitly discouraged mutual competition and individual initiative, guaranteed everyone employment and pension, deemphasized productivity and quality, and promoted fear of failure, aversion to risk, and passivity.

On the other hand, competitiveness is central to U.S. culture and is a key characteristic for effective leaders in the U.S. (Hoppe & Bhagat, 2007; House, Hanges, Javidan, Dorfman, & Gupta, 2004). Based on these cultural differences, one would expect Bulgarian nationals to report lower competitiveness than U.S. nationals. The

limited research to date, however, has found no differences in competitiveness between Bulgarian and U.S. nationals (Hayward & Kemmelmeier, 2007; Lynn, 1991). Also, as with other facets of achievement motivation, processes of globalization and transition to a market economy, evident in Bulgaria in the last 2 decades, may have transformed some of the traditional Bulgarian values and stimulated competition (Genov, 2004; Topalova, 1997). For example, Lanik et al. (in press) found that respondents from the Czech Republic, another Eastern European post-communist country, scored higher on competitiveness than U.S. respondents. Due to the discrepancy between inferences derived from the cultural comparison and empirical findings, I will make no specific hypothesis regarding competitiveness, but rather explore the issue with a research question.

Research Question 1: What is the level of competitiveness of Bulgarian nationals compared to U.S. nationals?

Confidence in Success

Confidence in success refers to the possession of confidence in achieving success despite obstacles. High scorers on this scale believe that they will achieve their goals, even in situations with new and difficult tasks. Past research has suggested that many Bulgarians were overwhelmed with skepticism, pessimism, low self-efficacy and self-esteem, helplessness and discouragement, and low life satisfaction (Deci et al., 2001; Genov, 2004; Larsen et al., 1993; Mishev, 2005; Petkova & Lehtonen, 2005; The Pew Research Center for the People and the Press, 2002). The Pew Research Center for the People and the Press (2002) reported that while 64% of U.S. nationals were satisfied with their lives, only 8% of Bulgarians were satisfied with their lives, sharing the last place

with Tanzania among 44 studied countries. Deci et al. (2001) further reported lower self-esteem for Bulgarian workers compared to U.S. workers. Majority of Bulgarians also do not believe that their successes and achievement are a result of their abilities and efforts, i.e., exhibit external locus of control (Durankev, 2004; Genov, 2004; Hampden-Hunter & Trompenaars, 1997; Minkov, 2002). These Bulgarian characteristics and beliefs have been attributed to the long Ottoman domination, the communist regime, and the socioeconomic crisis of the transition to a market economy (Genov, 2004). These are also consistent with the Bulgarian cultural profile, showing lower than U.S. individualism (associated with low self-confidence), higher uncertainty avoidance (associated with low self-efficacy in children) and lower masculinity (associated with low ambitions and appreciation for challenging work) (Hofstede, 2001). On the other hand, U.S. culture has traditionally valued and reinforced perceptions of competence, as well as confidence in and expectations of success (Plaut & Marcus, 2005). Consequently, it is expected that Bulgarian nationals will report lower confidence in success than U.S. nationals.

Hypothesis 2: Bulgarian nationals will show lower levels of confidence in success than U.S. nationals.

Dominance

Dominance is defined as the tendencies to exercise power and influence over others, to take initiative, and to seek control over activities. This facet is conceptually similar to Murray's (1938) need for dominance and McClelland's (1975) need for power. Need for power has been positively associated with leadership (Yukl, 1989). Researchers have argued that history has cultivated in Bulgarians unwillingness to take initiative and responsibility; indecisiveness and unassertiveness; reliance on others for decision-making

and help; and negative attitudes towards power and leadership (Aaby et al., 1997; Genov, 2004; Kolev, 2002; Liargovas & Chionis, 2002; Roe et al., 2000). Aaby et al. (1997) found that Bulgarian managers would prefer better relationships with peers and they would like to depend more on others compared to U.S. managers. This sense of dependability may be a result of the inherited, from the communism, pseudo-collective organizational decision-making and the traditional norms of low individualism and masculinity (Aaby et al., 1979; Genov, 2004; Kolev, 2002). Consistent with this are also Frese et al.'s (1996) findings of lower work initiative among workers from East Germany compared to workers from West Germany. U.S. culture, on the other hand, has traditionally shown high individualism and masculinity (Hofstede, 1980). It highly values individuals who are assertive, able to control and manipulate their environment, decisive, forceful, influential, inspirational, and able to turn things around (Hoppe & Bhagat, 2007). Consequently, it is expected that Bulgarian nationals will score lower on dominance than U.S. nationals.

Hypothesis 3: Bulgarian nationals will show lower levels of dominance than U.S. nationals.

Eagerness to Learn

Eagerness to learn is the "desire and willingness to spend a lot of time enlarging one's knowledge for knowledge sake" (Schuler et al., 2004, p. 21). Bulgarians' economic hardships in the past and present have made the need for day-to-day survival prominent in their lives, leaving little time and opportunity to address higher needs, such as esteem and personal growth (Genov, 2004; Genov & Karabeliova, n.d.; Kolev, 2002; Maslow, 1946). In Bulgaria, individuals have traditionally viewed work as a means to survival,

rather than enjoyment and self-fulfillment (Genov, 2004; Minkov, 2002). In support of this, Hayward & Kemmelmeier (2007) found that Bulgarian respondents valued less self-expression and autonomy and more physical and economic security than U.S. respondents. Aaby et al. (1997) showed that Bulgarian managers sought less learning opportunities than U.S. managers. Furthermore, Bulgarians scored very low on a measure of intellectual autonomy, which included values, such as curiosity and creativity, compared to other European countries (Baytchinska, 1998). On the other hand, doing better not just for gaining material wealth, but also for personal investment, commitment, and self-actualization is central to the ideology of the American Dream in the U.S. (Plaut & Markus, 2005). In fact, self-actualization has been considered an integral part of individualism (Spence, 1985).

Research has also shown that countries with high collectivism, uncertainty avoidance, and power distance (e.g., Bulgaria) might encourage different educational and learning practices than countries low on these (e.g., the U.S) (Genov, 2004; Hofstede, 2001). In countries like Bulgaria, students' initiatives and speaking up in class are discouraged; students are given little or no choice in deciding on courses, times, and teachers; the focus is on learning how to do things, the diploma is viewed as an end, which provides access to higher-status groups; and students expect structured learning situations. On the other hand, in countries like the U.S., the opposite is true: students' initiatives and speaking up in class are encouraged; students can choose their courses, times, and teachers; the focus is on learning how to learn, the diploma is viewed as a means to increased economic worth and self-respect; and students expect unstructured learning situations and good discussions (Genov, 2004; Hofstede, 2001). The latter type

of education seems to be more supportive of learning for the sake of learning. Based on the above review, it is expected that Bulgarians will show less eagerness to learn than their U.S. counterparts.

Hypothesis 4: Bulgarian nationals will show lower levels of eagerness to learn than U.S. nationals.

Engagement

Engagement refers to one's desire to be regularly engaged in work. Highly engaged individuals place a high priority on work and tend to feel uncomfortable when they are not doing anything. Researchers have argued that the communist regime in Bulgaria, with its collectivistic norms, lack of rewards for good performance and initiative, and no opportunities for private business and entrepreneurship, have led to low work motivation, involvement, and aspirations, as well as minimization of work efforts (Bures, 1992; Genov, 2004; Kolev, 2002). In support of this, Deci et al. (2001) found lower work engagement among Bulgarian workers compared to U.S. workers. Also, an international labor markets survey found that Bulgarian employees were among the least motivated among the 33 countries studied. Close to 60% of the Bulgarians reported that they were not engaged neither with their professional career nor with the organization, in which they work ("Bulgarian employees are among," 2002). Similarly, Bulgarian employers believe that many people of working age simply do not want to work (Jeleva, 2005). Consistent with the above are also findings from a nationwide survey of managers in 540 state and private Bulgarian companies. One of the main concerns for Bulgarian employers was the low work motivation and discipline among BG workers. Some of the identified problems included lack of work habits, responsibility, conscientiousness, and

persistence (Econ.bg, 2004). Findings from another survey suggested that the majority of Bulgarians viewed work only as a means to survival; 35% reported they would not work if they didn't have to provide for a living; only 15% would always make maximum efforts at work, regardless of pay; and only 11% enjoyed work and considered it an important part of their lives (Genov, 2004). The above research results are in line with the Bulgarian cultural profile, characterized with lack of individualism and masculinity. In contrast, individualism and masculinity are very characteristic of the U.S. culture, and industriousness and hard work are at the heart of the "Protestant work ethic," which has been considered a major driver of the U.S. economic success (Weber, 1996). Consequently, it is expected that Bulgarian respondents will show less engagement than U.S. respondents.

Hypothesis 5: Bulgarian nationals will show lower levels of engagement than U.S. nationals.

Fearlessness

Fearlessness refers to lack of fear of failure and anxiety when faced with a difficult task. As previously discussed, fear of failure is a significant barrier to economic transition and development for managers in post-communist countries (including Bulgaria) (Liargovas & Chionis, 2002). From a cultural perspective, collectivistic cultures with high uncertainty avoidance, such as Bulgaria, tend to adopt more avoidance goals in order to maintain group harmony and avoid conflict, and also tend to focus on avoiding negative outcomes (Elliot, Chirkov, Kim, & Sheldon, 2001; Genov, 2004; Hofstede, 2001). Therefore, Bulgarians are expected to exhibit lower fearlessness than U.S. nationals.

Hypothesis 6: Bulgarian nationals will show lower levels of fearlessness than U.S. nationals.

Flexibility

Flexibility is the "willingness to accept change and the enjoyment of challenging new tasks" (Schuler et al., 2004, p. 21). Individuals, who score high on this facet, are open-minded, adaptive, and curious about a variety of things. Research has shown that individuals in cultures with high individualism and low uncertainty avoidance (e.g., U.S.) tend to be more open to new experiences, change, and innovation; more willing to take unknown risks, more tolerant for ambiguity and chaos; and more likely to prefer challenging jobs and tasks with uncertain outcomes. The opposite is true for countries with low individualism and high uncertainty avoidance (e.g., Bulgaria) (Hofstede, 2001). Kolev (2002) stated that Bulgarians traditionally feared taking risks and exploring new things. He further suggested that, before the transition, a deeply rooted paternalism was restricting individualism and the eagerness to innovate and search for the new. He argued that after the change, the influence of paternalism has remained strong. The increased entrepreneurship in the first years of the transition has begun to diminish, as people preferred to seek the certainty of the employment with the state or a bigger company. He concluded that the high paternalism in Bulgarian culture did not encourage risk taking, creativity and innovation, and instead promoted a life style of dependence and conservatism. In addition, Bulgarian culture is very hierarchical (i.e., high power distance), which entails adherence to established rules and norms regarding behavior (Baytchinska, 1998; Genov, 2004; Minkov, 2002; Reeves-Ellington, 1998). Karabeliova (2004) found that the dominating type of organizational culture in Bulgarian companies

was also the hierarchical type, which emphasized stability, order and control. In hierarchical national and organizational cultures, changes take place slower and may face more resistance. Reynaud et al. (2005) reported that Bulgarian managers, along with other managers from Central Eastern Europe, showed lower values for openness to change compared to managers from the United Kingdom and other Western countries. Thus, it is expected that Bulgarians will display less flexibility than their U.S. counterparts.

Hypothesis 7: Bulgarian nationals will show lower levels of flexibility than U.S. nationals.

Flow

Flow refers to the ability to concentrate on a task for a long time without being distracted by outside influences (Schuler et al., 2004). High scorers get completely absorbed in a task to the point that they forget time, fatigue, and everything else but the task at hand (Csikszentmihalyi, 1990, Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005). According to Csikszentmihalyi and colleagues, high perceived competence and self-efficacy to effectively take on a challenging task is a precondition for an individual to experience flow. The low self-efficacy and external locus of control and the social oppression of the past communist regime, (Deci et al., 2001; Genov, 2002; Mishev, 2005; Petkova & Lehtonen, 2005), might have limited the opportunities of Bulgarians to experience flow (Csikszentmihalyi et al., 2005). However, there is no sufficient information to formulate a specific hypothesis regarding flow, and therefore I will explore the issue with the following research question:

Research question 2: What is the level of flow of Bulgarian nationals compared to U.S. nationals?

Goal Setting

Goal setting is defined as the "tendency to set goals and to make long-term plans to reach these goals" (Schuler et al., 2004, p. 22). Individuals who score high on this facet tend to be future-oriented. This is to some extent related to Hofstede's (2001) cultural dimension of long-term orientation, which, as previously discussed, has been associated with persistence, perseverance, and personal adaptability (Genov, 2004). Genov (2004) reported that Bulgarians' long-term orientation index is 40, which describes them as relatively short-term oriented. The data he presented suggested that only one in eight Bulgarians (13%) were oriented toward the future and tended to make long-term goals. However, he also pointed out that this was the only cultural dimension, on which Bulgarians resemble the U.S. and the other Western countries. In fact, Bulgarian long-term orientation index (i.e., 40) is higher than that of U.S (i.e., 29) and other Western countries (Genov, 2004; Hofstede, 2001). Based on the lack of research, it is difficult to make a specific hypothesis regarding goal setting.

Research question 3: What is the level of goal setting of Bulgarian nationals compared to U.S. nationals?

Independence

Schuler et al. (2004) defined independence as "the tendency to take responsibility for one's own actions" (p. 22). High scorers prefer to make their own decisions and work at their own pace, instead of being guided by others. Research has suggested that the traditional Bulgarian culture (i.e., high collectivism, power distance, and uncertainty

avoidance), the social and economic oppression of the communist regime, and the economic hardships of the followed transition, have not promoted independence in Bulgarians (Aaby et al., 1997; Genov, 2004; Kolev, 2002; Minkov, 2002; Roe et al., 2000). Instead, they have cultivated a lack of personal responsibility and initiative, dependence on others for help and decision-making, and low entrepreneurship and risk taking. Furthermore, while independence characterizes the entire (relatively short) history of U.S. (Plaut & Markus, 2005), dependence characterizes half of the Bulgarian (relatively long) history (Genov, 2004).

In addition, education and child-rearing practices in Bulgaria, reflecting high power distance, discourage initiative and independence (Genov, 2004; Hofstede, 2001; Minkov, 2002). In Bulgarian society, children are taught to listen and obey - they are not expected to be active and take initiative. The important decisions are often made by the parents - what to study, what to work, and who to merry (Genov, 2004; Minkov, 2002).

Individuals in the U.S., on the other hand, learn to be independent very early in their lives. In fact, independence and self-reliance are considered the foundation of U.S. culture and economic success (see Plaut & Markus, 2005; Renshon, 2000). Statistics indicated that 44% of 2007 U.S. high school graduates were employed (Bureau of Labor Statistics, 2008). Thirty-four percent of the high school graduates who were enrolled in college in 2007 also worked full-time. In a survey by Junior Achievement Worldwide (2005) nearly half of all U.S. students ages 13 - 18+ held a job during the school year. Also 68% of 17-year old students and 73% of 18+-year old students in the U.S. had a summer job in 2003 (Junior Achievement Worldwide, 2004). In the U.S., individuals are expected to leave home after they turn 18 and be independent. In Bulgaria, it is typical for

individuals to leave their homes much later and often never. It is not unusual to live with one's parents or extended family, which allows the senior members of the family to meddle in the affairs of the younger (Minkov, 2002). In light of this information, the following hypothesis is offered.

Hypothesis 8: Bulgarian nationals will show lower levels of independence than U.S. nationals.

Internality

Internality refers to the belief that one's successes and achievements are due to internal causes (e.g., effort and ability), and not external forces (e.g., luck, fate, and powerful others). This facet is conceptually similar to Rotter's (1966) concept of internal versus external locus of control. In an individualistic society (e.g., U.S.), the majority of individuals believe that they control and are responsible for their lives, actions, and the outcomes of their actions (Hofstede, 2001; Miller, 1996; Smith, Trompenaars, & Dugan, 1995). After all, the American Dream is founded on the individual's capacity for personal control and determination in achieving success (Plaut & Markus, 2005). In contrast, one of the most robust findings for Bulgarians indicates that the majority do not believe that their successes and achievements are due to their abilities and efforts, i.e., exhibit low internality (Durankev, 2004; Genov, 2004; Hampden-Hunter & Trompenaars, 1997). These findings are consistent with the Bulgarian cultural profile, characterized by low individualism and high uncertainty avoidance (Genov, 2004), both of which have been associated with external locus of control (Hofstede, 2001). In addition, Smith et al. (1996) found that Bulgarians were less likely to believe that social mobility and success were achievable through ability, effort, and competition and more by background

characteristics (e.g., heritage, seniority, family), while U.S. participants showed the opposite pattern. Consequently, it is proposed that Bulgarian nationals will exhibit lower internality than U.S. nationals.

Hypothesis 9: Bulgarian nationals will show lower of internality than U.S. nationals.

Persistence

Persistence is defined as the willingness to exert significant effort over a long period of time in order to accomplish a goal. High scorers can be described as tenacious and energetic in their striving to complete a task. Both, Bulgarian and U.S. cultures tend to exhibit short-term orientation, which has been associated with less persistence and perseverance (Genov, 2004; Hofstede, 2001). Kolev (2002) and Genov (2004) characterize Bulgarian people as lacking persistence on tasks, i.e., giving up on things or failing to complete a task successfully. Aaby et al. (1997) found that Bulgarian managers reported less persistence on tough problems than their U.S. counterparts. Based on this and other research, indicating that Bulgarians may have lower work motivation and engagement than U.S. nationals (Deci et al., 2001; Genov, 2004; Lynn, 1991), it is expected that Bulgarian nationals will be less likely to persist on tasks than U.S. nationals.

Hypothesis 10: Bulgarian nationals will show lower levels of persistence than U.S. nationals.

Preference for Difficult Tasks

This facet refers to the tendency to choose challenging instead of easy tasks and the desire to constantly seek greater challenges. Those who score high prefer to work on

difficult tasks with a high risk of failure. Although no studies have directly compared Bulgarian and U.S. nationals on this facet, cultural differences may serve as a basis to formulate a hypothesis. Preference for challenging tasks, high ambitions, and lack of fear of failure are characteristics of cultures, which have high individualism and masculinity, and low uncertainty avoidance, such as the U.S. culture (Hofstede, 2001). The Bulgarian cultural profile is exactly the opposite, suggesting a low preference for difficult tasks (Genov, 2004). According to Kolev (2004), Bulgarians lack high aspirations. Reeves-Ellington (1998) observed that Bulgarians disliked challenging work with tight time schedules. Furthermore, Kolev (2002) stated that the egalitaristic philosophy of Bulgarian collectivism has continuously aimed against individual prominence. The Bulgarian society and education have deliberately suppressed the capable, talented, and motivated individuals to distinguish themselves from the incapable, untalented, and unmotivated, which continues even nowadays (Genov, 2004; Kolev, 2002). Based on the above, the following hypothesis is offered:

Hypothesis 11: Bulgarian nationals will show lower levels of preference for difficult tasks than U.S. nationals.

Pride in Productivity

Pride in productivity refers to one's sense of enjoyment, satisfaction, and accomplishment derived from doing their best at work. Work is not highly valued in feminine cultures, such as Bulgarian (Genov, 2004; Hofstede, 2001). Consistent with this, research has shown that only one in ten Bulgarians enjoyed work and considered it an important part of their lives, and only one in seven made maximum efforts at work, regardless of pay. Along these lines, Frese et al.'s (1996) argued that individuals in

former communist countries were less responsive to work. Moreover, the Pew Research Center for the People and the Press (2002) reported that while 86% of U.S. nationals were satisfied with their jobs, only 55% of Bulgarians were satisfied, which ranked lowest in Europe, as well as in North and Latin America. Furthermore, industriousness, hard work, and the personal enjoyment and fulfillment of successfully accomplishing one's work are central to the ideologies of the Protestant work ethic and the American Dream (Plaut & Markus, 2005). In light of this, the following hypothesis was proposed for pride in productivity.

Hypothesis 12: Bulgarian nationals will show lower levels of pride in productivity than U.S. nationals.

Self-Control

Self-control refers to "the ability to delay gratification and to organize oneself and one's work" (Schuler et al., 2004, p. 22). Individuals who score high on this facet do not procrastinate and focus on their work with high self-discipline. Genov (2004) argued that the communist regime, as well as high collectivism and uncertainty avoidance, have conditioned Bulgarians to seek structure and rules imposed from above, rather than independence and choice (see also Reeves-Ellington, 1998). In the absence of direct supervision, Bulgarians tend to reduce their effort and quality of work, as well as to procrastinate (Kolev, 2002). On the other hand, Bulgarians have learned discipline due to the need to fit in the collective and to conform to the strict norms and rules of behavior of the totalitarian regime. Discipline continues to be highly valued in Bulgarian child-rearing practices and education (Genov, 2004). This conflicting information and the lack

of empirical studies regarding self-control preclude the formulation of a specific hypothesis.

Research question 4: What is the level of self-control of Bulgarian nationals compared to U.S. nationals?

Status Orientation

Status orientation is the individual's desire to attain a high status in their personal and professional lives and to be admired for their achievements. During the communist regime, Bulgarians were not able to express their ambitions and accomplish things through their work; instead they refocused their energy, aspirations, and efforts towards obtaining higher education and higher social status (Minkov, 2002). The severe economic crisis, following the collapse of the communist regime in 1989, led to widespread deficits and poverty (Angelov, 2007; Vassilev, 2003). This further reinforced the importance of career and social status (Roe et al., 2000). Consistent with this is the finding that the diploma in collectivistic cultures (e.g., Bulgarian) is mainly used to gain access to higher-status groups, while in individualistic cultures (e.g., U.S.), it is used to increase the individual's economic worth and self-respect (Hofstede, 2001). Furthermore, in the Bulgarian culture, social comparison and maintaining social standing are important guides of behaviors. For example, dressing-up and purchasing prestigious name brands are highly valued as symbols of social status (Minkov, 2002). Consequently, it is expected that Bulgarian nationals will place more weight on status than U.S. nationals.

Hypothesis 13: Bulgarian nationals will show higher levels of status orientation than U.S. nationals.

CHAPTER III

METHOD

Participants

The participants in this study were college students from Bulgaria and the U.S.

Bulgarian sample. The Bulgarian sample consisted of 465 students from a large public university in Eastern Bulgaria. The mean age of the participants was 21.06 (*SD* = 1.08; median = 21.00; range = 18 - 29) and 70.7 percent were female. Age and gender were not reported by 0.2 percent of the participants. Most participants reported Accounting and Industrial Economics as their areas of study, 32 and 30.8 percent, respectively. These were followed by Finance (15.9%), International Tourism (8%), Economics of Commerce (6.9%), Marketing (4.5%), and Agricultural Economics (1.7%). Fifty-four percent of the participants classified themselves as junior, 28.4 percent were senior, 10.3 percent freshman, and the remaining 6.9 percent reported sophomore status. All participants were full-time students and 27 percent reported working at least half-time.

Full-time admission to the Bulgarian university is competitive, as the University establishes admission quotas every year for each major before accepting application forms. Admission is based on high school grades and an entrance examination of applicants' choice - mathematics, geography, Bulgarian language and literature, economics, or history. The applicant's total score is the sum of the final high school

grade in Bulgarian language and literature, the final high school grade in mathematics, and the doubled grade of the entrance examination. The undergraduate student admission ratio is 50% (4International Colleges & Universities, n.d.). Most of the students apply directly from high school.

U.S. sample. The U.S. sample consisted of 1022 students also from a large public university in the Western U.S. The participants' mean age was 21.07 (SD = 3.93; median = 20.00; range = 18 – 56) and 45.1 percent were female. Age and gender were not reported by 10.1 percent and 1.1 percent of the participants, respectively. The racial composition was 88.0% Caucasian, 4.2% Hispanic, 1.5% Asian American, 1.1% African American, 0.5% Native American, 4.7% Other, and 10.5% with no race specified. Race was not reported for the Bulgarian sample because the conceptualization was not comparable to that of the U.S. Forty-five percent of the participants classified themselves as freshman, 22.1 percent were senior, 20.4 percent sophomore, and the remaining 12.6 percent reported junior status. All participants were full-time students and 45 percent reported working at least half-time.

Admission criteria for the students in the U.S. sample are typical for a public university in the U.S. These include high school grade point average and scores on a standardized entrance examination. The undergraduate student admission ratio for fall 2007 was 78% (Our new undergraduates, n.d.). Similar to the Bulgarian students, most of the students apply directly from high school.

The samples from the Bulgarian and U.S. universities did not differ significantly in terms of age ($F(1, 1382) = .005, p > .05$). However, the Bulgarian sample had significantly more female ($\chi^2 = 83.61, p < .05$) and upper-level students ($F(1, 1147) =$

184.409, $p < .05$) compared to the U.S. sample. On the other hand, U.S. participants were more likely to work at least part-time than the Bulgarian participants ($\chi^2 = 37.71, p < .05$). In addition, admission to the Bulgarian university appears to be more competitive than admission to the U.S. university.

Procedure

The present study was conducted as part of a large-scale international project, investigating achievement motivation cross-nationally.

The Bulgarian participants were recruited in 2007 from a variety of business-related undergraduate majors, such as Accounting and Finance. Participants were told that the purpose of the research was to evaluate the reliability and validity of the Bulgarian translation of a personality inventory. Participation in the study was voluntary and participants were encouraged to respond to the AMI honestly since there were no right or wrong answers and the anonymity and confidentiality of their responses were guaranteed. The English AMI was translated into Bulgarian following a rigorous translation-back-translation methodology to ensure translation accuracy (Brislin, 1970). This method involved the following steps: (1) translation of the AMI into Bulgarian by the author; (2) review and revision of the Bulgarian translation by two independent and bilingual reviewers; (3) back-translation by an independent translator; (4) comparison of the English and back-translated versions by two independent reviewers; (5) comparison and revision of the English and Bulgarian versions of flagged items by three independent and bilingual reviewers; and (6) comparison and revision of the full English and Bulgarian versions of the AMI by five independent and bilingual reviewers. The translation process is described in more detail in Appendix A.

The U.S. participants were recruited through introductory and advanced psychology courses, as well as courses in construction management. The U.S. data used in this study were collected at three different points in time by different members of the research team. One part of the data was collected by the authors of the AMI to provide initial validation of the English version and to develop U.S. norms (Schuler et al., 2004). A second part of the data was collected by Mueller-Hanson & Thornton (2000). The last part of the data was collected by Cigularov and Thornton (in preparation). During all data collection efforts, participation was voluntary and responses were kept anonymous.

Measure

The Achievement Motivation Inventory (AMI: Schuler et al., 2004) is a 170-item questionnaire designed to measure seventeen facets of achievement motivation (see Table 1). The AMI was initially translated from German to English following a thorough translation process involving multiple back-translations (Frintrup, 1999). The AMI items consist of statements that are rated by respondents on a 7-point Likert Scale (1 = "does not apply at all", 7 = "applies fully to me") to indicate the degree to which the statements apply to them. For the purposes of this study, each scale was examined and revised for unidimensionality, as described in details in Appendix B. Unidimensionality was ascertained for all scales, except for Independence, which was excluded from further analyses. Facet scale scores were calculated by adding the single item responses within each scale after reverse-scoring negatively worded items. Higher scores were indicative of higher levels of the facet measured. Evidence of the reliability and validity of the AMI is summarized in the test manual (Schuler et al., 2004).

Testing for Country Differences

The traditional approach to testing cross-country differences of achievement motivation and other personality variables has relied on observed score mean comparisons (e.g., Barrett & Eysenck, 1984; Lynn & Martin, 1995; Sagie et al., 1996). Observed mean comparisons provide information about observed score differences that are typically used in practical settings and applications. For construct-oriented, cross-cultural research, however, the validity of observed mean comparisons has been questioned (see Poortinga, van de Vijver, & van Hemert, 2002; van de Vijver, & Leung, 1997). Such comparisons assume measurement invariance across countries, which may lead to misleading conclusions, i.e., "comparing apples and oranges" (Hoyle & Smith, 1994, p. 433). In fact, there is evidence that the assumption of measurement invariance may be wrong (e.g., Church & Katigbak, 2002; van Hemert, van de Vijver, Poortinga, & Georgas, 2002). Furthermore, this approach does not consider the effect of measurement error (Cheung & Rensvold, 2000; Hattrup, Schmitt, & Landis, 1992).

An alternative approach, which has been preferred recently (see Anderson, Lievens, & Van Dam, 2006, Woo et al., 2007), is the modeling of latent means in structural equation modeling (Hancock, 1997), also known as the multiple group mean and covariance structure analysis (Little, 1997). This approach addresses the limitations of the observed mean approach and offers a more refined and valid testing of subgroup differences (Cheung & Rensvold, 2000; Collins & Gleaves, 1998; Hoyle & Smith, 1994; Ployhart & Osvald, 2004). More specifically, researchers need to assess the measurement invariance of scores across groups before testing for group differences. When such invariance is established, then the researcher can proceed with examining the subgroup differences on the latent (error-free) variables (i.e., constructs). Thus, this approach

provides more confidence that if subgroup differences are found, these are due to actual differences on the constructs being measured. Because this study is concerned with country differences in the facets of achievement motivation at both the observed variable and latent construct levels, both observed and latent means are considered relevant.

Statistical Analyses

To test our hypotheses, three types of analyses were conducted for each of the revised AMI scales. First, measurement invariance was examined across the Bulgarian and U.S. samples simultaneously. Second, differences in the latent factor means between Bulgarian and U.S. participants were examined. And third, differences in the observed score means between Bulgarian and U.S. participants were examined. The remainder of this section discusses these analyses in detail.

Measurement invariance. Structural equation modeling (SEM: Byrne, 2006) procedures were employed to examine measurement invariance. Two sequential data analytic steps were undertaken using EQS (Bentler, 1995): (1) within-group test of fit of measurement models; (2) between-group tests of invariance of measurement model.

Before testing the invariance of a measurement model across groups, it is necessary to identify a measurement model separately for each sample (Byrne, 2006). In this study, a one-factor model was hypothesized for each AMI scale and was evaluated in each of the country samples. The scale represented the construct of interest (i.e., factor) and the items within the scale represented the correspondent indicators (i.e., measured variables). To ascertain scale unidimesionality, the psychometric properties of the seventeen AMI scales were first examined at the item level based on: (1) corrected item-total correlations, (2) internal consistency reliability (i.e., Cronbach's alpha), (3) principal

component analyses, and (4) parallel analyses. As described in Appendix B, sixteen of the original AMI scales were shown to exhibit unidimensionality after appropriate revisions and one was excluded from further analyses due unclear factor structure (i.e., Independence). Furthermore, the patterns of correlations of the original and revised AMI scales with GPA and the Big Five personality factors were examined for comparability. Then, for each of the 16 revised AMI scales, two confirmatory factor analyses (CFAs) with maximum likelihood estimation were performed to test the one-factor model based on the Bulgarian and U.S. samples, respectively.

To examine model fit, four absolute and incremental goodness-of-fit indices were used, as recommended in the literature (Byrne, 2006; Hu & Bentler, 1999; Meade, Johnson, & Braddy, 2008; Vandenberg & Lance, 2000): comparative fit index (CFI), McDonald's noncentrality index (MFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA). The CFI measures the improvement of fit by comparing the hypothesized model with the independence model (Bentler, 1990). A CFI cutoff value of .95 is considered as indicative of a well-fitting model (Hu & Bentler, 1999). The MFI is based on the noncentrality parameter, which assesses model misfit (McDonald, 1989). Similar to CFI, an MFI value of .95 is considered a sign of a well-fitting model (Hu & Bentler, 1999). The RMSEA (Browne & Cudeck, 1993) estimates the lack of fit between the hypothesized model and a perfect model. The RMSEA is sensitive to the number of estimated parameters in the model (i.e., the complexity of the model), but is not affected by sample size (MacCallum & Austin, 2000). RMSEA values less than .06 represent good fit and values as high as .08 indicate reasonable fit (Hu & Bentler, 1999). The SRMR represents the average residual value

derived from the fitting of the hypothesized model to the sample data. A SRMR value of .08 or less is considered to indicate a well-fitting model (Hu & Bentler, 1999). Although the chi-square likelihood ratio test (LRT) is probably the most widely used method for examining model fit (Vandenberg & Lance, 2000), researchers have recommended using the above fit indices, because they are less sensitive to sample size (Bollen, 1989; Cheung & Rensvold, 2002; Kelloway, 1995) and more sensitive to lack of measurement invariance than the chi-square LRT (Meade et al., 2008). Therefore, similar to other researchers (e.g., Anderson et al., 2006), results from the chi-square LRT were reported here but were not used as a primary indicator of model fit.

Given that the data fit the one-factor model well in each sample, multiple group CFA can be used to conduct a hierarchical sequence of nested statistical models (e.g., Vandenberg & Lance, 2000) to examine the measurement invariance of indicator variables across the Bulgarian and U.S. samples. Although there is a debate in the methodological literature in regards to how many measurement parameters must be identical across groups before measurement invariance is established, this study uses Meredith's (1993) strong definition of measurement invariance, which is also the most commonly investigated (Vandenberg & Lance, 2000). In Meredith's definition, factor loadings and indicator intercepts should be identical across groups. This is referred to as "scalar invariance," which is considered a prerequisite for the comparison of latent factor means (Little, 1997; Meredith, 1993).

Based on Meredith's (1993) scalar invariance model and recommendations in the measurement invariance literature (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000), a sequence of three increasingly restrictive tests of measurement invariance across

the two samples was conducted. These included: (1) configural invariance (i.e., equal number and pattern of factors); (2) metric invariance (i.e., equal factor loadings); and (3) scalar invariance (i.e., equal indicator intercepts) (Vandenberg & Lance, 2000). Conceptually, configural invariance indicates that the factor structures underlying responses are the same in both countries. In other words, both Bulgarian and U.S. participants use a similar frame-of-reference when responding to the scale items (Riordan & Vandenberg, 1994; Vandenberg & Lance, 2000). Metric invariance, on the other hand, would suggest that Bulgarian and U.S. respondents calibrate the intervals used on the measurement scale in similar ways (Riordan & Vandenberg, 1994; Vandenberg, 2002). This enables researchers to make meaningful comparisons of relationships across countries. Finally, scalar invariance ensures that there are no differences in agreement bias across countries, which, when paired with configural and metric invariance, allows researchers to make level-oriented comparisons across countries (Cheung & Rensvold, 2000).

The most widely used statistic to test if constraining parameters (i.e., factor loadings and indicator intercepts) has resulted in a decrease of model fit is the chi-square LRT (Vandenberg & Lance, 2000). However, as discussed above, its use has been widely criticized due to its sensitivity to sample size and insensitivity to lack of measurement invariance (Bollen, 1989; Cheung & Rensvold, 2002; Kelloway, 1995; Meade et al., 2008). Recent research suggests that the CFI and MFI difference values are superior measures of model fit change compared to the chi-square difference value (i.e., Cheung & Rensvold, 2002; Meade et al., 2008). Consequently, in the present study, a cutoff value of .007 for the ΔMFI was used based on Meade et al. (2008). Meade et al. also suggested

.002 as a ΔCFI cutoff value, which is much stricter that the previously recommended value of .01 based on Cheung and Rensvold's (2002) simulation study. The two studies differed in several aspects. Compared to Meade et al. (2008), Cheung and Rensvold (2002) averaged their cut off values across a wider set of analyses and a narrower set of conditions (e.g., number of factors and items). In addition, Meade et al. (2008) used a different CFI computation, which, as they stated, accounted for some of the substantial difference for ΔCFI. Furthermore, Meade et al. simulated lack of measurement invariance, which was not investigated in Cheung and Rensvold's (2002) simulation study. In this study, the Cheung and Rensvold's ΔCFI critical value of .01 was preferred over Meade et al.'s (2008) .002 value for two main reasons: (a) it has been used extensively in prior measurement invariance research (e.g., Anderson et al., 2006; De Beauchelaer, Lievens, & Swinnen, 2007; Woo et al., 2007) and (b) the inferences in this study that were based on results using the .01 critical value were significantly more consistent with the ΔMFI inferences as compared to inferences based on results using the .002 criterion. In other words, for the purposes of this study, if the ΔCFI value was observed to be larger than .01, this would suggest a significant drop in fit of the constrained model compared to the unconstrained model and the constrained parameters would be considered invariant across the samples (Cheung & Rensvold, 2002).

Latent mean differences. Latent mean analysis was conducted for each of the AMI scales, which demonstrated configural, metric, scalar invariance (Bollen, 1989; Cheung & Rensvold, 1999; Hoyle & Smith, 1994). This was done by freely estimating the Bulgarian latent means and constraining to zero the U.S. latent means (Hancock, 1997). If the Bulgarian latent means were found to be significantly different from zero based on

a z-test, this would indicate that there was a significant latent mean difference between the Bulgarian and U.S. nationals on the studied facet of achievement motivation.

Observed score mean differences. Observed score mean differences were analyzed with a series of independent-sample t-tests, for which the significance level was adjusted to .003, based on the Bonferroni correction (Abdi, 2007). Independent-sample t-tests were chosen over a multivariate analysis of variance, because the focus of the study was on differences at the facet level and the seventeen scales of the AMI were treated as measuring independent variables (see Huberty & Morris, 1989). In addition, standardized mean differences (i.e., d values) (Cohen, 1977) between the Bulgarian and U.S. observed scores were computed.

CHAPTER IV

RESULTS

Table 2 provides the average observed scores and their standard deviations for Bulgarian and U.S. participants on each of the 17 AMI scales. Alpha coefficients for scores on the original and revised scales in the Bulgarian and U.S. samples are presented in Table 3. For the Bulgarian sample, alpha coefficients for scores on the original and revised scales ranged from .62 to .86 and from .54 to .85, respectively. Scores on 12 of the 17 original scales and on 11 of the 17 revised scales demonstrated internal consistency of .70 or above, which has been considered appropriate for research purposes (Nunnally & Bernstein, 1994). In the U.S. sample, alpha coefficients for scores on the original and revised scales ranged from .61 to .86 and from .65 to .86, respectively. Scores on 15 of the 17 original scales and on 14 of the 17 revised scales demonstrated internal consistency of .70 or above. With respect to the revised AMI scales, which were the focus of the main analyses, fairly low internal consistencies were observed in the Bulgarian sample for Goal Setting ($\alpha = .54$), Self-Control ($\alpha = .68$), Persistence ($\alpha = .69$), and Pride in Productivity ($\alpha = .69$). Eagerness to Learn scores exhibited low internal consistency in the U.S. sample ($\alpha = .65$). Low internal consistencies in both Bulgarian and U.S. samples were evidenced for Flexibility (.65 and .66, respectively) and Internality (.55 and .69, respectively). All revised AMI scales were tested below, but results for scales, which exhibited scores with low internal consistency, should be interpreted with caution.

Intercorrelations among the 17 AMI scales in the Bulgarian and U.S. samples along with alpha coefficients for the combined sample are presented in Table 4. The intercorrelations for the Bulgarian and U.S. samples ranged from -.20 to .65 and from -.16 to .68, respectively. The average scale intercorrelations for the Bulgarian and U.S. samples were .25 and .26, respectively.

Within-Group Tests of One-Factor Measurement Model

Confirmatory factor analyses (CFAs) were conducted to test the fit of the Bulgarian and U.S. data in order to establish a baseline one-factor model for each of the sixteen revised scales. As shown on Table 5, the one-factor model yielded a good representation of the data in both countries for all sixteen scales. Following recommendations in the literature, the Lagrange Multiplier (LM) test was employed to identify misspecifications due to error covariances in the tested one-factor model in order to improve goodness-of-fit (see Byrne, 2006). A total of 23 error covariances were respecified to be freely estimated in twelve of the sixteen scales, as described in the note section of Table 5. In all 23 cases, the decision to respecify was supported by a strong substantive and empirical rationale after examining multivariate LM test results and item content (Jöreskog, 1993). More specifically, the model respecifications were based on: (a) evidence for item content overlap; (b) positive multivariate LM test results (Byrne, 2006); and (c) Bentler and Chou's (1987) caution that forcing large error terms to be uncorrelated is often unrealistic when analyzing real data. Therefore, the model respecifications were accepted and retained in the subsequent analyses of between-group invariance.

Between-Group Tests of Invariance of One-Factor Measurement model

The results from the sequence of increasingly more restrictive tests of measurement invariance based on multiple group CFAs are presented in Table 6. First, the factor structure underlying each of the sixteen AMI scales was examined for invariance across the Bulgarian and U.S. samples (i.e., configural invariance). The reported goodness-of-fit statistics indicate support for the configural invariance of all sixteen scales across both countries. The CFI values range from .954 for Status Orientation to 1.000 for Confidence in Success, Engagement, and Internality, thus meeting the criterion of .95 (Hu & Bentler, 1999). Similarly, the MFI values meet the .95 criterion, ranging from .977 for Status Orientation to 1.000 for Engagement, Internality, and Pride in Productivity. It should be noted that the MFI values may exceed 1.000 as a result of sampling error, as is the case with Confidence of Success in this study (i.e., 1.001) (Byrne, 2006). In addition, all SRMR values are below the .08 cutoff value, ranging from .039 for Status Orientation to .008 for Engagement. In a similar vein, the RMSEA values for all scales fall within the .06 threshold, ranging from .057 for Status Orientation to .000 for Confidence in Success. In addition, an examination of the upper bounds of the 90 percent confidence intervals for RMSEA reveals that these values do not exceed .08, which is an indication of reasonable fit (Hu & Bentler, 1999). The above results provide one index that suggests that respondents from Bulgaria and U.S. do not differ in terms of how they conceptualize each of the 16 facets of achievement motivation, as measured by the AMI.

Based on the above results, measurement invariance was further tested by constraining the factor loadings to be invariant across samples (i.e., metric invariance). Demonstration of metric invariance suggests "that there are no cross-country differences

in respondents' calibration of the intervals on the measurement scale" (De Beuckelaer et al., 2007, p. 577). As revealed in Table 6, constraining the factor loadings did not produce a meaningful drop in model fit (i.e., ΔCFI > .01 and ΔMFI > .007) in thirteen of the sixteen examined scales. For Dominance, Engagement, and Goal Setting, however, this set of constraints reduced the fit beyond the critical values (Cheung & Rensvold, 2002; Meade et al., 2008), indicating a lack of metric invariance. Among the items in the Dominance scale, item 98 ("Even when I face opposition, I succeed"), item 166 ("Being master of the situation is important for me"), and item 13 ("I like to decide what others should do") displayed significant metric non-invariance across the two samples. For Engagement, metric non-invariance was observed for item 97 ("People have already told me that I neglect other important aspects of life because I work too much") and item 12 ("Others say that I work a lot more than necessary"). Goal Setting exhibited one problematic item, item 75 ("The future is too uncertain to be able to make long-term plans"). Thus, these three scales were excluded from further consideration, although results of subsequent analyses are still presented in the corresponding tables.

Building on the metric invariance model, scalar invariance was then examined by constraining the indicator intercepts to be equal across the two samples. The differences in CFI and MFI between the metric and the scalar invariance models were found to be equal or below the critical values of .01 and .007, respectively, for nine of the thirteen metric-invariant scales (see Table 6). Scalar invariance was not demonstrated for Eagerness to Learn and Flexibility. Items 31 ("I have voluntarily attended a great deal of education and training that was not required") and 133 ("I spend considerable time learning new things") of the Eagerness to Learn scale displayed unequal intercepts across

the two samples. Flexibility contained three items with unequal intercepts, item 1 ("When I am facing a new situation, I am always a little skeptical in the beginning"), item 52 ("I have passed up some interesting things for fear of not being able to accomplish them"), and item 120 ("I sometimes take risks in order to try out something new"). The results for Flow and Status Orientation were mixed. Significant deterioration of model fit was evidenced by MFI difference values of .010 and .008, respectively. However, overall model fit remained adequate and the CFI difference values were within range (.011 and .010, respectively). Consequently, scalar invariance was accepted for Flow and Status Orientation.

Overall, Meredith's (1993) scalar invariance was supported for eleven AMI scales, which included Compensatory Effort, Competitiveness, Confidence in Success, Fearlessness, Flow, Internality, Persistence, Preference for Difficult Tasks, Pride in Productivity, Self-Control, and Status Orientation (see Table 7).

These results suggest that Bulgarian and U.S. participants are similar in terms of construct conceptualization, scale interval calibration, and agreement bias when responding to items on the eleven scalar-invariant scales. This also means that latent (error free) and observed means on these scales can be meaningfully compared across the Bulgarian and U.S. samples. The lack of scalar invariance in the remaining five scales (i.e., Dominance, Eagerness to Learn, Engagement, Flexibility, and Goal Setting) precludes the comparison of latent (error free) and observed means across the two samples, which may be misleading and incorrect (Cheung & Rensvold, 2000; Hoyle & Smith, 1994; Meredith, 1993). Thus, the eleven scalar-invariant scales are the focus of the subsequent mean comparison analyses.

Tests of Latent Mean Differences

The results from the latent mean difference tests for the eleven scalar-invariant scales across the Bulgarian and U.S. samples are shown in Table 2 (right part). There were significant latent mean differences for Compensatory Effort ($z = 7.48, p < .005$), Fearlessness ($z = -2.77, p < .005$), Flow ($z = 6.90, p < .005$), Internality ($z = -12.16, p < .005$), Persistence ($z = 2.79, p < .005$), Preference for Difficult Tasks ($z = 3.66, p < .005$), Pride in Productivity ($z = 6.84, p < .005$), and Self-Control ($z = 9.00, p < .005$). In support of Hypotheses 6 and 9, Bulgarian participants scored significantly lower on average than their U.S. counterparts on Fearlessness and Internality, respectively. Bulgarian participants scored significantly higher on Compensatory Effort, Persistence, Preference for Difficult Tasks, and Pride in Productivity, which were in the opposite direction expected based on Hypotheses 1, 10, 11, and 12. Furthermore, the results of the latent mean difference tests did not show significant differences for Confidence in Success and Status Orientation, thus not lending support to Hypotheses 2 and 13, respectively. In regards to Research Questions 1, 2, and 4, Bulgarians scored similarly to the U.S. participants on Competitiveness and significantly higher on Flow and Self-Control, respectively. Hypotheses 3, 4, 5 and 7 and Research Question 3 were not investigated due to lack of measurement invariance. In addition, Hypothesis 8 pertaining to Independence was not examined since this scale was excluded from the measurement invariance analyses due to unclear factor structure.

Tests of Observed Score Mean Differences

As shown in Table 2, the results from the independent-sample *t*-tests and effect sizes (i.e., *d* values) for the eleven scales that demonstrated scalar invariance are

consistent with the results from the latent mean analyses. Bulgarian participants scored significantly higher on Compensatory Effort ($t(1483) = 10.25$, $p < .003$, $d = 1.39$), Flow ($t(1483) = 5.39$, $p < .003$, $d = .80$), Persistence ($t(1483) = 3.55$, $p < .003$, $d = .51$), Preference for Difficult Tasks ($t(1484) = 4.78$, $p < .003$, $d = .68$), Pride in Productivity ($t(1477) = 6.23$, $p < .003$, $d = .67$), and Self-Control ($t(1485) = 8.89$, $p < .003$, $d = 1.31$), and significantly lower on Fearlessness ($t(1484) = -3.18$, $p < .003$, $d = -.47$) and Internality ($t(1478) = -14.06$, $p < .003$, $d = -1.80$). In addition, no significant differences were found for Competitiveness ($t(1482) = .58$, $p > .003$, $d = .10$), Confidence in Success ($t(1476) = -2.96$, $p > .003$, $d = -.37$), and Status Orientation ($t(1483) = 1.72$, $p > .003$, $d = .26$). On two facets, the observed scores suggested differences in mean levels of motivation, but latent means could not be tested. Bulgarian participants scored higher on Independence ($t(1484) = 10.10$, $p < .003$, $d = 1.55$) but the unclear factor structure of this scale precluded further analyses. In addition, Bulgarian participants scored lower on Flexibility ($t(1477) = -3.73$, $p < .003$, $d = -.48$). However, satisfactory measurement invariance could not be established for this scale, making the interpretation of this result difficult.

CHAPTER V

DISCUSSION

The present study had two main objectives: (a) to assess the measurement invariance of the Achievement Motivation Inventory (AMI: Schuler et al., 2004) at the scale level in college student samples from Bulgaria and U.S., and (b) to examine and compare the observed and latent mean differences in multiple facets of achievement motivation, between Bulgarian and U.S. participants. It was expected that the AMI scales would exhibit similar factor structure, factor loadings, and item intercepts in both samples. Differences were hypothesized, however, regarding the relative strengths of the various facets of achievement motivation in the two samples. Overall, our findings provided support for the measurement invariance of eleven of the seventeen AMI scales, which allowed subsequent mean comparisons. These results are consistent with findings from other studies, which indicated measurement invariance for some of the AMI scales but not for others across samples from the U.S., Czech Republic, and South Korea (Lanik et al., in press; Sintek, 2006).

Analyses of both the observed and latent mean differences between the Bulgarian and U.S. samples revealed consistent results for the facets of achievement motivation measured by the eleven measurement-invariant AMI scales. More specifically, compared to U.S. participants, Bulgarian participants' mean scores were higher for Compensatory Effort, Flow, Persistence, Preference for Difficult

Tasks, Pride in Productivity, and Self-Control; lower for Fearlessness and Internality; and similar for Competitiveness, Confidence in Success, and Status Orientation.

AMI Translation

A careful translation of the AMI from English to Bulgarian following recommended procedures (Brislin, Lonner, & Thorndike, 1973; Sireci, Yang, Harter, & Ehrlich, 2006) was carried out to ensure the semantic invariance of the measure. (Schaffer & Riordan, 2003). More specifically, the AMI was translated into Bulgarian through a rigorous translation-back-translation multistep process, using two translators and multiple independent reviewers (Brislin, 1970; Hambleton, 1994, 2001, 2005; Hambleton & Patsula, 1998). The steps included: (1) translation of the AMI into Bulgarian by the author; (2) review and revision of the Bulgarian translation by two independent and bilingual reviewers; (3) back-translation by an independent translator; (4) comparison of the English and back-translated versions by two independent reviewers; (5) comparison and revision of the English and Bulgarian versions of flagged items by three independent and bilingual reviewers; and (6) comparison and revision of the full English and Bulgarian versions of the AMI by five independent and bilingual reviewers. Appendix A contains a detailed description of the translation process.

AMI Revision

Following translation, the AMI was examined for measurement invariance across the US and Bulgarian samples using several standard procedures. Certain items were dropped to provide a more homogeneous measure of each facet of achievement motivation (Robert, Lee, & Chan, 2006). More specifically, each of the seventeen AMI scales was examined for unidimensionality, using principal component analyses across

the three U.S. subsamples, which comprised the U.S. sample used in this study. To ensure unidimesionality, all the AMI scales (except for Independence) were revised based on internal and external criteria for item and scale quality, following recommendations by Stanton, Sinar, Balzer, and Smith (2002). Item analyses suggested that the Independence scale could not be revised due to unclear component structure. The results of this preliminary study, which are reported in Appendix B, indicated that the reduced versions of AMI scales, excluding Independence, demonstrated similar validity and reliability coefficients compared to their original versions, while demonstrating a clean one-component structure across the three U.S. subsamples and based on three methods. As a result, it was decided to use the sixteen revised AMI scales in the subsequent measurement invariance and mean level analyses.

Measurement Invariance

Measurement invariance was established for 11 scales of the 17 AMI scales. These findings provided assurance that subsequent analyses of latent and observed means would be meaningful.

The increasing availability of cross-national data has stimulated researchers to undertake various cross-country and cross-cultural comparison studies (Davidov, 2008). Such studies, however, are associated with many methodological issues, including the establishment of measurement invariance (Schaffer & Riordan, 2003; van de Vijver & Leung, 1997, 2000). As Davidov (2008) stated, "guaranteeing invariance provides the critical legitimacy for comparative work" (p. 43). If measurement invariance is not established, mean comparisons are questionable, as researchers run the risk of "comparing apples and oranges" (Hoyle & Smith, 1994, p. 433).

To assess measurement invariance, this study followed two steps. First, the fit of a one-factor measurement model was tested for each of the sixteen revised AMI scales in each country sample, using confirmatory factor analysis (CFA). The goodness-of-fit indices indicated good fit of the one-factor model to the data for all AMI scales (see Table 5). However, the error terms of a total of 23 pairs of indicators in twelve of the sixteen scales displayed high correlations and were respecified to be freely estimated, based on recommendations in the methodological literature (Bentler & Chou, 1987; Byrne, 2006; Jöreskog, 1993), thus significantly improving model fit. It is difficult to pinpoint the exact reasons for the high error covariances, as these could be due to characteristics of the items (e.g., item content overlap, inaccurate translation) or of the respondents (e.g., response sets) (Byrne, 2006). In this case, the translation was not considered a likely reason for the error covariation because of the rigorous multi-step process, which was undertaken to ensure good semantic equivalence. On the other hand, analyses of the content of the problematic item pairs revealed significant content overlap. For example, item 4 ("It makes me proud and happy to have mastered a difficult task") and item 21 ("When I have accomplished something difficult, I'm proud of myself") from the Pride in Productivity scale were similar in content and their error terms were found to covary significantly in both the Bulgarian and U.S. samples, based on the LM test results (Byrne, 2006). Similarly, item 3 ("When I am busy with something interesting, I can forget the world around me") and item 37 ("I have often noticed that everything else becomes unimportant when I totally concentrate on my work") from the Flow scale also showed similar content and revealed significant error covariation in the Bulgarian sample.

Next, multiple group CFAs (MGCFAs) were performed to assess the measurement invariance of the AMI scales across the Bulgarian and U.S. samples. This started with the evaluation of configural invariance (i.e., equal number of factors and pattern of factor loadings) by testing with MGCFA an unconstraint one-factor model for each scale in the two country samples simultaneously. The results from these analyses provided support for the configural invariance of all sixteen AMI scales across the two country samples (see Table 6). In other words, the factor structure of the AMI scales was identical across both Bulgarian and U.S. participants.

Then, metric invariance (i.e., equal factor loadings) was evaluated by constraining the factor loadings to be invariant across the two samples. Support for metric invariance was observed for thirteen of the sixteen AMI scales, including Compensatory Effort, Competitiveness, Confidence in Success, Eagerness to Learn, Fearlessness, Flexibility, Flow, Internality, Persistence, Preference for Difficult Tasks, Pride in Productivity, Self-Control, and Status Orientation. These findings suggest that the meaning of the facets measured by the indicators of the above scales is probably the same among the Bulgarian and U.S. participants. This conclusion, however, was not valid for Dominance, Engagement, and Goal Setting, which did not demonstrate metric invariance, as constraining their factor loadings reduced the fit above the critical values recommended by Cheung and Rensvold (2002), and Meade et al. (2008). As a final step, tests of scalar invariance (i.e., equal indicator intercepts) were conducted, which revealed positive results for nine of the thirteen metric-invariant scales. In addition, scalar invariance was accepted for Flow and Status Orientation based on adequate CFI difference values (.011 and .010, respectively) and goodness-of-fit indices, although the MFI difference values

slightly exceeded the recommended cutoffs (.010 and .008, respectively). Scalar invariance was not demonstrated for Eagerness to Learn and Flexibility.

In sum, scalar invariance was shown for Compensatory Effort, Competitiveness, Confidence in Success, Fearlessness, Flow, Internality, Persistence, Preference for Difficult Tasks, Pride in Productivity, Self-Control, and Status Orientation. This meant that Bulgarian and U.S. participants were similar in terms of construct conceptualization, scale interval calibration, and use of extreme and acquiescence response sets when endorsing items on the above scales. This finding also provided a strong justification for the comparison of the latent and observed means on these scales across the two samples (Byrne, 2006; Robert et al., 2006; Schaffer & Riordan, 2003).

On the other hand, the lack of metric invariance for Dominance, Engagement, and Goal Setting, as well as the lack of scalar invariance for Eagerness to Learn and Flexibility made such comparisons misleading and meaningless (Cheung & Rensvold, 2000; Hoyle & Smith, 1994; Meredith, 1993). These findings are consistent with other research, which have shown poor model fit and measurement invariance for these five AMI scales in samples of U.S., Czech, and South Korean participants (see Lanik et al., in press; Sintek, 2006). Robert et al. (2006) provide an excellent review of potential threats to metric and scalar invariance, which may be helpful in interpreting the lack of measurement invariance that these scales exhibited in the current study, as well as to point to future research inquiries.

The lack of metric invariance (i.e., unequal factor loadings) in Dominance, Engagement, and Goal Setting may be due to factors related to culture and/or language and translation (Robert et al., 2006). Two cultural factors, which might have negatively

affected their metric invariance in this study, are the use of an imposed-etic approach (see Katigbak et al., 1996; Ryan et al., 1999; Wang & Russel, 2005) on part of the researcher and the use of extreme response sets on part of the participants. In the present study, the AMI, which was developed by Western researchers (i.e., German and U.S.), was applied to the Bulgarian context, under the assumption that all the items on the AMI scales would be equally relevant to Bulgarians, as they were to their Western counterparts. However, the violation of this assumption might have jeopardized the metric invariance of the Dominance, Engagement, and Goal Setting scales. Given the nature of the data in this study, it is difficult at this point to determine if the item contents of these scales were differentially relevant across the two samples. In future research, this possibility may be explored using alternative techniques, such as cognitive interviewing, to assess their cognitive invariance (e.g., Saris & Gallhofer, 2007, cited in Davidov, 2008). This is consistent with assertions that demonstrating measurement invariance is often too strict and may not occur even in cases when there is functional and cognitive invariance (Saris & Gallhofer, 2007, cited in Davidov, 2008; van der Veld, 2007, cited in Davidov, 2008).

Lack of metric invariance might have also resulted from differences in the degree to which respondents from the two countries used the extreme ends of the response continuum (Robert et al., 2006). In order to assess this possible explanation, the standard deviations of the six problematic items (i.e., items 13, 98, 166, 97, 12, and 75) in the Dominance, Engagement, and Goal Setting scales were compared across the two samples. Their standard deviations for the U.S. sample were consistently lower than those for the Bulgarian sample (i.e., 1.75 vs. 2.19, 1.13 vs. 1.54, 1.48 vs. 1.52, 1.58 vs. 2.05, 1.68 vs. 1.86, and 1.88 vs. 1.99, respectively), suggesting that Bulgarian respondents

might have used the extreme response options more often than their U.S. counterparts, especially when responding to items 13, 98, 97, and 12. Future research should further examine the measurement qualities of these items with different samples and techniques (e.g., item response theory, for an application see Wang & Russel, 2006).

Another possible explanation for the lack of metric invariance is that items containing idioms, colloquialisms, and metaphors, which are often culture-specific, were translated from English to Bulgarian in a way that changed their meaning (Ghorpade et al., 1999; Hulin, 1987; Robert et al., 2006). A careful re-examination of the translations of the problematic items suggested that only item 166 ("Being master of the situation is important for me") from the Dominance scale contained an idiomatic expression (i.e., "master of the situation"), the translation of which, however, consistently received high ratings from the independent reviewers. As mentioned above, the employment of cognitive assessments may prove useful in re-evaluating the translation quality and semantic invariance of these items (Saris & Gallhofer, 2007, cited in Davidov, 2008).

The lack of scalar invariance (i.e., unequal indicator intercepts) in Eagerness to Learn and Flexibility may also be due to cultural (e.g., extreme and acquiescence response sets and frame-of-reference effect) and/or language and translation factors (e.g., mistranslation of words with imprecise meanings, such as "rarely," "often," and "many') (Robert et al., 2006). Also, contextual factors, such as social desirability, conformity, and demand characteristics may influence participants' responses, leading to differences in intercepts between the studied samples (Robert et al., 2006). To assess the possibility of extremity and acquiescence response sets, the standard deviations of the 5 problematic items (i.e., items 31, 133, 1, 52, and 120) in the Eagerness to Learn and Flexibility scales

were compared across the two samples. Their standard deviations for the U.S. sample were again consistently lower than those for the Bulgarian sample (i.e., 1.68 vs. 2.00, 1.34 vs. 1.55, 1.55 vs. 1.60, 1.77 vs. 2.00, and 1.35 vs. 1.60, respectively), suggesting that Bulgarian respondents endorsed the extreme response options more often than their U.S. counterparts, especially when responding to items 31, 133, 52, and 120. Future research should further examine the psychometric qualities of these items.

The frame-of-reference effect refers to the influence of culture on the relative strength of item endorsement when respondents make judgments relative to others in their own culture, rather than the global comparison group (Heine, Lehman, Peng, & Greenholtz, 2002). Especially susceptible to this effect are items that have underlying values, which are differentially important in different countries or cultures (Robert et al., 2006). Such items were not identified among the five problematic items. Last, the problematic items were examined for words and phrases with nonspecific meaning (e.g., "many," "often," "most of the time"), as such words and phrases may be difficult to translate precisely and may result in non-invariance of item intercepts (Robert et al., 2006). For example, the phrase "a great deal" in item 31 ("I have voluntarily attended a great deal of education and training that was not required") may be difficult translate precisely. Other possible culprits within this category of scalar invariance threats include the words "considerable" in item 133 ("I spend considerable time learning new things"), "some" in item 52 ("I have passed up some interesting things for fear of not being able to accomplish them"), and "sometimes" in item 120 ("I sometimes take risks in order to try out something new"). Among these, only item 52 originally received relatively low ratings for translation quality from the reviewers, indicating that it was difficult to

translate. It is possible that the subsequent revision of the translation was not good enough and that it needs to be further examined and possibly revised.

As mentioned above, contextual factors (e.g., social desirability, conformity, and demand characteristics) may lead to the lack of scalar invariance (Robert et al., 2006). However, it is difficult to determine the specific effects of these factors in the current study.

Overall, the results of the MGCFAs demonstrated satisfactory levels of measurement invariance for eleven of the seventeen AMI scales used with Bulgarian and U.S. participants. Thus, these scales could be used cross-nationally. Future research should examine the measurement invariance of the revised AMI scales across other countries and samples (e.g., working adults). Next, the results of the latent and observed mean analyses are discussed.

Latent and Observed Mean Differences

The findings from both the latent and observed mean analyses agreed in regards to the mean differences and similarities between the Bulgarian and U.S. participants on the facets of achievement motivation measured by the eleven measurement-invariant AMI scales. More specifically, the results of the latent and observed mean differences analyses revealed different standings of the Bulgarian and U.S. participants on the facets measured by eight of the AMI scales (see Table 2). While these results lend support to Hypotheses 6 and 9, they are in disagreement with Hypotheses 1, 2, 10, 11, 12, and 13.

The Bulgarian participants in this study reported lower levels of Fearlessness compared to their U.S. counterparts, as predicted by Hypotheses 6 (see Table 2). In other words, Bulgarian participants were more likely to experience fear of failure when facing

a difficult task than U.S. participants. To the author's best knowledge, this is the first study to directly compare Bulgarian and U.S. nationals on fear of failure, although other researchers have alluded to possible differences (see Genov, 2004; Liargovas & Chionis, 2002). Bulgarian participants also demonstrated lower levels of Internality compared to U.S. participants, as suggested by Hypotheses 9 (see Table 2). In fact, the effect size for Internality was the strongest observed in this study (i.e., $d = -1.80$), indicating that the Bulgarian participants scored on average 1.80 standard deviations below U.S. participants. Thus, this study corroborates prior research (Durankev, 2004; Genov, 2004; Hampden-Hunter & Trompenaars, 1997; Smith et al., 1996) and suggests that, compared to U.S. participants, Bulgarian participants were more likely to believe that their successes and achievements are the results of external factors, rather than their own abilities and efforts. Similar findings have been observed for other European post-communist countries, such as the Czech Republic (see Lanik et al., in press).

The current study also reveals that, compared to U.S. participants, Bulgarian participants perceive themselves as (a) more willing to expend large efforts on a task in order to avoid failure (i.e., Compensatory Effort); (b) more persistent on tasks (i.e., Persistence); (c) more keen on taking challenging tasks (i.e., Preference for Difficult Tasks); and (d) more satisfied with and proud of their successes (i.e., Pride in Productivity) (see Table 2). These results are counter to the a priori expectations (i.e., Hypotheses 1, 10, 11, and 12, respectively). Hypotheses 2 and 13 were also not supported in this study, as the Bulgarian participants showed similar to their U.S. counterparts levels of confidence in successfully accomplishing tasks (i.e. Confidence in Success) and desire to attain high social and professional status (i.e., Status Orientation). Lower levels

of Confidence in Success and higher levels of Status Orientation were originally predicted for the Bulgarian participants (see Table 2).

Furthermore, exploration of Research Questions 1, 2, and 4 shows that while Bulgarian participants are similar to the U.S. participants in their orientation toward competition (i.e., Competitiveness), they are more likely to get absorbed (i.e., Flow) and organized in their work and avoid procrastination (i.e., Self-Control).

There are several possible interpretations of the above substantive results. It is important to note, however, that the current data and methodology do not warrant any causal interpretations. Thus, these are merely speculations on part of the author. The limitations and implications of the current research are discussed in the next sections.

The environmental causation model posits that environmental and cultural factors shape personalities through enculturation agents (e.g., immediate and extended families, community members, teachers, colleagues, as well as social and educational institutions), which, in turn, influence mental processes, beliefs, and behaviors (Matsumoto, & Yoo, 2006). Consequently, the above results may be due to historical, political, economic, social, and cultural factors, which may have differentially affected the development, expression, and levels of the facets of achievement motivation in Bulgarian and U.S. nationals. For example, it can be speculated that the relatively low levels of Fearlessness and Internality reported by Bulgarian participants may be indicative of a long history of collectivism, totalitarianism, lack of strong and stable economic system and development, disregard and even punishment for individuality and entrepreneurship, as well as high uncertainty avoidance (Angelov, 2007; Genov, 2004; Kolev, 2002; Minkov, 2002). According to this reasoning, Bulgarian participants should also exhibit relatively lower

levels of some of the other facets of achievement motivation (e.g., Preference for Difficult Tasks, Persistence, Confidence in Success, and Self-Control), as originally predicted. However, this was not the case. On the contrary, Bulgarian participants reported similar and even higher levels on the other nine scales (see Table 2). What can possibly account for these differential effects?

One possible explanation may lie in the recent significant changes in the political (i.e., democracy, EU membership), economic (i.e., open market economy, access to global markets), and cultural (i.e., increased individualism and consumerism) contexts in Bulgaria (Adnanes, 2004; Genov, 2004). These changes, in the context of globalization and modernization processes (Evans, 1995; Inkeles, 1998; Silver, 2003), may have resulted in changes in Bulgarian cultural values and attitudes (e.g., Baytchinska, 1996; Karabeliova, 1998) and their convergence with Western values and attitudes. In fact, both anthropologists and psychologists have acknowledged the dynamic nature of culture (Fertig, 1996; Inglehart & Baker, 2000; Matsumoto & Yoo, 2006; Tsui et al., 2007). Friedman (2005) further argued that individuals in countries with less advanced economies might exhibit high achievement motivation in their efforts to overcome adversity and take advantage of the increasing opportunities to catch up with the Western world. Consistent with his argument are the significantly higher levels of Compensatory Effort, Persistence, Preference for Difficult Tasks, Pride in Productivity, Flow, and Self-Control observed for Bulgarian relative to U.S. participants. At the same time, it is well recognized that a nation's historical and cultural heritage is likely to exert enduring effects on individuals' values and attitudes (Inglehart & Baker, 2000), thus making them resistant to change. This may be the case with the relatively low scores on Internality and

Fearlessness among Bulgarians. Well-designed longitudinal research is much needed to examine over-time trends in culture and achievement motivation and their linkages (Matsumoto & Yoo, 2006).

It is also possible that the U.S. student participants in this study do not conform to the traditional cultural profile of U.S. (Hofstede, 1980), which served as a basis for the formulation of hypotheses. In fact, inter-generarional differences in achievement motivation have been widely studied and documented (e.g., Stevens & Truss, 1985; Veroff, Reuman, & Feld, 1984; Woo et al., 2007). For example, Woo and her colleagues (2007) used the AMI to compare the achievement motivation of undergraduate students and working adults at the facet level. Their findings indicated that the students reported significantly lower levels of Fearlessness, Preference for Difficult Tasks, Engagement, Persistence, and Self-Control, and significantly higher levels of Status Orientation and Competitiveness, compared to the working adults. Furthermore, the educational literature suggests that the new generation of college students, also known as the "millennials," differs significantly from previous generations in terms of needs, values, and attitudes (Howe & Strauss, 2000). More specifically, the "millennials" have become notorious for being hard to reach and motivate (McGlynn, 2008).

Contrary to the environmental causation model, the reverse causation model (Allik & McCrae, 2002) suggests that biologically based personality traits interact with culture to influence mental processes and behavior. In other words cultures shape the expression of traits, but not their levels (Hofstede & McCrae, 2004). Thus, it is possible that between-country differences in facets of achievement motivation may not be due to cultural differences between Bulgarian and U.S. samples, but rather to aggregate

differences in the levels of personality traits, such as Extraversion, Conscientiousness, and Neuroticism. For example, Matsumoto (2006) recently found that the relationship between country (i.e., U.S. and Japan) and emotion regulation was fully mediated by Extraversion, Conscientiousness, and Neuroticism. A similar type of study needs to examine the degree to which U.S – Bulgaria differences in achievement motivation are due to culture or to aggregate differences in personalities.

Another explanation for the unexpected findings for some of the AMI scales (i.e., elevated means for Bulgarian participants) may be the possibility of biases in Bulgarian responses on these scales. Such biases may include the tendencies: to answer in ways the make oneself look good (i.e., social desirable responding); to agree, rather than disagree to items (i.e., acquiescence bias); to endorse the extreme ends of a response scale, regardless of item content (i.e., extreme response bias); and to make implicit comparisons with members from one's own social group, rather than the general group or personal standards (i.e., frame-of-reference effect) (Heine et al., 2002; Paulhaus, 1984). In fact, research has demonstrated significant associations of some types of response bias with culture and country-level personality. More specifically, research participants from countries or cultures with higher power distance, uncertainty avoidance, collectivism, and extraversion are more likely to use acquiescence and extreme response styles (Harzing, 2006; Johnson, Kulesa, Cho, & Shavitt, 2005). In the present study, however, differences in these response biases between Bulgarian and U.S. participants are not likely to be the reason for the mean differences observed for some of the facets of achievement motivation, because all the eleven AMI scales, which were retained for the mean differences analyses, exhibited good metric and scalar invariance (Robert et al., 2006).

Implications for Research and Practice

The findings of this study have important implications for research and practice. This study demonstrates the utility of examining achievement motivation across countries from a multifaceted perspective (Byrne et al., 2004; Lanik et al., in press; Potemra, 2007; Sagie et al., 1996; Sintek, 2006). The fact that the cross-country samples demonstrated measurement invariance for eleven facets of achievement motivation, as measured by the AMI, suggests that these achievement motivation facets are conceptualized similarly by Bulgarian and U.S. participants. These results provide confidence that the interpretations of mean-level differences across U.S. and Bulgarian samples are appropriate and meaningful (Cheung & Rensvold, 2000; Hoyle & Smith, 1994). Further, the strong convergence between results for observed and latent mean differences increases the confidence in the accurateness of the measurement-invariant AMI scales to identify significant differences across the two samples.

Although some researchers have suggested that the invariance of factor loadings across groups is sufficient to determine measurement invariance (e.g., Raju, Laffitte, & Byrne, 2002; Ryan et al., 1999), the current study examined invariance also with respect to indicator intercepts (Meredith, 1993). Meeting this more stringent criterion provides additional confidence in the interpretations of the substantive findings (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000). It also has practical implications. Equal factor loadings and indicator intercepts suggest that the meanings of the constructs measured are similar across the two samples, which also do not differ in terms of response biases (Vandenberg & Lance, 2000). Thus, practitioners can use these two tests of measurement invariance to gain valuable information about the appropriateness of

using AMI scales in different countries and cultures. Furthermore, practitioners in multinational companies may use the measurement-invariant AMI scales to directly compare Bulgarian and American employees on specific facets of achievement motivation.

Measurement invariance, however, was not established for some of the AMI scales, suggesting that their scores could not be compared across the samples at both the latent and observed mean level. Such findings are a warning against the "uncritical acceptance of observed differences in the social domain as reflecting valid cross-cultural differences" (van de Vijver & Leung, 2000, p. 35). For example, a significant observed mean difference was found for the Flexibility scale, which, however, did not demonstrate adequate measurement invariance (see Table 2). The lack of measurement invariance, in a practical sense, highlights the importance of cultural awareness and sensitivity among international managers and other practitioners. The needs and motives of individuals in different countries should be considered in the context of their cultural and historical backgrounds (Hufton, Elliot, & Illushin, 2002). In addition, the increasing workplace globalization and diversity (Cascio & Aguinis, 2005) place strong demands for cross-cultural training, aiming to develop and promote effective interactions between individuals of different backgrounds and beliefs (Bhawak & Brislin, 2000; Kraiger, 2003). Thus, the appreciation and understanding of cross-country and cross-cultural similarities and differences are becoming an integral part of effective performance in the global workplace (Cascio & Aguinis, 2005). Moreover, such appreciation and understanding can be very useful in identifying and overcoming potential barriers to

learning and transfer of learning in organizational training programs for Bulgarian personnel conducted by Western trainers (Hollinshead & Michailova, 2001).

Strengths, Limitations, and Directions for Future Research

The current study corroborates and extends past research in several ways. This study is the first to examine the measurement invariance of a multifaceted measure of achievement motivation and also to assess the observed and latent mean differences in the different facets of achievement motivation across Bulgarian and U.S. samples. Thus, this study lends further support for the conceptualization and operationalization of achievement motivation as a multifaceted construct (Cassidy & Lynn, 1989; Kanfer & Heggestad, 1997) and its applicability in different countries and cultures (Byrne et al., 2004; Sagie et al., 1996). While the findings of this study show some support for the assumption that Western theories of work motivation may be valid and useful in the Bulgarian context (see Deci et al., 2001), they also suggest that some Western concepts related to achievement motivation (e.g., Dominance, Engagement, and Goal Setting) may not be equivalent in Bulgaria, thus reinforcing the importance of combining culture-free (i.e., etic) with culture-specific (i.e., emic) approaches to cross-country and cross-cultural research (Tsui et al., 2007). Another important contribution of the present study is the translation, revision, and initial validation of the AMI in Bulgarian, which may be useful to both Bulgarian researchers and practitioners. Finally, a particular strength of this study is the use of a polycontextual approach (Shapiro et al., 2007; Tsui et al., 2007) to understanding the potential influence of various national contexts (i.e., historical, political, economic, social, and cultural) on the development, expression, and levels of achievement motivation among contemporary Bulgarians.

Despite the significant strengths and contributions of this study, the results and interpretations presented above require a discussion of the limitations inherent in this type of research. First, the composition and recruitment of the samples may limit the generalizability of the findings. Both, the U.S. and Bulgarian samples were convenience samples, composed of college-level students. Thus, the students used in this study may not be representative of their country's men and women and also the findings may not generalize to the organizational context. However, there is evidence that laboratory studies of students generalize to field studies of employees (Locke, 1986). On the other hand, research has shown that different age groups may exhibit different levels of achievement motivation across different facets of achievement motivation (Woo et al., 2007). In addition, although the Bulgarian and U.S. samples were equivalent in terms of average age, they differed in terms of gender composition, status in college, as well as working status. More specifically, the Bulgarian sample was composed of more female and upper-level students and fewer working students, compared to the U.S. sample. Therefore, it is possible that, for example, gender differences may account for the observed differences on some of the facets of achievement motivation across the Bulgarian and U.S. samples. However, recent research suggests that gender differences in achievement motivation are either non-existent or small (e.g., Barron & Harackiewicz, 2001; Mednick & Thomas, 1993). Furthermore, the admission criteria are different across the two universities, from which the samples were drawn. Therefore, future research should replicate the present findings with more nationally representative and equivalent samples, as well as with different types of samples (e.g., working adults). In addition,

future studies need to consider gender and inter-generational differences as potential moderators of the relationship of country and/or culture with achievement motivation.

Another potential limitation is related to the relatively low internal consistency (i.e., $\alpha < .70$, Nunnally & Bernstein, 1994) exhibited by scores on some of the revised AMI scales. Especially low alpha coefficients were observed for scores on Goal Setting ($\alpha = .54$) in the Bulgarian sample, Eagerness to Learn ($\alpha = .65$) in the U.S. sample, Flexibility in both Bulgarian and U.S. samples ($\alpha = .65$ and $\alpha = .66$, respectively), and Internality in both Bulgarian and U.S. samples ($\alpha = .55$ and $\alpha = .69$, respectively). Scale reduction and translation procedures may have affected their internal consistency in the Bulgarian sample. At the same time, scores on the above four scales also showed relatively low internal consistency in their original versions in both samples (see Table 3). These results are also consistent with other studies, which have reported low alpha coefficients for scores on the original versions of these scales from samples in the U.S., South Korea, Brazil, and Singapore (Cigularov et al., 2007; Frintrup, 1999; Potemra, 2007; Sintek, 2006). The low internal consistency of the scores on Goal Setting, Eagerness to Learn, and Flexibility may have affected the CFA findings, considering that these scales did not exhibit adequate measurement invariance across the Bulgarian and U.S. samples. Certainly, further examination of the measurement properties of these scales and their items is needed.

An issue that also deserves discussion is the use of the *imposed-etic* approach in this study (Katigbak, Church, & Akamine, 1996; Ryan et al., 1999). In other words, the AMI, which was developed in Germany and U.S., was directly imported in the Bulgarian context. One criticism of this approach is that it may fail to capture important aspects of

the achievement motivation of Bulgarians (van de Vijver & Leung, 2000), which can be identified if a uniquely Bulgarian (emic) version of the AMI is developed, based on indigenous research and theorizing (e.g., Leung & Zhang, 1995; Ofori-Dankwa & Ricks, 2000). This limitation is grounded in the clash between two contrasting perspectives on human diversity – the *emic* or *indigenous* perspective and the *etic* or *universalist* perspective (Kagitçibaşi & Berry, 1989). While the former is concerned with the in-depth study of psychosocial phenomena in separate countries or cultures, the latter is mainly interested in establishing human universals. Both perspectives have been considered valuable and useful for the study of human behavior (Kagitçibaşi & Berry, 1989). However, most of cross-national and cross-cultural research has adopted the etic approach by examining a measure or model developed in one country or culture across other countries and cultures (Tsui et al., 2007).

There are several good reasons for adopting the etic approach in the current study. First, this approach allowed the author to examine the applicability of the constructs measured by the AMI scales (i.e., the Onion Model of Achievement Motivation) in the Bulgarian context, thus drawing on and expanding the existing body of literature. The findings of measurement invariance for some of the AMI scales are consistent with evidence pointing to the universality of human behavior and personality, in particular (see Loehlin, 1992; McCrae & Costa, 1997). Furthermore, findings of lack of invariance are also valuable as they suggest areas for future country-specific research. As Tsui et al. (2007) state, "by extending the model to other nations, the scholar can test the boundary conditions of current theories and knowledge" (p. 467). A second advantage of using the etic approach was the possibility of studying and comparing the typical profiles of

achievement motivation across Bulgarian and U.S. samples. Such comparisons have important implications for both local and international organizational research and practice. A third benefit from adopting this approach was the translation and initial validation of the Bulgarian version of the AMI, which could be used by Bulgarian researchers and practitioners. The adaptation of an existing measure is often preferable than the development of a new measure (Ben-Porath et al., 1995).

Although the etic approach has proven useful in this study, the results also emphasize the need for subsequent country-specific (i.e, emic) research on achievement motivation in Bulgaria and other countries. It is recognized that since no Bulgarian (i.e., emic) measures of achievement motivation were included in the study, it is possible that there are unique facets of achievement motivation beyond the ones measured by the AMI. Also, future research should supplement the quantitative methods with qualitative, culturally adapted techniques (e.g., naturalistic observations, interviews, and ethnography) that have proven invaluable in cultural psychology and psychological anthropology (Greenfield, Keller, Fuligni, & Maynard, 2003).

In the current study, in order to formulate specific hypotheses, an in-depth analysis of several Bulgarian contexts (i.e., historical, political, economic, social, and cultural) was conducted to examine various variables (e.g., sovereignty, social economic status, educational practices, individualism), which may be sources of between-country differences, as recommended by the cross-cultural literature (Brett, Tinsley, Janssens, Barsness, & Lytle, 1997; Shapiro et al., 2007; Tsui et al., 2007). Hofstede's (1980, 2001) well-established model of cultural dimensions was also used to derive theoretically meaningful hypotheses regarding differences in achievement motivation across the two

countries. There has been much research on Hofstede's dimensions finding significant cultural differences across countries (Hofstede, 2001; Smith et al., 1996). However, none of the contextual variables, both cultural and non-cultural, were directly measured in the study, but were rather inferred indirectly based on prior research and theorizing. For example, cultural differences in this study were assumed based on nationality. Although common in many cross-country and cross-cultural studies (Schaffer & Riordan, 2003), this strategy ignores the fact that there can be considerable cultural differences within a country, and different countries can be highly similar culturally (e.g., Earley, 1993; Markus & Kitayama, 1991). At the same time, research has documented larger between country differences compared to within country differences for various cultural dimensions (see Hofstede, 2001; Schwartz, 1999) and achievement motivation, in particular (Sagie & Elizur, 1998). Future studies should explicitly test the effects of culture on the conceptualization of achievement motivation and how it is similar or different within and between countries.

Conclusion

In light of globalization and modernization processes (Inglehart & Baker, 2000; Inkeles, 1998), this study is a worthwhile attempt to examine the similarities and differences in the structure and strength of multiple facets of achievement motivation between Bulgarian and U.S. college students. More specifically, the current study sought to establish the measurement invariance of a multifaceted measure of achievement motivation and explore mean differences at the latent and observed mean levels across Bulgarian and U.S. samples. Adequate measurement invariance was established for eleven AMI scales, including Compensatory Effort, Competitiveness, Confidence in

Success, Fearlessness, Flow, Internality, Persistence, Preference for Difficult Tasks, Pride in Productivity, Self-Control, and Status Orientation. This suggests that Bulgarian and U.S. participants conceptualize the constructs and use the response scale in a similar manner when responding to items on the measurement-invariant scales, thus making mean differences analyses appropriate (Hoyle & Smith, 1994). These analyses, in turn, revealed consistent results across latent and observed means showing that, compared to U.S. participants, Bulgarian participants' mean scores were higher for Compensatory Effort, Flow, Persistence, Preference for Difficult Tasks, Pride in Productivity, and Self-Control; lower for Fearlessness and Internality; and similar for Competitiveness, Confidence in Success, and Status Orientation.

Thus, both Bulgarian and U.S. students may show high levels of achievement motivation, which may be expressed differently in different facets. The above findings illustrate the importance of establishing measurement invariance prior to making mean comparisons and underscore the complexity of cross-country differences in achievement motivation when it is treated as a multifaceted construct. Considering the increasingly global and competitive economic markets and workforces (Cascio & Aguinis, 2005; Drucker, 2001), cross-country research on achievement motivation and other important psychological and organizational variables can provide valuable information for successful national economic and educational development programs, as well as effective human resource and management practices in local and international organizations.

REFERENCES

4International Colleges & Universities. (n.d.). *University of Economics Varna.* Retrieved May 8, 2008, from http://www.4icu.org/reviews/490.htm

Aaby, N., Marinov, M., & Marinova, S. (1997). Managers' characteristics: Results from an exploratory comparison of young managers in Bulgaria and USA and its Implications for management education in Bulgaria. *Journal of Eastern European Management Studies, 1,* 23-34.

Abdi, H. (2007). Bonferroni and Sidak corrections for multiple comparisons. In N. J. Salkind (Ed.), *Encyclopedia for Measurement and Statistics.* Thousand Oaks, CA: Sage.

Adler, N. J. (1997). *International dimensions of organizational behavior* (3rd ed.). Cincinnati, OH: South-Western College Publishing.

Adnanes, M. (2004). Exit and/or voice? Youth and post-communist citizenship in Bulgaria. *Political Pscyhology, 25,* 795-815.

Alexandrova, M. (n.d.). *Predpriemacheskata orientazia v konteksta na natioanalnata kulturna sreda [Entrepreneurial orientation in the context of national cultural environment].* Unpublished manuscript.

Allik, J., & McCrae, R. R. (2002). A five-factory theory perspective. In R. R. McCrae, & J. Allik (Eds.), *The five-factor model of personality across cultures* (pp. 303-322). New York: Kluwer Academic/Plenum Publishers.

Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology, 66,* 950-967.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology, 80,* 260-267.

Anastasi, A. (1988). *Psychological testing* (6th ed.). New York: Macmillan.

Anderson, N., Lievens, F., & Van Dam, K. (2006). A construct investigation of gender differences in a leadership role assessment center. *Journal of Applied Psychology 91*, 555-566.

Angelov, I. (2007). Икономическата политика на България като член на Европейския съюз [The economic policy of Bulgaria as a member of the European Union]. *Economic Alternatives, 6,* 3-26.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review, 64*, 359-372.

Atkinson, J. W., & Feather, N. T. (1966). *A theory of achievement motivation.* New York: John Wiley & Sons.

Atkinson, J. W., & Litwin, G. H. (1960). Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. *Journal of Abnormal and Social Psychology, 60*, 52-63.

Bakacsi, G., Sándor, T., András, K., & Victor, I. (2002). Eastern European cluster: Tradition and transition. *Journal of World Business, 37,* 69-80.

Barrett, P., & Eysenck, S. B. C. (1984). The assessment of personality factors across 25 countries. *Personality and Individual Differences, 5,* 615-632.

Barron, K. E., & Harackiewicz, J. M. (2001). Achievement goals and optimal motivation: Testing multiple goal models. *Journal of Personality and Social Psychology, 80,* 706-722.

Baytchinska, K. K. (1996). Value transformation in the period of social political changes in Bulgaria. *Bulgarian Journal of Psychology, 3,* 23-39.

Baytchinska, K. K. (1998). Ценностите на съвременната Българска и Европейска кутура [Values of contemporary Bulgarian and European culture]. *Bulgarian Journal of Psychology, 1,* 3-24.

Bell, J. D. (Ed.). (1998). *Bulgaria in transition: Politics, economics, Society, and culture after communism.* Boulder, CO: Westview Press.

Ben-Porath, Y. S., Almagor, M., Hoffman-Chemi, A., & Tellegen, A. (1995). A cross-cultural study of personality with the Multidimensional Personality Questionnaire. *Journal of Cross-Cultural Psychology, 26,* 360-373.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238-246.

Bentler, P. M. (1995). *EQS: Structural equations program manual.* Encino, CA. Multivariate Software.

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods and Research, 16,* 78-117.

Bhawak, D. P. S., & Brislin, R. W. (2000). Cross-cultural training: A review. *Applied Psychology: An International Review, 49,* 162-191.

Bojinova, R., & Panov, P. (2000). Need for achievement and labour realization strategies in graduate students. *Journal of Psychological Investigations, 1-2,* 33-40.

Bollen, K. A. (1989). *Structural equations with latent variables.* New York: John Wiley.

Bond, M. H. (1988). Finding universal dimensions of individual variation in multicultural studies of values: The Rokeach and Chinese value surveys. *Journal of Personality and Social Psychology, 55,* 1009-1015.

Brett, J. M., Tinsley, C. H., Janssens, M., Barsness, Z. I., & Lytle, A. L. (1997). New approaches to the study of culture in industrial/organizational psychology. In P. C. Early, & M. Erez (Eds.), *New perspectives on international industrial/organizational psychology* (pp. 75-130). San Francisco: New Lexington Press.

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology, 1,* 185-216.

Brislin, R. W., Lonner, W. J., & Thorndike, R. M. (1973). *Cross-cultural research methods.* New York: Wiley.

Bristo, J. A. (1996). *The Bulgarian economy in transition.* Cheltenham, UK: Edward Elgar.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 445-455). Newbury Park, CA: Sage.

Bulgarian employees are among the least motivated in the world. (2002, November 26). *Dnevnik.*

Bureau of Labor Statistics. (2008). *College enrollment and work activity of 2007 high school graduates.* Washington, DC: United States Department of Labor.

Bures, Z. (1992, April). *Motivational stereotypes in changing conditions.* Paper presented at the 12th European Network of Work and Organizational Psychology Symposium, Paris, France.

Butcher, J. N. (1996). Translation and adaptation of the MMPI-2 for international use. In J. N. Butcher (Ed.), *International adaptations of the MMPI-2: Research and clinical applications* (pp. 26-43). Minneapolis: University of Minnesota Press.

Byrne, B. M. (2006). *Structural equation modeling with EQS: Basic concepts, applications, and programming* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Byrne, Z. S., Mueller-Hanson, R. A., Cardador, J. M., Thornton, G. C. III, Schuler, H., Frontrup, A., & Fox, S. (2004). Measuring achievement motivation: Tests of equivalency for English, German, and Israeli versions of the Achievement Motivation Inventory. *Personality and Individual Differences, 37*, 203-217.

Cascio, W. F., & Aguinis, H. (2005). *Applied psychology in human resource management* (6th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Cassidy, T., & Lynn, R. (1989). A multifactorial approach to achievement motivation: The development of a comprehensive measure. *Journal of Occupational and Applied Psychology, 12*, 301-311.

Chang, W. C., Wong, W. K., Teo, G., & Fam, A. (1997). The motivation to achieve in Singapore: In search for a core construct. *Personality and Individual Differences, 23,* 885-895.

Cheung, G. W., & Rensvold, R. B. (1999). Testing factorial invariance across groups: A reconceptualization and proposed new method. *Journal of Management, 25,* 1-27.

Cheung, G. W., & Rensvold, R. B. (2000). Assessing extreme and acquiescence response sets in cross-cultural research using structural equations modeling. *Journal of Cross Cultural Psychology, 31,* 187-212.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9,* 233-255.

Church, A. T., & Katigbak, M. S. (2002). The five-factor model in the Philippines: Investigating trait structure and levels across cultures. In R. R. McCrae & J. Allik (Eds.), *The five-factor model of personality across cultures* (pp. 129-154). New York: Kluwer Academic/Plenum Publishers.

Church, A. T., & Lonner, W. J. (1998). The cross-cultural perspective in the study of personality: Rationale and current research. *Journal of Cross-Cultural psychology, 29,* 32-62.

Cigularov, K., Lanik, M., Thornton, G. C., & Singh, R. (2007, July). *Testing observed and latent mean differences of facets of achievement motivation between college students from the United States and Singapore.* Paper presented at the 10th European Congress of Psychology, Prague, Czech Republic.

Cigularov, K., & Thornton, G. C. (2006, May). *An integration of two complex concepts of achievement motivation.* Poster session presented at the 21st Annual Conference of the Society for Industrial and Organizational Psychology, Dallas, TX.

Cigularov, K., & Thornton, G. C. (in preparation). *Criterion-related validity of the Achievement Motivation Inventory (AMI) in an academic setting.*

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences.* San Diego, CA: Academic Press.

Collins, C. J., Hanges, P. J., & Locke, E. A. (2004). The relationship of achievement motivation to entrepreneurial behavior: A meta-analysis. *Human Performance, 17,* 95-117.

Costa, P. T., Jr., & McCrae, R. R. (1988). From catalog to classification: Murray's needs and the five-factor model. *Journal of Personality and Social Psychology, 55,* 258-265.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual.* Odessa, FL: Psychological Assessment Resources.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience.* New York: Harper Perennial.

Csikszentmihalyi, M., Abuhamdeh, S., & Nakamura, J. (2005). In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 598-608). New York: The Guilford Press.

Davidov, E. (2008). A cross-country and cross-time comparison of the human values measurements with the second round of the European Social Survey. *Survey Research Methods, 2,* 33-46.

De Beuckelaer, A., Lievens, F., & Swinnen, G. (2007). Measurement equivalence in the conduct of a global organizational survey across countries in six cultural regions. *Journal of Occupational and Organizational Psychology, 80,* 575-600.

Deci, E. L, Ryan, R. M., Gagne, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former Eastern bloc country: A cross-cultural study of self-determination. *Journal of Personality and Social Psychology, 27,* 930-942.

Dorfman, P. W., & Howell, J. P. (1988). Dimensions of national culture and effective leadership patterns: Hofstede revisited. *Advances in International Comparative Management, 3,* 127-150.

Drucker, P. F. (2001). *Management challenges for the 21st century.* New York: HarperCollins Publishers.

Durankev, B. (2000). *Company's culture in the Republic of Bulgaria. Background study relating to USA, Japan, Germany, France, UK, Sweden, and the Netherlands* (University scientific order No NID 21.03.). Sofia, Bulgaria: University of National and World Economy.

Durankev, B. (2004). Българската фирмена култура на фона на културата в развитите страни [Bulgarian organizational culture compared to the organizational cultures in the developed countries. *Marketing and Management, 1.*

Dweck, C., & Leggett, E. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95,* 256-273.

Earley, P. C. (1993). East meets West meets Mideast: Further explorations of collectivistic and individualistic work groups. *Academy of Management Journal, 36*(2), 319-348.

Econ.bg. (2004, March 17). *Образование и пазар на труда – изискванията на работодателите [Education and labor market – the demands of employers].* Retrieved April 20, 2008, from http://www.econ.bg/news/article103885.html

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist, 34,* 149-169.

Elliot, A. J., Chirkov, V. I., Kim, Y., & Sheldon, K. M. (2001). A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychological Science, 12,* 505-510.

Elliot, A. J., & Church, M. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72,* 218-232.

Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A meditational analysis. *Journal of Personality and Social Psychology, 70,* 968-980.

Elliot, A. J., & McGregor, H. A. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology, 80,* 501-519.

Erez, M., & Earley, P. C. (1993). *Culture, self-identity and work.* Oxford: Oxford University Press.

Evans, P. (1995). *Embedded autonomy: States and the industrial transformation.* Princeton, NJ: Princeton University Press.

Fertig, G. (1996). Investigating the process of culture change from an anthropological perspective. *The Social Studies, 87,* 165-170.

Firme, L. M. (2000). *Biographical antecedents to achievement motivation and effort.* Unpublished manuscript. Colorado State University.

Frintrup, A. (1999). *Development and testing of the US-American version of the "Hohenheim Test of Achievement Motivation (HLMT)".* Unpublished master's thesis, University of Hohenheim, Stuttgart, Germany.

Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal, 39,* 37-63.

Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century.* New York: Farrar, Straus & Giroux.

Geisinger, K. F. (1994). Cross-cultural normative assessment: Translation and adaptation issues influencing the normative interpretation of assessment instruments. *Psychological Assessment, 6,* 304-312.

Genov, J. (2004). *Защо толкова малко успяваме? [Why do we achieve so little?].* Sofia, Bulgaria: Classic & Style.

Genov, J., & Karabeliova, S. (2001). *Necessary changes in value orientation of Bulgarians in the process of European integration.* Paper presented at the Human Resource Management Bulgarian National Conference, Borovetz, Bulgaria.

Genov, J., & Karabeliova, S. (2003). *Personnel selection and assessment based on personal values and personality characteristics – Prerequisite for building of high-performance business organizations.* Paper presented at the International Council for Small Business Conference, Ireland.

Genov, N. (1998). Transformation and anomie: Problems of quality of life in Bulgaria. *Social Indicator Research, 43,* 197-209.

Genov, N. & Krasteva, A. (Eds.). (2001). *Recent social trends in Bulgaria (1960-1995).* London: McGill-Queen's University Press.

Georgas, J., Berry, J. W., van de Vijver, F. J. R., Kagitcibasi, C., & Poortinga, Y. H. (Eds.). (2006). *Families across cultures: A 30-nation psychological study.* New York: Cambridge University Press.

Georgas, J., van de Vijver, F. J. R., & Berry, J. W. (2004). The ecocultural framework, ecosocial indicators and psychological variables in cross-cultural research. *Journal of Cross-Cultural Psychology, 35,* 74-96.

Ghorpade, J., Hattrup, K., & Lackritz, J. R. (1999). The use of personality measures in cross-cultural research: A test of three personality scales across two countries. *Journal of Applied Psychology, 84,* 670-679.

Greenfield, P. M., Keller, H., Fuligni, A., & Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology, 54,* 461-490.

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. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe*, Vol. 7 (pp. 7-28). Tilburg, The Netherlands: Tilburg University Press.

Hadjiiski, I. (1974a). *Бит и душевност на нашия народ [Way of life and mentality of our people].* Sofia, Bulgaria: Bulgarski Pisatel.

Hadjiiski, I. (1974b). *Оптимистична теория за нашия народ [Optimistic theory about the our people].* Sofia, Bulgaria: Bulgarski Pisatel.

Hambleton, R. K. (1994). Guidelines for adapting educational and psychological tests: A progress report. *European Journal of Psychological Assessment, 10,* 229-244.

Hambleton, R. K. (2001). The next generation of the ITC test translation and adaptation guidelines. *European Journal of Psychological Assessment, 17,* 164-172.

Hambleton, R. K. (2005). Issues, designs, and technical guidelines for adapting tests into multiple languages and cultures. In R. K. Hambleton, P. Merenda, & C. Spielberger (Eds.), *Adapting educational and psychological tests for cross-cultural assessment* (pp. 3-38). Mahwah, NJ: Lawrence Erlbaum.

Hambleton, R. K., & Kanjee, A. (1995). Increasing the validity of cross-cultural assessments: Use of improved methods for test adaptation. *European Journal of Psychological Assessment, 11,* 147-157.

Hambleton, R. K., & Patsula, L. (1998). Adapting tests for use in multiple languages and cultures. *Social Indicators Research, 45,* 153-171.

Hampden-Hunter, C., & Trompenaars, F. (1997). *Mastering the infinite game: How East Asian values are transforming business practices*. Oxford: Capstone.

Hampden-Hunter, C., & Trompenaars, F. (2000). *Building cross-cultural competence: How to create wealth from conflicting values.* London: Yale University Press.

Harzing, A. (2006). Response styles in cross-national survey research: A 26-country study. *International Journal of Cross Country Management, 6,* 243-266.

Hassan, F. M., & Peters, K. R. (1996). The structure of income and social protection during the transition: The case of Bulgaria. *Europe-Asia Studies, 48,* 629-646.

Hattrup, K, Schmitt, N., & Landis, R. S. (1992). Equivalence of constructs measured by job-specific and commercially available aptitude tests. *Journal of Applied Psychology, 77,* 298-308.

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods, 7*(2), 191-205.

Hayward, R. D., & Kemmelmeier, M. (2007). How competition is viewed across cultures: A test of four theories. *Cross-Cultural Research, 41,* 364-395.

Heggestad, E. D. (1997). *Motivation from a personality perspective: The development of a measure of motivational traits.* Unpublished doctoral dissertation, University of Minnesota, Twin Cities, Minnesota.

Heggestad, E. D., & Kanfer, R. (2000). Individual differences in trait motivation: Development of the Motivational Trait Questionnaire. *International Journal of Educational Research, 33*, 751-776.

Heckhausen, H. (1991). *Motivation and action.* New York: Springer.

Heine, S. J. (2007). Culture and motivation: What motivates people to act in the ways that they do. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 714-733). New York: The Guilford Press.

Heine, S. J., Lehman, D. R., Peng, K., & Greenholtz, J. (2002). What's wrong with cross-cultural comparisons of subjective Likert scales? The reference-group effect. *Journal of Personality and Social Psychology, 82*, 903-918.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Beverly Hills, CA: Sage Publications.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations.* Thousand Oaks, CA: Sage Publications.

Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and dimensions of culture. *Cross-Cultural Research, 38,* 52-88.

Hollinshead, G., & Michailova, S. (2001). Blockbusters or bridge-builders? The role of Western trainers in developing new entrepreneurialism in Eastern Europe. *Management Learning, 32*, 419-436.

Hoppe, M. H., & Bhagat, R. S. (2007). Leadership in the United States of America: The leader a cultural hero. In J. S. Chhokar, F. C. Brodbeck, & R. J. House (Eds.), *Culture and leadership across the world: The Globe book of in-depth studies of 25 societies* (pp. 475-543). Mahwah, NJ: Lawrence Erlbaum Associates.

Hough, L. M. (1992). The "Big Five" personality variables – construct confusion: Description versus prediction. *Human Performance, 5,* 139-155.

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.). (2004). *Cultures, leadership and organizations: The Globe study of 62 societies.* Thousand Oaks, CA: Sage.

Howe, N., & Strauss, W. (2000). *Millennials rising: The next great generation.* New York: Vintage Books.

Hoyle, R. H., & Smith, G. T. (1994). Formulating clinical research hypotheses as structural equation models: A conceptual overview. *Journal of Consulting and Clinical Psychology, 62,* 429-440.

Hu, L. –T., & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 76-99). Thousand Oaks, CA: Sage.

Hu, L. –T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1-55.

Huberty, C. J., & Morris, J. D. (1989). Multivariate analysis versus multiple univariate analyses. *Psychological Bulletin, 105,* 302-308.

Hufton, N., Elliot, J. G., & Illushin, L. (2002). Achievement motivation across cultures : Some puzzles and their implications for future research. *New Directions for Child and Adolescent Development, 96,* 65-85.

Hulin, C. H. (1987). A psychometric theory of evaluations of item and scale translations: Fidelity across languages. *Journal of Cross-Cultural Psychology, 18,* 115-142.

Huntington, S. P. (1996). *The clash of civilizations and the remaking of world order.* New York: Simon and Schuster.

Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review, 65,* 19-51.

Inkeles, A. (1998). *One world emerging? Convergence and divergence in industrial societies*. Boulder, CO: Westview Press.

Jackson, D. N. (1984). *Personality Research Form manual* (3rd ed.). Port Huron, MI: Research Psychologists Press.

Jackson, D. N., Ahmed, S. A., & Heapy, N. A. (1976). Is achievement a unitary construct? *Journal of Research in Personality, 10,* 1-21.

James, L. R., Demaree, R. G., & Wolf, G. (1993). Rwg: An assessment of within-group interrater agreement. *Journal of Applied Psychology, 78,* 306-309.

Jeleva, R. (2005). *Employers call for better vocational training.* Retrieved April 20, 2008, from http://www.eurofound.europa.eu/eiro/2005/11/feature/ bg0511102f.htm

Johnson, T., Kulesa, P., Cho, Y. I., & Shavitt, S. (2005). The relation between culture and response styles: Evidence from 19 countries. *Journal of Cross-Cultural Psychology, 36,* 264-277.

Jones, C., & Wallace, C. (1992). *Youth, family, and citizenship.* Buckingham, UK: Open University Press.

Jöreskog, K. G. (1993). Testing structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 294-316). Newbury Park, CA: Sage.

Junior Achievement Worldwide (2004). *Summer jobs 2004: Executive summary.* Retrieved April 10, 2008, from http://www.ja.org/files/polls/summer_jobs_2004.pdf

Junior Achievement Worldwide. (2005). *Personal finance 2005: Executive summary.* Retrieved April 10, 2008, from http://www.ja.org/files/polls/personal_finance_2005.pdf

Kagitçibaşi, Ç., & Berry, J. W. (1989). Cross-cultural psychology: Current research and trends. *Annual Review of Psychology, 40*, 493-531.

Kanfer, R. (1990). Motivation theory and industrial/organizational psychology. In M. D. Dunnette & L. Hough (Eds.), *Handbook of industrial and organizational psychology. Volume 1: Theory in industrial and organizational psychology* (pp. 76-170). Palo Alto, CA: Consulting Psychologists Press.

Kanfer, R., & Heggestad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior*, vol. 19 (pp. 1-56). Greenwich, CT: JAI Press.

Karabeliova, S. (1998). Ценности за труд при прехода към пазарна икономика [Work values in the transition to market economy]. *Bulgarian Journal of Psychology, 2,* 28-43.

Karabeliova, S. (2004). *Управление и развитие на човешкия потенциал [Management and development of the human potential].* Sofia, Bulgaria: Classic and Style.

Katigbak, M. S., Church, A. T., & Akamine, T. X. (1996). Cross-cultural generalizability of personality dimensions: Relating indigenous and imported dimensions in two cultures. *Journal of Personality and Social Psychology, 70,* 99-114.

Kelloway, E. K. (1995). Structural equation modeling in perspective. *Journal of Organizational Behavior, 16,* 215-224.

Kemmelmeier, M., Burnstein, E., Krumov, K., Genkova, P., Kanagawa, C., Hirshberg, M. S., et al. (2003). Individualism, collectivism, and authoritarianism in seven societies. *Journal of Cross-Cultural Psychology, 34,* 304-322.

Kirkcaldy, B. D., Furnham, A., & Martin, T. (1998). National differences in personality, socio-economic, and work-related attitudinal variables. *European Psychologist, 3,* 255-262.

Klicperova-Baker, M., Feierabend, I. K., & Hofstetter, C. R. (1999). Post-communist syndrome: Theoretical framework and empirical indicators. In M. Klicperova-Baker (Ed.), *Ready for democracy?* (pp. 161-184). Prague: Academy of Sciences of the Czech Republic.

Kline, P. (1986). *A handbook of test construction: Introduction to psychometric design.* New York: Methuen.

Kolev, B. T. (2002). *Икономическа култура [Economic culture].* Sofia, Buglaria: Sofia University Press.

Kraiger, K. (2003). Perspectives on training and development. In W. C. Borman, D. R. Illgen, & R. J. Klimonski (Eds.), *Handbook of psychology: Vol. 12. Industrial and Organizational Psychology* (pp. 171-192). Hoboken, NJ: Wiley.

Krasteva, E., & Marinova-Schmidt, V. (2006). Bulgaria: Socialism and open-market economy. In J. Georgas, J. W. Berry, F. J. R. van de Vijver, C. Kagitcibasi, & Y. H. Poortinga (Eds.), *Families across cultures: A 30-nation psychological study* (pp. 275-283). New York: Cambridge University Press.

Landy, F. J., & Conte, J. M. (2007). *Work in the 21st century: An introduction to industrial and organizational psychology.* Malden, MA: Blackwell Publishing.

Lanik, M., Thornton, G. C., & Hoskovcova, S. (in press). A flat world? Comparative study of achievement motivation in the Czech Republic and the United States. *Studia Psychologica.*

Larsen, K. S., Groberg, D. H., Simmons, D. D., & Ommundsen, R. (1993). Authoritarianism, perspectives on the environment, and work values among social science students in former socialist and Western societies. *Social Behavior and Personality, 21,* 251-263.

Leung, K. & Zhang, J. X. (1995). Systematic considerations: Factors facilitating and impeding the development of psychology in developing countries. *International Journal of Psychology, 30,* 693-706.

Liargovas, P., & Chionis, D. (2002). Barriers to the transition of enterprises from central plan to market economy: The Balkan case. *Journal of Southern Europe and the Balkans, 4,* 191-206.

Lindell, M. K., Brandt, C. J., & Whitney, D. J. (1999). A revised index of interrater agreement for multi-item ratings of a single target. *Applied Psychological Measurement, 23,* 127-135.

Little, T. D. (1997). Mean and covariance (MACS) analysis of cross-cultural data: Practical and theoretical issues. *Multivariate Behavioral Research, 32,* 53-76.

Locke, E. A. (1986). *Generalization from laboratory to field settings.* Lexington, MA: Lexington Books.

Locke, E. A., & Lantham, G. P. (1984). *Social setting: A motivational technique that works.* Englewood Cliffs, NJ: Prentice-Hall.

Loehlin, J. C. (1992). *Genes and environment in personality development.* Newbury Park, CA: Sage.

Lukes, S. (1973). *Individualism.* Oxford: Basil Blackwell.

Lynn, R. (1991). *The secret of the miracle economy.* London: SAU.

Lynn, R., & Martin, T. (1995). National differences for thirty-seven nations in extraversion, neuroticism, psychoticism and economic, geographic and other correlates. *Personality and Individual Differences, 19,* 403-406.

MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology, 51,* 201-226.

Maehr, M. L. (1974). Culture and achievement motivation. *American Psychologist, 29,* 887-896.

Marin, D. (2006). Human capital and outsourcing in Eastern and Western Europe. *Beyond Transition, 17,* 6-8.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224-253.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50,* 370-396.

Matsumoto, D., & Yoo, S. H. (2006). Toward a new generation of cross-cultural research. *Perspectives on Psychological Science, 1*, 234-250.

McClelland, D. C. (1951). *Personality*. New York: Henry Holt.

McClelland, D. C. (1961). *The achieving society.* Oxford, England: Van Nostrand.

McClelland, D. C. (1975). *Power: The inner experience.* New York: Irvington.

McClelland, D. C. (1987). The achievement motive. In D. C. McClelland (Ed.), *Human motivation* (pp. 223-267). Cambridge: Cambridge University Press.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive.* New York: Appleton-Century-Crofts.

McCrae, R. R., & Costa, P. T. Jr. (1997). Personality trait structure as a human universal. *American Psychologist, 52,* 509-516.

McDonald, R. P. (1989). An index of goodness-of-fit based on noncentrality. *Journal of Classification, 6,* 97-103.

McGlynn, A. P. (2008, February). Millennials in college: How do we motivate them? *The Education Digest,* 19-22.

McInerney, D. M. (1995). Achievement motivation and indigenous minorities: Can research be psychometric? *Journal of Cross-Cultural Research, 29,* 211-239.

Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement. *Journal of Applied Psychology, 93,* 568-592.

Mednick, M. T., & Thomas, V. G. (1993). Women and the psychology of achievement: A view from the eighties. In F. L. Denmark & M. A. Paludi (Eds.), *Psychology of women: A handbook of issues and theories* (pp. 585-626). Westport, CT: Greenwood.

Meredith, W. (1993). Measurement equivalence, factor analysis and factorial equivalence. *Psychometrika, 58,* 525-543.

Miller, J. C. (1996). Culture as a source of order in social motivation. *Psychological Inquiry, 7,* 240-243.

Minassian, G. (1994). The Bulgarian economy in transition: Is there anything wrong with macroeconomic policy? *Europe-Asia Studies, 46,* 337-351.

Minassian, G. (1998). The road to economic disaster in Bulgaria. *Europe-Asia Studies, 50,* 331-349.

Minkov, M. (2002). Защо сме различни? Междукултурни различия в семейството, обществото и бизнеса *[Why are we different? Intercultural differences in the family, society and business].* Sofia, Bulgaria: Classic and Style.

Mishev, G. (2005). Работната сила на България в прехода към пазарна икономика [Bulgarian workforce during the transition to market economy]. *Economic Alternatives, 5.* Retrieved April 20, 2008, from http://alternativi.unwe.acad.bg/ index.php?hid=18&nid=5

Mitchell, T. R. (1987). Motivation: New directions for theory, research, and practice. In R. M. Sterrs & L. W. Porter (Eds.), *Motivation and work behavior* (4th ed., pp. 27-40). New York: McGraw-Hill.

Mitova, P. (2006, June 26). *Studying abroad in Bulgaria: Facts about education in Bulgaria.* Retrieved May 1, 2008, from http://www.associatedcontent.com/article/ 39867/ studying_abroad_in_bulgaria.html?cat=16

Mueller-Hanson, R. A., & Thornton, G. C. III. (2000, April). *Relationship between achievement motivation and the Five Factor model of personality.* Poster session presented at the Annual Meeting of the Society of Industrial and Organizational Psychology, New Orleans, LA.

Murray, H. A. (1938). *Explorations in Personality.* New York: Oxford University Press.

National Statistical Institute of Bulgaria. (2007, January). *Наблюдение на потребителите [Consumer Report].* Sofia, Bulgaria: Author.

Nicholls, J. G. (1989). *The competitive ethos and democratic education.* Cambridge, MA: Harvard University Press.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Obolensky, D. (1971). *The Byzantine commonwealth: Eastern Europe, 500-1453.* London: Weudenfeld and Nicolson.

Ofori-Dankwa, J., & Ricks, D. A. (2000). Research emphases on cultural differences and/or similarities: Are we asking the right questions? *Journal of International Management, 6,* 172-186.

Our new undergraduates – Fall 2007. (n.d.). Retrieved May 8, 2008, from Colorado State University, Admissions Web site: http://admissions.colostate.edu/

Paulhaus, D. L. (1984). Two-component models of socially desirable responding. Journal of *Personality and Social Psychology, 46*, 598-609.

Petkova, D., & Lehtonen, J. (2005). *National Identities and Images. Bulgarian-Finnish Attitudes and Perceptions.* Jyväskylä, Finland: University of Jyväskylä, Department of Communication.

Plaut, V. C., & Marcus, H. R. (2005). The "inside" story: A cultural-historical analysis of being smart and motivated, American style. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 457-488). New York: The Guilford Press.

Poortinga, Y. H., van de Vijver, F., & van Hemert, D. A. (2002). Cross-cultural equivalence of the Big Five: A tentative interpretation of the evidence. In R. R. McCrae & J. Allik (Eds.), *The five-factor model of personality across cultures* (pp. 273-294). New York: Kluwer Academic/Plenum Publishers.

Potemra, M. J. (2007*). A cross-national study of achievement motivation in Brazil and the United States.* Unpublished manuscript.

Raju, N. S., Laffitte, L. J., & Byrne, B. M. (2002). Measurement equivalence: A comparison of methods based on confirmatory factor analysis and item response theory. *Journal of Applied Psychology, 87,* 517-529.

Raytchev, V. (n.d.). *Landscape of IT in Bulgaria.* Retrieved May 1, 2008, from http://www.american.edu/initeb/vr8018a/it_workforce.htm

Reeves-Ellington, R. H. (1998). A mix of cultures, values, and people: An organizational case study. *Human Organization, 57,* 94-107.

Renshon, S. A. (2000). American character and national identity: The dilemmas of cultural diversity. In S. A. Renshon & J. Duckitt (Eds.), *Political psychology: Cultural and cross-cultural foundations* (pp. 285-310). New York: New York University Press.

Reynaud, E., Egri, C. P., Ralston, D. A., Danis, W., Starkus, A., Dabic, M., et al. (2007). The differences in values between managers of the European founding countries, the new members, and the applicant countries: Societal orientation or financial orientation? *European Management Journal, 25,* 132-145.

Riordan, C. R., & Vandenberg, R. J. (1994). A central question in cross-cultural research: Do employees of different cultures interpret work-related measures in an equivalent manner? *Journal of Management, 20,* 643-671.

Robert, C., Lee, W. C., & Chan, K. (2006). An empirical analysis of measurement equivalence with the INDCOL measure of individualism and collectivism: Implications for valid cross-cultural inference. *Personnel Psychology, 59,* 65-99.

Roe, R. A., Zinovieva, I. L., Dienes, E., & Ten Horn, L. A. (2000). A comparison of work motivation in Bulgaria, Hungary, and the Netherlands: Test of a model. *Applied Psychology: An International Review, 49,* 658-687.

Rotter, J. B. (1966). Generalized expectancies for internal vs. external control of reinforcement. *Psychological Monographs: General and Applied, 80,* 1-28.

Ruiz-Quintanilla, S. A., & England, G. W. (1996). How working is defined: Structure and stability. *Journal of Organizational Behavior, 17,* 515-540.

Ryan, A. M., Chan, D., Ployhart, R. E., & Slade, L. A. (1999). Employee attitude surveys in a multinational organization: Considering language and culture when assessing measurement equivalence. *Personnel Psychology, 52,* 37-58.

Sagie, A., & Elizur, D. (1998). Taking another look at cross-cultural research: Rejoinder to Lachman. *Journal of Organizational Behavior, 19*, 421-427).

Sagie, A., Elizur, D., & Yamauchi, H. (1996). The structure and strength of achievement motivation: A cross-cultural comparison. *Journal of Organizational Behavior, 17,* 431-444.

Schaffer, B. S., & Riordan, C. M. (2003). A review of cross-cultural methodologies for organizational research: A best-practices approach. *Organizational Research Methods, 6,* 169-215.

Schuler, H. (1998). Berufsbezogene Leistungsmotivation. In L. von Rosenstiel & H. Schuler (Eds.*), Person-Arbeit-Gesellschaft. Festschrift für Hermann Brandstätter* (pp. 23-45). Augsburg: Wißner.

Schuler, H., & Prochaska, M. (2000). Entwicklung und Konstructvalidierung eines berufsbezogenen Leistungmotivationtests. *Diagnostica, 46*, 61-72.

Schuler, H. & Prochaska, M. (2001). *Leistungsmotivationsinventar (LMI)*. Göttingen, Germany: Hogrefe.

Schuler, H., Thornton, G. C. III, Frintrup, A., & Mueller-Hanson, R. (2004). *Achievement Motivation Inventory Manual*. Göttingen, Germany: Hogrefe.

Schumpeter, J. A. (1961). *The theory of economic development.* Cambridge, MA: Harvard University Press.

Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology: An International Review, 48*, 23-47.

Sechrest, L., Fay, T. L., & Hafeez Zaidi, S. M. (1972). Problems of translation in cross-cultural research. *Journal of Cross-Cultural Psychology, 3,* 41-56.

Shapiro, D. L., Von Glinow, M. A., & Xiao, Z. (2007). Toward polycontextually sensitive research methods. *Management and Organizational Review, 3,* 129-152.

Silver, B. J. (2003). *Forces of labor: Workers' movement and globalization since 1870.* Cambridge: Cambridge University Press.

Singh, S. (1979). Relationships among projective and direct verbal measures of achievement motivation. *Journal of Personality Assessment, 43,* 45-53.

Sintek, E. E. (2006). *A cross-cultural comparison of achievement motivation in the United States and South Korea.* Unpublished master's thesis, Colorado State University, Fort Collins, Colorado.

Sireci, S. G., Yang, Y., Harter, J., & Ehrlich, E. J. (2006). Evaluating guidelines for test adaptations: A methodological analysis of translation quality. *Journal of Cross-Cultural Research, 37,* 557-567.

Smith, P. B., Dugan, S., & Trompenaars, F. (1996). National culture and the values of organizational employees. *Journal of Cross-Cultural Psychology, 27,* 231-264.

Smith, P. B., Trompenaars, F., & Dugan, S. (1995). The Rotter locus of control scale in 43 countries: A test of cultural relativity. *International Journal of Psychology, 30,* 337-400.

Sorman, G. (1984). *La solution libérale [The solution of the liberals].* Paris: Fayard.

Spangler, W. D. (1992). Validity of questionnaire and TAT measures of need for achievement: Two meta-analyses. *Psychological Bulletin, 112,* 140-154.

Spence, J. T. (1985). Achievement American style: The rewards and costs of individualism. *American Psychologist, 40,* 1285-1295.

Spence, J. T., & Helmreich, R. L. (1983). Achievement related motives and behaviors. In J. T. Spence (Ed.), *Achievement and Achievement Motives*. San Francisco, CA: W. H. Freeman and Company.

Spence, J. T., Pred, R. S., & Helmreich, R. L. (1989). Achievement strivings, scholastic aptitude, and academic performance: A follow-up to "Impatience versus achievement strivings in the Type A pattern". *Journal of Applied Psychology, 74,* 176-178.

Stanton, J. M., Sinar, E. F., Balzer, W. K., & Smith, P. C. (2002). Issues and strategies for reducing the length of self-report scales. *Personnel Psychology, 55,* 167-194.

Stevens, D. P., & Truss, C. V. (1985). Stability and change in adult personality over 12 and 20 years. *Developmental Psychology, 21,* 568-584.

Tellegen, A., & Waller, N. G. (2000). Exploring personality through test construction: Development of the Multidimensional Personality Questionnaire. In S. R. Briggs & J. M. Cheek (Eds.), *Personality measures: Development and evaluation*, vol. 1. Greenwich, CT: JAI Press.

The Pew Research Center for the People and the Press. (2002). *The Pew global attitudes project: What the world thinks in 2002.* Retrieved April 10, 2008, from http://people-press.org/reports/display.php3?ReportID=165

The World Bank. (2001). *World development report 2000/2001: Attacking poverty.* Retrieved April 20, 2008, from http://go.worldbank.org/L8RGH3WLI0

Topalova, V. (1997). Individualism/collectivism and social identity. *Journal of Community & Applied Social Psychology, 7,* 53-64.

Triandis, H. C. (1995). *Individualism & collectivism.* Boulder, CO: Westview.

Tsui, A. S., Nifadkar, S. S., & Ou, A. Y. (2007). Cross-national, cross-cultural organizational behavior research: Advances, gaps, and recommendations. *Journal of Management, 33,* 426-478.

United Nations Development Programme. (2007). *Human development report 2007/2008. Fighting climate change: Human solidarity in a divided world.* Retrieved April 10, 2008, from http://hdr.undp.org/en/reports/global/hdr2007-2008/

van de Vijver, F. J. R., & Leung, K. (1997). Methods and data analysis of comparative research. In J. W. Berry, Y. H. Poortinga, & J. Pandey (Eds.), *Handbook of cross-cultural psychology: Vol. 1: Theory and method* (pp. 257-300). Boston: Allyn and Bacon.

van de Vijver, F. J. R., & Leung, K. (2000). Methodological issues in psychological research on culture. *Journal of Cross-Cultural Psychology, 31,* 33-51.

van Hemert, D. A., van de Vijver, F. J. R., Poortinga, Y. H., & Georgas, J. (2002). Structural and functional equivalence of the Eysenck Personality Questionnaire within and between countries. *Personality and Individual Differences, 33,* 1229-1249.

Vandenberg, R. (2002). Toward of further understanding of and improvement in measurement invariance methods and procedures. *Organizational Research Methods, 5,* 139-158.

Vandenberg, R., & Lance, C. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*, 4-69.

VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 57,* 995-1015.

Vassilev, R. (2003). The "third-worldization" of a "second-world" nation: De-development in post-communist Bulgaria. *New Political Science, 25,* 99-112.

Veroff, J., Reuman, D., & Feld, S. (1984). Motives in American men and women across the adult life span. *Developmental Psychology, 20,* 1142-1158.

Verwiebe, R., & Wegener, B. (2000). Social inequality and the perceived income justice gap. *Social Justice Research, 13,* 123-149.

Wallace, C., & Kovatcheva, S. (1996). Youth cultures and consumption in Eastern and Western Europe: An overview. *Youth & Society, 28,* 189-214.

Wang, M., & Russel, S. S. (2005). Measurement equivalence of the job descriptive index across Chinese and American workers: Results from confirmatory factor analysis and item response theory. *Educational and Psychological Measurement, 65*, 709-732.

Weber, M. (1996). *The protestant work ethic and the spirit of capitalism.* Los Angeles, CA: Roxbury. (Original work published 1904)

Woo, S. E., Gibbons, A. M., & Thornton, G. C., (2007). Latent mean differences in the facets of achievement motivation of undergraduate students and adult workers in the US. *Personality and Individual Differences, 43,* 1687-1697.

World Economic Forum. (2007). *The global competitiveness report 2007-2008.* Retrieved April 10, 2008, from http://www.weforum.org/en/initiatives/gcp/ Global%20Competitiveness% 20Report/index.htm

Yukl, G. A. (1989). *Leadership in organizations.* Englewood Cliffs, NJ: Prentice Hall.

Zinovieva, I. I., Ten Horn, L. A., & Roe, R. A. (1993). Work motivation in 'post-socialist' industrial organizations. *European Work and Organizational Psychologist, 3,* 251-262.

Zloch-Christy, I. (Ed.). (1996). *Bulgaria in a time of change: Economic and political dimensions.* Aldershot, UK: Ashgate Publishing.

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin, 99,* 432-442.

Table 1

Scales of the Achievement Motivation Inventory (based on Schuler et al., 2004)

Scale	Brief definition and sample item
Compensatory Effort	Willingness to expend extra effort to avoid failing at a work task, even if this effort results in over-preparation. *So that I will not be subject to criticism, I prefer to double my effort.*
Competitiveness	Motivation derived from competing. A desire to be better and faster than others. *It annoys me when others perform better than I do.*
Confidence in Success	Confidence in achieving success even when there are obstacles to overcome. *Even when faced with a difficult task, I always expect to achieve my goal.*
Dominance	Need to exercise power and influence over others; tendency to take initiative and to have control over activities. *I like to decide what others should do.*
Eagerness to Learn	Desire and willingness to spend a lot of time enlarging one's knowledge for knowledge sake. *I spend considerable time learning new things.*
Engagement	Desire to be regularly engaged in activity, usually work related; uncomfortable if nothing to do for long periods. *Others say that I work a lot more than necessary.*
Fearlessness	Lack of fear of failing at difficult tasks; not nervous about performing in public or under time-pressure. *When faced with a new job or task, I am often afraid of doing something wrong.* (RS)
Flexibility	Willingness to accept change . *I sometimes take risks in order to try out something new.*
Flow	Ability to concentrate on something for a long time without being distracted by situational influences; tend to become lost to the outside world when absorbed in a task. *When I am busy with something interesting, I can forget the world about me.*
Goal Setting	Tendency to make long term plans for achieving one's goals. *I know exactly what professional position I would like to hold in five years.*
Independence	Tendency to take responsibility for one's own actions; would rather make own decisions than take direction from others. *When performing a difficult task, I prefer sharing the responsibility with others rather than bearing it alone.* (RS)
Internality	The belief that one's successes and failures are due to internal causes rather than to situational variables. *The extent of one's professional success depends a good deal on luck.* (RS)

Table 1 (continued)

Scale	Brief definition and sample item
Persistence	Willingness to exert large amounts of effort over long periods of time to reach a goal. *I have often given up quickly when something went wrong.*
Preference for Difficult Tasks	Tendency to seek out challenging rather than easy tasks. *I like to work at tasks that require a great deal of skill.*
Pride in Productivity	Sense of enjoyment and accomplishment derived from doing one's best at work. *It makes me proud and happy to have mastered a difficult task.*
Self-control	Ability to avoid procrastination and to organize oneself and one's work; a form of self-discipline. *I frequently put off until tomorrow things that I should do today.* (RS)
Status Orientation	Desire to attain high status in one's personal life and to progress professionally. *I intend to go far professionally.*

Note. An italicized sentence represents a sample item from the scale. RS = reverse coded.

Table 2

Differences Between Bulgarian and U.S. Samples on Observed and Latent Means

		Observed Mean Analyses								Latent Mean Analyses	
		Bulgaria		U.S.							
AMI Scale	# Items[a]	*M*	*SD*	*M*	*SD*	*t*		*d*		z^b	
1. Compensatory effort	6	31.27	6.67	27.79	5.75	10.25	*	1.39		7.48	**
2. Competitiveness	8	36.07	9.37	35.76	9.50	.58		.10		2.11	
3. Confidence in success	5	24.30	5.36	25.13	4.84	-2.96		-.37		-1.20	
4. Dominance	7	31.92	8.00	32.58	6.55	-1.28		-.25		NI	
5. Eagerness to learn	5	19.55	6.31	19.56	5.52	-.03		.00		NI	
6. Engagement	4	14.78	6.11	13.87	5.21	2.94		.38		NI	
7. Fearlessness	6	23.30	7.34	24.55	6.81	-3.18	*	-.47		-2.77	**
8. Flexibility	5	20.13	5.67	21.24	5.11	-3.73	*	-.48		NI	
9. Flow	7	35.31	7.41	33.16	6.98	5.39	*	.80		6.90	**
10. Goal setting	4	17.98	5.14	17.64	5.68	1.09		.14		NI	
11. Independence[c]	10	49.65	8.40	45.29	7.37	10.10	*	1.55		n/a	
12. Internality	5	21.04	5.44	25.16	5.12	-14.06	*	-1.80		-12.16	**
13. Persistence	6	25.72	6.69	24.39	6.71	3.55	*	.51		2.79	**
14. Prefer difficult tasks	6	27.74	7.66	25.94	6.29	4.78	*	.68		3.66	**
15. Pride in productivity	5	32.31	3.38	31.06	3.65	6.23	*	.67		6.84	**
16. Self-control	6	27.72	7.42	24.22	6.85	8.89	*	1.31		9.00	**
17. Status orientation	8	45.19	7.87	44.46	7.32	1.72		.26		1.38	

Note. Bulgarian *n* ranges between 453 and 465 due to missing values. U.S. *n* is 1022. $*p < .003$ for *t*-tests based on Bonferroni correction. $**p < .005$ for *z*-tests based on Bonferroni correction. *z* indicates the difference of the estimated latent means from zero. *d* is the difference between Bulgarian and U.S. means in standard deviation units (effect size). *d* = (mean for Bulgarian sample - mean for U.S. sample)/pooled SD. Positive *d* and *z* values indicate that Bulgarian participants scored higher on the facet than U.S. participants and vice versa. NI indicates that measurement invariance was not demonstrated for that scale across the Bulgarian and U.S. samples. n/a = not applicable. [a]Revised AMI scales are used, except for Independence. [b]Statistics are based on Yuan-Bentler correction with robust standard errors. [c]Independence was excluded from the latent mean analysis due to multidimensionality.

Table 3

Coefficients Alpha for the Original and Revised AMI Scales Across Bulgarian and U.S. Samples

Scale	Bulgarian Sample		U.S. Sample	
	Original	Revised	Original	Revised
	α	α	α	α
1. Compensatory effort	0.80	0.82	0.77	0.78
2. Competitiveness	0.79	0.80	0.86	0.86
3. Confidence in success	0.80	0.74	0.81	0.74
4. Dominance	0.80	0.80	0.77	0.77
5. Eagerness to learn	0.76	0.72	0.70	0.65
6. Engagement	0.75	0.78	0.77	0.77
7. Fearlessness	0.76	0.73	0.78	0.74
8. Flexibility	0.69	0.65	0.72	0.66
9. Flow	0.77	0.74	0.81	0.80
10. Goal setting	0.67	0.54	0.66	0.75
11. Independence[a]	0.65	n/a	0.61	n/a
12. Internality	0.62	0.55	0.73	0.69
13. Persistence	0.74	0.69	0.79	0.79
14. Preference for difficult tasks	0.86	0.85	0.81	0.84
15. Pride in productivity	0.75	0.69	0.80	0.76
16. Self-control	0.63	0.68	0.70	0.77
17. Status orientation	0.82	0.82	0.81	0.84

Note. Bulgarian sample size ranges between 448 and 458 due to missing values. U.S. sample size is 1022. [a]This scale was not revised.

Table 4

Intercorrelations for the Revised AMI Scales Across the Bulgarian and U.S. Samples and Combined Sample Coefficients Alpha

AMI Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Compensatory effort	**.80**	0.27	0.32	0.35	0.28	0.50	-0.04	-0.04	0.24	0.28	0.16	0.10	0.19	0.29	0.39	0.29	0.46
2. Competitiveness	0.38	**.84**	0.14	0.43	0.06	0.27	-0.11	-0.04	0.13	0.10	0.16	-0.18	-0.04	0.10	0.12	-0.06	0.43
3. Confidence in success	0.11	0.13	**.74**	0.46	0.32	0.20	0.42	0.39	0.09	0.25	0.42	0.24	0.39	0.54	0.37	0.29	0.34
4. Dominance	0.12	0.43	0.44	**.77**	0.36	0.35	0.32	0.23	0.16	0.28	0.48	0.05	0.18	0.41	0.27	0.13	0.51
5. Eagerness to learn	0.19	0.14	0.34	0.30	**.66**	0.30	0.18	0.19	0.26	0.29	0.30	-0.01	0.18	0.44	0.16	0.07	0.20
6. Engagement	0.39	0.29	0.27	0.29	0.36	**.77**	0.01	-0.01	0.21	0.23	0.17	-0.04	0.11	0.29	0.12	0.22	0.32
7. Fearlessness	-0.17	0.00	0.53	0.32	0.23	0.03	**.74**	0.68	-0.05	0.24	0.44	0.39	0.54	0.49	0.06	0.36	0.08
8. Flexibility	-0.20	0.04	0.46	0.38	0.27	0.04	0.65	**.65**	0.06	0.17	0.42	0.30	0.44	0.50	0.09	0.19	0.08
9. Flow	0.32	0.21	0.19	0.25	0.27	0.29	0.07	0.05	**.78**	0.09	0.15	-0.06	0.04	0.23	0.25	-0.05	0.21
10. Goal setting	0.20	0.20	0.37	0.30	0.33	0.24	0.30	0.31	0.18	**.67**	0.24	0.23	0.27	0.21	0.18	0.34	0.33
11. Independence	0.02	0.08	0.45	0.45	0.36	0.22	0.52	0.47	0.22	0.39	**.65**	0.26	0.38	0.49	0.19	0.24	0.30
12. Internality	-0.09	-0.13	0.17	-0.05	0.06	-0.05	0.41	0.30	0.02	0.11	0.21	**.68**	0.44	0.29	0.28	0.34	0.09
13. Persistence	0.07	-0.05	0.36	0.20	0.20	0.15	0.57	0.43	0.17	0.30	0.45	0.40	**.76**	0.48	0.13	0.57	0.09
14. Preference for difficult tasks	0.28	0.21	0.54	0.37	0.40	0.33	0.44	0.41	0.35	0.31	0.49	0.19	0.44	**.84**	0.25	0.29	0.27
15. Pride in productivity	0.39	0.29	0.17	0.26	0.15	0.18	0.00	0.02	0.34	0.14	0.21	0.05	0.07	0.22	**.75**	0.18	0.54
16. Self-control	0.17	0.00	0.24	0.04	0.14	0.15	0.32	0.08	0.14	0.26	0.28	0.27	0.48	0.20	0.14	**.75**	0.14
17. Status orientation	0.38	0.50	0.24	0.42	0.23	0.27	0.01	0.13	0.24	0.37	0.25	-0.09	0.01	0.27	0.42	0.01	**.83**

Note. The intercorrelations between facet scores for the U. S. sample are presented in the upper right portion of the matrix, while scores for the Bulgarian sample are presented in the bottom left portion of the matrix. For U.S., correlation coefficients larger than .10 are significant at the .001 level. For Bulgaria, correlation coefficients larger than .15 are significant at the .001 level. Bold values on the diagonal are alpha coefficients for the combined sample.

Table 5

Tests of Within-Sample Measurement Model Fit of the AMI Scales for Bulgarian and U.S. Samples

AMI Scale	CFA Model	χ^2	*df*	CFI	MFI	SRMR	RMSEA	90% CI of RMSEA
Compensatory Effort	BG 1-Factor Model	22.686	9	.974	.986	.032	.057	.028 - .087
	US 1-Factor Model	24.788	9	.985	.992	.025	.041	.022 - .061
Competitiveness	BG 1-Factor Model	48.798	20	.963	.970	.038	.055	.035 - .075
	US 1-Factor Model[a]	64.564	17	.979	.977	.028	.052	.039 - .066
Confidence in Success	BG 1-Factor Model	1.064	5	1.000	1.004	.009	.000	.000 - .017
	US 1-Factor Model[b]	3.937	4	1.000	1.000	.012	.000	.000 - .047
Dominance	BG 1-Factor Model[c]	15.907	13	.996	.997	.024	.021	.000 - .053
	US 1-Factor Model[d]	43.199	13	.974	.985	.028	.048	.032 - .064
Eagerness to Learn	BG 1-Factor Model[e]	9.344	4	.986	.994	.024	.053	.000 - .099
	US 1-Factor Model[f]	14.527	4	.979	.995	.023	.051	.024 - .080
Engagement	BG 1-Factor Model[g]	1.604	1	.999	.999	.010	.035	.000 - .134
	US 1-Factor Model[h]	.576	1	1.000	.1000	.004	.000	.000 - .075
Fearlessness	BG 1-Factor Model[i]	14.102	8	.986	.994	.030	.040	.000 - .074
	US 1-Factor Model[j]	25.625	7	.981	.991	.024	.051	.031 - .073
Flexibility	BG 1-Factor Model	3.050	5	1.000	1.002	.016	.000	.000 - .049
	US 1-Factor Model	8.823	5	.992	.998	.019	.027	.000 - .056
Flow	BG 1-Factor Model[k]	27.665	13	.965	.985	.041	.049	.022 - .074
	US 1-Factor Model[l]	47.331	12	.974	.983	.033	.054	.038 - .070
Goal Setting	BG 1-Factor Model	3.353	2	.990	.999	.024	.038	.000 - .107
	US 1-Factor Model[m]	1.782	1	.999	1.000	.006	.028	.000 - .093
Internality	BG 1-Factor Model[n]	5.432	4	.989	.998	.025	.027	.000 - .079
	US 1-Factor Model[o]	1.963	3	1.000	1.001	.008	.000	.000 - .045

Table 5 (continued)

AMI Scale	CFA Model	χ^2	*df*	CFI	MFI	SRMR	RMSEA	90% CI of RMSEA
Persistence	BG 1-Factor Model[p]	11.090	8	.990	.997	.027	.029	.000 - .066
	US 1-Factor Model[p]	20.499	8	.990	.994	.021	.039	.018 - .060
Preference for Diff. Tasks	BG 1-Factor Model[q]	6.900	7	1.000	1.000	.020	.000	.000 - .056
	US 1-Factor Model[r]	19.382	8	.992	.994	.018	.037	.016 - .059
Pride in Productivity	BG 1-Factor Model[s]	6.450	4	.981	.997	.028	.036	.000 - .085
	US 1-Factor Model[s]	3.250	4	1.000	1.000	.010	.000	.000 - .043
Self-Control	BG 1-Factor Model	20.324	9	.967	.988	.040	.051	.020 - .082
	US 1-Factor Model	40.981	9	.974	.984	.030	.059	.041 - .078
Status Orientation	BG 1-Factor Model	39.529	14	.946	.974	.044	.062	.039 - .085
	US 1-Factor Model	58.973	14	.957	.978	.034	.056	.042 - .071

Note. Bulgarian n = 465 and U.S. n= 1022. χ^2 = chi-square likelihood ratio test; CFI = comparative fit index; MFI = McDonald fit index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CI = confidence interval. Statistics are based on Yuan-Bentler correction with robust standard errors. [a]Three error covariances related to items 159 and 142, items 40 and 6, and items 91 and 23 were added sequentially. [b]One error covariance related to items 27 and 10 was added. [c]One error covariance related to items 98 and 30 was added. [d]One error covariance related to items 30 and 13 was added. [e]One error covariance related to items 116 and 65 was added. [f]One error covariance related to items 48 and 31 was added. [g]One error covariance related to items 114 and 12 was added. [h]One error covariance related to items 131 and 97 was added. [i]One error covariance related to items 107 and 5 was added. [j]Two error covariances related to items 107 and 56 and items 107 and 5 were added sequentially. [k]One error covariance related to items 37 and 3 was added. [l]Two error covariances related to items 20 and 3 and items 156 and 54 were added sequentially. [m]One error covariance related to items 41 and 24 was added. [n]One error covariance related to items 127 and 25 was added. [o]Two error covariances related to items 127 and 25 and items 144 and 8 were added sequentially. [p]One error covariance related to items 138 and 104 was added. [q]Two error covariances related to items 60 and 43 and items 94 and 77 were added sequentially. [r]One error covariance related to items 60 and 43 was added. [s]One error covariance related to items 21 and 4 was added.

Table 6

Tests of Measurement Invariance for Multiple Group Measurement Model of the AMI Scales Across Bulgarian and U.S. Samples

Model	χ^2	*df*	CFI	ΔCFI	MFI	ΔMFI	SRMR	RMSEA	90% CI for RMSEA
Compensatory Effort									
Configural invariance	47.252	18	.981		.990		.029	.047	.031 - .063
Metric invariance	57.460	23	.978	.003	.989	.001	.041	.045	.030 - .059
Scalar invariance	190.258	28	.975	.006	.983	.007	.059	.054	.040 - .068
Competitiveness									
Configural invariance	112.137	37	.976		.975		.033	.052	.041 - .063
Metric invariance	131.509	44	.972	.004	.971	.004	.048	.052	.042 - .062
Scalar invariance	315.455	51	.970	.006	.968	.007	.051	.055	.045 - .065
Confidence in Success									
Configural invariance	4.790	9	1.000		1.001		.010	.000	.000 - .023
Metric invariance	10.285	13	1.000	.000	1.001	.000	.027	.000	.000 - .029
Scalar invariance	110.670	17	1.000	.000	1.000	.001	.028	.007	.000 - .037
Dominance*									
Configural invariance	58.946	26	.982		.989		.026	.041	.027 - .055
Metric invariance	103.445	32	.961	.019	.976	.013	.062	.055	.043 - .066
Scalar invariance	429.427	38	.951	.031	.966	.023	.080	.066	.054 - .077
Eagerness to Learn**									
Configural invariance	23.497	8	.982		.995		.024	.051	.028 - .075
Metric invariance	33.879	12	.975	.007	.993	.002	.039	.049	.030 - .070
Scalar invariance	271.244	16	.957	.025	.985	.010	.051	.071	.052 - .089
Engagement*									
Configural invariance	2.175	2	1.000		1.000		.008	.011	.000 - .074
Metric invariance	37.984	5	.972	.028	.989	.011	.064	.094	.067 - .123
Scalar invariance	103.689	8	.971	.029	.988	.012	.058	.100	.073 - .129

Table 6 (continued)

Model	χ^2	*df*	CFI	ΔCFI	MFI	ΔMFI	SRMR	RMSEA	90% CI for RMSEA
				Fearlessness					
Configural invariance	38.575	15	.983		.992		.027	.046	.028 - .064
Metric invariance	41.116	20	.985	-.002	.993	-.001	.029	.038	.021 - .054
Scalar invariance	100.337	25	.984	-.001	.992	.000	.030	.040	.023 - .056
				Flexibility**					
Configural invariance	11.939	10	.997		.999		.018	.016	.000 - .045
Metric invariance	19.346	14	.992	.005	.998	.001	.032	.023	.000 - .045
Scalar invariance	183.459	18	.971	.026	.991	.008	.051	.050	.032 - .068
				Flow					
Configural invariance	74.553	25	.972		.984		.037	.051	.038 - .065
Metric invariance	92.957	31	.965	.007	.980	.004	.054	.052	.040 - .064
Scalar invariance	263.954	37	.961	.011	.974	.010	.065	.059	.047 - .071
				Goal Setting*					
Configural invariance	5.082	3	.998		.999		.017	.030	.000 - .075
Metric invariance	33.281	6	.973	.025	.991	.008	.068	.078	.053 - .105
Scalar invariance	256.409	9	.958	.040	.983	.016	.114	.107	.083 - .133
				Internality					
Configural invariance	7.288	7	1.000		1.000		.018	.007	.000 - .046
Metric invariance	9.790	11	1.000	.000	1.000	.000	.023	.000	.000 - .035
Scalar invariance	56.218	15	.989	.011	.996	.004	.037	.040	.017 - .061
				Persistence					
Configural invariance	31.676	16	.990		.995		.024	.036	.017 - .055
Metric invariance	37.886	21	.989	.001	.994	.001	.032	.033	.015 - .049
Scalar invariance	150.435	26	.987	.003	.993	.002	.035	.037	.021 - .053

Table 6 (continued)

Model	χ^2	*df*	CFI	ΔCFI	MFI	ΔMFI	SRMR	RMSEA	90% CI for RMSEA
Preference for Difficult Tasks									
Configural invariance	25.701	15	.995		.996		.019	.031	.006 - .051
Metric invariance	38.166	20	.992	.003	.994	.002	.041	.035	.017 - .051
Scalar invariance	64.236	25	.992	.003	.993	.003	.044	.037	.020 - .053
Pride in Productivity									
Configural invariance	9.327	8	.998		1.000		.021	.015	.000 - .047
Metric invariance	10.884	12	1.000	-.002	1.000	.000	.029	.000	.000 - .034
Scalar invariance	50.015	16	.997	.001	.999	.001	.032	.017	.000 - .043
Self-Control									
Configural invariance	60.806	18	.974		.986		.035	.056	.041 - .072
Metric invariance	67.310	23	.973	.001	.985	.001	.041	.051	.037 - .065
Scalar invariance	96.863	28	.974	.000	.984	.002	.042	.053	.039 - .067
Status Orientation									
Configural invariance	97.461	28	.954		.977		.039	.057	.045 - .070
Metric invariance	117.306	34	.945	.009	.973	.004	.058	.057	.046 - .069
Scalar invariance	241.320	40	.944	.010	.969	.008	.059	.061	.050 - .072

Note. χ^2 = chi-square likelihood ratio test; CFI = comparative fit index; MFI = McDonald fit index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation. CI = confidence interval. * = lack of metric invariance. ** = lack of scalar invariance. Statistics are based on Yuan-Bentler correction with robust standard errors.

Table 7

Summary of Between-Group Measurement Invariance Results for the Revised AMI Scales

Scale	Metric Invariance		Scalar Invariance	
	ΔCFI ≤ .01	ΔMFI ≤ .007	ΔCFI ≤ .01	ΔMFI ≤ .007
1. Compensatory effort	X	X	X	X
2. Competitiveness	X	X	X	X
3. Confidence in success	X	X	X	X
4. Dominance				
5. Eagerness to learn	X	X		
6. Engagement				
7. Fearlessness	X	X	X	X
8. Flexibility	X	X		
9. Flow	X	X	X	
10. Goal setting				
11. Independence[a]				
12. Internality	X	X	X	X
13. Persistence	X	X	X	X
14. Preference for difficult tasks	X	X	X	X
15. Pride in productivity	X	X	X	X
16. Self-control	X	X	X	X
17. Status orientation	X	X	X	

Note. ΔCFI = difference value for the comparative fit index. ΔMFI = difference value for the McDonald fit index. X = criterion was satisfied. [a]This scale was not revised.

Appendix A: Bulgarian Translation of the AMI

Bulgarian Translation of the AMI

Translation Issues and Recommendations

Brislin, Lonner, and Thorndike (1973) identified test translation as the most challenging aspect of cross-cultural research. Since that time, a variety of procedures and guidelines for proper translation have been developed and proposed (Sireci, Yang, Harter, & Ehrlich, 2006). In regards to the translation process, research recommends the use of independent translators, back translation, reviews of original, back-translated, and target language versions, and de-centering (i.e., emphasis on meaning preservation over literal, word-for-word translation) (Brislin, 1970; Hambleton, 1994, 2001, 2005; Hambleton & Patsula, 1998; Schaffer & Riordan, 2003). In addition, the translators are expected to be proficient in both languages of interest, be familiar with both cultures, have good knowledge of the subject matter domain; and have training and experience in test development (Hambleton & Kanjee, 1995).

The Translation Process

Following the above recommendations, the AMI was translated into Bulgarian through a rigorous translation-back-translation process, using two translators and multiple independent reviewers. The Big-Five Factor Markers from the International Personality Item Pool (BFFM: Goldberg, 1999) was also translated into Bulgarian following the same process. The rationale was to assess the functional equivalence (Hui & Triandis, 1985) of the AMI across Bulgarian and U.S. samples, by examining associations between scores on the AMI scales and theoretically relevant Big Five personality factors.

Translation. The 170 AMI items and the 50 BFFM items, along with administration instructions and demographic questions, were first translated into

Bulgarian by the author, who met the requirements for a qualified translator (see Hambleton & Kanjee, 1995). The author is a native Bulgarian and is fluent in both Bulgarian and English. He has received his education in both Bulgaria and U.S., and has lived extensively in the U.S. Thus, he is very familiar with both countries and cultures. In addition, the author has taught college-level courses in psychological testing and measurement and has significant experience with test development and validation.

First review. The translation by the author was reviewed by two independent native Bulgarian speakers, who were fluent in English and whose professional work was conducted entirely in English. The two reviewers were provided with brief definitions of the constructs measured by the AMI and BFFM scales, as well as the English and Bulgarian versions of the scale items. They were asked to read the definitions and the English versions, and then read and review the Bulgarian versions item by item. Based on their feedback, the Bulgarian versions of the AMI and BFFM, instructions, and demographic questions were revised.

Back translation. The Bulgarian versions of the AMI and BFFM were independently back-translated into English by an English native speaker, who has lived and worked extensively in Bulgaria, and is fluent in Bulgarian. The back-translator was not familiar with the measures under study and had no knowledge of the contents of the original English versions.

Comparison of the English and back-translated versions. The aim of this step was to determine the semantic equivalence of the English and Bulgarian items (Brislin, 1970; Butcher, 1996; Hui & Triandis, 1985). For this purpose, the original English items were compared to the back-translated items by two advanced Ph.D. students in

Industrial/Organizational Psychology and native English speakers, who had knowledge in the subject matter domain, as well as in test development and validation. They were asked to independently complete a survey containing the AMI and BFFM scale definitions and the items within these scales in their original English form and their back-translated form. Their task was to compare the back translation of each item to its English version using a Likert-type scale with the following response categories: 1 = word for word identical; 2 = slight word changes - comparable meaning; 3 = slight word changes - different meaning; and 4 = significant word changes-different meaning. Agreement between the two raters was assessed with Lindell, Brandt and Whitney's (1999) revised and more conservative version of James, Demaree, and Wolf's (1993) $r_{wg(j)}$. The $r_{wg(j)}$ values for the AMI and BFFM were .81 and .84, respectively.

Item pairs, on which the reviewers disagreed and their ratings did not fall within one of two categories, i.e., "1" and "2" or "3" and "4," were considered for an additional review. Forty-three (25%) of the 170 AMI item pairs and 8 (16%) of the 50 BFFM item pairs showed lack of consensus. The same two reviewers were asked to meet and go over each of the 51 item pairs and reach consensus on their ratings. They were asked to determine whether the versions of the items differed in meaning or not (i.e., ratings of "1" and "2" versus "3" and "4"). Consensus was reached on all pairs of items. Based on the above comparisons, a total of 45 items (32 or 19% of the 170 AMI items and 13 or 26% of the 50 IPIP items) were flagged as they were rated by both reviewers as "3" or "4," suggesting a change in meaning (i.e., a lack of semantic equivalence), and thus warranting further examination.

Comparison of the English and Bulgarian versions of flagged items. Before any revisions were conducted on the Bulgarian version, an additional check was undertaken to ensure that the lack of semantic equivalence found in the 45 items were due to inadequate translation and not to factors related to the back-translation or comparison processes. This step was warranted, considering some criticisms of the use of back-translation in test translation and adaptation (Geisinger, 1994; Sechrest, Fay, & Hafeez Zaidi, 1972). Consequently, three independent reviewers (new to the study), who were Bulgarian native speakers and fluent in English, were asked to complete a survey containing the AMI and BFFM scale definitions and the 45 flagged items in their original English and Bulgarian versions. The reviewers were asked to compare the Bulgarian translation of each item to its original English version using the same Likert-type scale with response categories ranging from 1 = word for word identical to 4 = significant word changes-different meaning. In addition, the reviewers were asked to offer better translations for the items rated as "3" or "4." The reviewers were also encouraged to make comments on the other items.

The results for the 32 flagged AMI items indicated that only 1 (3%) was rated with "3" or "4" by two of the three reviewers and 9 (28%) received a rating of "3" or "4" by one of the three reviewers, warranting further revision. The interrater agreement was .60 (Lindell et al., 1999). The results for the 13 flagged BFFM items revealed that none of them were rated with "3" or "4" by any of the three reviewers. The interrater agreement was found to be .73 (Lindell et al., 1999). The discrepancy between these results and the results from the comparison of the English and back-translated versions suggest that factors other than inadequate translation may lead to perceived lack of

semantic equivalence. Such factors may include idiosyncratic translations by translator and back-translator, as well as lack of equivalent terms in the two languages, which requires the use of meaningful substitutions and cultural adaptation of item content (see Sechrest et al., 1972). At this stage, the 10 AMI items, which were consistently flagged as lacking semantic equivalence, were revised.

Comparison of the full English and Bulgarian versions. To ensure a balance between semantic equivalence and cultural adaptation, all AMI and BFFM items were subjected to an additional review. Similarly to the previous review, five independent reviewers (new to the study), who were Bulgarian native speakers and fluent in English, were asked to complete a survey. However, this time, the survey contained all AMI and BFFM items (i.e., 170 and 50, respectively) in their original English and Bulgarian versions, accompanied by scale definitions. The reviewers were asked to compare the Bulgarian translation of each item to its original English version using again a Likert-type scale with response categories ranging from 1 = word for word identical to 4 = significant word changes-different meaning. The reviewers were asked to offer better translations for the items rated as "3" or "4," as well as possible refinements of the other items. The average interrater agreement coefficients for the AMI and BFFM items were .85 and .96, respectively.

The results for the AMI indicated that 4 of the 170 AMI items were rated as “3” by two reviewers; another 4 were rated as “3” by one reviewer; and only 1 item was rated as “4” by one reviewer. On the other hand, none of the 50 BFFM items were rated as “3” or “4” by any of the reviewers. The identified items from this review were revised. To be conservative, items which also received a “2” rating from at least 3 of the reviewers (12

or 7%) were also examined and revised if deemed necessary. In addition, the results from all reviews, including the comparison between the English and back-translated versions, were integrated and additional revisions were made. Overall, 42 (25%) and 16 (32%) of the items were revised to various degrees following the initial Bulgarian translation of the AMI and BFFM, respectively.

Appendix B: Revision of the AMI scales

Revision of the AMI scales

To ascertain scale unidimesionality (Robert, Lee, & Chan, 2006), the psychometric properties of the 17 AMI scales were examined at the item level. In order to provide sufficient empirical information to evaluate and revise the scales, both internal and external criteria for item and scale quality were evaluated following recommendations by Stanton, Sinar, Balzer, and Smith (2002). The internal criteria included: (1) corrected item-total correlations, (2) internal consistency reliability (i.e., Cronbach's alpha), (3) principal component analyses, and (4) parallel analyses. For the purposes of cross-validation, these analyses were conducted on the three U.S. student subsamples, which comprised the U.S. sample used in the main study: Schuler et al. (2004) with $n = 335$; Mueller-Hanson & Thornton (2000) with $n = 201$; and Cigularov & Thornton (in preparation) with $n = 486$. The three subsamples did not differ significantly in terms of gender ($F(2, 1008) = 1.754, p > .05$) or race ($F(2, 914) = 2.419, p > .05$). However, the Cigularov and Thornton subsample was significantly older than the remaining two samples ($F(2, 918) = 16.146, p > .05$). The latter two subsamples were also used to assess external criteria, which included correlations of the original and revised AMI scales with GPA and the Big Five personality factors.

Analyses

Corrected Item-Total Correlations

The corrected item-total correlation (CITC) is the correlation between the item and the sum of all the other items combined. A CITC of .30 or larger is recommended (Nunnally & Bernstein, 1994). If the CITC is negative or too low (e.g., $< .30$), the item may need to be examined for wording problems or conceptual fit. In addition, responses

to each item should exhibit reasonable variations (e.g., indexed by standard deviations) and less affected by either ceiling or floor effects (e.g., extremely high or low means). The CITCs, along with means and standard deviations for each of the 17 AMI scales across the three samples, are presented in Tables B1 through B17.

Internal Consistency Reliability

Cronbach's alpha is a measure of the internal consistency reliability of a scale and is a function of the number of items and the correlations between the items (Cronbach, 1951). A minimum alpha of .70 is recommended for validation research (Nunnally & Bernstein, 1994). Cronbach's alpha estimates for each scale across the three U.S. student samples are presented in Tables B1 through B17.

Principal Component and Parallel Analyses

Principal component analyses (PCAs) with varimax rotation were performed on the items of each of the 17 AMI scales on the three U.S. student samples. Three methods to determine the number of components to retain were reported. The methods were the Keiser-Guttman rule, scree plot, and parallel analysis (see Table B18). Parallel analysis is currently considered one of the most reliable procedures to determine the correct number of components (Hayton, Allen, & Scarpello, 2004; Zwick & Velicer, 1986). Parallel analysis is based on the notion that nontrivial components from real data with a valid underlying structure should be larger than parallel components derived from random data with the same sample size and number of variables (Hayton et al., 2004). An SPSS program was used to conduct parallel analyses for each of the 17 AMI scales on each of the three samples, generating 5000 random data sets containing the same number of cases and variables. The eigenvalues generated from these random data sets were compared to

those based on the real data sets to ensure that the former are lower than the latter. Items in each scale were examined for primary loadings lower than .60 and cross-loadings equal or larger than .30 across the three samples (Nunnally & Bernstein, 1994). PCA and parallel analyses results for each of the 17 AMI scales are presented in Table B18. Loadings for the one-component model for each of the revised AMI scales are presented in Tables B19 through B27.

External Criteria Correlations

Scores on the original and revised AMI scales were correlated with self-reported GPA and scores on the Big Five personality factors, as measured by the Big Five Factor Markers (BFFM: Goldberg, 1999). The purpose of this analysis was to examine and compare the patterns of relations of each scale with the external criteria across the original and revised versions. It was expected that each of the revised AMI scales would show a similar pattern of correlations compared to its original version. As Stanton et al. (2002) stated, "the overarching goal of any scale reduction project should be to closely replicate the pattern of relations established within the construct's nomological network" (p. 172). Results from these analyses are presented in Tables B28 and B29.

Results

Compensatory Effort

Based on low CITCs and PCA loadings, items 28, 45, 79, and 96 were dropped sequentially from the Compensatoty Effort (CE) scale. The alpha coefficients for the original CE scale across the three samples ranged from .76 to .79 with a mean of .77 and a median of .76 (see Table B1). After the revision, the alpha coefficients remained similar, ranging from .75 to .80 with a mean and median of .77 (see Table B19). Results

from the principal component and parallel analyses for the original CE scale indicated between 2 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When rerunning the analyses after dropping items 28, 45, 79, and 96, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). Scores on the revised CE scale demonstrated a lower correlation with GPA compared to scores on the original version (i.e., $r = .18$ vs. $r = .23$), when averaged across two samples (see Table B27). Decreased validity has been recognized as one potential negative consequence of scale reduction efforts (Kline, 1986). However, a similar pattern of correlations with the Big Five personality factors was found across the original and revised versions, except for the stronger correlation of the revised scale with Conscientiousness compared to the original scale (i.e., $r = .35$ vs. $r = .28$) (see Table B28). This finding is in line with Cigularov and Thornton (2006), who hypothesized a moderate positive relationship between CE and Conscientiousness as an indication of convergent validity based on subject matter expert judgments.

Competitiveness

Two items (i.e., 57 and 74) with the lowest CITCs and PCA loadings were dropped sequentially from the Competitiveness (CO) scale. The alpha coefficients for the original CO scale across the three samples ranged from .85 to .87 with a mean of .86 and a median of .87 (see Table B2). After the revision, the alpha coefficients remained similar, ranging from .85 to .88 with a mean and median of .87 (see Table B19). Results from the principal component and parallel analyses for the original CO scale indicated between 1 and 2 components across the three samples, depending on the sample and

decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). After dropping items 57 and 74, a clean one-component solution was found in all three samples and across all three methods (see Table B18). Furthermore, correlational results revealed a similar pattern of correlations with GPA and the Big Five personality factors across the original and revised versions (see Tables B27 and B28).

Confidence in Success

Analyses of CITCs and PCA loadings for the Confidence of Success (CS) scale resulted in the sequential exclusion of items 44, 61, 95, 146, and 163 from the original scale. The alpha coefficients for the original CS scale across the three samples ranged from .75 to .82 with a mean of .79 and a median of .80 (see Table B3), whereas those for the revised scale ranged from .72 to .75 with a mean and median of .74 (see Table B20). The somewhat lower reliabilities for the revised CS scale may be attributable to the reduced number of items (i.e., from 10 to 5 items). To confirm this, the Spearman-Brown formula (Anastasi, 1988, p.121) was used to estimate the internal consistency of the scale if it was in its full length. These internal consistency estimates ranged from .84 to .86 with a mean and median of .85, which exceeded the actual alphas for the original CS scale.

Results from the principal component and parallel analyses for the original CS scale indicated between 2 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the analyses were rerun after excluding items 44, 61, 95, 146, and 163, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). Also, correlational results revealed a similar pattern of correlations with GPA and

the Big Five personality factors across the original and revised versions (see Tables B27 and B28).

Dominance

Based on low CITCs and PCA loadings, items 47, 64, and 149 were excluded sequentially from the Dominance (DO) scale. The alpha coefficients for both the original and revised DO scales were identical across the three samples, ranging from .75 to .78 with a mean and median of .77 (see Tables B4 and B20). Results from the principal component and parallel analyses for the original DO scale indicated between 1 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When rerunning the analyses for the revised scale, a clean one-component solution was found in all three samples and across all three methods (see Table B18). Furthermore, a similar pattern of correlations with GPA and the Big Five personality factors emerged across the original and revised versions (see Tables B27 and B28).

Eagerness to Learn

Based on analyses of CITCs and PCA loadings, five items (i.e., 14, 82, 99, 150, and 167) were excluded from the Eagerness to Learn (EL) scale. The alpha coefficients for the original EL scale across the three samples ranged from .67 to .72 with a mean of .69 and a median of .68 (see Table B5), whereas those for the revised scale ranged from .64 to .65 with a mean and median of .64 (see Table B21). The lower internal consistencies for the revised EL scale may be due to the reduced number of items (i.e., from 10 to 5 items). To evaluate this empirically, the Spearman-Brown formula (Anastasi, 1988, p.121) was applied to estimate the internal consistency of the revised

scale if it consisted of 10 items. These internal consistency estimates ranged from .78 to .79 with a mean and median of .78, which exceeded the actual internal consistency coefficients for the original EL scale.

The principal component and parallel analyses for the original EL scale revealed between 1 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). After rerunning the analyses with the revised scale, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). Also, correlational results revealed a similar pattern of correlations with GPA and the Big Five personality factors across the original and revised versions (see Tables B27 and B28). It should be noted, however, that scores on the revised scale demonstrated a somewhat lower correlation with GPA compared to scores on the original version (i.e., $r = .17$ vs. $r = .21$), when averaged across two samples (see Table B28).

Engagement

Based on low CITCs and PCA loadings, items 29, 46, 63, 80, 148, and 165 were sequentially excluded from the Engagement (EN) scale. The alpha coefficients for the original EN scale across the three samples ranged from .74 to .78 with a mean of .76 and a median of .77 (see Table B6). The alpha coefficients for the revised scale were similar, ranging from .74 to .78 with a mean and median of .76 (see Table B21). Results from the principal component and parallel analyses for the original EN scale indicated between 1 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the principal component and parallel analyses were rerun with the revised scale, a clean one-component solution

emerged in all three samples and across all three methods (see Table B18). Furthermore, a similar pattern of correlations with GPA and the Big Five personality factors was found across the original and revised versions (see Tables B27 and B28).

Fearlessness

Analyses of CITCs and PCA loadings for the Fearlessness (FE) scale led to the sequential exclusion of items 22, 39, 73, and 141. The alpha coefficients for the original FE scale across the three samples ranged from .76 to .79 with a mean and median of .77 (see Table B7). The alpha coefficients for the revised scale were slightly lower, ranging from .72 to .76 with a mean of .74 and median of .73 (see Table B22). To examine if the lower reliabilities for the revised FE scale were due to the reduced number of items (i.e., from 10 to 6 items), the Spearman-Brown formula (Anastasi, 1988, p.121) was used. The internal consistency of the revised scale when estimated for its full length ranged from .81 to .86 with a mean and median of .84, which exceeded the actual alphas for the original FE scale.

Results from the principal component and parallel analyses for the original FE scale indicated between 1 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When these analyses were rerun for the revised scale, a one-component solution emerged in all three samples and across all three methods, except for Sample 2, in which the Keiser-Guttman rule suggested the presence of 2 components (see Table B18). In addition, correlational results indicated a similar pattern of correlations of the original and revised FE scales with GPA and the Big Five personality factors (see Tables B27 and B28).

Flexibility

Based on analyses of CITCs and PCA loadings, five items (i.e., 18, 86, 103, 137, and 154) were excluded from the Flexibility (FLE) scale. The alpha coefficients for the original FLE scale across the three samples ranged from .67 to .76 with a mean of .71 and a median of .70 (see Table B8), whereas those for the revised scale ranged from .63 to .69 with a mean of .65 and median of .64 (see Table B22). It was possible that the lower internal consistencies for the revised FLE scale were due to the reduced number of items (i.e., from 10 to 5 items). To confirm this empirically, the Spearman-Brown formula (Anastasi, 1988, p.121) was applied to estimate the internal consistency of the revised scale if it was in its full length (i.e., 10 items). These internal consistency estimates ranged from .77 to .82 with a mean of .79 and median of .78, which exceeded the actual internal consistency coefficients for the original FLE scale.

The principal component and parallel analyses for the original FLE scale indicated between 2 and 4 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). After rerunning the analyses with the revised scale, a clean one-component solution was achieved in all three samples and across all three methods (see Table B18). Also, correlational results revealed a similar pattern of correlations with GPA (see Table B27). However, smaller correlations were observed between the revised scale and Agreeableness, Conscientiousness, and Intellect, compared to the original scale (i.e., $r = .09$ vs. $r = .26$, $r = .07$ vs. $r = .18$, $r = .31$ vs. $r = .47$, respectively; see Table B28). The first two relationships may be viewed as evidence for the discriminant validity of the scale, as FLE is conceptually unrelated to both Agreeableness and Conscientiousness (Cigularov & Thornton, 2006). Thus, the decrease of their strength in the revised FL scale is not of

concern. The correlation of FLE with Intellect is an indication of convergent validity (Cigularov & Thornton), and therefore, is expected to be of a moderate size (Stanton et al., 2002). According to Cohen (1977), a correlation coefficient of .31 represents a moderate effect size.

Flow

Three items (i.e., 88, 105, and 122) with the lowest CITCs and PCA loadings were dropped sequentially from the Flow (FLO) scale. The alpha coefficients for the original FLO scale across the three samples ranged from .79 to .82 with a mean of .80 and a median of .79 (see Table B9). After the revision, the alpha coefficients remained similar, ranging from .80 to .81 with a mean and median of .80 (see Table B23). Results from the principal component and parallel analyses for the original FLO scale indicated the presence of 2 components across the three samples and decision methods used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). After dropping items 88, 105, and 122, a one-component solution was found in all three samples and across all three methods (see Table B18). Furthermore, correlational results revealed a similar pattern of correlations of the original and revised FLO scales with GPA and the Big Five personality factors (see Tables B27 and B28). One exception was the smaller correlation of the revised FLO scale with Conscientiousness, compared to the original scale (i.e., r = .06 vs. r = .18). This, however, was not of concern, as it was in line with the expectation of a low discriminant validity coefficient between the conceptually unrelated FLO and Conscientiousness (Cigularov & Thornton, 2006).

Goal Setting

Analyses of CITCs and PCA loadings for the Goal Setting (GS) scale resulted in the sequential exclusion of items 7, 58, 109, 126, 143, and 160. The alpha coefficients for the original GS scale across the three samples ranged from .63 to .69 with a mean of .65 and a median of .64 (see Table B10), whereas those for the revised scale ranged from .72 to .78 with a mean of .74 and median of .73 (see Table B23), indicating better internal consistency. Results from the principal component and parallel analyses for the original GS scale indicated between 2 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the analyses were rerun after excluding the above items, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). In addition, correlational results revealed a similar pattern of correlations with GPA and the Big Five personality factors across the original and revised versions (see Tables B27 and B28).

Independence

The principal component and parallel analyses for the Independence (IND) scale revealed between 2 and 5 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis) (see Table B18). However, a satisfactory revision of the scale based on analyses of CITCs and PCA loadings was not achieved due to low inter-item and item-total correlations (see Table B11). Consequently, the IND scale was excluded from the measurement invariance and latent mean analyses.

Internality

Based on analyses of CITCs and PCA loadings, items 59, 76, 93, 110, and 161 were sequentially dropped from the Internality (INT) scale. The alpha coefficients for the

original INT scale across the three samples ranged from .69 to .76 with a mean of .72 and a median of .70 (see Table B12), whereas those for the revised scale were slightly lower, ranging from .68 to .69 with a mean and median of .69 (see Table B24). Results from the principal component and parallel analyses for the original INT scale indicated between 1 and 5 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the analyses were rerun with the revised scale, strong evidence for a one-component solution was found in all three samples and across all three methods, except for Sample 2, in which the Keiser-Guttman rule and scree plot suggested the presence of 2 components (see Table B18). In addition, correlational results revealed a somewhat similar pattern of correlations of the original and revised INT scales with GPA and the Big Five personality factors (see Tables B27 and B28). Two exceptions were the smaller correlations of the revised INT scale with Agreeableness and Intellect, compared to the original scale (i.e., $r = .25$ vs. $r = .33$ and $r = .18$ vs. $r = .27$, respectively). These findings, however, provide evidence for the discriminant validity of the revised INT scale, as it is conceptually unrelated to both Agreeableness and Intellect (Cigularov & Thornton, 2006).

Persistence

Analyses of CITCs and PCA loadings for the Persistence (PE) scale resulted in the sequential exclusion of items 2, 19, 70, and 121. The alpha coefficients for the original PE scale across the three samples ranged from .78 to .80 with a mean of .79 and a median of .78 (see Table B13). The alpha coefficients for the revised scale were similar, ranging from .79 to .80 with a mean and median of .79 (see Table B24). Results from the principal component and parallel analyses for the original PE scale suggested between 2

and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the analyses were rerun based on the revised scale, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). In addition, correlational results revealed a similar pattern of correlations of the original and revised PE scales with the Big Five personality factors (see Table B28). However, as shown in Table B27, scores on the revised PE scale correlated slightly lower with GPA compared to the original scale, when averaged across two samples, (i.e., $r = .11$ vs. $r = .16$).

Preference for Difficult Tasks

Based on analyses of CITCs and PCA loadings, four items (i.e., 9, 26, 145, and 162) were sequentially excluded from the Preference for Difficult Tasks (PDT) scale. The alpha coefficients for the original PDT scale across the three samples ranged from .80 to .82 with a mean and median of .81 (see Table B14). The scores for the revised scale showed a higher internal consistency, ranging from .83 to .85 with a mean and median of .84 (see Table B25). The principal component and parallel analyses for the original PDT scale indicated between 1 and 2 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). After rerunning the analyses with the revised scale, a clean one-component solution was achieved in all three samples and across all three methods (see Table B18). Also, correlational results revealed a similar pattern of correlations with GPA and the Big Five personality factors (see Tables B27 and B28).

Pride in Productivity

Analyses of CITCs and PCA loadings for the Pride in Productivity (PP) scale resulted in the sequential exclusion of items 38, 89, 106, 140, and 157. The alpha coefficients for the original PP scale across the three samples ranged from .74 to .83 with a mean of .78 and a median of .77 (see Table B15), whereas the alpha coefficients for the revised scale ranged from .69 to .80 with a mean of .74 and a median of .73 (see Table B25). The lower internal consistencies for the revised PP scale might be due to the reduced number of items (i.e., from 10 to 5 items). To evaluate this possibility, the Spearman-Brown formula (Anastasi, 1988, p.121) was applied to estimate the internal consistencies of the revised scale if it was in its full length (i.e., 10 items). These internal consistency estimates ranged from .82 to .89 with a mean of .85 and median of .84, which exceeded the actual alpha coefficients for the original PP scale.

Results from the principal component and parallel analyses for the original PP scale indicated between 1 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the analyses were redone based on the revised scale, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). In addition, correlational results revealed a similar pattern of correlations of the original and revised PP scales with GPA and the Big Five personality factors (see Tables B27 and B28).

Self-Control

Analyses of CITCs and PCA loadings for the Self-Control (SC) scale resulted in the sequential exclusion of items 101, 135, 152, and 169. The alpha coefficients for the original SC scale across the three samples ranged from .69 to .70 with a mean and median of .69 (see Table B16), whereas scores on the revised scale demonstrated higher internal

consistency with alpha coefficients ranging from .76 to .78 with a mean and median of .77 (see Table B26). Results from the principal component and parallel analyses for the original SC scale indicated between 2 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). When the analyses were redone after dropping the above items, a clean one-component solution emerged in all three samples and across all three methods (see Table B18). Furthermore, similar patterns of correlations of the original and revised SC scales with GPA and the Big Five personality factors were found (see Tables B27 and B28).

Status Orientation

Based on analyses of CITCs and PCA loadings, two items (i.e., 17 and 119) were sequentially excluded from the Status Orientation (SO) scale. The alpha coefficients for the original SO scale across the three samples ranged from .80 to .83 with a mean and median of .81 (see Table B17). The scores for the revised scale exhibited a similar internal consistency, ranging from .81 to .86 with a mean of .83 and a median of .82 (see Table B26). The principal component and parallel analyses for the original SO scale indicated between 1 and 3 components depending on the sample and decision method used (i.e., Keiser-Guttman rule, scree plot, and parallel analysis). After rerunning the analyses with the revised scale, strong evidence for a one-component solution was found in all three samples and across all three methods, except for Sample 2, in which the Keiser-Guttman rule suggested the presence of 2 components (see Table B18). Consistent with the expectations, scores on the original and revised SO scales showed a similar pattern of correlations with GPA and the Big Five personality factors (see Tables B27 and B28).

Conclusion

In sum, the results of this preliminary study showed that the reduced versions of all AMI scales, with the exception of Independence, attained similar validity and reliability coefficients compared to their original versions, while demonstrating a clean one-component structure across three subsamples and based on three methods. Consequently, it was decided to use the revised AMI scales (excluding Independence) in the measurement invariance and latent mean analyses.

Table B1

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Compensatory Effort Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
11	So that I will not be subject to criticism, I prefer to double my effort.	4.36	1.43	0.41	4.30	1.46	0.36	4.19	1.43	0.48
28	I often make a special effort for fear of making a fool of myself.	4.44	1.51	0.32	4.47	1.51	0.29	4.19	1.60	0.39
45	When faced with an important task, I would rather prepare myself thoroughly than not enough.	5.76	1.27	0.36	5.71	1.31	0.39	5.77	1.22	0.35
62	The fear of failing at an important task has often made me put in a great deal of effort.	5.02	1.36	0.49	5.02	1.41	0.53	4.87	1.60	0.57
79	The tension before an exam helps me prepare.	4.08	1.72	0.37	4.03	1.78	0.35	4.33	1.68	0.30
96	Without anxiety before examinations, one would hardly learn as much.	3.45	1.67	0.29	3.45	1.70	0.22	3.51	1.63	0.36
113	Because of the tension before an important task, I make greater effort than I might otherwise make.	4.54	1.39	0.51	4.44	1.38	0.52	4.51	1.37	0.58
130	When I fear making mistakes, then I make an extra effort.	4.94	1.18	0.60	4.84	1.15	0.61	4.81	1.36	0.65
147	When I prepare for something important, I invest too much time rather than too little.	4.19	1.48	0.38	4.20	1.54	0.48	4.26	1.50	0.45
164	If there is a risk of failing at a task, I make an extra special effort.	4.96	1.28	0.58	4.87	1.29	0.60	5.04	1.27	0.58
	Coefficient Alpha		.76			.76			.79	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B2

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Competitiveness Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 ($n = 335$)			U.S. Sample 2 ($n = 201$)			U.S. Sample 3 ($n = 486$)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
6	It annoys me when others perform better than I do.	4.34	1.61	0.60	4.45	1.61	0.58	4.54	1.65	0.60
23	In order to truly feel successful, I have to be better than everyone I compare myself to.	3.91	1.72	0.63	4.00	1.76	0.71	3.88	1.78	0.60
40	I do not mind when people my age have achieved more than I have.	3.95	1.71	0.49	3.92	1.76	0.50	4.16	1.69	0.48
57	When I see that others are more competent than I am, it is an incentive for me to try harder.	5.21	1.42	0.36	5.24	1.42	0.37	5.20	1.41	0.29
74	When I take part in a competition, participation is more important to me than winning.	3.99	1.77	0.45	3.91	1.84	0.40	4.10	1.85	0.41
91	If someone is working on the same thing as I am, I try to be faster or better.	5.01	1.54	0.65	5.03	1.57	0.68	4.95	1.54	0.61
108	The wish to be better than others is a major incentive for me.	3.96	1.67	0.69	4.24	1.72	0.74	4.48	1.67	0.75
125	To be clear about where I stand in terms of my performance it's important to me that I compare myself to others.	4.21	1.59	0.67	4.24	1.63	0.66	4.32	1.58	0.65
142	I rarely have had the feeling of being in competition with others.	5.05	1.64	0.58	5.22	1.65	0.58	4.99	1.55	0.48
159	I like to compete with others.	4.74	1.77	0.67	4.79	1.87	0.66	4.79	1.72	0.61
	Coefficient Alpha		.87			.87			.85	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). *r* = corrected item-total correlation.

Table B3

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Confidence in Success Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
10	Even when faced with a difficult task, I always expect to achieve my goal.	5.47	1.31	0.46	5.44	1.34	0.40	5.79	1.15	0.48
27	Whenever I was faced with new tasks, I always felt I would be able to accomplish them.	5.34	1.18	0.52	5.31	1.22	0.45	5.36	1.19	0.56
44	I am convinced I am going to accomplish things professionally.	5.79	1.24	0.38	5.70	1.23	0.29	5.81	1.24	0.52
61	When I plan to do something, I am usually more successful at it than other people.	4.84	1.24	0.53	4.79	1.28	0.44	5.00	1.18	0.54
78	When I take an exam, I am convinced I will pass.	4.76	1.51	0.38	4.54	1.58	0.31	4.91	1.68	0.52
95	I am confident that my achievement will be recognized by others.	4.76	1.40	0.52	4.67	1.40	0.49	4.98	1.38	0.52
112	Even when faced with a difficult task, I am always confident.	4.59	1.27	0.64	4.52	1.32	0.61	4.79	1.37	0.63
129	I do not have to fear any situation because I have always managed to pull through thanks to my abilities.	4.73	1.37	0.52	4.56	1.45	0.47	4.76	1.53	0.50
146	I have never had trouble grasping even complicated concepts right away.	3.90	1.67	0.43	3.76	1.66	0.37	3.92	1.51	0.32
163	I have often noticed that I grasp the main point of something faster than others.	4.83	1.47	0.44	4.77	1.50	0.36	4.93	1.36	0.56
	Coefficient Alpha		.80			.75			.82	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B4

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Dominance Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
13	I like to decide what others should do.	3.53	1.78	0.46	3.54	1.80	0.44	3.86	1.69	0.42
30	I often succeed in convincing others of my opinion.	4.84	1.34	0.49	4.82	1.34	0.48	4.86	1.29	0.48
47	I have not yet had the opportunity to be the leader or the speaker of a group.	5.65	1.84	0.28	5.63	1.89	0.26	5.50	1.80	0.33
64	As a member of an association, it would not be important to me to have influence.	4.62	1.74	0.06	4.48	1.74	0.07	4.60	1.74	0.17
81	When decisions have to be made in a group, I always play a significant role in making them.	4.92	1.52	0.63	4.90	1.57	0.59	5.05	1.36	0.65
98	Even when I face opposition, I succeed.	4.87	1.10	0.34	4.86	1.13	0.23	5.14	1.14	0.42
115	When I work with other people, I usually take the initiative.	4.88	1.43	0.60	4.67	1.48	0.58	5.02	1.34	0.66
132	On several occasions I have been able to improve the work of others by reorganization.	4.42	1.51	0.43	4.35	1.53	0.43	4.86	1.38	0.37
149	When I work together with others, I like to take things into my own hands.	4.67	1.45	0.60	4.57	1.49	0.59	4.81	1.35	0.60
166	Being master of the situation is important for me.	4.54	1.49	0.57	4.44	1.51	0.53	4.62	1.45	0.52
	Coefficient Alpha		.77			.75			.78	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B5

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Eagerness to Learn Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
14	When I see or hear something new, I try to retain as much as possible.	5.27	1.23	0.35	5.27	1.19	0.40	5.40	1.17	0.45
31	I have voluntarily attended a great deal of education and training that was not required.	4.22	1.70	0.32	4.34	1.72	0.40	4.19	1.66	0.45
48	I regularly read the trade publications in my professional field.	2.95	1.78	0.38	2.84	1.78	0.34	3.04	1.74	0.30
65	I like to read scientific books and essays.	3.03	1.83	0.37	2.98	1.82	0.41	3.24	1.93	0.48
82	Leisure time should be used to recuperate, and not to learn even more.	3.65	1.76	0.33	3.42	1.78	0.36	3.66	1.65	0.29
99	I have had to learn so much already in life that further education and training in my profession field does not have to be so important.	5.90	1.25	0.08	5.90	1.29	0.09	5.60	1.46	0.18
116	I especially like to watch informational programs on TV.	4.26	1.84	0.40	4.12	1.87	0.38	4.56	1.85	0.39
133	I spend considerable time learning new things.	4.73	1.35	0.52	4.59	1.38	0.50	5.08	1.29	0.55
150	I prefer gaining new knowledge to dealing with things I have already mastered.	4.83	1.25	0.25	4.81	1.23	0.23	4.93	1.25	0.43
167	I am not truly satisfied until I have really understood the matter at hand.	5.45	1.16	0.34	5.50	1.18	0.35	5.43	1.14	0.33
	Coefficient Alpha		.67			.68			.72	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B6

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Engagement Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
12	Others say that I work a lot more than necessary.	3.86	1.67	0.51	3.76	1.70	0.46	3.99	1.66	0.58
29	I don't feel comfortable when I have nothing to do.	3.95	1.96	0.40	3.77	1.99	0.28	4.19	1.93	0.37
46	At an early age, I decided to be successful in life.	5.37	1.59	0.34	5.38	1.57	0.32	5.43	1.59	0.33
63	I am convinced that I have been more committed to my education, training and profession than my colleagues.	3.98	1.49	0.44	3.91	1.52	0.46	4.03	1.54	0.45
80	On average, I have worked less than 40 hours a week during the past two years.	3.50	2.37	0.23	3.19	2.29	0.20	3.10	2.11	0.20
97	People have already told me that I neglect other important aspects of life because I work too much.	2.72	1.57	0.46	2.63	1.62	0.41	2.76	1.57	0.39
114	I work more than most people I know.	4.07	1.67	0.67	3.91	1.68	0.64	4.23	1.71	0.60
131	I have already been called a workaholic.	3.11	1.89	0.58	3.04	1.89	0.55	3.20	1.78	0.63
148	I believe I try harder professionally than most of my colleagues.	4.05	1.51	0.60	3.96	1.49	0.60	4.36	1.42	0.49
165	I find it easy to do nothing for a long period of time.	4.24	1.86	0.39	3.94	1.87	0.29	4.16	1.91	0.37
	Coefficient Alpha		.78			.74			.77	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B7

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Fearlessness Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
5	When faced with a new job or task, I am often afraid of doing something wrong.	3.17	1.52	0.48	3.14	1.52	0.47	3.35	1.67	0.45
22	Before exams, I am often terribly nervous.	3.96	1.73	0.38	3.91	1.73	0.39	4.10	1.84	0.37
39	In critical situations, at times I have become confused and then failed completely.	4.64	1.61	0.38	4.41	1.68	0.36	4.93	1.55	0.44
56	I often "hid" in school to avoid being called up.	4.45	1.91	0.49	4.29	1.95	0.42	4.70	1.86	0.37
73	Surprise exams in school were very unpleasant for me.	3.30	1.75	0.38	3.28	1.71	0.30	3.57	1.73	0.39
90	I have not undertaken some activities for fear of not being successful.	4.20	1.65	0.49	4.14	1.66	0.49	4.44	1.63	0.53
107	When I have to present something in front of others, I am afraid of making a fool of myself.	3.46	1.87	0.53	3.25	1.85	0.47	4.03	1.96	0.53
124	There have been things in my life that seemed very desirable but which I simply didn't dare try for.	4.08	1.78	0.52	3.96	1.83	0.49	4.44	1.64	0.41
141	When I notice during a written exam that I do not have enough time left, I find it difficult to concentrate.	3.10	1.69	0.43	3.04	1.70	0.42	3.64	1.76	0.40
158	When I fear not being able to succeed at a task, I look for an easier goal.	4.51	1.42	0.48	4.43	1.48	0.41	4.60	1.40	0.50
	Coefficient Alpha		.79			.76			.77	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B8

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Flexibility Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
1	When I am facing a new situation, I am always a little skeptical in the beginning.	3.29	1.55	0.34	3.37	1.55	0.33	3.61	1.54	0.29
18	My everyday life is full of things that interest me.	5.00	1.42	0.28	5.04	1.48	0.23	5.17	1.35	0.41
35	Though it may be nice to start something new occasionally, I feel more comfortable with the "tried and true".	4.03	1.56	0.41	3.99	1.60	0.37	4.07	1.47	0.44
52	I have passed up some interesting things for fear of not being able to accomplish them.	4.53	1.80	0.37	4.40	1.91	0.40	4.79	1.69	0.48
69	When I choose my goals, I prefer to be somewhat careful rather than take big risks.	4.03	1.64	0.38	4.03	1.71	0.33	4.00	1.52	0.44
86	I am open to everything new.	5.15	1.46	0.33	5.18	1.47	0.29	5.48	1.29	0.41
103	I like to look for tasks that test my capabilities.	4.86	1.19	0.38	4.75	1.17	0.31	5.20	1.15	0.50
120	I sometimes take risks in order to try out something new.	5.18	1.36	0.55	5.26	1.33	0.51	4.99	1.35	0.59
137	There is a lot I would like to try out some time.	6.02	1.23	0.23	6.10	1.17	0.19	6.00	1.17	0.35
154	I can imagine many areas of professional responsibility in which I would feel comfortable.	5.22	1.32	0.37	5.18	1.39	0.32	5.26	1.34	0.35
	Coefficient Alpha		.70			.67			.76	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B9

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Flow Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 ($n = 335$)			U.S. Sample 2 ($n = 201$)			U.S. Sample 3 ($n = 486$)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
3	When I am busy with something interesting, I can forget the world around me.	5.49	1.36	0.45	5.53	1.32	0.44	5.54	1.39	0.43
20	I often lose myself in what I'm doing.	4.51	1.43	0.45	4.56	1.38	0.47	4.61	1.44	0.50
37	I have often noticed that everything else becomes unimportant when I totally concentrate on my work.	4.50	1.45	0.54	4.47	1.47	0.56	4.22	1.51	0.55
54	I rarely get so involved in something that I forget everything else.	4.38	1.74	0.43	4.44	1.75	0.45	4.34	1.63	0.42
71	There are times where I am totally carried away by my work.	4.77	1.44	0.63	4.82	1.51	0.60	4.61	1.45	0.57
88	Once I have started a job, I find it hard to stop.	4.51	1.42	0.35	4.41	1.43	0.27	4.92	1.35	0.42
105	I am happiest performing a task that demands all my capabilities.	4.90	1.24	0.30	4.84	1.24	0.25	5.06	1.31	0.42
122	Intensive, concentrated work satisfies me.	4.69	1.32	0.43	4.58	1.38	0.38	4.68	1.35	0.50
139	I enjoy becoming completely absorbed in a task.	4.63	1.44	0.63	4.55	1.50	0.64	4.67	1.43	0.67
156	Often time slips by unnoticed when I am completely engrossed in work.	5.08	1.40	0.47	5.16	1.37	0.49	4.88	1.50	0.60
	Coefficient Alpha		.79			.79			.82	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B10

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Goal Setting Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
7	Generally I am not satisfied for long with something I have succeeded in doing, but instead I will try to do an even better job the next time.	4.62	1.45	0.30	4.59	1.44	0.35	4.82	1.39	0.36
24	I know exactly what professional position I would like to hold in five years.	4.19	2.25	0.44	3.98	2.33	0.45	4.30	2.13	0.50
41	When faced with choices about education, training and a profession, I knew exactly what I wanted.	3.92	1.95	0.44	3.82	1.98	0.40	4.14	1.88	0.50
58	My colleagues regard me as someone who is not long satisfied with what I have achieved.	3.58	1.59	0.07	3.63	1.58	0.11	3.50	1.49	0.02
75	The future is too uncertain to be able to make long-term plans.	4.47	1.89	0.35	4.24	1.90	0.34	4.37	1.87	0.38
92	I am generally strongly oriented toward the future.	4.98	1.36	0.48	4.87	1.36	0.45	5.20	1.43	0.55
109	I expect to experience considerable additional personal growth.	5.89	1.24	0.23	5.86	1.25	0.26	5.93	1.16	0.33
126	Sometimes I have the feeling I should create something permanent in life.	4.79	1.50	0.08	4.79	1.53	0.04	5.14	1.46	0.10
143	When I notice that I can accomplish a task easily, I increase demands on myself the next time around.	4.61	1.33	0.35	4.65	1.34	0.34	4.66	1.38	0.37
160	It is important to me to increase my proficiency.	5.62	1.11	0.35	5.55	1.14	0.33	5.51	1.13	0.45
	Coefficient Alpha		.64			.63			.69	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B11

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Independence Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
15	When performing a difficult task, I prefer sharing the responsibility with others rather than bearing it alone.	3.51	1.78	0.24	3.42	1.79	0.21	4.01	1.64	0.20
32	If the pay was the same, I would rather be an employee than self-employed.	4.93	1.91	0.21	4.80	1.93	0.14	5.05	1.73	0.35
49	I like being solely responsible for what I do.	5.37	1.39	0.35	5.34	1.42	0.32	5.38	1.27	0.30
66	I find it difficult to make decisions about even small things.	4.92	1.78	0.31	4.88	1.82	0.23	4.64	1.81	0.38
83	I sometimes prefer to let others make the decisions.	3.73	1.57	0.37	3.46	1.51	0.30	3.89	1.58	0.39
100	Sometimes, I find it pleasant not to be responsible for everything.	2.97	1.52	0.26	2.78	1.41	0.15	3.04	1.40	0.20
117	I find it easy to make decisions quickly.	4.10	1.65	0.45	4.03	1.63	0.41	4.27	1.61	0.36
134	It is important to me to determine for myself how I do my work.	5.31	1.16	0.24	5.19	1.13	0.18	5.33	1.20	0.18
151	It would make me feel very uncomfortable to be told often what to do.	4.96	1.60	0.24	4.94	1.64	0.31	4.47	1.58	0.13
168	Even at a young age, I valued my independence.	5.53	1.42	0.33	5.55	1.49	0.36	5.57	1.40	0.30
	Coefficient Alpha		.63			.58			.61	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B12

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Internality Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
8	The extent of one's professional success depends a good deal on luck.	5.19	1.37	0.43	5.13	1.45	0.42	5.04	1.39	0.44
25	If I had teachers and supervisors who were more understanding, I could have made it farther by now.	5.15	1.62	0.40	5.12	1.55	0.43	5.07	1.61	0.46
42	Most of what happens in life depends more on others than on oneself.	5.71	1.37	0.52	5.67	1.39	0.56	5.40	1.39	0.50
59	Professional success interferes with a happy life rather than helps it.	5.16	1.45	0.29	5.12	1.45	0.24	5.05	1.49	0.38
76	Supervisors are usually responsible for unsatisfactory performance.	5.25	1.45	0.35	5.11	1.50	0.34	5.07	1.46	0.38
93	My success depends mainly on my own behavior.	5.98	1.04	0.30	5.93	1.10	0.26	6.00	1.12	0.39
110	School grades and company performance ratings are often based more on sympathy than actual performance.	5.01	1.70	0.17	5.49	1.44	0.42	5.53	1.40	0.50
127	I sometimes have the feeling that people make life difficult for me and discourage me.	4.93	1.59	0.45	4.79	1.58	0.40	4.87	1.64	0.48
144	Some things I achieved only because I had a lot of luck.	4.60	1.68	0.41	4.37	1.77	0.39	4.52	1.61	0.43
161	Anything I have achieved has mainly been due to my skills and abilities.	5.27	1.23	0.23	5.25	1.28	0.16	5.29	1.20	0.28
	Coefficient Alpha		.69			.70			.76	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). *r* = corrected item-total correlation.

Table B13

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Persistence Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 ($n = 335$)			U.S. Sample 2 ($n = 201$)			U.S. Sample 3 ($n = 486$)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
2	When I am determined to do something, and I don't succeed, then I do everything I can to still accomplish it.	5.26	1.42	0.35	5.19	1.45	0.37	5.34	1.23	0.37
19	Most of my colleagues are more ambitious than I am.	4.82	1.45	0.41	4.68	1.45	0.41	5.02	1.39	0.50
36	I find it difficult to maintain my effort over a long period of time.	4.21	1.51	0.52	4.15	1.51	0.55	4.38	1.58	0.55
53	I could accomplish more if I didn't get tired so fast.	4.62	1.88	0.49	4.50	1.94	0.48	4.29	1.84	0.52
70	When I am doing my work, there is hardly anything that can disturb me.	3.28	1.50	0.24	3.19	1.55	0.19	3.44	1.51	0.33
87	I find it difficult to concentrate for a long time without becoming tired.	3.69	1.58	0.63	3.50	1.61	0.65	3.91	1.67	0.65
104	I have often given up quickly when something went wrong.	4.77	1.48	0.54	4.66	1.58	0.52	5.08	1.45	0.48
121	My acquaintances would consider it typical of me that I battle my way through all obstacles.	4.77	1.37	0.30	4.83	1.33	0.26	4.92	1.32	0.28
138	Sometimes when a task is difficult, I put it aside and maybe I take it up at a later time.	3.49	1.42	0.50	3.31	1.44	0.45	3.52	1.47	0.47
155	Sometimes I find it hard to focus all my concentration completely on what I am doing at that moment.	3.51	1.53	0.55	3.35	1.61	0.60	3.66	1.56	0.54
	Coefficient Alpha		.78			.78			.80	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B14

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Preference for Difficult Tasks Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
9	When I have a difficult task, I like to work on it for a long period of time.	4.37	1.38	0.28	4.27	1.37	0.30	4.72	1.42	0.39
26	If I have the choice between one major task and several little ones, I prefer taking the major one.	4.19	1.60	0.40	4.27	1.60	0.43	4.36	1.49	0.32
43	I prefer simple tasks to difficult ones.	4.13	1.53	0.66	4.11	1.55	0.65	4.17	1.55	0.62
60	I prefer tasks that I can perform easily to those which I really have to apply myself to.	4.28	1.50	0.61	4.13	1.54	0.60	4.39	1.47	0.54
77	Tasks that I am unsure of being able to perform are particularly appealing to me.	3.58	1.44	0.52	3.55	1.45	0.52	4.04	1.39	0.51
94	I especially like to deal with problems that contain a tough nut to crack.	4.50	1.33	0.67	4.46	1.36	0.64	4.58	1.37	0.59
111	Difficult problems appeal more to me than simple ones.	4.13	1.31	0.68	4.11	1.31	0.70	4.44	1.35	0.68
128	I like to work at tasks that require a great deal of skill.	4.77	1.27	0.60	4.72	1.28	0.63	5.04	1.23	0.63
145	I prefer tasks with which I can be sure of success.	3.47	1.44	0.30	3.46	1.45	0.39	3.40	1.42	0.33
162	I feel particularly challenged by a difficult task.	5.10	1.18	0.21	5.07	1.19	0.22	4.98	1.25	0.15
	Coefficient Alpha		.81			.82			.80	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B15

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Pride in Productivity Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
4	It makes me proud and happy to have mastered a difficult task.	6.66	0.63	0.44	6.63	0.57	0.42	6.55	0.84	0.52
21	When I have accomplished something difficult, I'm proud of myself.	6.42	0.92	0.37	6.41	0.92	0.26	6.39	0.92	0.59
38	In order to be satisfied with my work, I must have the feeling I gave my best.	5.48	1.39	0.46	5.38	1.44	0.42	5.47	1.30	0.48
55	I am happy when I succeed in using my time especially well.	5.97	1.19	0.41	5.93	1.19	0.38	5.94	1.24	0.59
72	I have a sense of satisfaction when I improve on my performance.	6.19	0.92	0.61	6.13	0.95	0.61	6.16	1.05	0.61
89	It's easy to spark my ambition.	4.95	1.21	0.35	4.91	1.20	0.33	5.13	1.30	0.53
106	If something has not gone as well as I had planned, I then make even more of an effort.	5.05	1.22	0.41	5.03	1.26	0.37	5.10	1.23	0.54
123	I am particularly proud of results I have achieved through my own effort.	6.05	1.08	0.56	6.07	1.07	0.54	5.81	1.23	0.56
140	I like to think about all things I have accomplished.	4.83	1.45	0.37	4.70	1.42	0.30	4.81	1.44	0.41
157	My achievements are very important for my self-respect.	5.50	1.31	0.53	5.48	1.31	0.48	5.30	1.41	0.52
		6.66	0.63	0.44	6.63	0.57	0.42	6.55	0.84	0.52
	Coefficient Alpha		.77			.74			.83	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B16

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Self-Control Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 ($n = 335$)			U.S. Sample 2 ($n = 201$)			U.S. Sample 3 ($n = 486$)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
16	I frequently put off until tomorrow things that I should do today.	3.06	1.59	0.53	2.85	1.60	0.53	3.24	1.62	0.59
33	Even when I do not have any real desire to work, I can still force myself to concentrate.	4.44	1.54	0.32	4.35	1.63	0.33	4.61	1.48	0.39
50	I have often been in trouble for putting off important tasks until the last minute.	3.37	1.78	0.59	3.15	1.76	0.59	3.94	1.80	0.56
67	There are so many little tasks to handle that I sometimes simply don't deal with them.	4.55	1.67	0.41	4.48	1.71	0.34	4.55	1.62	0.45
84	In school I used to put off doing homework as long as possible.	3.34	1.82	0.65	3.21	1.87	0.67	3.35	1.78	0.60
101	Before beginning a new project, I always draw a work plan.	3.67	1.58	0.22	3.50	1.54	0.21	3.96	1.62	0.28
118	Unfortunately, I very often cannot find the papers I would need for my work.	5.03	1.53	0.31	5.01	1.54	0.32	5.30	1.56	0.30
135	If you strive for demanding goals, it is OK to forego some other things in life.	4.09	1.58	0.10	4.19	1.58	0.14	3.97	1.51	-0.01
152	I am not willing to forego something now in order to maybe achieve something more in the future.	4.68	1.49	0.19	4.73	1.42	0.18	4.57	1.47	0.21
169	The old rule of "business before pleasure" still holds true today.	3.86	1.73	0.21	3.70	1.83	0.20	3.97	1.61	0.24
	Coefficient Alpha		.69			.69			.70	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B17

Item Means, Standard Deviations, Corrected Item-Total Correlations, and Alpha Coefficients for the Status Orientation Scale Across Three U.S. Student Samples

#	Item	U.S. Sample 1 (n = 335)			U.S. Sample 2 (n = 201)			U.S. Sample 3 (n = 486)		
		M	*SD*	*r*	*M*	*SD*	*r*	*M*	*SD*	*r*
17	A person's profession is the most important way of being successful in life.	2.69	1.55	0.23	2.72	1.59	0.23	3.15	1.64	0.17
34	I intend to go far professionally.	6.11	1.12	0.48	6.08	1.08	0.52	5.95	1.26	0.56
51	I would like to have an important role that would make others look up to me.	5.55	1.40	0.60	5.61	1.33	0.59	5.67	1.32	0.63
68	I would like to become an important member of the community.	5.10	1.56	0.44	5.07	1.54	0.45	5.43	1.33	0.51
85	I want to be admired for my achievements.	5.55	1.39	0.59	5.54	1.38	0.57	5.66	1.33	0.65
102	To me it is very important to achieve a position of responsibility.	5.16	1.43	0.56	5.11	1.44	0.50	5.32	1.34	0.62
119	The only job that interests me is one that allows me to achieve a prestigious position.	3.34	1.66	0.45	3.24	1.65	0.40	3.71	1.60	0.39
136	I admire people who have gone far in life.	6.21	1.00	0.39	6.17	0.94	0.36	6.13	1.06	0.47
153	It is important for me that others consider me competent and hardworking.	5.56	1.23	0.41	5.45	1.24	0.40	5.58	1.31	0.52
170	The thought of reaching an important position is a professional incentive for me.	4.86	1.66	0.71	4.76	1.68	0.74	5.25	1.47	0.75
	Coefficient Alpha		.81			.80			.83	

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004). U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000). U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation). r = corrected item-total correlation.

Table B18

Retained Components from Principle Component and Parallel Analyses of the AMI Original and Revised Scales Across Three U.S. Student Samples

		Original			Revised		
Scale	Sample	K-G Rule	Scree Plot	Parallel Analysis	K-G Rule	Scree Plot	Parallel Analysis
Compensatory Effort							
	U.S. Sample 1	2	3	2	1	1	1
	U.S. Sample 2	2	2	2	1	1	1
	U.S. Sample 3	3	3	2	1	1	1
Competitiveness							
	U.S. Sample 1	1	1	1	1	1	1
	U.S. Sample 2	2	1	1	1	1	1
	U.S. Sample 3	2	1	1	1	1	1
Confidence in Success							
	U.S. Sample 1	2	2	2	1	1	1
	U.S. Sample 2	3	3	2	1	1	1
	U.S. Sample 3	2	2	2	1	1	1
Dominance							
	U.S. Sample 1	2	1	1	1	1	1
	U.S. Sample 2	3	1	1	1	1	1
	U.S. Sample 3	2	2	1	1	1	1
Eagerness to Learn							
	U.S. Sample 1	3	3	1	1	1	1
	U.S. Sample 2	2	2	1	1	1	1
	U.S. Sample 3	3	3	1	1	1	1
Engagement							
	U.S. Sample 1	3	3	1	1	1	1
	U.S. Sample 2	3	2	1	1	1	1
	U.S. Sample 3	3	3	3	1	1	1

Table B18 (continued)

Scale	Sample	Original			Revised		
		K-G Rule	Scree Plot	Parallel Analysis	K-G Rule	Scree Plot	Parallel Analysis
Fearlessness							
	U.S. Sample 1	2	1	1	1	1	1
	U.S. Sample 2	3	3	1	2	1	1
	U.S. Sample 3	2	3	2	1	1	1
Flexibility							
	U.S. Sample 1	3	3	3	1	1	1
	U.S. Sample 2	4	4	2	1	1	1
	U.S. Sample 3	2	2	2	1	1	1
Flow							
	U.S. Sample 1	2	2	2	1	1	1
	U.S. Sample 2	2	2	2	1	1	1
	U.S. Sample 3	2	2	2	1	1	1
Goal Setting							
	U.S. Sample 1	3	3	3	1	1	1
	U.S. Sample 2	3	3	2	1	1	1
	U.S. Sample 3	3	3	3	1	1	1
Independence							
	U.S. Sample 1	3	3	2			
	U.S. Sample 2	4	5	2			
	U.S. Sample 3	3	4	2			
Internality							
	U.S. Sample 1	3	3	1	1	1	1
	U.S. Sample 2	3	5	1	2	2	1
	U.S. Sample 3	3	1	1	1	1	1
Persistence							
	U.S. Sample 1	3	3	2	1	1	1
	U.S. Sample 2	2	2	2	1	1	1
	U.S. Sample 3	3	3	2	1	1	1

Table B18 (continued)

Scale	Sample	K-G Rule	Original Scree Plot	Parallel Analysis	K-G Rule	Revised Scree Plot	Parallel Analysis
Preference for Difficult Tasks							
	U.S. Sample 1	2	1	1	1	1	1
	U.S. Sample 2	2	2	1	1	1	1
	U.S. Sample 3	2	2	2	1	1	1
Pride in Productivity							
	U.S. Sample 1	3	3	1	1	1	1
	U.S. Sample 2	3	3	1	1	1	1
	U.S. Sample 3	2	1	1	1	1	1
Self-control							
	U.S. Sample 1	3	3	2	1	1	1
	U.S. Sample 2	3	2	2	1	1	1
	U.S. Sample 3	3	3	2	1	1	1
Status Orientation							
	U.S. Sample 1	2	2	1	1	1	1
	U.S. Sample 2	3	3	1	2	1	1
	U.S. Sample 3	2	2	2	1	1	1

Note. K-G Rule = Kaiser-Guttman Rule. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B19

Unrotated Component Loadings and Alpha Coefficients for 1-Component Model of the Revised Compensatory Effort and Competitiveness Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Compensatory Effort			
11	So that I will not be subject to criticism, I prefer to double my effort.	0.56	0.52	0.64
62	The fear of failing at an important task has often made me put in a great deal of effort.	0.66	0.70	0.72
113	Because of the tension before an important task, I make greater effort than I might otherwise make.	0.60	0.62	0.67
130	When I fear making mistakes, then I make an extra effort.	0.82	0.84	0.82
147	When I prepare for something important, I invest too much time rather than too little.	0.56	0.65	0.60
164	If there is a risk of failing at a task, I make an extra special effort.	0.81	0.82	0.80
Coefficient Alpha		.75	.77	.80
	Competitiveness			
6	It annoys me when others perform better than I do.	0.72	0.71	0.72
23	In order to truly feel successful, I have to be better than everyone I compare myself to.	0.74	0.79	0.72
40	I do not mind when people my age have achieved more than I have.	0.60	0.61	0.59
91	If someone is working on the same thing as I am, I try to be faster or better.	0.74	0.76	0.73
108	The wish to be better than others is a major incentive for me.	0.79	0.82	0.84
125	To be clear about where I stand in terms of my performance it's important to me that I compare myself to others.	0.78	0.77	0.77
142	I rarely have had the feeling of being in competition with others.	0.66	0.66	0.57
159	I like to compete with others.	0.75	0.74	0.69
Coefficient Alpha		.87	.88	.85

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B20

Unrotated Component Loadings for 1-Component Model of the Revised Confidence in Success and Dominance Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Confidence in Success			
10	Even when faced with a difficult task, I always expect to achieve my goal.	0.72	0.73	0.71
27	Whenever I was faced with new tasks, I always felt I would be able to accomplish them.	0.80	0.81	0.75
78	When I take an exam, I am convinced I will pass.	0.52	0.43	0.66
112	Even when faced with a difficult task, I am always confident.	0.83	0.84	0.79
129	I do not have to fear any situation because I have always managed to pull through thanks to my abilities.	0.66	0.64	0.67
Coefficient Alpha		.74	.72	.75
	Dominance			
13	I like to decide what others should do.	0.64	0.66	0.60
30	I often succeed in convincing others of my opinion.	0.66	0.64	0.62
81	When decisions have to be made in a group, I always play a significant role in making them.	0.76	0.72	0.77
98	Even when I face opposition, I succeed.	0.50	0.40	0.59
115	When I work with other people, I usually take the initiative.	0.71	0.69	0.75
132	On several occasions I have been able to improve the work of others by reorganization.	0.60	0.58	0.52
166	Being master of the situation is important for me.	0.73	0.70	0.69
Coefficient Alpha		.78	.75	.77

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B21

Unrotated Component Loadings for 1-Component Model of the Revised Eagerness to Learn and Engagement Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Eagerness to Learn			
31	I have voluntarily attended a great deal of education and training that was not required.	0.57	0.65	0.65
48	I regularly read the trade publications in my professional field.	0.68	0.66	0.55
65	I like to read scientific books and essays.	0.64	0.66	0.74
116	I especially like to watch informational programs on TV.	0.63	0.59	0.61
133	I spend considerable time learning new things.	0.69	0.67	0.69
Coefficient Alpha		.64	.64	.65
	Engagement			
12	Others say that I work a lot more than necessary.	0.75	0.72	0.76
97	People have already told me that I neglect other important aspects of life because I work too much.	0.74	0.73	0.72
114	I work more than most people I know.	0.75	0.72	0.76
131	I have already been called a workaholic.	0.82	0.83	0.84
Coefficient Alpha		.76	.74	.78

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B22

Unrotated Component Loadings for 1-Component Model of the Revised Fearlessness and Flexibility Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Fearlessness			
5	When faced with a new job or task, I am often afraid of doing something wrong.	0.67	0.67	0.58
56	I often "hid" in school to avoid being called up.	0.66	0.60	0.57
90	I have not undertaken some activities for fear of not being successful.	0.72	0.70	0.75
107	When I have to present something in front of others, I am afraid of making a fool of myself.	0.68	0.66	0.71
124	There have been things in my life that seemed very desirable but which I simply didn't dare try for.	0.69	0.66	0.64
158	When I fear not being able to succeed at a task, I look for an easier goal.	0.63	0.60	0.69
Coefficient Alpha		.76	.72	.73
	Flexibility			
1	When I am facing a new situation, I am always a little skeptical in the beginning.	0.62	0.65	0.63
35	Though it may be nice to start something new occasionally, I feel more comfortable with the "tried and true".	0.68	0.65	0.66
52	I have passed up some interesting things for fear of not being able to accomplish them.	0.60	0.63	0.67
69	When I choose my goals, I prefer to be somewhat careful rather than take big risks.	0.68	0.67	0.74
120	I sometimes take risks in order to try out something new.	0.64	0.59	0.64
Coefficient Alpha		.64	.63	.69

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B23

Unrotated Component Loadings for 1-Component Model of the Revised Flow and Goal Setting Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Flow			
3	When I am busy with something interesting, I can forget the world around me.	0.66	0.67	0.65
20	I often lose myself in what I'm doing.	0.67	0.67	0.68
37	I have often noticed that everything else becomes unimportant when I totally concentrate on my work.	0.66	0.67	0.67
54	I rarely get so involved in something that I forget everything else.	0.62	0.64	0.61
71	There are times where I am totally carried away by my work.	0.75	0.74	0.69
139	I enjoy becoming completely absorbed in a task.	0.71	0.73	0.74
156	Often time slips by unnoticed when I am completely engrossed in work.	0.63	0.66	0.71
Coefficient Alpha		.80	.81	.80
	Goal Setting			
24	I know exactly what professional position I would like to hold in five years.	0.78	0.79	0.84
41	When faced with choices about education, training and a profession, I knew exactly what I wanted.	0.79	0.83	0.82
75	The future is too uncertain to be able to make long-term plans.	0.71	0.72	0.73
92	I am generally strongly oriented toward the future.	0.69	0.63	0.70
Coefficient Alpha		.72	.73	.78

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); *n* = 335. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); *n* = 201. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); *n* = 486.

Table B24

Unrotated Component Loadings for 1-Component Model of the Revised Internality and Persistence Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Internality			
8	The extent of one's professional success depends a good deal on luck.	0.70	0.71	0.67
25	If I had teachers and supervisors who were more understanding, I could have made it farther by now.	0.64	0.65	0.64
42	Most of what happens in life depends more on others than on oneself.	0.70	0.74	0.67
127	I sometimes have the feeling that people make life difficult for me and discourage me.	0.68	0.64	0.66
144	Some things I achieved only because I had a lot of luck.	0.65	0.61	0.67
Coefficient Alpha		.69	.69	.68
	Persistence			
36	I find it difficult to maintain my effort over a long period of time.	0.69	0.70	0.68
53	I could accomplish more if I didn't get tired so fast.	0.68	0.67	0.71
87	I find it difficult to concentrate for a long time without becoming tired.	0.80	0.83	0.84
104	I have often given up quickly when something went wrong.	0.66	0.63	0.58
138	Sometimes when a task is difficult, I put it aside and maybe I take it up at a later time.	0.67	0.64	0.65
155	Sometimes I find it hard to focus all my concentration completely on what I am doing at that moment.	0.71	0.75	0.72
Coefficient Alpha		.79	.80	.79

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B25

Unrotated Component Loadings for 1-Component Model of the Revised Preference for Difficult Tasks and Pride in Productivity Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Preference for Difficult Tasks			
43	I prefer simple tasks to difficult ones.	0.75	0.73	0.75
60	I prefer tasks that I can perform easily to those which I really have to apply myself to.	0.74	0.71	0.67
77	Tasks that I am unsure of being able to perform are particularly appealing to me.	0.68	0.69	0.63
94	I especially like to deal with problems that contain a tough nut to crack.	0.79	0.79	0.78
111	Difficult problems appeal more to me than simple ones.	0.82	0.84	0.81
128	I like to work at tasks that require a great deal of skill.	0.76	0.75	0.78
Coefficient Alpha		.85	.84	.83
	Pride in Productivity			
4	It makes me proud and happy to have mastered a difficult task.	0.71	0.69	0.76
21	When I have accomplished something difficult, I'm proud of myself.	0.68	0.68	0.81
55	I am happy when I succeed in using my time especially well.	0.64	0.60	0.76
72	I have a sense of satisfaction when I improve on my performance.	0.77	0.81	0.77
123	I am particularly proud of results I have achieved through my own effort.	0.71	0.64	0.68
Coefficient Alpha		.73	.69	.80

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); *n* = 335. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); *n* = 201. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); *n* = 486.

Table B26

Unrotated Component Loadings for 1-Component Model of the Revised Self-Control and Status Orientation Scales Across Three U.S. Student Samples

#	Item	U.S. Sample 1	U.S. Sample 2	U.S. Sample 3
	Self-Control			
16	I frequently put off until tomorrow things that I should do today.	0.76	0.75	0.81
33	Even when I do not have any real desire to work, I can still force myself to concentrate.	0.46	0.51	0.49
50	I have often been in trouble for putting off important tasks until the last minute.	0.82	0.80	0.81
67	There are so many little tasks to handle that I sometimes simply don't deal with them.	0.64	0.58	0.67
84	In school I used to put off doing homework as long as possible.	0.83	0.83	0.81
118	Unfortunately, I very often cannot find the papers I would need for my work.	0.53	0.56	0.47
Coefficient Alpha		.77	.76	.78
	Status Orientation			
34	I intend to go far professionally.	0.62	0.65	0.71
51	I would like to have an important role that would make others look up to me.	0.72	0.71	0.77
68	I would like to become an important member of the community.	0.62	0.63	0.66
85	I want to be admired for my achievements.	0.71	0.69	0.75
102	To me it is very important to achieve a position of responsibility.	0.70	0.67	0.74
136	I admire people who have gone far in life.	0.55	0.54	0.62
153	It is important for me that others consider me competent and hardworking.	0.57	0.56	0.67
170	The thought of reaching an important position is a professional incentive for me.	0.78	0.79	0.81
Coefficient Alpha		.82	.81	.86

Note. U.S. Sample 1 = student normative sample from Schuller et al. (2004); $n = 335$. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 201$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 486$.

Table B27

Correlation Coefficients of the Original and Revised AMI Scales with GPA Across Two U.S. Samples

Scale	U.S. Sample 2		U.S. Sample 3		Average[a]	
	Original	Revised	Original	Revised	Original	Revised
1. Compensatory effort	0.28	0.20	0.17	0.15	0.23	0.18
2. Competitiveness	-0.07	-0.06	0.05	0.03	-0.01	-0.02
3. Confidence in success	0.19	0.11	0.15	0.18	0.17	0.14
4. Dominance	0.18	0.16	0.10	0.07	0.14	0.12
5. Eagerness to learn	0.29	0.25	0.14	0.08	0.21	0.17
6. Engagement	0.18	0.22	0.16	0.14	0.17	0.18
7. Fearlessness	0.07	0.06	0.11	0.04	0.09	0.05
8. Flexibility	0.05	0.02	0.10	0.02	0.07	0.02
9. Flow	0.18	0.15	0.13	0.12	0.16	0.13
10. Goal setting	0.05	0.02	0.12	0.08	0.08	0.05
11. Independence	0.08		-0.01		0.04	
12. Internality	0.10	0.11	0.20	0.20	0.15	0.15
13. Persistence	0.14	0.07	0.18	0.15	0.16	0.11
14. Preference for difficult tasks	0.19	0.17	0.13	0.15	0.16	0.16
15. Pride in productivity	0.20	0.16	0.18	0.21	0.19	0.18
16. Self-control	0.18	0.20	0.25	0.25	0.22	0.23
17. Status orientation	-0.05	0.03	0.04	0.10	-0.01	0.07

Note. U.S. Sample 2 = student sample from Mueller-Hanson & Thornton (2000); $n = 158$. U.S. Sample 3 = student sample from Cigularov & Thornton (in preparation); $n = 480$. [a]Average of U.S. Samples 2 and 3.

Table B28

Correlation Coefficients of the Original and Revised AMI Scales with the Big Five in a U.S. Sample

Scale	Extraversion		Agreeableness		Conscientiousness		Emotional Stability		Intellect	
	O	R	O	R	O	R	O	R	O	R
1. Compensatory effort	0.10	0.13	0.14	0.14	0.28	0.35	-0.05	0.00	0.07	0.08
2. Competitiveness	0.06	0.05	-0.16	-0.17	0.11	0.09	-0.09	-0.12	-0.05	-0.05
3. Confidence in success	0.29	0.27	0.03	0.17	0.37	0.36	0.40	0.41	0.42	0.34
4. Dominance	0.44	0.43	0.14	0.11	0.30	0.31	0.11	0.10	0.30	0.30
5. Eagerness to learn	0.12	0.08	0.13	0.04	0.25	0.18	0.14	0.11	0.47	0.42
6. Engagement	0.16	0.05	0.02	-0.04	0.39	0.26	-0.05	-0.19	0.07	-0.02
7. Fearlessness	0.35	0.45	0.09	0.13	0.17	0.21	0.49	0.44	0.33	0.31
8. Flexibility	0.40	0.38	0.26	0.09	0.18	0.07	0.40	0.38	0.47	0.31
9. Flow	0.07	0.03	0.20	0.17	0.18	0.06	0.06	-0.01	0.36	0.32
10. Goal setting	0.21	0.22	0.23	0.22	0.39	0.36	0.04	0.03	0.29	0.15
11. Independence	0.30		0.07		0.22		0.26		0.40	
12. Internality	0.20	0.16	0.33	0.25	0.25	0.22	0.14	0.17	0.27	0.18
13. Persistence	0.21	0.16	0.21	0.17	0.47	0.42	0.39	0.42	0.27	0.22
14. Preference for difficult tasks	0.19	0.20	0.17	0.18	0.32	0.30	0.31	0.35	0.40	0.43
15. Pride in productivity	0.24	0.20	0.41	0.48	0.44	0.38	0.07	0.08	0.32	0.31
16. Self-control	0.11	0.10	0.16	0.16	0.63	0.62	0.14	0.17	0.05	0.08
17. Status orientation	0.29	0.29	0.20	0.29	0.32	0.34	-0.05	-0.04	0.17	0.23

Note. U.S. Sample = student sample from Cigularov & Thornton (in preparation); n = 480. O = original scale. R = revised scale.