ABSTRACT

HANSEN, MICHAEL CARTER. Investigating the Construct Validity of Perceived Cultural Tightness and Culture Strength. (Under the direction of Frank J. Smith.)

Cross-cultural values measurement is a maturing subdiscipline with increasing applicability to the international business environment. However, the utility of cultural values measurement in societies could be enhanced by refining the conceptualization and measurement of relevant cultural features. Measuring values in large, populous, heterogeneous societies may be subject to considerable imprecision. This study conceptually and operationally defined two constructs to enrich cross-cultural values applications: cultural tightness and societal culture strength. This study investigated the construct validity of cultural tightness at multiple levels of analysis. Some evidence supported the distinction of cultural tightness from existing and related constructs. A measure of cultural tightness was not found to relate to societal culture strength but did predict several measures of cultural emergence. I conclude that construct validity is possible despite limited confirmation for hypotheses proposing its construct validity. Likewise, cluster analysis demonstrated only a modest pattern of societal clustering of any of these variables. Recommendations for future research and organizational implications are discussed.

Investigating the Construct Validity of Perceived Cultural Tightness and Culture Strength

by
Michael Hansen

A dissertation submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

Psychology

Raleigh, North Carolina

2009

APPROVED BY:

Dr. Frank J. Smith Chair of Advisory Committee	Dr. Samuel B. Pond, III
Dr. S. Bartholomew Craig	Dr. Paul Mulvey

DEDICATION

This dissertation is dedicated to my daughters, Anna and Caroline, who I hope will continue the fine tradition in the Hansen and Lao families of pursuing education at the highest levels.

BIOGRAPHY

Michael Hansen was born in 1972 in Mason City, Iowa to parents Ronald Hansen and Diane Closson. He received a Bachelor of Arts degree from the University of Northern Iowa in 1995 and a Master of Science degree in Industrial-Organizational Psychology from North Carolina State University in 2002. He is currently employed as an occupational analyst for North Carolina State University.

ACKNOWLEDGEMENTS

I sincerely thank my committee members. Dr. Frank Smith demonstrated a graceful balance of providing guidance and promoting an independent spirit. No one respects the process of graduate education more than Dr. Bob Pond. I have always appreciated the professional and career as well as scholarly guidance that Dr. Paul Mulvey has provided. Although Dr. Bart Craig joined the committee later, he still offered a prolific volume of advice.

Thank you also to Dr. Marcus Dickson of Project GLOBE for early guidance and opportunity to work with an impressive research effort.

Thanks to my family for their loving support. Most of all, thank you to my beautiful and brilliant wife Renee who not only stood by me, but pushed, pulled, and dragged me across the finish line and celebrated with me when I got there.

TABLE OF CONTENTS

LIST OF TABLES ... vii
LIST OF FIGURES ... x
Introduction ... 1
Conceptualizations of Culture and Climate ... 4
Societal Culture. ... 5
Organizational Culture. ... 9
Organizational Climate. ... 11
Culture and Climate Summary ... 14
Strength Constructs ... 15
Organizational Culture Strength ... 15
Organizational Climate Consensus. ... 16
Social Norms and Cultural Tightness ... 21
Cultural Tightness ... 27
Evolution of Multilevel Theory and the Dispersion Model ... 30
The Dispersion Model ... 30
Present study: Cultural Tightness and Emergent Culture ... 37
Methods ... 45
Original Project GLOBE Study ... 45
Survey and Item Development ... 45
Measures ... 48
Current Study Methods ... 50
Sample of Present Study ... 50
Measuring Cultural Tightness ... 50
Measurement of Societal Culture Strength and Emergence ... 53
Societal Culture Strength. ... 57
Emergence ... 57
Analyses ... 59
Results ... 66
Confirmatory Factor Analyses ... 66
Societal Level Measures of Culture Strength and Emergence ... 76

Cultural Tightness and Societal Culture Strength 77
Cultural Tightness and Multilevel Construct Emergence 79
Post-Hoc Results. 89
Cluster Analyses 90
Discussion 97
Limitations 100
Research Implications. 105
Organizational Implications 109
Conclusions 111
References 112
APPENDICES 181
Appendix A 182
Appendix B 184
Appendix C 186
Appendix D 188
Appendix E 191

LIST OF TABLES

Table 1. Number of Respondents by Participating Countries... 132

Table 2. AD_m Values for GLOBE Items Rated for Cultural Tightness 133

Table 3. GLOBE Items Reflecting Cultural Tightness 135

Table 4. Means, Standard Deviations, and Intercorrelations for Individual Level Cultural Dimensions, as Measured by Practices (As is) Items 136

Table 5. Means, Standard Deviations, and Intercorrelations for Individual Level Cultural Dimensions, as Measured by Values (Should Be) Items 137

Table 6. Means, Standard Deviations, and Intercorrelations for Societal Level Cultural Dimensions, as Measured by Practices (As Is) Items 138

Table 7. Means, Standard Deviations, and Intercorrelations for Societal Level Cultural Dimensions, as Measured by Values (Should Be) Items 139

Table 8. Individual Level Pearson r Product-Moment Intercorrelations among Cultural Tightness, Uncertainty Avoidance, Institutional Collectivism, and Humane Orientation ... 140

Table 9. Summary of Fit Indices for Multiple Null and Hypothesized Models of Cultural Tightness 141

Table 10. Factor Cross-loadings for Four-Factor Confirmatory Model of Cultural Tightness 142

Table 11. Summary of Hierarchical Regression Analyses Predicting Perceived Cultural Tightness 143

Table 12. Means, Standard Deviations, and Correlations between Values (Should Be) and Practices (As Is) Measures of Societal Culture Strength 144

Table 13. Descriptive Statistics for Measures of Cultural Dimension Values Consensus, as Measured by AD_m 145

Table 14. Descriptive Statistics for Measures of Cultural Dimension Practices Consensus, as Measured by AD_m 146

Table 15. Descriptive Statistics for Individual Level Cultural Dimensions Norm Strength, as Measured by Z-Score-Based Difference Scores 147

Table 16. Descriptive Statistics for Societal Level Cultural Dimension Norm Strength, as Measured by Z-Score-Based Difference Scores 148

Table 17. Summary of Hierarchical Regression Analysis for Variables Predicting Societal Culture Strength-Practices 149

Table 18. Summary of Hierarchical Regression Analysis for Variables Predicting Societal Culture Strength-Values.. 150

Table 19. Summary of Hierarchical Regression Analyses for Predicting Emergence of Cultural Dimension Practices, as Measured by AD_m: Unique Contributions of Perceived Cultural Tightness.. 151

Table 20. Summary of Hierarchical Regression Analyses for Predicting Emergence of Cultural Dimension Values, as Measured by AD_m: Unique Contributions of Perceived Cultural Tightness.. 152

Table 21. Summary of Hierarchical Regression Analyses for Predicting Cultural Dimensions Practices Emergence, as Measured by Z-Score Based Difference Score: Unique Contributions of Perceived Cultural Tightness.. 153

Table 22. Descriptive Statistics for Measures of Demographic Heterogeneity................... 154

Table 23. Summary of Hierarchical Regression Analyses for Variables Predicting Perceived Cultural Tightness 155

Table 24. Summary of Hierarchical Regression Analyses for Variables Predicting Societal Culture Strength-Practices 156

Table 25. Summary of Hierarchical Regression Analyses for Variables Predicting Societal Culture Strength-Values 157

Table 26. Final Means (SD) and Homogeneity Coefficients for Practices Cluster Profiles. 158

Table 27. Cluster Memberships for Societies in Six Practices Consensus Clusters 159

Table 28. Final Means (SD) and Homogeneity Coefficients for Values Cluster Profiles 160

Table 29. Cluster Memberships for Societies in Four Values Consensus Clusters 161

Table 30. Final Means (SD) and Homogeneity Coefficients for Norm Strength Cluster Profiles 162

Table 31. Cluster Memberships for Societies in Eight Norm Strength Clusters 163

Table 32. Analysis of Variance of Perceived Cultural Tightness by Assigned Practices Consensus Clusters 164

Table 33. Analysis of Variance of Perceived Cultural Tightness by Assigned Values Consensus Clusters 165

Table 34. Analysis of Variance of Perceived Cultural Tightness by Assigned Norm Strength Clusters 166

LIST OF FIGURES

Figure 1. Sample of parallel item quartets... 167

Figure 2. Three-factor (null) model of practices. 168

Figure 3. Hypothesized four-factor model of practices.. 169

Figure 4. Revised three-factor (null) model of practices... 170

Figure 5. Revised four-factor model of practices.. 171

Figure 6. Revised four-factor model of practices with standardized parameter estimates... 172

Figure 7. Three-factor (null) model of values. 173

Figure 8. Hypothesized four-factor model of values.. 174

Figure 9. Error sum of squares for nine practices emergence scores. 175

Figure 10. Practices emergence scores, by cluster profile.. 176

Figure 11. Error sum of squares for nine values emergence scores. 177

Figure 12. Values emergence scores, by cluster profile... 178

Figure 13. Error sums of squares for nine norm strength scores.. 179

Figure 14. Norm strength scores, by cluster profile. 180

Introduction

American workers in all settings are becoming more familiar with the dynamics of the global marketplace and workforce. Although the expanding markets of China and India present opportunities for business growth, many blue-collar and white-collar jobs are also heading east. Information technology companies are outsourcing customer service around the world just as textile companies offshore production (Witte, 2004).

The expansion of international business, with the assistance of advanced information and communication technology, present the opportunity for contact and collaboration across cultures for more and ever-diverse types of employees. Certainly, these exchanges provide the opportunity for misunderstanding, disagreement, conflict, intense competition, dysfunction, and substandard performance. But the fields of psychology, organizational behavior, anthropology, and organizational development have been busy in assessing features of cultures in order to maximize cross-national collaboration. Systematically measuring cultural characteristics has been assistive in individual and team cross-cultural training (e.g., Bhawuk & Brislin, 2000), and selection of expatriate managers and multinational team members (e.g., Black, Oddou, & Mendenhall, 1991). Although a fairly young discipline, cross-cultural measurement has made valuable academic and practical contributions. However, cross-cultural measurement is continually in need of refinement in order to increase its practical applicability.

The field of cross-cultural values research regularly relies on the implicit conceptualization of culture as a nation-based variable (e.g., Hofstede, 1980; House & Javidan, 2004). According to this conceptualization, each nation *is* a culture, and researchers often make comparisons between and among nations based on the assumption that national cultural groups are (the most) meaningful units for comparison. This assumption bears the imprint of the early era of cross-cultural research during which there was no universal definition of culture. In the absence of a clear conceptual definition, researchers were attracted to the relative ease of operationally equating nation with culture during a time in which American economic dominance and the Cold War political climate encouraged a national unit of analysis (Sackmann, Phillips, Kleinberg, & Boyacigiller, 1997).

However, research has demonstrated the existence of multiple cultures within larger societies and organizations (Bochner, 1982; Sackmann, 1992). So although national cultural differences can be meaningful and useful for multinational organizational operations and intercultural interaction, this assumption may mask the effects of other cultural groupings nested within societies or spanning multiple national boundaries.

Informatively, some organizational culture researchers also borrowed the monolithic conceptualization of cultures: in this case, an organization *is* a culture (Phillips, 1990). However, unlike the field of national culture, there has been an active countermovement arguing that organizations encompass a multiplicity of cultures (Martin, 1992; Sackmann & Phillips, 1992; Sackmann, Phillips, Kleinberg, & Boyacigiller, 1997). According to Sackmann et al., “an organization is not a simple, primitive society; rather it is a heterogeneous, pluralistic system whose members live in a larger, complex society (p. 32). These conceptualizations of culture within organizations not only reflect the existence of subcultures but of the contribution of societal, transorganizational, and supraorganizational culture to organizational culture (Sackmann et al., 1997). It is beneficial to recognize that other cultural groupings may emerge as critical for explaining phenomena within or across levels of analysis.

However, there have been minimal attempts to develop a model of culture across multiple levels of analysis (for an exception, see Sackmann et al., 1997). This study investigated the construct validity of two related phenomena—culture strength and cultural tightness-- that may enrich future multilevel models of culture. These constructs were hypothesized to address and explain the phenomenon of emergent cultural constructs. This investigation will be guided by recent theory in multilevel organizational research, specifically a conceptual model of how constructs may emerge from lower levels of analysis to describe phenomena at higher levels (Brown & Kozlowski, 1999; Kozlowski & Klein, 2000). This *dispersion model* of emergent constructs argues that the quality and nature of dispersion of individual-level data is indicative of the degree to which a construct (or a dimension) has emerged to define and describe a unit. Multilevel construct emergence provides a useful model for addressing the limitations of culture measurement in societies. Defining and measuring cultural tightness and culture strength may identify and explain patterns of cultural construct emergence.

To facilitate a more refined concept of culture, I reviewed research from several relevant bodies of literature in order to define and investigate these phenomena. The first section of this review describes conceptualizations of three relevant multi-level constructs: societal culture, organizational culture, and organizational climate. The second section presents multi-level strength constructs relating to societal culture, organizational culture, and organizational climate. Strength constructs provide the basis for understanding patterns of emergence. This section will also devote attention to the related construct of cultural tightness, which Triandis and colleagues (e.g., Triandis, 1989) define as individual and societal level tolerance for deviation from established norms. The third section explains the nature of emergent constructs and the role of dispersion in multilevel emergence. Lastly, this review will explicate the research approach of the completed study, which was aimed at two focal points. The first focal point of the research approach is the construction of a conceptual model aimed at validating the primary constructs of cultural tightness and societal culture strength. The second focal point is the identification of patterns of emergent cultural constructs. The core objective of this study was to explore the variance of cultural dimensions within societies: how to conceptualize, measure, explain, and describe the patterns of that variance.

Conceptualizations of Culture and Climate

There are clear distinctions between culture and climate. These distinctions between societal culture and climate are most obvious because climate researchers have focused on within-organization climate. Indeed, there is no theory of societal climate. However, the overlap between organizational culture and organizational climate, particularly in terms of operational definitions supports coverage of the conceptual space of climate. More importantly, climate research has provided the context for some of the most advanced debate of multilevel organizational theory and research. In the very least, climate conceptualizations provide a foil and alternative to predominating culture conceptualizations. After presenting theory and research on societal and organizational culture, a review of climate literature will be helpful in identifying multilevel culture models.

Societal Culture. In the last several decades, societal culture research has migrated somewhat from anthropological and sociological disciplines to psychology as the latter moved beyond the behavioral and experimental traditions to the measurement of individual differences. In addition, quantitative methodologies that are the norm in the physical sciences have become more common in the social sciences (Sackmann et al., 1997). This coincided with the growing global industrial workforce, and advanced communication technologies that a) brought more people from different cultures into contact, and b) allowed greater collaboration among researchers interested in this evolving cross-cultural phenomenon.

As a result of the growing interest in culture in the field of psychology, definition and measurement of culture has also changed. Although some definitions of culture still include references to cultural level features such as symbols and rituals, definitions have increasingly incorporated phenomena that originate at the lower levels of analysis—behaviors, interaction, and in particular values, a quality of individual cognition as well as of cultures. For example, Hofstede (1980) defined culture as the "collective programming of the mind that distinguishes members of one group from another"—a definition with a distinctly individual flavor. The psychological tradition assumes that the assessment of cultures should be based on the interpretation of its members (Segall, Lonner, and Berry, 1998). Triandis (1972) has termed this "subjective culture". Sackmann (1986) argues that the core of culture is cognitive rather than symbolic. In addition, rather than focusing on the abstract values (e.g., freedom, justice, beauty, and peace) investigated in the anthropological tradition, cross-cultural psychology has investigated contextualized values (House & Javidan, 2004), which are based on social interaction in common experiences and significant events.

Thus, culture has become more conceptualized as a global representation of the shared qualities of the members of a collective. Or, in the words of Schneider, Salvaggio, and Subirats (2002), "sharedness is the defining basis for a culture (or a subculture) to exist" (p. 221). The definition from Project GLOBE emphasizes this conception of sharedness: "shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations" (House, & Javidan, 2004, p. 15).

As a result, the predominant methodology for investigating culture in psychological studies is the distribution of self-report values questionnaires to members of multiple societies. Individual responses to the values items are then aggregated by scales and countries, which present opportunities to compare countries on chosen values and to investigate cultural level or multilevel relationships with values.

An obvious benefit of the "shared value" model of culture has been the measurement preoccupation with dimensionality (Sackmann et al., 1997). Beginning with Kluckhohn and Strodbeck (1960), Hofstede (1980), and Schwartz (1992), statistical analyses have helped validate simple and clear conceptualizations of cultural dimensions, which has catalyzed a large body of values research involving cross-cultural comparisons.

Although not cross-cultural in nature, McClelland's (1961) theory on human needs provided dimensions that others have pursued in cross-cultural samples. He established needs for achievement, affiliation, and power. People with high needs for achievement seek to excel, seek situations (neither high nor low risk) that enable achievement and seek feedback on their progress. Those with a high need for affiliation seek harmony and acceptance, while those with needs for power desire to direct or control other individuals or organizations.

Based on early theoretical work of Clyde Kluckhohn, Florence Kluckhohn and Fred Strodbeck (1960) initiated attempts to establish a dimensionality of societal culture by proposing that cultural values reflect a society's preferred solution to five problems: a) the aspect of time to emphasize—past, present, or future, b) the relationship between humanity and the natural environment—mastery, subjugation, or harmony, c) how individuals should relate to one another—hierarchically, equally, or equitably, d) the prime motivation for behavior—to express oneself, to grow, or to achieve, and e) the nature of humanity—good, evil, or some combination thereof. Kluckhohn and Strodbeck never attempted to fully validate the Value Orientations theory, acknowledging it to be incomplete. However, their methods marked a bridge between the assessment of cultural value abstractions to the psychometrically-stronger contextualized assessment of values.

Their work also provided the foundation for the seminal study in the field of cross-cultural values research. Hofstede (1980) derived four cultural values dimensions from a sample of 20,000 employees of IBM. These include: a) individualism-collectivism, b) power distance, c) uncertainty avoidance, and d) masculinity. More recently, Hofstede and colleagues (Hofstede & Bond, 1988; Hofstede, 2001) identified the Confucian Work Dynamism dimension, later called Long-Term Orientation, to reflect Kluckhohn and Strodbeck's Past Present Future orientation.

Schwartz (1994) identified values that differentiate cultures, an extension of previous work on an individual-level taxonomy of human values. His seven dimensions include: a) Embeddedness (previously labeled Conservatism), b) Intellectual Autonomy, c) Affective Autonomy, d) Hierarchy, e) Egalitarianism, f) Mastery, and g) Harmony (Schwartz, 1994; 2001; Schwartz & Melech, 2000). Embeddedness emphasizes maintenance of the status quo and a minimization of disruptions. Intellectual Autonomy relates to the promotion and protection of pursuit of intellectual desires. Hierarchy addresses the legitimacy of hierarchical and differential allocation of financial and social resources. Egalitarianism emphasizes the transcendence of selfish interests through the concern of the welfare of others. Mastery reflects active efforts to modify the immediate environment. Harmony refers to the importance of being in tune with the natural and social world.

From McClelland (1961) and Kluckhohn & Strodbeck (1960) to more recent theory and research by Hall (1989), Trompenaars and Hampden-Turner (1998), and the World Values Survey (Inglehart, Basanez, & Moreno, 1998), there is considerable convergence in conceptual space of cultural value differences (Smith & Bond, 1998).

However, not all scholars are in consensus regarding the emphasis on “cultural dichotomies”, as Hermans and Kempen (1998) referred to cultural dimensions. Wilkinson (1995) dismissed cultural dichotomies and the “spatiotemporal” criterion for civilizations (which are close enough to cultures for the purpose of this discussion), instead advocating a criterion of “connectedness” among groupings of people. Hermans and Kempen referred to three “dimensions” of culture, defined by Hannerz (1992): a) Ideas and modes of thought, which include values and other individual-level cognitions, b) Forms of externalization, which are those features of culture that are demonstrably publicly, such as art, food, products, and infrastructure, and c) social distribution, which are the patterns in which the first two dimensions are spread across a population. Hannerz (1992) and Hermans and Kempen (1998) contended that little attention has been paid to this distribution of the cognitions and externalizations of culture. In other words, just as it is worthwhile to question whether symbols, rituals, and religious, governmental, and legal systems are accurate representations of a culture, it is possible to ask: How fully shared are beliefs and values across a society? Does everyone agree? Do some not actually share the shared characteristic? To what degree do the members agree? These are questions organizational scholars have begun to ask, but have thus far been of less concern, operationally, to cross-cultural researchers, with the exception of Hannerz (1992), Hermans and Kempen (1998), and Miller (1997). Similar to the former scholars, Miller (1997) argued that more attention should be paid to heterogeneity of “cultural meanings” and practices at the subgroup level. However, in contrast to the conclusions of Hermans and Kempen (1998), Miller amended his prescription for more attention on heterogeneity insofar that the “existence of heterogeneity should not lead to the conclusion that cultural meanings and practices are so diverse that it is impossible to characterize them in terms of meaningful thematic tendencies”. In other words, cultural dichotomies and measures of cultural heterogeneity should be researched contemporaneously.

Organizational Culture. Schein (1992) defined culture as learned responses to groups’ problems of survival and internal integration. Louis (1983) defined organizational culture as a commonly held set of understandings for organizing action. Kopelman, Brief, & Guzzo

(1990) identified two approaches to operationalizing culture: a phenomenological perspective that involves measuring behaviors and artifacts, and an ideational perspective that considers shared meanings, symbols, and values. This differs from other conceptualizations of culture, which often distinguish artifacts and symbols that are anthropological in nature from psychological features like behaviors and values.

There have also been two competing models of organizational culture: *monolithic* vs. *multiple* cultures. The distinction is sometimes described as culture is what an organization *is* versus culture is what an organization *has*. Those advocating the *is* model conceptualize organizations as carriers of single, unique, and monolithic culture (e.g., Deal & Kennedy; Ouchi, 1980; Pascale & Athos, 1981; Peters & Waterman, 1982; Pettigrew, 1979; Schein, 1983). In contrast, *has* researchers (e.g., Gregory, 1983; Louis, 1983; Martin & Siehl, 1983; Martin, Sitkin, & Boehn, 1985; Sackmann, 1986; Van Maanen & Barley, 1985) apply more inductive methods. For example, Sackmann et al. (1997) argued that "the organization is viewed as the potential carrier of a multiplicity of separate, overlapping, superimposed, or nested cultures, with the organization's participants maintaining simultaneous membership in any number of cultural groups" (p.33).

Sackmann et al. (1997) outlined three types of intra- and extra-organizational groupings: nested, transorganizational, and supraorganizational cultures. Evidence for the existence of nested subcultures has been found for functional domains (Sackmann, 1991; 1992), tenure and hierarchy (Martin et al., 1985), ethnicity (Gregory, 1983), gender (Blackhurst, 1986; Symons, 1986), role (Rusted, 1986), plant site (Bushe, 1988), and countermovement (Dent, 1986). Likewise, researchers have found evidence of the emergence of transorganizational cultures, such as profession and guild, and joint-venture, and supraorganizational (i.e., regional) cultures that may be geographical, ideological, or industrial in nature (Sackmann & Phillips, 1992). In similar fashion, Appadurai (1990) defined various “scapes” that represent phenomena that cut across standard cultural units.

The latter multiple cultures perspective seems to have no analogue in the cross-cultural field, which has almost universally favored the monolithic perspective; that is, equating culture to nation. The multiple cultures approach, however, advocates the measure of “subjective culture” (Triandis, 1972)—that is, values measurement, just as cross-cultural researchers do. As a result, definitions of both societal and organizational culture rest on the concept of sharedness. The members of cultural groupings share interpretive schemas, assumptions, and values, and cultures can only be understood by evaluating these shared cognitive patterns (Sackmann et al., 1997; Gregory, 1983; Louis, 1983, Schein, 1992).

However, although cross-cultural research assesses sharedness to justify an *a priori* defined cultural grouping, the multiple cultures perspective seeks to inspect patterns of sharedness to determine where cultural boundaries should be drawn. In other words, the delineation of cultural groupings is an empirical question, rather than an a priori assumption (Sackmann et al., 1997). The multiple cultures perspective is similar to that taken by multilevel organizational research, which has generally evolved in the context of the organizational climate literature.

Organizational Climate. While organizational culture researchers have often ignored the multilevel implications of a very complex concept, climate researchers have been thorough in the multilevel conceptualization of this fairly simple concept. James (1982) defined multiple concepts: Psychological climate is an individual's perception of the work environment in terms of psychological meaning; organizational climate is the shared assignment of meanings among organizational members (also James, Joyce, & Slocum, 1988; Schneider & Rentsch, 1988). In other words, organizational climate is the aggregate form of individual level perceptions; although functionally similar, the aggregate form is qualitatively different than the individual form because it simply represents the whole unit. Chan (1998) referred to this as a direct consensus model because there must be adequate consensus on the climate construct or dimension within units in order to achieve construct validity at the organizational level.

Climate has been defined as a shared perception of "the way things are around here" (Schneider & Reichers, 1990). These shared perceptions form an institutionalized normative system that guides member behavior (Schneider, 1983). Schneider and Reichers (1983) argued that structural characteristics, the types of people in the organization and interaction patterns and socialization influence the development of climates. Burns and Stalker's (1961) mechanistic-organic model of organizational form has been identified as a source for the structural characteristics that direct climate development. Dickson, Resick, and Hanges (2006) applied the model to climate, distinguishing mechanistic climates (highly structured with tight norms) from organic climates (few clear rules). Schneider (e.g. 1987) went on to elaborate on the processes that constrain the types of people in an organization (which thus could influence organizational climate) with the attraction-selection-attrition model.

Climate is contextualized rather than abstract; that is, it reflects a particular domain, which is often a set organizational policies, practices, or procedures (Rentsch, 1990;

Schneider & Reichers, 1990), but may include domains such as service (Schneider, Goldstein, & Smith, 1995), safety (Zohar, 1980), job characteristics, team cohesion, and leadership (see Lindell & Brandt, 2000 for a laundry list of climate contexts) . There is some debate whether the contextual nature of climate provides the foundation for dimensionality. Although there is practical significance in attempting to make use of climate dimensions, Lindell and Brandt (2000) argued that only broad hypotheses involving climate dimensions are warranted because research has supported the proposition that climate is single construct (James & Jones, 1980; Lindell & Whitney, 1995). Indeed, James and James (1989) found evidence of a single higher order factor (called PC_g) underlying climate scales. Such results suggest that the various domains of climate are imperfect indicators or manifestations of a higher climate construct. Parker, Baltes, Young, Huff, Altmann, Lacost, & Roberts (2003) refutes the claim of a single higher order construct.

Organizational climate has been found to be related to a number of organizational structural variables including organization size (Lindell & Whitney, 1995), number of organizational levels, and socialization and role formation (James & James, 1989), and contextual factors such as resources, integration into organization networks, and communication support (Lindell & Whitney, 1995). Climate has also been related to individual-level variables like job satisfaction (Hackman & Oldham, 1976), turnover (Schneider & Bowen, 1985), productivity (James & Jones, 1974), and organizational citizenship behavior (Smith, Organ, & Near, 1983). The effects of climate on organization outcomes are less distinct (Kozlowski & Hults, 1987).

Culture and Climate Summary. Although these three bodies of literature are fairly large and varied, there is some convergence in their conceptual and operational definitions. They have all come to at once to rest their core concepts on the notion of sharedness and then rely on measurement of individual differences (i.e., individual perceptions), rather than rely on measurement of objective characteristics (Rentsch, 1990; Sackmann et al., 1997; Schein, 1992). Societal culture and organizational climate can also be said to be contextualized. Both include referents to cognition or affect regarding specific circumstance or behaviors rather than abstract values. The dimensional nature of societal culture has been fairly well established; dimensionality of climate is still being debated. These literatures have also moved toward multilevel conceptualizations, but unevenly so. Climate research has a long history of multilevel measurement. Organizational culture research, with the multiple cultures perspective, has more recently become more concerned with multilevel issues. Interest in multilevel concepts in societal culture research has generally been limited to the principles of aggregating individual data to societal level. Furthermore, organizational culture and climate researchers in each field have been predominantly interested in addressing culture or climate in formal organizational units, hierarchical position, or by demographics (Joyce & Slocum, 1984). As stated in the introduction, most societal culture research also emphasizes a formally defined unit—the nation-state—for cultural analysis, but mostly for reasons of convenience. Only the multiple cultures perspective (Sackmann et al., 1997) has embraced the value of naturally-emerging cultures. Some authors (e.g., Chan, 1998) even consider the presence of multiple subgroup cultures to be contaminating.

Strength Constructs

Just as researchers have investigated the nature of three related unit-level constructs—societal culture, organizational culture, and organizational climate—a smaller but related and overlapping body of research has focused on strength as a characteristic of organizational and societal units. Strength often reflects the intensity in a specific unit regarding a construct or domain, and is operationally defined by the agreement of unit members about the construct or domain. A high level of commitment or consensus traditionally indicates high strength (Brown & Kozlowski, 1999). (Strength, agreement, dispersion, consensus, and variance are regularly used interchangeably; all but dispersion will be used in such a way in this study.) While organizational culture researchers have considered organizational culture strength a meaningful construct, dispersion of climate measures has been more regularly treated as an artifact of measurement (that is, treated as error variance); few researchers have considered it a focal construct (Brown & Kozlowski, 1999; Chan, 1998; Lindell & Brandt, 2000). At the same time, cross-cultural researchers have established a mostly untested theory of cultural tightness, which reflects tolerance for norm deviation (Triandis, 1989). This construct holds some considerable potential to form the core of a dispersion model of emergent culture, but it contemporaneously requires some thorough conceptualization.

Organizational Culture Strength. The small body of organizational culture strength research presents neither a compelling nor coherent image of the effects of culture strength on organizational variables. Some of the same scholars advocating the concept of monolithic organizational culture naturally have implicitly favored strong cultures (Peters & Waterman, 1982; Ouchi, 1980; Weick, 1969). Strong organizational cultures are those with a unified sense of the mission of the organization and whose members agree on the powerful values and norms in place in the organization. Conversely, weak cultures lack an organizational identity, and whose members do not fully identify with the organization at large.

Empirical studies investigating the effects of organizational culture strength on organizational performance measures have been mixed (e.g., Gordon & DiTomasso, 1992; Denison, 1984; Denison, 1990; Kotter & Heskett, 1992), generally pointing to positive effects of strong cultures in the short term but negative effects in the long term (Denison, 1990; Gordon & DiTomasso, 1992). A large study by Kotter and Heskett (1992) found no effects at all. More recently, Murphy (2003) confirmed hypotheses across 302 organizational units that culture strength was neither significantly related to organizational performance, nor did it moderate the relationship between culture types and performance.

The lack of significant findings has prompted some authors to question the importance of culture strength (Wilderom, Glunk, & Maslowski, 2000). Authors hypothesize that increasing organizational homogeneity (i.e., strong culture) through processes such as attraction, selection, and attrition (Schneider, 1987) leave organizations less flexible over the long term to handle new challenges (Denison, 1990; Soeters, 1986). Nevertheless, culture strength hold considerable conceptual appeal as sharedness provides the defining basis for culture (Schneider, Salvaggio, & Subirats, 2002).

Organizational Climate Consensus. Although Schneider and Reichers (1983) called for research on the individual and organizational factors affecting the development of strong consensus (also called climate strength), it has until recently remained "an unattended scientific construct" (Gonzalez-Roma, Peiro, & Tordera, 2002, p. 465). Schneider, Salvaggio, & Subirats (2002) defined strong climates as “a place where events are perceived the same way and where expectations are clear” (p. 221). Based on Mischel’s (1976) concept of situational strength, Schneider et al. argued that strong climates should lead to greater consistency of behavior through the minimal ambiguity of organizational norms and practices, leading to uniform expectations among members. Furthermore, Bliese and Halverson (1996) argued that the greater accuracy of prediction of individual behavior that results from high consensus should reduce strain of interpersonal relations.

Several studies, including Schneider et al. (2002), point to a moderating effect of climate strength. Schneider et al. found that strength of climate level perceptions moderated the relationship between climate direction and customer perceptions of service quality. Colquitt, Noe, and Jackson (2002) found climate strength to moderate the relationship between procedural justice climate and both organizational performance and absenteeism trends. Finally, Gonzalez-Roma et al. (2002) found different effects for two types of climate strength. Strength of climate for innovation moderated the relationship between climate direction and unit-level measures of satisfaction and commitment; climate strength for goal orientation moderated the relationship between climate level and organizational commitment.

Several studies (Argote, 1989; Bliese & Halverson, 1996; Georgopoules, 1965) provide evidence for the relationship between unit consensus and unit-level outcomes. Bliese and Halverson (1996) argued that the positive influence of consensus occur from a reduction of the stressful effects of dissensus via the facilitation of communication and coordination. Team coherence, a group-level phenomenon similar to consensus, is hypothesized to produce similar outcomes (Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996).

There are also relevant theories that propose factors that can produce within-unit differentiation. Negatively interdependent within-unit goals instigate processes of within-subunit integration and between-subunit differentiation, according to realistic conflict theory (Sherif & Sherif, 1969). According to social identity theory, even symbolic and random groupings can prompt the process of differentiation (e.g., Tajfel, 1970). When sub-unit identities are made salient, individuals become less cooperative with regard to the larger unit (Brewer, 1995).

Dickson, Resick, and Hanges (2006) established two potential antecedents of climate strength: organizational form and member values. Although they confirmed hypotheses that mechanistic organizations contribute to strong climates, they also found unexpectedly that organic climates to be strong. Furthermore, they found that in organizations that employ members who hold values congruent with the climate, climate perceptions tend to be consistent. Thus, employing people with similar worldviews contributes to strong climates, supporting the models such as Schneider's (1987) ASA model (Lindell and Brandt, 2000).

Although the operations of societies do not fully parallel to those in organizations, the organizational-level effects found by Dickson et al. likely corresponds societal-level relationships. In this case, both the level and strength of member values—those with similar worldviews—should contribute to perceptions of societal practices.

The debate over the dimensionality of climate extends to climate consensus. Since climate dimensions are to be treated as indicators of climate, Lindell and Brandt (2000) implied that whatever the nature of climate consensus was, it too should be treated as a construct with dimensions as indicators of the construct, rather than as a set of domain-specific climate consensus constructs.

Also relating to climate strength is the attraction-selection-attrition model, (Schneider, 1987), which postulated that organizations become homogeneous in terms of membership through formal and informal processes that affect who is attracted to membership in certain organizations, who is selected by the organization for membership, and who is stays in the organization over time. Schneider (1987) claims that those individuals whose characteristics align with features of the organization will achieve and maintain organizational membership. As these processes are enacted, an organization becomes increasingly homogeneous in terms of the personality, values, and attitudes of its members (Schneider et al., 1995). Furthermore, this results in an organization developing a unique shared personality distinct from other organizations (Schneider, 1987; Schneider et al., 1995), which Schneider, Smith, Taylor, & Fleenor (1998) referred to as *modal personality*. This phenomenon is the *homogeneity hypothesis*.

Schneider and other researchers have usually defined homogeneity in terms of personality. An individual's personality may be align with the founder's vision of the organization, or more commonly, an individual's personality will be highly similar to (or "fit" with) the modal personality of the existing organizational members (Schneider et al., 1998). Values have also been given as a way to define the fit between individuals and organizations.

Researchers have identified both individual and organizational level effects of similarity (at the individual level) and homogeneity (at the organizational level) (Moynihan & Peterson, 2004). For individuals, degree of similarity in terms of personality, attitudes, and demographics has been positively and strongly related to the quality of interpersonal relationships (Byrne, 1969, 1971). Personality similarity in organizations may facilitate group social integration, (O'Reilly, Caldwell, & Barnett, 1989), reduce role conflict and ambiguity (Tsui & O'Reilly, 1989), and increase chances that group members will interpret organizational stimuli similarly (Engle & Lord, 1997), and promote trust among leaders and members (Bauer & Green, 1996). Conversely, variance in unit personality has been hypothesized to contribute to less cooperation, cohesiveness, communication, and workload sharing, which together negatively relates to satisfaction and performance (Ployhart, Weekley, & Baughman, 2006).

Another unit-level construct based on sharedness or similarity is team mental models, alternatively shared mental models, or more generally, shared cognition. Team mental models, which are shared mental representations about elements in a team's environment (Mohammed & Dumville, 2001), have been found to promote effective team performance (e.g., Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2005; Smith-Jentsch, Mathieu, & Kraiger, 2005). Despite these confirmed results, these authors still seek to determine what is meant by "shared": knowledge bases that are similar, overlapping, identical, complementary, or supplementary (Cannon-Bowers & Salas, 2001). This effort parallels the multiple cultures perspective in organizational culture research (Sackmann et al., 1997), that seeks to determine nature and quality of cultural sharedness.

Although consensus is likewise a curious construct at the societal level, parallel processes do not clearly exist between societal and organizational homogeneity. Many organizational processes are highly constrained: a) individuals have specific reasons for seeking employment in an organization, b) selection criteria for membership is often very precise and selection ratios can be quite low, and c) movement of individuals among organizations is highly fluid. Societal membership is extremely different from organizational membership. Members are often born into a society, and a small portion has a choice regarding societal membership. Furthermore, there are different reasons to seek membership in different societies from economic and education benefit to spiritual freedom. Simply, the degree of movement between organizations, which does not occur between societies, provides for a profound, iterative shaping of the social features of organizations.

Social Norms and Cultural Tightness. Cultural tightness has been investigated conceptually first in the anthropological literature (Pelto, 1968) and then in the cross-cultural psychological field (e.g., Carpenter, 2000; Triandis, 1989; Triandis & Suh, 2002). The term refers to the degree of tolerance within a society for deviation from norms, falling on a continuum from tight (little tolerance for deviation) to loose (high tolerance for deviation). Because cultural tightness is predicated on the operation of social norms, a brief discussion of norms will elucidate the importance of cultural tightness. Social norms have been the subject of some theoretical explanation and a degree of early experimentation. This review presents a several similar but distinct definitions of norms, a discussion of properties and purposes of norms and also of the early experimentation.

Sherif (1936) defined social norms as "customs, traditions, standards, rules, values, fashions, and all other criteria of conduct which are standardized as a consequence of the contact of individuals" (p. 3). The consistent application of norms benefits both the group and its members. "Social behavior in groups is regulated by norms in such a way that interaction between individuals who share beliefs about how people should behave yield higher payoffs than interactions with individuals with discordant beliefs" (McElreath, Boyd, & Richerson, 2003, p. 123). Norms parallel the function of cognitive schemas that humans use to select and attend to or ignore myriad perceptual stimuli. Both norms and schemas provide organization of information: Schemas organize more fundamental sensory data while norms provide organization for social interaction. Cialdini and Trost (1998) argued that the existence of social norms is one of the most essential characteristics of groups' lives. Kameda, Takezawa, & Hastie (2003) concur that "social norms that link microlevel cognitions of individuals to a macrolevel social condition, in a mutually constrained, dynamic manner, capture an essential characteristic of group life." (p. 16)

Norms can be distinguished from formal rules such as laws and policies. Cialdini and Trost (1998) defined group norms as "guidelines for acceptable and unacceptable behavior that develop through interactions among group members and are informally agreed upon by group members" (p. 152). Thus, norm development and application is an informal means of social control "without the force of laws" (Cialdini and Trost, 1998; p 152). They arise from social networks and clearly emphasize informal processes rather than legal, administrative, or legislative systems. Although norms are infrequently written down or openly discussed, they often have a powerful and consistent influence on group members' behavior (Hackman, 1976).

Several authors have identified properties of norms. Firstly, they are specific to the situation and the people who interact within it. Thus, they can be described as socially constructed standards against which behavior can be evaluated (Birenbaum & Sagarin, 1976). They can also be defined as the regular behavior patterns that are relatively stable and expected by group members (Bettenhausen & Murnigan, 1991), which suggests that norms are those behaviors that are common or modal.

Jackson (1965; 1975) further defined the features of norms in distinct constructs. Firstly, norm crystallization represents the degree of within-unit consensus on appropriate behaviors. In this case, the boundaries around appropriate behavior may or may not be clearly drawn; “clearly” meaning that a society as a unit, through countless dyadic and intergroup interactions agrees on the appropriate behaviors. Jackson’s second feature of norms is norm intensity, which is the severity of sanctions applied for deviating from the established norms.

Feldman (1984) proposed a task-oriented conceptualization identifying the four purposes of norms: survival, efficiency, ease of interaction, and group expression. Firstly, groups enforce norms that facilitate the survival of the group. Secondly, norms provide a basis for predicting the behavior of others, which enables members to anticipate others’ reactions and formulate quick and appropriate responses (Shaw; 1981; Kiesler & Kiesler, 1970). Groups also want to ensure the satisfaction of their members and prevent as much interpersonal discomfort as possible, which the enforcement of social norms can provide through the sanctioning and discouraging of certain types of social interactions. Finally, norms can serve an expressive function for groups (Katz & Kahn, 1978). Enforcing norms provides a means for expressing central values and to clarify what is distinctive about a group and central to its identity (Hackman, 1976).

Research on conformity and deviance supports the enforcement of norms for group survival. Nearly all group members deviate from norms at some point, but these deviations are often calculated by the rest of the group against "credits" earned by being a good group member and contributing to group goals. Group members that no longer have a positive balance of credits are more likely to be rejected for norm deviations (Hollander, 1961). Groups are also more likely to reject deviants when the group is not successful. Although norm enforcement tends to promote group uniformity, norms that reinforce specific individual roles can also contribute to diversity (Hackman, 1976).

One key expressive function of group norms is to define and legitimate the power of the group itself over individual members (Katz & Kahn, 1978). Groups use norms to show the strength of the group (Feldman, 1984). Feldman's (1984) discussion of the expressiveness of group norms also highlights the potentially different operational definitions of norms. There are times in which there is inconsistency between what group members say is the norm and how people actually behave. Feldman claims that an expressed norm allows a group to present a "face" inside and outside the group that is more socially desirable than reality. Thus, an expressed norm may not be truly revealing description of nominal behavior in the group.

Alternative definitions of norms reflect these multiple purposes, placing an emphasis on either the benefit to the group or to the individual. For example, Feldman (1984) defined norms as "informal rules that groups adopt to regulate and regularize members' behavior" (p. 47). This clearly serves the purpose of the group. In contrast, norms can be thought of as "standards of behavior against which the person can evaluate the appropriateness of behavior…providing order and meaning to what otherwise might be seen as an ambiguous, uncertain, or perhaps threatening situation", according to Raven and Rubin (1976, p. 314). Such a definition is more individually-centered.

Neither of these definitions is more correct. Rather they reflect the multiple purposes of norms. Furthermore, these norms serve groups and their members in recursive fashion: Groups function more efficiently when individuals can understand standards of behavior, and individuals can more easily determine the appropriateness of their behavior (or planned behavior) if groups administer norms clearly.

With the exception of work by Sherif (1936), Ashe (1951) and a few others, social norms have not been a heavily researched construct in psychology despite their primacy for a group-living animal like humans. Some theorists have argued that value of a social norm as an explanatory construct is limited if we can't tell which norm is actually operating in a situation in advance (Darley & Latane, 1970; Krebs & Miller, 1985). However, the growth of cross-cultural psychology has brought renewed interest in collective constructs like social norms (Kameda, Takezawa, & Hastie, 2003), and evolutionary psychology has promoted social constructs like norms.

Sherif's experiments in 1936 effectively demonstrated the formation of norms. Using an illusion of motion perceptual procedure, Sherif found that individuals' reports of their sensory perceptions to the illusion of motion procedure converged to a single estimate both more rapidly and more enduringly when participants were introduced to the exercise in groups as opposed to when they began the exercise individually. Sherif concluded that our experience is organized around and modified by collectively produced frames of reference.

Later research, especially on conformity (e.g., Asch, 1951) demonstrated that under conditions of uncertainty, study participants tended to shift their perceptual assessments towards others' assessments.

A few authors have investigated norm development and formation. Limited research suggests that norms form early in the life of a group (Bettenhausen & Murnigan, 1991), and features of groups such as demographic heterogeneity affects the type and pattern of norm development (Chatman & Flynn, 2001). Feldman (1984) explained that norms form by fiat, from critical events, primacy, or due to members' similar past experiences. Boyd and Richerson (1985) argued that social-cultural learning is vitally important for norm development, but Kameda et al. (2003) pointed out a lack of explanations for why some beliefs are socially acquired and maintained as a social rule, while other beliefs are not.

Importantly for the present topic, Cialdini and Trost (1998) also distinguished among a number of types of group norms. Descriptive norms develop from observing the behavior of other group members in certain situations. Greater consistency of behavior leads to cognitions that the particular behavior is appropriate. Individual group members are more likely to exhibit this behavior because descriptive norms provide a "social proof" heuristic—they identify behaviors with a high likelihood of success, a pattern previously described as "informational influence" (Deutsch and Gerard, 1955).

In contrast, injunctive norms operate on a principle of normative influence—group members conform in order to receive social approval (Deutsch and Garrard, 1955). Not only do injunctive norms describe appropriate behavior, they proscribe inappropriate behavior

(Cialdini & Trost, 1998). This type of norm affects behavior by inducing rewards and sanctions for desirable and undesirable actions.

While descriptive and injunctive norms operate at the unit-level, Cialdini and Trost (1998) identified two types of individual-level norms: personal norms are those norms established and activated internally, and subjective norms are perceptions of other group members' personal norms.

In organizational settings, social norms bear some similarity to conceptions of climate (Schneider, 1975). They can both reflect practices in organizations. Norms and climate can also be considered multilevel constructs, although conforming to different types of multilevel construct models. Organizational climate is a direct consensus model, which aggregates individual-level job perceptions measured with instruments using individual-level referents. Norms can be manifest and measured at the individual level and can have effects on individual behavior. However, norms are fundamentally a group-level construct that should be measured with a group-level referent (with the exception of personal and subjective norms)

There has been no attempt to explicate or measure the pattern of development of the primary types of norms: descriptive and injunctive. Does one type prevail in certain situations, or in certain kinds of social groups? Do the two types of norms coexist in some settings? Can descriptive norms evolve into injunctive norms, or vice versa?

Cultural Tightness

Pelto (1968) introduced the concept of tightness-looseness based on anthropological research of traditional societies. According to Pelto, tight cultures (such as the Japanese and the Israel Kibbutzim) display unambiguous norms, and society in these cultures is very formal, disciplined, and orderly. Deviation from norms is not tolerated, and those who do violate these norms suffer severe sanctions. On the opposite end of this continuum are loose cultures (such as Thai, and the Skolt Lapps of Northern Finland), in which there is a lack of regimentation, regularity, and discipline. There is tolerance of behavior that deviates from norms, which are not very rigid.

Pelto suggested that ecological conditions such as high population density and a high reliance on food crops lead to the rigid norms in tight cultures that are necessary for survival in these environments. Triandis (1977; 1989; 1995) and colleagues (Chan, Gelfand, Triandis, & Tzeng, 1996) are among the few scholars in the psychological literature to expand upon the tightness-looseness construct. Triandis (1977) argued that tightness should correspond positively with the degree of differentiated social organization in a society. Chan et al (1996) have proposed but not tested the effects of several other ecological variables; in addition to population density, demographic homogeneity and geographic isolation foster and require the stability that is characteristic of tight cultures. Chan et al. also identified some consequences of cultural tightness-looseness, including differential determinants of social behavior, sanctioning systems, values, and cognitive style. Carpenter (2000) found tight cultures to predict interdependence in self-concepts; independent self-concepts were more likely in loose cultures.

As opposed to loose cultures, these authors believe that in tight cultures, norms rather than attitudes determine social behavior, sanctioning systems are more fully developed, and values of conformity, tradition, and security are given higher priority. In addition, the greater reliance on norms and rules leads members to develop less complex cognitive structures, and also to show greater agreement in the meaning of words in their language. Using an existing dataset, Chan et al. (1996) were able to test the proposition regarding agreement on the meaning of words. They found evidence that the Japanese, an a priori-defined tight culture, showed greater agreement on the meaning of a set of words than did Americans, an a priori-defined loose culture.

Cultural tightness can be more discretely defined as the influence that injunctive norms have over social and individual behavior in society. Tightness also reflects two dimensions of norms, described by Jackson (1965; 1975): norm crystallization and norm intensity. In tight societies, norms are both clear and efficiently applied through sanctioning activities.

One empirical study does not form a body of literature, however. The concept of tightness still needs to be investigated in multicultural studies to sort out several assumptions regarding the tightness of societies, such as which societies are truly tight or loose. In addition, the construct validity of cultural tightness needs to be addressed in terms of discriminating the concept from collectivism and uncertainty avoidance. Triandis has argued that collectivism is related to tightness but only modestly (Triandis, 1989). He suggested that the two constructs have different antecedents: common fate and limited resources in collectivist cultures and population density in tight cultures. The relationship between tightness and uncertainty avoidance is likely to be stronger. Uncertainty avoidance cultures feel threatened by ambiguous situations and attempt to avoid uncertainty through the establishment of structure (Hofstede, 1980). The anxiety felt in these societies create the need for many formal rules and regulations, consensus about goals, and the need for certainty and security (Chan et al., 1996). Hofstede (1980) found that attitudes toward rules and regulations differ in high and low uncertainty avoidance cultures. High uncertainty avoidance cultures prefer not to break company rules and punish those that do while people in low uncertainty avoidance cultures advocate breaking and changing rules for pragmatic reasons. The relationships between tightness and uncertainty avoidance and individualism-collectivism are very likely significant. One objective of this study is to empirically investigate these relationships, and determine if they provide evidence of the discrimintant validity of cultural tightness.

Based on the societal research on tightness and organizational research on norms, it is possible to define tightness as a two-dimensional construct that describes the cultural processes of societies. The first dimension reflects the clarity –or crystallization—of norms. This reflects the understanding members have of the meaning of a norm and what behaviors are appropriate and inappropriate. The second dimension is the degree—the intensity—to which sanctions are applied to deviations from norms. The clarity dimension is a more static feature, and more easily measured through self-report instruments. The intensity dimension is both the application of the norm and a mechanism for its development. In other words, norms are a recursive construct, in which norms become clearer as sanctions are more actively applied and clearer norms will be more effectively sanctioned and promoted.

Evolution of Multilevel Theory and the Dispersion Model

The Dispersion Model. In recent years, organizational researchers have begun to develop coherent conceptual models of the contextual influences on individual behavior and conversely, how individual processes manifest themselves at higher levels, such as group, organizational, and societal levels (Brown and Kozlowski, 1999; House, Rousseau, & Thomas-Hunt, 1995; Kozlowski & Klein, 2000; Klein, Dansereau, & Hall, 1994; Rousseau, 1985). More recent theoretical reviews (Brown & Kozlowski, 1999; Chan, 1998; Kozlowski & Klein, 2000) have remarked on continued gaps in multilevel organizational research. Chief among these has been the incomplete conceptualizations of the various forms of emergence. Kozlowski & Klein (2000) define emergent phenomena as that which "originates in the cognition, affect, behaviors, or other characteristics of individuals, is amplified by their interactions, and manifest as a higher level, collective phenomenon" (p. 55), or as a property of the unit as a whole (Allport, 1954; Katz & Kahn, 1966; Weick, 1969).

Chan (1998) and Kozlowski and Klein (2000), in parallel fashion, distinguished several types of models that explained emergent processes. Referring to all models that demonstrated bottom-up emergence as composition models, Chan (1998) described two prominent models: consensus models and dispersion models. At the same time, Kozlowski and Klein (2000) distinguished between composition models and compilation models.

Composition models are characterized by shared-unit properties, those characteristics that are common to—or shared by—the members of a unit (Kozlowski & Klein, 2000). These constructs emerge through composition processes such as attraction, selection, and attrition (e.g., Schneider, 1987), and socialization to become consensual, collective aspects of a unit. Importantly, these composition models are isomorphic. Unique to these types of properties, the properties originating at the individual level are functionally equivalent analogues as those collective level properties where the constructs are manifest.

These shared-unit properties are found in two types of composition models, defined by Chan (1998) as direct consensus and referent-shift consensus models. The most common example of the direct consensus model is climate. The individual-level construct is psychological climate, which reflects individual job perceptions or attitudes. The referent is the individual and self-report in format. Aggregated psychological climate emerges as organizational climate. Thus, data originally measured to reflect individual perceptions can reflect unit-level phenomena.

The referent-shift consensus model follows similar bottom-up processes as the direct consensus model, except that data collection methods (i.e., survey items) reference organizational phenomena. In the context of climate, individuals are asked about the nature of organizational climate rather than their own contextualized job attitudes. Chan (1998) refers to this type of climate as psychological collective climate and the aggregate construct as organizational collective climate. Perhaps a clearer example of the referent-shift consensus model can be found in cross-cultural studies where respondents are asked to describe the nature of or societal culture.

The predominant model of emergence in multilevel organizational research has been the composition model. However, there has been some dissatisfaction with an overreliance on isomorphism-based composition models as the primary model for conceptualizing (emergent) collective constructs (House et al., 1995; Rousseau, 1985). At the most basic level, some of the dissatisfaction with dichotomous composition model is its neglect of emergence as a process. It does not provide a means for conceptualizing properties of units with diverse or disagreeing members. Indeed, composition models implicitly consider variance in individual-level constructs to be error variance (Brown & Kozlowski, 1999; Chan, 1998).

Compilation models, on the other hand, explicitly conceptualize patterns in the level of within-unit agreement (or disagreement). Compilation models are characterized by configural-unit properties, which differ from shared-unit properties in that although they too emerge from the individual level phenomena to represent the unit level, the properties do not reflect a convergence of individual characteristics. In other words, the unit level construct does not necessarily reflect commonality among unit members, but rather patterns of variability among members' contribution to the unit level phenomenon.

Brown and colleagues (Brown, Kozlowski, & Hattrup, 1996; Brown & Kozlowski, 1999) and Chan (1998) identify the primary compilation model as a dispersion model, in which the degree of within-group agreement is the focal construct. Configural models, and dispersion models in particular, consider variance in within-unit data to be indicative of the nature of emergence within and across units.

Although dispersion has been considered as a conceptual variable in related research (e.g., Blood, 1974; Georgopoules, 1965; Jackson, 1965; James et al., 1984; LaRocco, 1985), dispersion has been in need of taxonomies of functional multilevel relationships (Chan, 1998) and context-free, conceptual models of a nomological network (Brown, Kozlowski, & Hattrup; Brown & Kozlowski, 1999). While Chan adopted a unidimensional perspective of dispersion constructs as strength constructs (i.e., dispersion is measured by within-unit agreement or variance statistics), Brown and colleagues (Brown, Kozlowski, & Hattrup, 1996; Brown & Kozlowski, 1999; Kozlowski & Klein, 2000) took a richer and opposing view of dispersion as models of strength and uniformity. Brown and Kozlowski (1999) took up the mantel of explicating the dimensionality of multilevel dispersion models of emergence, idealized types of dispersion based on these dimensions, and potential antecedents and consequences of construct emergence.

The first dimension of dispersion is strength, which is “the extent to which individual constructs have integrated to yield an emergent phenomenon at the unit level” (p 9-10). High strength or low strength may be present within a unit. Low strength is marked by little similarity on the individual construct of interest and its presence suggests an emergent construct is present within a unit but not a defining feature of the unit. Low strength is distinct from the absence of an emergent construct. Whereas the latter condition is considered to be a case of independence, “in which lower-level units are free from the influence of higher-level units, low strength implies the presence of a meaningful but weak unit-level construct” (Brown & Kozlowski, 1999, p.10).

The existence of degrees of strength (anchored by high and low strength) demonstrates the first of two principles regarding emergence: Units may move toward greater integration or differentiation over time. As discussed previously, units may become more homogeneous through processes of attraction, selection, attrition (Schneider, 1987; Schneider, Goldstein, & Smith, 1995), and reciprocal influence (Weick, 1969) during interaction and communication (Koene, Boone, & Soeters, 1997; Morgeson & Hoffman, 1999; Rentsch, 1990). However, barriers to interaction may also foster increased differentiation over time (Dansereau, Yammarino, & Kohles, 1999; Katz & Kahn, 1978; Koene et al., 1997). Structural changes, such as increased unit size (Hellriegel & Slocum, 1976) and membership changes (Milliken & Martins, 1996) may also increase differences among individuals.

This principle suggests two properties of emergent constructs. Firstly, that emergent constructs gain or lose strength as causal actors at the unit level. In other words, "constructs gain or lose relevance as defining features of a unit." Secondly, emergence is a unit-level phenomenon that varies across units. Clearly, membership changes and communication patterns will not be identical across units, which results in variance in the strength of emergent constructs to influence unit member behavior (Koene et al, 1997).

The second defining dimension of dispersion is uniformity, which Brown and Kozlowski (1999) defined as "the extent of differentiation at the unit level as suggested by single or multiple subgroups or clusters of member constructs" (p. 12). A single cluster of members (based on shared perceptions, cognitions, or affect) marks uniformity, while multiple clusters characterizes non-uniformity. As opposed to low strength, or low agreement, non-uniformity suggests high disagreement, as evidenced by a multimodal distribution on the construct of interest (Chan, 1998). Thus, organizations differ in their levels of uniformity. Some organizations will display extensive subgroupings on the construct of interest (i.e., subcultures; subclimates) while other organizations display more universal agreement. Some authors have already described organizations with numerous subcultures (Chan, 1998; Brown & Kozlowski, 1999; Lindell & Brandt, 2000; Martin, 1992).

Non-uniformity occurs commonly in organizations (Bloor & Dawson, 1994; Frost, Mitchell, & Nord, 1997; Weick, 1969) and is a powerful phenomenon (e.g., Brewer, 1995; Shaw, 1981) brought about by coalition formation, competition, and intergroup conflict as sub-units differentiate themselves. Differentiation occurs naturally from differences in unit size (e.g., Hellreigel & Slocum, 1976; Weick, 1969) and individual goals and identity (e.g., Tajfel, 1970).

Non-uniformity demonstrates the second principle of emergence: The non-linear nature by which differentiation "changes the nature of the unit". Kozlowski and Klein use the term "discontinuity". Non-uniformity, non-linearity, and discontinuity suggest that organizations do not subsume units where a construct has emerged in an isomorphic pattern. Just like the principle of strength, organizations and societies become more or less characterized by differentiated sub-units, sub-units become more or less differentiated from one another, and there may be different causal factors of differentiation in different organizations.

Brown and Kozlowski (1999) went on to argue that the two dispersion dimensions can compose four ideal types of dispersion: a) Strong similarity, b) weak similarity, c) strong dissimilarity, and d) weak dissimilarity. Strong similarity exists when strength is high and members are uniform. Weak similarity involves low agreement and limited disagreement (i.e., lack of subgroupings). Strong dissimilarity is characterized by high disagreement with unified subgroups clearly distinct from one another. On the other hand, weak similarity involves subgroupings that demonstrate little within-subgroup strength (as indicated by no more than one high-strength subunit). Finally, studies reviewed by Brown and Kozlowski (1999) suggest that the same unit may display different types of dispersion for different constructs. Thus, dispersion type is a property of the unit *and* the construct of interest. The proposed study will present an opportunity to investigate this emergence phenomenon in the context of societal-level tightness.

In summary, dispersion in the form of strength and uniformity is important for defining organizational climate and culture—that is, for identifying the constructs or dimensions that emerge to define the culture or climate of the respective organizations. This study proposes that the same dispersion-based model of emergence is applicable to societal phenomenon. In following, the factors that impact dispersion and the outcomes of dispersion in societies are worth (and demand) investigation.

Present study: Cultural Tightness and Emergent Culture

Societal culture is an emergent construct. That is, the dimensions of culture are emergent. Given that scholars have argued that culture is most accurately operationalized as a dimensional representation of individual cognitions and attitudes (Segall, Lonner, & Berry, 1998) aggregated to the societal level, culture is by definition emergent. This study sought to address this emergence and its potential antecedents.

This study presented the opportunity to achieve several objectives. The primary purpose was to investigate the nature of within-society variance in regards to cultural characteristics, and test an explanation for the patterns in this variance. By doing so, cross-cultural values research may be brought more in line with the principles of multilevel organizational research, specifically that our use of individual-level measures to understand higher level (e.g., organizational, societal) phenomena require understanding and attendance to quality of bottom-up emergence processes from the individual level to the unit level.

This variance can be conceptualized differently, in general terms vs. specific terms. The conceptualizations are a way of asking: a) Is it valuable to characterize societies generally as weak or strong, as organizations have been described in the organizational culture literature?

and b) Is it meaningful to investigate this emergence dimension by cultural dimension? Thus, the study represents an effort to address multilevel cultural phenomena in multiple ways.

The second objective is to investigate a primary explanatory variable—cultural tightness—for these multilevel phenomena. A large part of the following study is concerned with the construct validity cultural tightness. Construct validity can be established by validating theorized interrelationships between cultural tightness and other constructs. This study investigated the relationship between cultural tightness and several variables: uncertainty avoidance, individualism-collectivism, humane orientation, societal culture strength, and cultural emergence.

The final objective was to investigate patterns of culture emergence. Culture is a multidimensional construct, and as a result, cultural emergence is likely to demonstrate a complex pattern across societies. It was the intention of this study to determine if this multidimensional pattern can be described simply with empirical methodologies. There are four research questions that address these objectives more specifically.

Research Question 1: Can cultural tightness be empirically distinguished from uncertainty avoidance and from individualism-collectivism?

It is worth investigating the relationships between cultural tightness and uncertainty avoidance and collectivism in order to establish the construct validity of cultural tightness. Uncertainty avoidance reflects the extent to which unit members strive to avoid uncertainty by implementing norms and practices. Cultural tightness and uncertainty avoidance are likely to be positively and linearly related in that high uncertainty avoidance societies are likely to tight cultures as well, but there are several possible explanations for such a relationship: a) They are distinct constructs that are moderately (and possibly causally) related, b) they are equivalent constructs that represent the same phenomenon, c) they are two dimensions of a single higher-order construct that reflects uncertainty and tolerance, or d) their collinearity is a measurement artifact by which the items and scales are contaminated measures of either tightness or uncertainty avoidance.

There has been some supposition about the equivalency of these constructs. Chan, Gelfand, Triandis, and Tzeng (1996) wondered if the two constructs are equivalent while de Luque and Javidan (2004) and Hofstede (2001) concluded that they likely are. None of these authors provide thorough explanations for the expected equivalency. The present study hypothesizes that uncertainty avoidance and tightness are not equivalent constructs, based on the fundamental cognitions of the two constructs: uncertainty and tolerance. Avoidance of uncertainty is a desire or state of mind for keeping control of situations. It can be personal or interpersonal. On the other hand, cultural tightness is wholly a set of cognitions about interpersonal interactions. Some people with liberal or libertarian political beliefs may prefer to avoid uncertainty but grant others the freedom to behave in a manner at odds with societal conventions. Thus, uncertainty avoidance is most likely an antecedent of cultural tightness: individuals must have a low level of uncertainty avoidance in order to be tolerant of deviation from norms.

In practice, this causal relationship is demonstrated by members of high uncertainty avoidance societies making choices in their interactions to limit the anxiety of ambiguous situations. They may limit their exposure to ambiguous situations, employ higher-level institutions to establish formal rules for interpersonal behavior, or collaborate to establish, maintain, and reinforce informal norms. Importantly, high uncertainty avoidance cultures may use any but possibly not all of these mechanisms to reduce their uncertainty. Thus, high uncertainty avoidance societies may or may not establish tight norms in order to manage uncertainty, instead preferring to use formal and codified rules.

Importantly, the distinction described above details individual-level phenomena. Individuals have differentiable cognitions regarding uncertainty and tolerance. Thus, there is likely a causal relationship between uncertainty avoidance and cultural tightness when measured at the individual level of analysis.

Hypothesis 1a: Cultural tightness is differentiable from uncertainty avoidance, despite a strong positive interrelationship.

However, are the constructs distinguishable at the societal level? Certainly, a parallel argument can be made as for the individual level of analysis: Societies can vary on their acceptance of uncertainty and also vary on their tolerance for deviation from societal norms. Yet, in the practice of aggregating individual data to the societal level, those distinctions may not be fully maintained. This study proposes that the relationship between cultural tightness and uncertainty avoidance will be stronger at the societal level.

Hypothesis 1b: The relationship between tightness and uncertainty avoidance will be stronger at the societal level of analysis.

Similarly, cultural tightness is expected to relate moderately and positively to individualism-collectivism—tight societies being collectivist. Triandis (1989) argued that the two constructs are likely strongly related although tightness and individualism-collectivism have different antecedents.

Hypothesis 2: Cultural tightness is differentiable from individualism-collectivism despite a moderate positive interrelationship.

Research Question 2: Does cultural tightness predict societal culture strength?

Just as climate strength at the organizational level has been an “unattended scientific construct”, culture strength at the societal level has received no attention in the cross-cultural literature. Researchers have initially demonstrated the potential main (Argote, 1989; Bliese & Halverson, 1996; Georgopoules, 1965) and moderating effects (Colquitt, Noe, & Jackson, 2002; Gomez-Roma et al., 2002; Schneider et al., 2002) of climate strength. Some of the potential benefits of strength—greater behavioral consistency (Schneider et al., 2002) and greater accuracy of prediction of individual behavior (Bliese & Halverson, 1996)—should generally operate across levels of analysis.

This study provided an opportunity to measure societal culture strength (SCS) across a large sample of societies. In addition, cultural tightness may provide an explanatory mechanism for the variance in societal culture strength. The operation of cultural tightness somewhat parallels that of situational strength, which was introduced by Mischel (1976) and applied to climate strength by Schneider et al. (2002). As explained by Schneider et al. (2002), strong climates should lead to greater consistency of behavior through minimal ambiguity of norms and practices, leading to uniform expectations among members. It is the uniformity of expectations that facilitates prediction of others’ behavior, coordination, and communication. If cultural tightness is to have any influence on societal and individual behavior, it likely must do so by the degree to tolerance for norm deviation creates a situation of strongly or weakly held norms. In other words, the degree of tolerance should contribute to the societal-level consensus on norms used to characterize societies (i.e., norms based on cultural dimensions). Thus, cultural tightness and societal culture strength should be positively related.

Hypothesis 3: Cultural tightness will positively predict societal culture strength.

Although there are likely within-society explanations for the strength of a society, the aggregated level of tolerance for norm deviation should contribute to the strength of societal cultures. Societal culture strength can be considered a unidimensional characteristic of culture strength.

Research Question 3: Does cultural tightness predict emergence of cultural dimensions at the societal level?

In contrast to conceptualizing societal culture strength as a unidimensional construct, the dispersion model argues that measures of strength represent the emergence of multilevel constructs. In other words, each and every multilevel construct or dimension could be assessed in terms of dispersion and thus, emergence. Thus, strength is conceptualized differently in these research questions. For the previous research question, strength is a unidimensional characteristic of the society. In this case, strength represents a characteristic of each dimension within each society. Although presently it is more valuable to utilize dispersion to indicate patterns of emergence, it may be possible and useful to consider if patterns of emergence demonstrate richer representations of societal culture strength than the aforementioned unidimensional perspective.

This study proposed that cultural tightness can explain some variance in emergence. Although there are historical, political, and social explanations for the emergence of respective dimensions in particular societies, tightness should contribute significantly to the prediction of emergence, even if it does so modestly for some dimensions in some societies. Assessing the impact of tightness on emergence also provides evidence toward the construct validity of tightness.

Hypothesis 4: Cultural tightness negatively predicts emergence.

Testing this hypothesis was primarily guided by the dispersion model. Confirming or disconfirming this hypothesis is somewhat more difficult because there are nine dimensions of culture. It is expected that cultural tightness will negatively predict the emergence of each dimension, at least modestly, but likely some dimensions more than others. (Like the measures of SCS, AD index values approaching zero indicate strong consensus, thus tightness is hypothesized to contribute cultural emergence vis a vis low AD index values.) A significant relationship with a significant proportion of the dimensions would provide further evidence for the validity of cultural tightness. The implication of significant relationships between tightness and the set of emergence variables is that it supports the contention that emergence can be explained by cross-cultural variables.

Research Question 4: Can societies be clustered by profiles of emergent cultural dimensions?

Hofstede (e.g., 1980), Schwartz (e.g., 1992) among others have generated clusters of societies based on societal level status on various dimensions of culture. Hofstede generated several different visual clusters on a two-dimensional grid using several permutations of his four cultural dimensions. Although rarely given much attention, culture is a multidimensional phenomenon. Law, Wong, & Mobley (1998) argued that culture is a multidimensional construct, however unlike latent constructs. In fact, culture adheres to a profile model of multidimensionality. Rather than latent culture contributing to the observed phenomena represented by dimensions, these multiple dimensions cannot be combined algebraically. Rather, the construct must be interpreted through profile levels of the representative dimensions.

Like culture, emergence can be conceptualized in terms of a multidimensional profile model. Using cluster analyses, this study intended to determine relevant profiles of cultural dimension emergence.

Methods

Original Project GLOBE Study

This study will make use of data available from a very large cross-cultural leadership study, the Global Leadership and Organizational Behavior Effectiveness Research Program (GLOBE), hereafter Project GLOBE. Evolving over several years in the mid 1990's, Project GLOBE eventually encompassed a multistage quantitative and qualitative study that obtained survey responses from 15,427 middle managers from 951 organizations in 62 societies. The present research utilized Project GLOBE survey item data regarding societal and culture to test components of the dispersion model of emergent societal culture.

Respondents from 62 countries participated in the survey. The number of respondents by country ranged from 27 to 1,790 with an average per country of 251. Three industries were identified as sources for potential participating organizations: Food processing, financial services, and telecommunications. These industries were selected because they were believed to exist in all countries and to systematically differ from one another. The study design strategy was to obtain organizations from two of these three industries in each country studied, which yielded approximately 40 countries in each of the target industries. The 951 organizations across these three industries were also local rather than multinational.

Survey and Item Development. Beginning with a larger number of established dimensions identified by earlier cross-cultural investigations, Project GLOBE researchers originally identified seven cultural dimensions: a) Uncertainty avoidance, b) power distance, c) individualism and collectivism, d) gender egalitarianism, e) future orientation, f) performance orientation, and g) humane orientation. Researchers originally wrote 371 items, most of which were derived through interviews and focus groups in several countries. In an effort to adequately cover the content domain of each cultural dimension, items were classified in one of two content categories: tangible attributes of culture (e.g., current policies and practices) and intangible attributes of culture (e.g., cultural values). Researchers also sought to construct parallel items assessing a cultural dimension for both organizational and societal contexts. As a result, the culture survey followed a "parallel quartet" structure, in which four parallel items assessed a single cultural dimension using different referents. Figure 1 provides an example of this quartet structure. In this example, individualism-collectivism is assessed at the organizational and societal levels with items referencing cultural *practices* and cultural *values*. As can be seen in Figure 1, these items are termed *Should Be* and *As Is* to reflect the standard (but not universal) wording of the respective values and practices items. Finally, the survey utilized a seven-point Likert-type scale format that employed a mixture of response options. The response options on a number of items were anchored by diametrically opposite characteristics. The response options for the remainder of the items were anchored by an agreement continuum (e.g., *Strongly agree; Neither agree nor disagree; Strongly disagree*).

The item review process consisted of three procedures: Q-sorting, item evaluation, and translation/back-translation. Two groups of sorters (seven Ph.D. students and co-country investigators in 38 countries) sorted items into the seven a priori dimensions. Items "correctly" categorized by 80% of sorters were retained. A majority of items were retained for all seven dimensions. Next, co-country investigators (CCIs) completed item evaluation reports in which they identified items that were problematic because of poor wording or were inappropriate in a respective society. While most problematic items were dropped, a few were rewritten. Finally, translations and back-translation involved several steps. CCIs were responsible for translating the survey items from English to their native languages (which may have been conducted by the CCI, some other person fluent in the relevant languages, and most commonly by a professional translator). Next, the translations were independently translated back into English; these back-translations were sent to Project GLOBE principals, who compared the original English version to the back-translated version. The principals employed a pragmatic approach to discrepancy review. Rather than focusing on exact wording, items were compared to ensure they reflected the same concepts. At this stage, items were generally rewritten if discrepancies were found between versions. The item review process reduced the pool by about 50%. The researchers of Project GLOBE believed that the use of a multicultural set of item sorters and survey translators and back-translators enhanced the measurement equivalence of the survey items.

Two empirical pilot studies were conducted to assess the psychometric properties of the culture scales. In the first pilot study, 877 managers and white-collar workers in 28 countries completed one of two parallel versions of the culture survey (created to minimize the length of the survey). Factor analyses of each of the culture scales indicated that they were all unidimensional. Correlational analysis indicated low to moderate relationships among societal culture scales. A second pilot study accomplished two tasks. Firstly, it replicated the psychometric properties found in the first pilot study, using 1,066 respondents from 15 countries that did not participate in that study. Secondly, it assessed the properties of new items written to reflect a second aspect of collectivism identified by Triandis (1995) focusing on collectivistic in-group phenomena like pride, loyalty, and cohesiveness. Exploratory factor analyses from this pilot study confirmed the existence of separate collectivism dimensions: institutional collectivism (the original scale) and in-group collectivism (the new items relevant to family and organizations). This concluded the first phase of the project, and the study proceeded to the second, larger phase with 9 scales measuring 9 cultural practices and 9 cultural values at the organizational and societal levels.

This primary phase of Project GLOBE sampled 15,427 middle managers from 951 organizations in 62 countries. Survey administration was initiated in June, 1995. Regardless of country or industry, half of the respondents from each organization completed the organizational culture items. With this independent assessment of societal and organizational culture within each organization, the responses are relatively free of common source bias. The relevant items are recorded in the descriptive statistical appendices.

Measures

As described above, the theoretically-driven survey development approach originated with seven cultural dimensions to be measured by two measurement layers (i.e., values and practices) towards two referents (society and organization); an eighth and a ninth dimension was added during pilot testing to capture in-group collectivism and to reflect the portion (assertiveness) of the original masculinity scale not captured by performance orientation and humane orientation. The definition of each cultural dimension according to Project GLOBE (House & Javidan, 2004, p12-13) are provided below:

Uncertainty Avoidance is the extent to which members of an organization or society strive to avoid uncertainty by relying on established social norms, rituals, and bureaucratic practices.

Power Distance is the degree to which members of an organization or society expect and agree that power should be stratified and concentrated at higher levels of an organization or government.

Institutional Collectivism is the degree to which organizational and societal institutional practices encourage and reward collective distribution or resources and collective action.

In-Group Collectivism is the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families.

Humane Orientation is the degree to which individuals in organizations and societies encourage and reward individuals for being fair, altruistic, friendly, generous, caring, and kind to others.

Performance Orientation is the degree to which an organization or society encourages and rewards group members for performance improvement and excellence

Future Orientation is the degree to which individuals in organizations or societies engage in future-oriented behaviors such as planning, investing in the future, and delaying individual or collective gratification.

Gender Egalitarianism is the degree to which an organization or a society minimizes gender role differences while promoting gender equality.

Assertiveness is the degree to which individuals in organizations or societies are assertive, confrontational, and aggressive in social relationships.

Current Study Methods

Sample of Present Study

Although Project GLOBE obtained a cross-sectional cross-society sample of 15,427 respondents, several levels of missing data constrained the number of these respondents that could be employed in present analyses. Four countries had large amounts of missing data (Iran had no valid data whatsoever), including insufficient identifying information, and as a result the 541 respondents from these countries were removed. In addition, approximately half of the respondents from each country did not complete the last four practices items (i.e., items 35-39). Rather than missing-at-random, the same respondents failed to complete the same four items, suggesting that these respondents were administered a survey instrument that did not include these items. Rather than including respondents who completed alternate forms, respondents with missing data on these items were eliminated. Finally, a smaller percentage—3.2%--were found to be missing-at-random, and were also eliminated from the operational data set. Eliminating these respondents yielded a final sample of 5,870 respondents from 57 countries. Table 1 presents a tabulation of the respondents by participating countries. The number of respondents per country ranged from 9 in Zambia to 794 in Sweden, with a mean of 102.98 and standard deviation of 105.23.

Measuring Cultural Tightness

The hypothesized cultural tightness construct is a multilevel construct, as are established dimensions of culture. Like these dimensions, it was to be measured through the cognitions and perceptions of individuals and then aggregated to the unit level (given adequate consensus). The present study constructed a perceived cultural tightness (PCT) scale derived from existing GLOBE items based on the following process. To determine The Project GLOBE items that most adequately measured the concept of cultural tightness, a subset of culture practice and values items were selected from the society section of the GLOBE instrument. These items were then presented in electronic form to a panel of eleven raters that included graduate students and various professionals. The raters were presented with a definition of cultural tightness, then asked to rate each item regarding how well it reflected cultural tightness on a five-point Likert-type scale (e.g., 1 = *Not at all a measure of tightness*; 5 = *A very pure measure of cultural tightness*). The rating form is included in Appendix E.

The ratings were subject to interrater agreement estimation. The average deviation (AD) index (Burke & Dunlap, 2002) was calculated for each rated item. The AD index is one of many measures of interrater agreement or reliability. A number of these statistics (e.g., $r_{wg,}$ intraclass correlation coefficient) include in their denominator some account for chance responding. In an interrater agreement measure like r_{wg}, this involves the estimation a null distribution. The most common null distribution is a uniform distribution that posits the equal probability of any response option. Unfortunately, the estimation of a null distribution isn't without controversy (see discussion below). In response, the AD index was selected as the primary measure of interrater agreement throughout this study (see below for other utilizations of the AD index). The AD index can be calculated as according to Equation 1 below:

$$AD_{M(j)} = \frac{\sum_{n-1}^{N} | x_{jk} - x_j |}{N} \qquad \text{(Equation 1)},$$

where $AD_{M(j)}$ is the average deviation computed from the mean for an item j, N is the number of unit members (thus the number of deviations for an item), x_{jk} is the kth judge's score on item j, and x_j is the arithmetic mean of the judges' scores on item j.

The AD index can be calculated without concern for chance responding (which is particularly useful in the measurement of societal culture strength and emergence below). However, a minimum level of agreement is desired when rating items for their reflection of PCT. Fortunately, Burke and Dunlap (2002) developed a method for calculating an estimate for chance responding, which is used to determine if AD index values achieve sufficient levels to support conclusions regarding interrater agreement. Based on Monte Carlo simulations of distributions of AD index values, response options, and cutoff criteria, Burke and Dunlap concluded that the appropriate cutoff value was $c/6$, where c is the number of response options. For the rating exercise, with five response options, the criterion cutoff for sufficient interrater agreement is .83. Table 2 presents the AD index values for the rated items.

Ratings yielded a number of items that panelists agreed reflected cultural tightness either moderately or strongly. Table 3 provides practices and values items retained for investigation as potential PCT scales. The initial psychometric properties of these potential scales were investigated at the individual and societal levels of analysis. The individual level internal consistency for the four practices items was α=.35 while the internal consistency for the four values items was α =.40. At the societal level, the practices scale achieved internal consistency of α =.67 and the values scale internal consistency was α =.64.

The selected items formed a preliminary scale measuring perceived cultural tightness (PCT). A distinction between cultural tightness and *perceived* cultural tightness is necessary as this study employed the Project GLOBE self-report items. Alternative objective societal-level measures would be more appropriately titled *cultural tightness*. The addition of *perceived* acknowledges that self-report measures, even in items with societal referents, may be subject to errors of misperception and bias. Aggregation to the societal level may nullify the biases in self-report measures, but the need for accurate terminology remains.

Measurement of Societal Culture Strength and Emergence

As previously described, this study investigated similar constructs—societal culture strength and emergence—that differ somewhat both in conceptual and operational definitions. Societal cultural strength and emergence differ in levels of specificity. Whereas SCS reflects general consensus across cultural dimensions within a society, emergence explains the degree to which specific cultural dimensions emerge as important characteristics of societies. In other words, SCS reflects global consensus and emergence in concerned with specific areas of consensus. Since both constructs are measured through calculations of consensus (or strength, in Brown and Kozlowski's [1999] terms), the following discussion of the measurement of agreement (or consensus, or strength) concerns both constructs.

This study approached the investigation of emergence primarily using strength measures—within-group agreement and reliability statistics. The primary means of measuring dispersion are through assessment of within-unit agreement (or disagreement) and interrater reliability. There is sizable set of statistics that are useful in calculating the degree of within-unit agreement or reliability on a construct of interest. These include: Mean percentage agreement, mean Euclidean distance or mean Mahalanobis distance between respondent profiles, mean Pearson correlation, analysis of variance techniques such as ANOVA and two types of intraclass correlation coefficients (ICC(1) and ICC(2), r_{wg}, SD_x (Lindell & Brandt, 2000), the AD index (Burke, Finkelstein, & Dusig, 2001) and random-group-resampling (Bliese and Halverson, 1998).

There has been considerable debate regarding the psychometric advantages and disadvantages of each of these estimating techniques. Debate reflects three common themes: Agreement vs. reliability statistics, treatment and estimation of chance agreement, and unit and level of analysis. Firstly, several of these statistics can be dichotomously categorized as measures of within-unit agreement (e.g., mean percentage agreement, r_{wg}, $SD_{x,}$ and AD index) or of within-unit reliability (e.g., ANOVA and ICC(1) and ICC(2). Whereas agreement indexes compare a set of responses to a single item (then are recalculated by scale, if necessary), reliability measures compare patterns of responses (Bliese, 2000). Secondly, nearly every study must determine the likelihood that the level of agreement or reliability extant in the data is not the product of chance. While mean percentage agreement and SD_x make no allowances for chance responding, r_{wg} and the AD index take different approaches to estimating the impact of chance. Finally, statistics differ in how they are calculated. Mean percentage agreement, r_{wg} (James, Demaree, & Wolf, 1984), $SD_{x,}$ the AD index, ICC(1), and ICC(2) calculate the level of agreement or reliability for each unit in the sample. On the other hand, ANOVA and random-group-resampling function as omnibus tests to detect if chance responding is influential across the sample.

A number of decisions must be made in order to determine the most appropriate measures for a particular study. Firstly, one must determine the appropriateness of measures of within-unit agreement against measures of within-unit reliability. Essentially, agreement statistics present an average of differences or deviations; they may reflect an average of the cumulative differences among the members' responses on an item (e.g., r_{wg}) or the average of the deviations from the group mean or centroid (e.g., AD index). On the other hand, reliability measures assess the relative consistency of responses among raters (Kozlowski & Hattrup, 1992). Consistency is not the same as agreement and it is possible to have high reliability and low agreement in the same case. For example, one rater may use only 1, 2, and 3 on a five-point scale while a second rater uses only 3, 4, and 5. Across these ratees, ratings of 3 and 5 are equivalent. This results in low agreement but high reliability because the results are proportionally consistent. It is also important to compare the approaches for establishing that the level of similarity in respondent scores is greater than could be achieved by chance. These methods parallel the agreement-reliability dichotomy because agreement statistics contrast observed within-unit variance against some theoretically-imposed random variance (if they estimate the impact of chance at all; mean percent agreement and SD_x do not) while reliability measures contrast within-unit variance with between-unit variance, which follows traditional ANOVA designs.

The derivation of imposed random variance used in agreement indexes usually requires a theoretical explication of a null, or chance, distribution. Determination of the proper null distribution has been contentious. In an article explicating the formulation of the r_{wg} statistic, James, Demaree, and Wolf (1984) argued for a uniform distribution (i.e., all members within a unit respond identically). Citing response biases, Lindell and Brandt (2000) claim that uniform distributions can produce inflated r_{wg} statistics. As an alternative, Lindell and Brandt propose a "maximum dissensus" distribution.

George and James (1993) asserted that analysis-of-variance designs are not useful because within-unit variance should be considered independent of between-unit variance. In response, Chan (1998) claimed that incorporating between-unit variance is assistive in demonstrating construct validity (i.e., minimal between-unit variance does not support the existence of construct). Certainly, ANOVA-based statistics are not informative if between-unit variance is small, because they will mask small within-unit variance by producing a small F-type statistic.

With these factors in mind, the AD index was employed as the primary measure of SCS and emergence. The AD index is the purest measure of dispersion because it measures deviation across ratings (Burke & Dunlap, 2002) and does not incorporate a null distribution. Rather, it employs a range of scores to prescribe a level of acceptable chance responding. It operates on the model of a standard deviation, by averaging the differences between all unit member responses and the unit mean. In contrast, r_{wg} is calculated as the difference between all rater pairs. In short, the AD index references the mean while r_{wg} references all other raters. Moreover, the accuracy of the AD index is not a function of the estimation of chance responding. The estimation of chance responding in the context of the dispersion model is different than for composition models. Principally, dispersion constructs do not necessitate the justification of aggregation of individual level data beyond a similarity threshold. This study, like others interested in dispersion constructs, was interested in units that have high agreement, low agreement, and everywhere in between. Simply, similarity is not a prerequisite for defining and operationalizing these constructs. Thus, the incorporation of a null distribution to account for chance was unnecessary.

Societal Culture Strength. The AD index was used to calculate two measures of SCS, one using values items and one using practices items (hereafter, the separate measures are referred to as SCS-Values and SCS-Practices). The AD index was calculated for each item, according to Equation 1, then averaged across all values items, then all practices items regardless of cultural dimension. The AD index, from Equation 1 above, is repeated here:

$$AD_{M(j)} = \frac{\sum_{n-1}^{N} | x_{jk} - x_j |}{N},$$

where $AD_{M(j)}$ is the average deviation computed from the mean for an item j, N is the number of unit members (thus the number of deviations for an item), x_{jk} is the kth judge's score on item j, and x_j is the arithmetic mean of the judges' scores on item j.

Emergence. The AD index was also used to calculate two sets of measures of emergence: values consensus and practices consensus. As proposed by the dispersion model, dispersion measures were calculated for each dimension of interest, in order to assess the emergence of each dimension. Thus, values consensus and practices consensus were calculated for each of the dimensions of societal culture. Values consensus was measured by calculating the AD index on values (Should Be) items for each of the cultural dimensions. Values consensus is the closest representation of Brown and Kozlowski's (1999) idea of a dispersion measure, and based on the best measure of culture according to psychological research, which states that culture should be measured through the cognitions (e.g., values) of its members (Segal, Lonner, & Berry, 1998). Practices consensus was measured by calculating the AD index on practices (As Is) items for each of the cultural dimensions. Practices consensus is not as pure a measure of emergence because practices items require a more descriptive process than the evaluative process required for values items.

For computing the AD index for scales, $AD_{M(j)}$ is computed as:

$$AD_{M(J)} = \frac{\sum_{j-1}^{N} AD_{M(j)}}{J} \qquad \text{(Equation 2),}$$

where $AD_{M(J)}$ is the average deviation computed from the mean for J essentially parallel items and $AD_{M(j)}$ is defined as above. High agreement is indicated by values that approach 0.

A third measure of emergence, *norm strength*, was a departure from the dispersion model. *Norm strength* was measured with a score of the calculated difference between individuals' response to each values item and its corresponding practices item (i.e., a difference score). This score was calculated for each cultural dimension. This is a departure from the dispersion model because it is a difference score rather than a dispersion measure. Yet the difference between norms and values seems a clear representation of whether a cultural dimension is fully emergent at the unit level—the norm (a feature of the unit) has fully engaged its members, and thus has a powerful influence on its members. Z-scores were calculated for each practices and values item. The difference between parallel z-transformed practices and values items was then calculated, followed by the averaging of the difference scores within each cultural dimension sale. This was then aggregated to the societal level as the within-society mean.

Analyses

To investigate the discriminant validity of cultural tightness, two sets of contrasting measurement models were tested using Amos, the structural equation modeling and confirmatory factor analysis module accompanying SPSS (SPSS, 2007). The first set of models contrasted a 3-factor model, serving as the null model, that proposed that uncertainty avoidance, institutional collectivism, and humane orientation alone can explain the variance in respective practices items with a 4-factor model hypothesizing that PCT explains unique variance in the same items. A parallel procedure was conducted with models intended to explain variance in values items. The evaluation of superior model fit was determined by several fit indexes. Parameter estimates of factor loadings and latent variable covariances were also evaluated.

At the societal level of analysis, multiple regression analyses were conducted to determine if uncertainty avoidance significantly predicted PCT. Since both tightness and high uncertainty avoidance are both indicated by high values, a positive regression weight was expected. A series of hierarchical regression analyses were also performed at the societal level of analysis to determine if PCT predicted either or both of the two measures of SCS, as measured by the average AD index of practices items (i.e, SCS-Practices) and the average AD index of values items (i.e, SCS-Values). As high levels of agreement are indicated by small AD index values, a significant negative regression weight was expected. Because an objective of this study was to determine if cultural tightness is distinct from established dimensions like uncertainty avoidance and individualism-collectivism, the hierarchical regression technique was employed in an effort to control for the effects of these variables on

SCS. The explanation of unique variance by PCT would support the construct validity of cultural tightness.

Parallel hierarchical regression analyses were performed to assess the predictive effect of PCT on emergence. The two strength measures—practices consensus and values consensus—and norm strength are indicative of emergence, but they are not considered equivalent. As a result, the predictive effect of PCT on these three measures was expected to differ. Specifically, it was expected that PCT would relate most strongly with practices consensus. Cultural tightness reflects tolerance for norm deviation and limited tolerance should result in societies in which members are in high agreement about the respective norms in those societies. PCT was also expected to relate strongly to norm strength; the alignment of values and norms in societies is likely a function of the degree of tolerance within a society. Finally, PCT was expected relate to values consensus, but more modestly. Supposing that members of societies do not always internalize values that are outwardly reflected in norms, tolerance for norm deviation is unlikely to have quite the same effect on value consensus. As was the case with regression analyses assessing the PCT-SCS relationship, a high level of consensus is indicated by low AD index values. Thus, significant negative regression weights were expected.

Hypothesis 5: Societies can be clustered by profiles of emergent cultural dimensions.

A series of cluster analyses were conducted to determine if there are detectable patterns in the emergence of societal level dimensions of culture. Cluster analysis is a common approach for identifying latent profiles in a data set (Aldenderfer & Blashfield, 1984). The intent of cluster analysis is to classify objects into meaningful clusters or groups, where the objects within each cluster are more similar to each other than the objects in other clusters and each cluster is relatively independent (Kim, Frisby, & Davison, 2004).Cluster analysis using multiple Sleipner (2002) modules was performed on three sets of dispersion variables: values consensus, norms consensus, and norm strength. The objective of the exercise was to determine if the sampled societies demonstrate profiles of sufficient similarity to form coherent clusters.

As discussed previously, societies may demonstrate idiosyncratic patterns of emergence, particularly given a large set of distinct dimensions of culture. Despite such a caveat, these cluster analytic efforts, like others, is intended to reduce what is otherwise and unwieldy arrangement of data points. Given the potential array of idiosyncrasies, some degree of cross-national similarity in emergence profiles would be supportive of considering cultural emergence among societies.

The same multistep cluster analysis procedure, using Sleipner, was conducted on the three sets of variables beginning with practices consensus. The first step was to remove outliers using the Residue module. Residue inspects multivariate data for cases that were not sufficiently similar to the remaining cases were standardized and subjected initially to agglomerative clustering, using squared Euclidean distance as the distance measure and Ward's method as the clustering method. Squared Euclidean distance is calculated as

$$d_{ij}^{2} = \sqrt{\sum_{k=1}^{p}(x_{ik} - x_{jk})^{2}}^{\,2} \qquad \text{(Equation 3)}$$

where d_{ij}^2 is the squared distance between cases i and j, and x_{ik} is the value of the kth variable for the ith case. Ward's method is distinct from several other clustering methods in that it is designed to optimize the minimum variance within clusters—in other words, within-groups sums-of-squares or error sums-of-squares (ESS) (Ward, 1963), the formula for which is:

$$\mathrm{ESS} = x_i^2 - 1/n\left(\sum x_i\right)^2 \qquad \text{(Equation 4)}$$

where x_i is the score on the ith case. Using a starting ESS value of 0, the method joins groups or clusters that minimally increase ESS. Changes in ESS values across clustering stages can then be inspected for indications of abnormally high within-cluster variance (Aldenderfer & Blashfield, 1984). The ESS values can then be graphically displayed according to cluster stage. Much like a scree plot used in exploratory factor analysis to identify factors to retain for rotation, a scatterplot of ESS values by cluster stage can identify the point at which within-cluster variance makes excessive increase. In agglomerative clustering, all cases are successively combined until all cases form a single cluster. At the initial clustering stage, within-cluster variance will be zero; at the final stage, it will be large. The interpretative objective is to determine the point at which only substantially similar cases are being combined to form clusters. The ESS scatterplot can identify clustering stages where dissimilar cases have begun to be clustered; this is manifested by notable increases in ESS (Aldenderfer & Blashfield, 1984). In other words, the addition of a dissimilar case or cluster to another case or cluster has produced an inordinate increase in variance within the new cluster. Like a scree plot, this is reflected in a more pronounced increase—graphically presented, an elbow,—in the ESS scatterplot. The clustering stage preceding the ESS increase can then be interpreted as the appropriate number of clusters representing the multivariate sample. However, it is important to note that there may be multiple elbows in an ESS scatterplot, requiring some further interpretation and justification for the selection of one cluster solution rather than another.

After the number of clusters has been determined from a first round of clustering, a second clustering procedure is performed. In this round, the number of clusters for the Sleipner Cluster module to assign cases to is prescribed. Sleipner then calculates cluster centroids and within-cluster variance (ESS) for each cluster. A prescribed cluster solution can then be stabilized through k-means clustering (i.e., the Relocate module in Sleipner). In k-means clustering, initial cluster centers are chosen randomly in a first pass of the data, then each additional iteration groups observations based on nearest Euclidean distance to the mean of the cluster. In an ANOVA-like fashion, the algorithm seeks to minimize within-cluster variance and maximize variability between clusters. Cluster centers change at each pass. The process continues until cluster means do not shift beyond a given cut-off value (such as an F-type statistic).

The final step is to validate the final cluster assignments. Cluster validation is among the most controversial cluster analysis tasks. Techniques include cophenetic correlation, ANOVA-type significance testing, replication, conducting significance using external variables, and Monte Carlo simulations. Several of these techniques have serious problems (Aldenderfer & Blashfield, 1984).

The cophenetic correlation technique attempts to determine how well the resulting dendrogram actually represents similarity patterns. However, the use of a product-moment correlation assumes normality within a similarity matrix, an assumption frequently violated. The use of ANOVA in significance testing is appealing because cluster differences are invariably highly significant. Indeed, ANOVA will reject the null in all cases, creating a tautology. Cluster analysis, by definition, produces no overlap among clusters, guaranteeing significant F values. Thus, ANOVA has no null-rejecting capacity, which will commonly produce misleading results. In contrast, replication does not provide sufficient validation evidence. Splitting samples and performing parallel analyses can correctly isolate a failure to replicate a cluster solution, but a successful replication does not ensure the validity of the solution.

These problems leave Monte Carlo simulations and the usage of external variables on viable validation approaches. Monte Carlo studies can be unduly time-consuming and are more useful with a restricted sample. In the present case, the size and representativeness of the multilevel sample suggests the external variable validation technique is most appropriate.

External variable validation is similar to the previously-described significance testing technique. The key difference is that in the present technique clusters are compared on variables *not* used to generate the cluster solution. If clusters differ on the external measure, it supports the “generality of the cluster solution” (Aldenderfer & Blashfield, 1984). It is important to keep in mind that this technique investigates the validity of the cluster solution rather than the construct validity for either the clustering variables or the external variables.

Perceived cultural tightness presented the opportunity to validate the cluster solutions derived from the three sets of emergence variables. Perceived cultural tightness is hypothesized in this study to relate to societal culture strength (Hypothesis 3) and to individual emergence variables (Hypothesis 4). If hypothesis testing supports these relationships, PCT would be an appropriate external measure on which to compare clusters of cultural emergence patterns.

In such a case, clusters derived from emergence data will be compared to their standing on PCT, using analysis of variance. This is done by assigning cluster membership values to each case, which produces groups of cases eligible for ANOVA-based contrasts. The cluster membership values were assigned based on the final k-means cluster assignments.

In summary, the cluster analysis effort involved a multistep process in which outliers were removed, and the remaining standardized data were subject to a series of agglomerative and k-means clustering. Finally, ANOVA-based cluster comparisons using PCT values were conducted to provide evidence of the validity of the derived cluster solution.

Results

Several sets of descriptive statistics are presented here and in the appendices. These statistics include individual level statistics for the entire sample of respondents cutting across the participant societies and societal level statistics aggregated by participating society.

Table 4 and Table 5 present descriptive statistics, reliabilities, and Pearson *r* product-moment intercorrelations among the original cultural practices (*As Is*) and cultural values (*Should Be*) scales. Appendix A reports the individual level descriptive statistics for practices items. Appendix B reports the individual level descriptive statistics for values items.

The next series of tables provides descriptive statistics for societal level data. Table 6 presents the descriptive statistics and intercorrelations for the practices scales at the societal level. Table 7 provides the descriptive statistics and intercorrelations for the values scales at the societal level.

Visual inspection of societal averages for cultural tightness points to some validity for the PCT scale. Many Latin American countries, including Argentina, Brazil, and Costa Rica appear to be fairly loose. Thailand, identified by Triandis (1989) as a loose society, has a low tightness value. Japan is tight, but surprisingly, so are several Western European countries, including Sweden, England, and (West) Germany—a pattern among Western societies that was supported in cluster analyses. Meaningfully, Singapore, a society known for an adherence to strict rules, was extremely tight.

Confirmatory Factor Analyses

The construct validity of cultural tightness was then investigated using confirmatory factor analysis (CFA) at the individual level of analysis in order to assess the hypothesized distinction between PCT and uncertainty avoidance and between PCT and individualism-collectivism. In addition, the panel of raters also identified an item from humane orientation scale as an indicator of PCT. As a result, it was appropriate to include the humane orientation dimension in the confirmatory factor analyses to fully clarify the construct validity of cultural tightness. Preliminary correlational analyses among the four scales provide some support for a distinction among the variables for the practices scales: PCT was essentially unrelated to humane orientation (r = -.03, p <.05), moderately related to institutional collectivism (r = .33, p <.01), and more strongly related to uncertainty avoidance (r = .44, p<.01). The Pearson r correlations between PCT as measured by values and the other scales were similar to those found when analyzing practices data: a near-zero correlation with humane orientation (r = .07, p <.01), a moderate correlation with institutional collectivism (r = .30, p <.01), and a stronger correlation with uncertainty avoidance (r = .49, p <.01). See Table 8 for a correlation matrix of practices and values scales.

A series of CFA models were constructed and compared, using a randomly selected subsample of the available GLOBE data. Large sample sizes present complications for covariance structure analysis. Large samples may prevent confirmatory models from converging. More significantly, some measures of model fit, particularly chi-square, are sensitive to sample size (Bentler & Bonnett, 1980). In order to achieve a subsample of at least 250, approximately 6% of the 5870 complete cases were randomly selected, yielding a sample of 347.

Two models of practices were first evaluated. The first of these was a three-factor model including uncertainty avoidance, institutional collectivism, and humane orientation, which served as the null model (Figure 2). The hypothesized model included four factors, including the three factors in the null model with the addition of PCT (Figure 3). Conventionally, social science researchers and psychometricians pursue unidimensional indicator variables (e.g., survey items), and they emphasize as such in the factor analyses techniques (exploratory and confirmatory) they employ. Specifically, confirmatory factor analyses commonly model indicator variables that load on single latent variables. In contrast, it was acknowledged in this study that some survey items may reflect multiple latent variables. Indeed, the items appropriated for inclusion on the PCT scale were developed to measure other latent variables. Initial factor analyses conducted by Project GLOBE supported the validity of these items in measuring their hypothesized latent variables (House & Javidan, 2004).

However, it can be argued that unique variance in relevant indicator variables can reflect the cultural tightness construct. As a result, several items were expected to load on multiple latent variables, as Figure 3 demonstrates. Specifically, the originally-hypothesized 4-factor model allowed three items in the cultural tightness scale to also load on the latent variables for which the items were originally developed. This includes two items loading on the uncertainty avoidance scale and one item on institutional collectivism scale. A necessary exception was made with regard to cross-loadings on the humane orientation scale. While item 32 required reverse coding for inclusion on the humane orientation scale, its original scaling was necessary for the PCT scale. (Item Text: "In this society, people are generally:

very tolerant of mistakes / not at all tolerant of mistakes".) The item needed reverse-coding so that a low score indicated strong humane orientation. In contrast, high scores were to indicate tightness. This item could not be scored a single way and reflect humane orientation and PCT at the same time. A new scaled indicator variable—item 32r—was calculated. Given that the original and the new indicators could not be included in the same model, as that would result in linear dependency, the original (reverse-scored) item was included in the 3-factor model and the new indicator was included in the 4-factor model.

Both of these models converged, and goodness-of-fit indices document favorably the fit the 4-factor model to the sample data (see Table 9). Firstly, both models fit the sample data moderately well. Although the χ^2 goodness-of-fit indexes were large-- χ^2 = 123.44 for the 3-factor model and $\chi 2$ = 99.87 for the 4-factor model-- χ^2 is generally considered to be inflated with larger samples. The goodness-of-fit indices, such as the Comparative Fit Index (CFI), the root mean squared error of approximation (RMSEA), and the standardized root mean squared residual (SRMR), which are less sensitive to sample size, were more positive. Both models approached or met conventional fit indices cutoff criterion, with the four-factor model yielding slightly more positive fit values.

Although multiple fit indices provide support for the four-factor model, a number of these indices show signs of imprecision under various conditions of model misspecification (Hu & Bentler, 1999). A conservative two-step strategy for assessing fit advocated by Hu and Bentler (1999) includes supplementing SRMR with RMSEA, CFI, the Tucker-Lewis Index (TLI) or the Incremental Fit Index (IFI). Using Monte Carlo analyses, Hu and Bentler established a cutoff value close to .95 for CFI, TLI, or IFI—a higher value than conventionally considered—a cutoff of .08 for SRMR, and .06 for RMSEA (good fitting models need to have CFI, TLI, or IFI values of .95 or *greater*, and SRMR and RMSEA values have *less than* the recommended cutoffs). Table 9 shows that the original 4-factor model has lower SRMR (.05) and RMSEA (.048) values than the 3-factor model, whose corresponding values were .06 and .054, respectively. Although these values are all less than Hu and Bentler's recommended cutoffs, neither model yielded a fit value greater than .95 for the remaining indices, though the 4-factor model nearly did so (e.g., CFI = .945; IFI = .946). In conclusion, the original 4-factor model achieved greater fit than the three-factor model even though it did not produce uniformly strong fit among fit indices.

Model fit, however, is only one component of empirical assessment of construct validity. Models without theoretical meaning can fit the data very well. Inspection of parameter estimates are an equally important component. Parameter estimates for the 4-factor model are not nearly as positive as are the model fit statistics. As can be seen in Table 10, estimates of factor loadings for PCT items were consistently low, with the exception of Item 32r. This is not altogether surprising, as the items were originally intended to measure other dimensions and the cross-loadings allowed for item variance to be explained by other latent variables. Indeed, considerable variance in these items is already explained by other latent variables.

Parameter estimates of latent variable covariance is also a area of potential concern, as the method of measuring cultural tightness—that is, appropriating items from other scales—is subject to patterns of multicollinearity. Results from confirmatory analyses of practices data suggest that although multicollinearity remains a concern, there is evidence that PCT can be distinguished from humane orientation (correlation of -.77), uncertainty avoidance (.24), and institutional collectivism (-.21). The correlation with humane orientation is strong, but does not obviously point to multicollinearity. Subsequent societal level analyses will later confirm that multicollinearity remains a concern.

Importantly, a number of other parameter estimates suggest room for improvement through adjusting the parameters to be estimated in both models. Firstly, one item on the Humane Orientation scale (Item 9: "In this society, people are generally: very concerned about others / not at all concerned about others") exhibited high standardized residual covariances (i.e., greater than 2.0) with four other items (e.g., -2.02, 2.01, 3.56, and 2.36). Large standardized residual covariance values suggest that an item contributes to decreased model fit. Secondly, another item appropriated for the cultural tightness scale (Item 24: "This society has rules or laws to cover: almost all situations / some situations / very few situations") demonstrated an exceedingly poor loading on the latent cultural tightness variable, as it had an insignificant but negative parameter estimate (-.14). In an effort to improve model fit and parameter estimates, adjusted null and hypothesized models were constructed that altered the role of these problematic items. Firstly, Item 9 was eliminated from both models. Secondly, Item 24 was no longer allowed to load on the latent PCT variable in the 4-factor model. Importantly, this item was not adjusted in the 3-factor model and it remained in the 4-factor model as an indicator of the latent uncertainty avoidance variable. In addition, rather than eliminating items on a basis of a potential sampling bias (which may or may not exist in the randomly-selected subsample for the previous CFA models), reliability estimates of respective scales were also calculated without the aforementioned items. Adjusted null (Figure 4) and hypothesized (Figure 5) models eliminating these two items were compared to investigate an improvement in model fit.

Both of the revised models produced considerable improvement in model fit (Table 9), as χ^2 goodness of fit decreased for the null (χ^2 = 51) and hypothesized (χ^2 = 46) models. The null model produced an improvement in SRMR (.053) and RMSEA (.041), and more importantly, met Hu and Bentler's (1999) more stringent criteria (.95) for other fit indices (CFI = .954, for example). Promisingly, the fit of the hypothesized model also improved, as SRMR dropped to .043 and RMSEA improved to .03. Not surprisingly, other fit indices also improved (e.g., CFI = .977). Unfortunately, removing Item 24 from the PCT scale damaged Chronbach's alpha estimates of reliability (from .35 to .23 at the individual level of analysis; from .67 to .43 at the societal level). Given the already modest reliabilities of PCT, it was determined to be premature to discard Item 24.

A final hypothesized model that eliminated Item 9 but retained the cross-loading for Item 24 was calculated. As can be seen in Table 9, including Item 24 in the PCT scale does not damage model fit, as most fit indices are nearly identical to the revised model that did not allow Item 24 on the PCT factor (e.g., SRMR = .041; RMSEA = .03; CFI = .979). Factor loadings and covariances for the final hypothesized model are presented in Figure 6. Although indicator parameter estimates remain a serious concern, the revised hypothesized model certainly presents evidence that is moderately supportive of a cultural tightness construct. scale In sum, the results of model comparison suggest that the 4-factor model that includes cultural tightness explains the available data just as well as the GLOBE-proposed model, if not better, even given constraints dictated by desires for parsimony. However, parameter estimates of factor loadings and latent covariance indicate that the model does not employ very powerful measures of cultural tightness. This may be both bad news and good news. It casts some suspicion on cultural tightness as a distinct construct. At the same time, the improvement of fit for the 4-factor model, despite poor factor loadings, holds promise for cultural tightness measured by more precise and unidimensional indicators.

The same modeling steps were performed with values items, with the objective of comparing a 3-factor (null) model of values (Figure 7) data with a hypothesized 4-factor model including cultural tightness (Figure 8). However, in notable contrast with the modeling effort for practices data, the hypothesized model was unable to achieve a positive definite covariance matrix. Models yielding a non-positive definite matrix cannot provide an admissible solution to the data. The most common explanation for this situation is a linear dependency of one latent variable on another latent variable. This appears to be the case in the present situation as PCT and humane orientation are very likely multicollinear; estimated covariance between the two latent variables was -.86. Based on these results, it was concluded that there is not a distinct cultural tightness construct as measured by values (*Should Be*) items. Subsequent analyses were restricted to a cultural tightness scale indicated by practices variables.

These analyses were conducted to determine the quality of evidence for the construct validity of perceived cultural tightness by answering Research Question 1: Can cultural tightness be empirically distinguished from uncertainty avoidance and from individualism-collectivism? There were two hypotheses regarding the relationship between perceived cultural tightness and uncertainty avoidance.

Hypothesis 1a: Cultural tightness is differentiable from uncertainty avoidance, despite a strong positive interrelationship.

Hypothesis 1b: The relationship between tightness and uncertainty avoidance will be stronger at the societal level of analysis.

Hypothesis 2: Cultural tightness is differentiable from individualism-collectivism despite a moderate positive interrelationship.

Hypothesis 1a was partially confirmed. Confirmatory factor analyses testing a 4-factor practices model including cultural tightness, uncertainty avoidance, institutional collectivism, and humane orientation showed acceptable fit to a random sample (n=347) of the individual level data, but returned poor factor loadings for the perceived cultural tightness items. In addition, a parallel model based on values items did not converge. It was concluded that PCT could only be measured with practices items and a single scale constructed of practices items was employed in subsequent analyses.

The next step was to test Hypotheses 1a, 1b, and 2 at the societal level of analysis. Just as in confirmatory factor analyses at the individual level, the inclusion of an item from the humane orientation scale prompted the need to determine the distinction of PCT from the humane orientation construct as well as from uncertainty avoidance and institutional collectivism at the societal level. In a hierarchical model, PCT was regressed onto these 3 scales. The standardized regression weight for uncertainty (.87) approached multicollinearity levels, but declined (to .77) when institutional collectivism and humane orientation were simultaneously entered into the model (Table 11).

Individual level factor analyses and societal level regression analyses present similar results, in that uncertainty avoidance and PCT are highly related, though not necessarily collinear. This lends partial support to Hypothesis 1a. There appears to be stronger support for Hypothesis 1b that the relationship between PCT and uncertainty avoidance is stronger at the societal level than the individual level. The latent covariance between the two variables at the individual level was modest (.17) and much larger at the societal level (β=.77). Likewise, there was stronger support for Hypothesis 2, in that analyses at both the individual and societal levels confirmed a moderate relationship between institutional collectivism and PCT. Although not hypothesized to be related to PCT, the inclusion of a humane orientation item on the PCT scale prompted the inclusion of humane orientation in the same CFA model. Most surprisingly, PCT was found to covary substantially with humane orientation, with a standardized covariance estimate of -.76, which is very strong but somewhat short of multicollinearity.

Unfortunately, there was other, generally negative, evidence of multicollinearity. Initial statistics, including tolerance and the variance-inflation index (VIF), calculated while predicting SCS-Practices with PCT and the set of control variables, did not suggest problems with multicollinearity. (Tolerance ($1-R^2$) is the regression weight of the reference predictor variable for the remaining predictor variables (ignoring the dependent variable) is considered excessive when it is less than .20 (Belsley, Kuh, & Welsch, 1980)). PCT produced a tolerance value of .373. Likewise, PCT produced a VIF value of 2.6, well below the common criterion of 4.0 (Belsley et al. 1980).

However, additional collinearity diagnostics produced strong evidence of multicollinearity. First of all, the crossproducts of all independent variables are factored, resulting in the same number of dimensions as independent variables (plus one for the constant). Dimension eigenvalues with near-zero values indicate dimensions accounting for little variance. Multiple eigenvalues near zero suggest an ill-conditioned matrix and possible multicollinearity. In predicting SCS-Practices both the control and predictor models produced dimensions with near-zero eigenvalues. Secondly, the condition index for one dimension (42.74) in the predictor model exceeded a common cutoff criterion of 30. When this criterion is exceeded, the variance proportions for the predictor variables on the violating dimension are inspected. Two variables with variance proportions of .50 or greater for the dimension are indicative of multicollinearity. However, only PCT produced a variance proportion (.89) exceeding this criterion. This suggests that multicollinearity is clear concern but there is not a clear linear dependency of PCT on any one of the control variables.

Societal Level Measures of Culture Strength and Emergence

A series of analyses were then conducted to assess societal culture strength and the emergence of cultural dimensions. The AD index was calculated for each item at the societal level then averaged across 39 items for both practices (i.e., SCS-Practices) and values (i.e, SCS-values). Table 12 provides descriptive statistics for each of these measures. As can be seen in this table, overall societal culture strength for practices correlates very highly with values societal culture strength with a Pearson r of .91. Table 13 summarizes the descriptive statistics for measures of values consensus; Table 14 summarizes the practices consensus descriptive statistics. Norm strength was determined by calculating a difference score between the parallel values and practices items at the individual level. These difference scores were aggregated to the societal level, then averaged by each cultural scale. Table 15 provides descriptive statistics for norm strength. Table 16 provides societal-level measures of norm strength.

Cultural Tightness and Societal Culture Strength

Research Question 2 sought to determine if cultural tightness was predictive of societal culture strength. As previously mentioned, CFA evidence supports only a cultural tightness construct measured through practices items. Correspondingly, the predictive relationship of cultural tightness and societal culture strength was assessed with the cultural tightness practices scale. Although values data didn't support a PCT scale, values measures of SCS were retained.

In a mode similar to the individual-level confirmatory factor analyses, the predictive relationship of PCT and measures of SCS were assessed while controlling for the predictive effects of uncertainty avoidance, institutional collectivism, and humane orientation. (Based on the results of the confirmatory factor analyses, the humane orientation scale was constructed without Item 9). A two-step hierarchical regression model was constructed at the societal level of analysis to test the predictive effects on the practices measure of SCS and then the values measure of SCS. The first step entered the control variables—uncertainty avoidance, institutional collectivism, and humane orientation—and PCT were entered in the second step. The results of the respective regression analyses are presented in Table 16 and Table 17. As can be seen in these tables, the effect of PCT was modest for predicting SCS-Practices and nil for SCS-Values. The regression model predicting SCS-Practices is worth noting. The control variables, particularly uncertainty avoidance, accounted for significant variance in SCS, though the effect size was modest. Interestingly, PCT explained unique variance in SCS ($\Delta R^2 = .05$), but also changed the network of predictor variables. Uncertainty avoidance was no longer a significant predictor; meanwhile, PCT became the most valuable predictor of SCS ($\beta = -.37$). This beta weight was very nearly significant at the=.05 level. Given the smaller sample size, PCT may indeed predict unique variance in SCS.

Regressing SCS-Values onto PCT and the same control variables produced a somewhat similar pattern of prediction, although the prediction model explained less variance ($R^2 = .10$) in SCS-Values. Adding PCT to the prediction model explained some unique variance in SCS-Practices, replacing uncertainty avoidance as the most important predictor. In this case, uncertainty avoidance replaced humane orientation as the most important predictor of SCS-Values ($\beta = -.29$). However, the inclusion of PCT didn't explain a significant portion of unique variance ($\Delta R^2 = .03$). In summary, the prediction model accounted for a small amount of variance in SCS-Values, and PCT was of little help in the matter.

Although there may be a number of potential interpretations of this set of results that converge somewhat regarding pattern but diverge in regard to predictive validity, two interpretations are prominent. Firstly, SCS-Practices and SCS-Values reflect distinctly different phenomena, or at least distinct aspects of societal culture strength. The degree of SCS-Values reflects a (dis)uniformity of mind and cognition while SCS-Practices reflects the power of various societal institutions to affect compliance. A sizable (though insignificant) predictive effect of PCT on SCS-Practices ($\beta = -.37$) supports the contention that the collective desire for conformity has a stronger effect on behavior than on personal values. The second, less likely interpretation is that SCS-Values and SCS-Practices reflect the same phenomenon while the values and practices items require different mental operations, which present a distinction that doesn't exist.

In sum, Hypothesis 3 was not technically supported as PCT did not significantly predict either SCS-Practices or SCS-Values. However, in predicting SCS-Practices, the regression weight for PCT was sizable; this result support a contention that cultural tightness merits further research attention as a potential explanatory variable.

Cultural Tightness and Multilevel Construct Emergence

Hypothesis 4 claims that PCT positively predicts emergence of cultural dimensions at the societal level of analysis, in that societies with circumscribed behavioral norms would contribute to a high degree of agreement about the cultural dimensions that explain and determine attitudes and behaviors in those societies. A series of hierarchical regression analyses similar in form to those utilized for addressing the predictive relationship between PCT and SCS were conducted to determine the predictive value of cultural tightness on patterns of emergence. The hierarchical regression analyses were intended to answer two questions regarding the construct validity of cultural tightness. Firstly, does cultural tightness have a causal (or more conservatively, a predictive) effect on other variables? Evidence of an effect on other variables within a nomological network is evidence of construct validity. Secondly, does cultural tightness maintain its predictive effect while controlling for the effects of other variables? In particular, given questions about a distinction between cultural tightness, uncertainty avoidance, individualism-collectivism, and humane orientation, can PCT account for unique variance in the degree to which cultural dimensions emerge to characterize societal phenomena?

As can be seen in Tables 13 and 14, reliability estimates for these measures of dispersion were somewhat weak. The estimates were stronger for the measures of practices consensus than for values consensus. With the exception the two collectivism scales and performance orientation, practices consensus achieved minimum levels of reliability. The reliability estimate for the practices consensus of in-group collectivism was especially weak (.30). This scale was developed separately from the remaining scales, and its poor reliability may be a result of an incomplete scale development process. Although the reliability estimate for practices dispersion of institutional collectivism (.64) is below the conventional criterion for reliability, it is not highly problematic. On the other hand, the reliability estimate for practices consensus of performance orientation (.46) was well below the criterion.

Although the measures of practices consensus were generally positive, the equivalent measures for values consensus were generally poor, with only power distance (.72), humane orientation (.84), and gender egalitarianism (.80) exceeding the conventional criterion for reliability. Although five of the remaining scales approached adequate reliability—all scales except for uncertainty avoidance (.39) exceeded .60—these results suggest that the original method of measuring cultural dimensions may have been more appropriate for cultural practices than for values. Indeed, the phrasing of societal culture items on the GLOBE instrument involved distinctly different mental operations for practices and values items. Practices items with *As Is* phrasing more clearly meets the dictates of multilevel research, which emphasizes that data collected at the individual level of analysis for aggregation to the unit level should reference the unit (i.e., societal) level (Klein, Conn, Smith, & Sorra, 2001). Practices items clearly refer to the societal level. Values items also refer to the societal level but not in a straightforward manner; the evaluative nature of these items demands self-reporting of individual preferences. Aggregating such data may not signify anything more than aggregated individual preferences, whereas aggregated practices data is more defensible as representative of phenomenon in the societal unit. To make the point in another way, suppose that a Norwegian sample has certain distributional characteristics (e.g., mean and variance) in terms of height. These values say essentially nothing about Norwegian culture. It reflects the characteristics of Norwegian individuals. Values data may say something more about Norwegian culture than does height, but given item phrasing, values may indeed say more about the individuals than the society. It is reasonable that the imprecision of the values items as reflecting societal characteristics could lead to lower levels of reliability. Greater variance is certainly more likely, and greater variance may contribute to poorer consistency. Measures based on the individual values items may not be ideal indicators of the emergence of cultural dimensions—at least, by themselves.

Dispersion measures are conventional indicators of emergence (Brown & Kozlowski, 1999). The parallel (values and practices) items presented an opportunity to construct an alternative measure of dispersion using difference scores. It has been proposed in the present study that the general covariance of an individual's value preferences with the respondent's perceptions of patterns in societal practices (or norms) is indicative of the intensity with which a particular dimension operates within a society. Although operationally distinct—one is fundamentally about inter-individual agreement and the other reflects intra-individual adherence to larger phenomenon--both dispersion and difference measures demonstrate the validity of constructs measured at the individual level to reflect unit behavior.

All items on the societal culture instrument were converted to z-scores. The relevant parallel z-scores were calculated for their differences. Finally, a cultural dimension mean was calculated across the items composing each scale. Difference scores have been criticized for problems regarding unequal variances and constrained reliability (Edwards, 2001). However, these measures are worth investigating (while not neglecting various psychometric concerns).

Table 15 provides descriptive statistics, reliability estimates, and Pearson *r* correlations among the mean difference measures for the nine culture scales, as measured at the societal level of analysis. As can been seen in Table 15, reliability estimates for these difference measures were uniformly low, with only two scales—humane orientation (.71) and performance orientation (.71)—surpassing the conventional criterion. This was not altogether surprising given that reliability estimate of the original culture scales, although generally sufficient, were not uniformly outstanding. Eight of the original 18 cultural scales—four for values items and four for practices items—had reliability estimates that hovered around the criterion. Nonetheless, the results of analyses involving difference scores should be in interpreted carefully.

As in previous hierarchical regression analyses, a two-step hierarchical model of explanatory variables was submitted, this time to explain the variance in a series of dependent variables. The two-step model involved the control variables—uncertainty avoidance, institutional collectivism, and humane orientation—in the first step, and the same three variables as well as PCT in the second step. Given that cultural tightness was the only new variable added in the second step, a significant change in the variance accounted for by the model in that step (i.e., change in R^2, under an F distribution) would support the predictive effect of PCT on emergence.

In the first series of hierarchical regression analyses, each of the nine measures of practices consensus were regressed onto the explanatory model. Table 19 summarizes this series of analyses, identifying the standardized parameter estimate for PCT estimated in the second step of the model as well as the variance accounted for by the second step in the hierarchical model (R^2) and the change in variance accounted for by the second step over the variance accounted for in the first step (ΔR^2). PCT significantly predicted the emergence of two cultural dimensions, power distance and humane orientation. However, the parameter estimates for PCT in predicting the emergence of four other cultural dimensions—uncertainty avoidance (-.25), institutional collectivism (-.39), future orientation (-.34), and gender egalitarianism (-.31)—were not miniscule, and were possibly insignificant as a result of the low power associated with the small sample size.

As explained previously, it was considered unlikely that PCT would significantly predict the emergence of all cultural dimensions. It was also thought unlikely that cultural tightness would explain a large part of the variance in emergence. Cultural dimensions likely emerge to become important factors in societal phenomenon mostly through society-specific processes. The particular governmental, religious, educational, occupational, and other institutions within each country collaborate to determine the cultural dimensions that emerge as acute and pervasive determinants of behavior and attitudes. Any construct that could predict this emergence, even to a small degree, would demonstrate meaningful cross-cultural validity, given how little common variance there exists in cultural emergence. Given the nature of likely determinants of emergence, cultural tightness appears somewhat promising as a predictor of emergence of practices.

In an identical manner as the first series, each of the nine measures of values consensus were regressed onto the explanatory model in the second series. Table 20 summarizes this series of analyses, including parameter estimates, R^2, and change in R^2. PCT showed somewhat similar, but muted, predictive effects on values consensus. PCT significantly predicted the emergence of humane orientation (.49), and accounted for unique variance beyond that of the control variables entered in step 1 ($\Delta R^2 = .08$). As was the case with practices consensus, the parameter estimates for several other cultural dimensions—future orientation and institutional collectivism--were not miniscule and may have achieved significance given a larger sample. Yet, the predictive pattern of PCT for the emergence of values dimensions was not as strong as for practices dimensions. There are two possible explanations for this. Firstly, as stated previously, the psychometric properties of the original cultural values items and derived dispersion measures is somewhat more suspect. Poorer reliability may have contributed to less positive results. Secondly, PCT is less likely to have a predictive effect on values consensus than practices consensus. Although there is certainly disagreement among any set within-country respondents regarding cultural practices in their country, the objective referent in practices items should promote a degree of consensus. And PCT is likely to contribute to the degree of emergence in those cultural practices reflected by measures of consensus. Results from the first series of regression analyses provide some support for this contention. In contrast, there is considerable room for within-country disagreement regarding individual values. People's perceptions about an external variable like a cultural practice are likely to be more consistent than the same people's value judgments about that external variable. Simply, societal members may not internalize the values that correspond to the practices they comply with. As a result, the conforming pressures of cultural tightness are unlikely to have the same effect on internal values as on perceptions of cultural practices.

There is an interesting caveat to the previous statement: Although not likely to be as highly related, a strong correlation between PCT and consensus of a particular value dimension could be indicative of a powerful, specific effect of PCT. That is, if PCT predicts consensus on a particular dimension, this may suggest that the constraining effects of PCT are powerful enough to drive members to internalize as value preferences the ideas reflected in the cultural practices that are more subject to the powerful demands of societal institutions.

Indeed, this may have occurred with humane orientation. The simultaneous presence of a strong PCT-values consensus relationship and absence of a PCT-practices consensus relationship would suggest measurement abnormalities. It would be surprising to find that PCT predicts values emergence without first (or contemporaneously) predicting practices emergence. One would expect PCT to exert a thorough effect on cultural practices in a way that the intensity of the cultural practices exerts a conforming effect to align individual values. There is some evidence of this regarding humane orientation as PCT predicts both practices consensus and values consensus of this culture scale.

Norm strength, as measured by difference scores, can also reflect the internalization of cultural practices. A third set of hierarchical regression analyses was conducted to determine if PCT predicted this form of cultural emergence. As in the previous analyses, each of the nine difference scores was regressed onto a two-step hierarchical model. Table 21 provides a summary of the parameter estimates, R^2, and change in R^2 by adding cultural tightness as a predictor. The results of these analyses are generally positive. As hypothesized, PCT significantly predicted several measures of norm strength—uncertainty avoidance (-.66), future orientation (-.50), and institutional collectivism (-.41), and gender egalitarianism (.43). Another parameter estimate—for humane orientation (-.36) was sizable and would have been significant under larger samples. PCT generally presented a stronger predictive model for norm strength than for practices and values consensus. Parameter estimates were larger and more unique variance was explained. This supports the hypothesis that cultural tightness is a better predictor of norm strength than of the consensus measures.

It is difficult to successfully interpret single parameter estimates, as cultural emergence is predominantly subject to within-society processes. It is more appropriate to observe patterns in emergence across measures. As hypothesized, PCT predicted more strongly norm strength (i.e., difference scores), and more weakly predicted values consensus. Even given reliable measures of values consensus, PCT is unlikely to have the same effect on value consensus, and values consensus did not demonstrate thorough reliability.

Perceived cultural tightness showed some pattern of predicting humane orientation, institutional collectivism, and future orientation across the three types of measures. At the same time, it did not predict in-group collectivism, performance orientation, or assertiveness in any of emergence measures.

This series of regression analyses lends partial support to Hypothesis 4. Although not broadly and consistently predictive of the various measures of emergence, there is some support for cultural tightness as a cross-cultural variable that partially explain the emergence of some cultural dimensions from the individual level to the societal level.

Post-hoc Analyses

Several post-hoc analyses shed a small patch of light on the situation to further suggest that previous conceptualizations of CT are incomplete. Triandis and colleagues (Chan, Gelfand, Triandis, & Tzeng, 1996) have hypothesized that cultural tightness is related and possibly a product of demographic heterogeneity. That is, a heterogeneous society (e.g., U.S) subsumes so many different populations with a variety of belief systems, values, and norms that tolerance for deviation must be greater to avoid perpetual interpersonal conflict. In contrast, a homogeneous society, like Japan, should have a fairly uniform value system and thus greater expectations for adhering to established norms.

Two types of heterogeneity measures were utilized for these analyses. The first of these was Blau's (1977) index of heterogeneity, a component of Blau's population diversity construct. Heterogeneity, or horizontal differentiation, is the distribution of a population among groups in terms of nominal parameters such as ethnicity, race, language, or religion (Avison & Loring, 1986). Blau operationalizes the degree of heterogeneity in a population as the probability that two randomly selected individuals do not belong to the same group, and it can be expressed in the following equation

$$D = 1 - \Sigma p_i^2 , \qquad \text{(Equation 5)}$$

where p_i is the proportion of the total population that each demographic category represents. Values of the index range from 0 to 1, with 1 representing full heterogeneity. There are several components to Blau's equation. Firstly, the larger number of groups and the more evenly the population is divided among those groups, the greater the degree of heterogeneity. Secondly, heterogeneity is less if the majority of the population is defined by the same nominal parameter than if the population is more evenly distributed among groups.

Ethnicity was selected as the nominal demographic variable for which to calculate heterogeneity. Population demographic data were obtained from The World Factbook on the website of the Central Intelligence Agency (CIA, 2008). The level of specificity regarding ethnic proportions in each country ranges from the micro to the molar. Whereas in some countries the ethnic decomposition is essentially black, white, Hispanic, and Asian, some European countries identify ethnic divisions within the "white race". Thus, there may be some countries whose estimates of heterogeneity are deflated.

Several more recent measures of heterogeneity, falling under the term fractionalization, were obtained from Annett (2001), who derived new measures of fractionalization. The original measure, ethno-linguistic fractionalization, was developed by Rae and Taylor (1970), and is statistically similar to Blau's index. It is calculated as follows:

$$\text{Fractionalization} = 1 - \Sigma(n_i/N)^2, \; i=1,..,\text{M}, \qquad \text{(Equation 6)}$$

where N is the total population and n_i is the number of people belonging to the ith group. These measures used two types of demographic groups: ethno-linguistic and religious. Annett calculated statistics for ethno-linguistic fractionalization (ELF) and religious fractionalization (RF), using demographic data from the World Christian Encyclopedia (Barrett, 1982). These measures likewise range from 0 to 1, with 1 representing full fractionalization. Descriptive statistics and intercorrelations for all measures of heterogeneity are provided in Table 22.

There were three research questions related to societal-level heterogeneity. Firstly, does heterogeneity predict cultural tightness? Secondly, does heterogeneity predict societal culture strength, as measured by practices and values? Finally, if appropriate, the third question sought a potential causal chain among the respective variables: Does cultural tightness mediate the relationship between heterogeneity and societal culture strength?

These hypotheses fit the earlier arguments that cultural tightness is a precursor to culture strength: Tight cultures should produce greater consistency in perceptions of societal values and practices; a lower tolerance for deviation should produce fewer deviations (in this case, greater agreement regarding modal behaviors). In turn, physical and demographic features of societies should influence a tendency toward tightness or looseness. Pelto suggested these features: Triandis and colleagues suggested several others: In this case, the extant physical (e.g., ethnic, immigration) and cultural (e.g., religious) diversity should prime societal members to expect or be sanction exceptions to standard behaviors and practices.

Post-Hoc Results. A series of hierarchical regression analyses were conducted at the societal level of analysis to estimate the predictive effects of demographic heterogeneity on PCT and SCS. Blau’s index of heterogeneity was entered in step 1, while ELF and RF were added during step 2 and step 3, respectively. The results of these analyses generally supported earlier findings that the current conceptualization of cultural tightness is incomplete. Of the three heterogeneity measures, only RF ($\beta = .55$) was a strong predictor of PCT. RF contributed significant explanatory power to the model (F (3, 37) = 7.25, $p<.01$), leading to a change in R^2 of .30. Interestingly, although ELF was not a significant predictor upon its initial entry (Step 2), it became so with the inclusion of RF (and owing to a decline in the standard error of its value from .34 to .29). The restricted statistical power of these analyses should be noted; beta weights were of moderate level for each parameter (Table 23). However, none of the three measures significantly predicted societal culture strength, as measured by either practices or values (Table 24 and Table 25). Thus, it was not necessary to test for the mediation hypothesis. Furthermore, the positive relationship between RF and PCT indicates that a high degree of religious heterogeneity is predictive of cultural tightness, a somewhat surprising result. This result provides further evidence that the cultural tightness construct needs further conceptual development. Likewise, heterogeneity does not appear to be the complicating factor it was hypothesized to be. Clearly, ethnic and religious pluralism are not equivalent (see Table 22). Disregarding the problems with cultural tightness measurement at the moment, it is possible that religious pluralism does not produce the degree of hypothesized problems with norm observance as ethnic heterogeneity because religious activity is generally more private and self-contained than ethnic identity.

Cluster Analyses

As described in the Methods section, a series of cluster analyses were conducted for three sets of emergence variables: values consensus, practices consensus, and norm strength. All three analyses involved these steps: a) Removal of outliers, b) an initial agglomerative clustering to identify the number of clusters to retain, c) a second agglomerative clustering to establish cluster centers for retained clusters, and d) k-means clustering to stabilize the cluster solutions, and e) validation of each the three cluster solutions by comparing clusters on PCT (as measured by practices items).

For each of these cluster analyses, ESS values are presented for the initial cluster solutions, the scatterplot of ESS values used to select the retained cluster solution, profile line graphs for each cluster, and tables indicating cluster memberships.

The nine measures of practices consensus were first inspected for outliers using the Residue module in Sleipner. Squared Euclidean distances calculated from standardized practices consensus data (i.e., z-scores) served as dissimilarity measures for the detection of outliers. A distance of .05 or less was considered as an indicator that the two objects in question were sufficiently similar. Those cases that failed to subcede this similarity threshold for all distance pairings were identified as outliers. This method identified 13 cases as outliers; 43 societies were retained for initial clustering.

The remaining 43 cases were subjected to initial clustering using Sleipner's Cluster module. Using squared Euclidean distances and Ward's (ANOVA-based) method, error sums of squares were calculated as each case and subsequent clusters were successively grouped across 43 stages. A scatterplot of the ESS values at each stage demonstrate three notable jumps in ESS values (Figure 9): at the 5-, 4-, and 2-cluster stages (which suggest potential 6-, 5-, and 3-cluster solutions). As the latter two solutions were thought to produce clusters with excessively large numbers of societies, the 6-cluster solution was chosen. A second Cluster procedure was conducted to confirm the initial cluster solution. Per the initial results, six clusters were retained. This procedure permitted the comparison of the six-cluster solution to solutions with fewer clusters. The six-cluster solution was confirmed.

The cluster solution was further stabilized using a k-means clustering procedure found in the Sleipner Relocate module. After cases have been classified to clusters according to the initial (confirmed) cluster solution, Relocate moves cases from one cluster to another if such adjustments lead to reductions in the total sums of squares of the cluster solution, producing more homogeneous clusters and stabilizing the solution. The procedure relocated six societies in two passes, improving explained error sums of squares from 58.23 to 59.83. This produced the final six-cluster solution for practices consensus. Members societies were assigned to their final cluster profiles, and six means and standard deviations were calculated to represent the average profile of each cluster (see Table 26). The homogeneity coefficient (HC) was also generated for each cluster. The HC is calculated as the average squared Euclidean distance among all possible pairwise comparisons of members within each cluster. When using standardized scores, as was the case in the present study, a higher HC indicates less within-cluster similarity; HCs less than one are considered evidence of homogeneous clusters (Bergman & Trost, 2006).

Table 27 presents the members of each cluster for practices consensus. Although several of these clusters are difficult to interpret, as they include countries from multiple regions, Cluster 6 was roughly interpretable. It was almost uniformly Western and predominantly characterized by countries with Anglo and Germanic cultural histories. The lone non-Western society was Singapore, which has had a long economic connection to Europe. The profile lines (Figure 10), although confirming confusing cluster profile patterns for most clusters, show that Cluster 6 demonstrates a nearly uniform pattern of high consensus (low values on the AD index indicate strong agreement). Although Cluster 6 did not have the highest practices consensus on each of the nine cultural dimensions, it was consistently among the lowest (while other clusters showed more variability).

The societal data set was subjected to the same set of cluster procedures for the nine measures of values consensus. Eleven societies were identified as outliers, and 46 cases were retained for initial clustering. A scatterplot of the ESS values on this initial clustering provides considerable evidence for a four-cluster solution, as ESS values increase monotonically until three clusters remain, at which point ESS values show a striking jump (Figure 11). Four clusters were retained for secondary clustering and were confirmed.

K-means clustering, starting with a four-cluster solution, reclassified three societies in a single pass through the data, increasing the explained ESS from 51.77 to 52.79. This produced the final four-cluster solution for values consensus. Table 28 presents means, standard deviations, and homogeneity coefficients for the four cluster profiles.

Table 29 presents the cluster memberships for the 46 societies. Like the cluster memberships for practices consensus, there does not seem to be evidence of distinct cluster patterns. Like for practices consensus, one cluster (Cluster 4) is strongly Western, with an emphasis on Anglo and Germanic societies. However, Cluster 4 is not as pronounced as Cluster 6 from practices consensus. It also includes several East Asian countries (e.g., Japan, South Korea, and Hong Kong, although Hong Kong has a long history of British influence) as well as Latin countries like Spain and Portugal. The cluster profile patterns are less conclusive for values consensus than for practices consensus, as Cluster 4 failed to show the same consistently high level of agreement across cultural dimensions.

The final set of cluster analyses applied the same procedures to the nine measures of norm strength. Inspection for outliers yielded eight cases that were not sufficiently similar to other cases. Forty-nine societies were subjected to initial clustering. The scatterplot of ESS values from this clustering shows jumps in ESS values for cluster stages seven, six, and three (Figure 13). The largest of these increases was for cluster stage seven, suggesting an eight-cluster solution. This solution was subjected to a secondary clustering, which confirmed the solution. Eight clusters were retained for k-means clustering, which reclassified six cases in two passes through the data, increasing the ESS explained from 67.70 to 68.99. Table 30 presents means, standard deviations, and homogeneity coefficients for the four cluster profiles.

Table 31 provides the cluster membership classifications for the 49 societies across the eight clusters. Although not all clusters are interpretable, norm strength clusters demonstrate a more distinct organization than the previous sets of clusters for practices and values consensus. Cluster 6 is generally Western with an emphasis on Germanic societies, along with the Netherlands and Switzerland, both of which share borders with unified Germany. Cluster 7 is less clear, but shows the influences of Latin American and Mediterranean cultures. Strongest and most distinct is Cluster 8, which includes countries with strong Anglo histories. Even the exception of Singapore has had a moderately strong relationship with Great Britain for more than a century.

The cluster profile for norm strength shows similar patterns as for practices consensus and lend support to the regionalized qualities of the coherent clusters (Figure 14). Both Cluster 6 and Cluster 8, with a predominance of Western societies, show a relatively strong alignment between values and practices. Norm strength, measured via a difference score between values and practices, is expected to be low (with an asymptote of zero) if there is close alignment between the aggregated values and consensus measures. In other words, if self-reports of personally-held values hew closely to perceptions of societal-instituted norms, this suggests the powerful effect of identified norms within that society and provides support for the argument that the effect that certain norms are magnified within certain countries. In the present clusters, the predominantly Western countries found in Cluster 6 and 8 show relatively small differences between respective values and practices in these countries. The historically Anglo countries in Cluster 8 have particularly and uniformly high norm strength. The profile of Germanic-European countries in Cluster 6 demonstrate similarly but not as uniformly high norm strength.

The final step of cluster analysis was to validate the final cluster solutions by comparing clusters according to an external variable (Aldenderfer & Blashfield, 1984). In the present case, this involved determining whether the respective cluster groupings could be differentiated on perceived cultural tightness. Once cluster memberships were assigned to each society for practices consensus, values consensus, and norm strength, a series of three one-way analyses-of-variance was performed on PCT, using the cluster groupings indicated by the respective cluster solutions. The validity of all three cluster solutions was confirmed with these analyses, as the three emergence variables yielded significant F values (practices consensus F=8.34, *df* = 5,38; values consensus F=14.63, *df* =3,42; norm strength F=8.14, *df* = 7,41). These results suggest that the derived clusters differ significantly on PCT (see Tables 32-34).

Discussion

This study sought to determine if construct validity could be established for cultural tightness. It did so by: a) conducting confirmatory factor analyses in order to distinguish cultural tightness from related variables and b) regressing variables in its nomological network on PCT to determine its criterion-related validity. The study also sought to investigate patterns of multilevel emergence of cultural variables.

Confirmatory factor analyses for discriminant validity provided limited support for cultural tightness as a unique construct. A model distinguishing PCT from related variables is supportable. Yet, this model yielded poor parameter estimates for items selected for cultural tightness. Modest parameter estimates are not surprising given the measurement approach for cultural tightness. In fact, the adequate fit of the PCT model suggests that there is possibly a construct space reflecting societal tolerance for norm deviation, despite the modest item loadings.

To a similar degree, the negative linear relationship between PCT and societal culture strength provides some limited support for criterion-related validity of cultural tightness. This relationship appears to be moderate, as hypothesized, although not significant, which is primarily due to low power of the small societal-level sample. PCT did not predict societal cultural strength as measured by values, although this was not very surprising given the evaluative format of values items.

Regression analyses predicting measures of cultural emergence with PCT also demonstrated mixed and limited support for the criterion-related validity of cultural tightness. As hypothesized, PCT did predict the emergence of several cultural dimensions.

Specifically, PCT appeared to better predict emergence as measured by norm strength than it did for emergence measured by practices and values consensus; PCT also better predicted emergence as measured by practices consensus than values consensus.

Perceived cultural tightness did not predict the emergence of all cultural dimensions to any degree, particularly assertiveness and performance orientation. Thus, PCT has a limited predictive effect. This is to be expected given the nature of emergent multilevel phenomena in general and emergent culture in particular. The emergence of respective variables is likely the result of multiple within-society variables; any single cross-cultural variable is unlikely to explain the emergence of all cultural dimensions across all societies. The predictive effect of PCT on emergence is as large as to be expected. Indeed, the effect on the various measures of norm strength is impressive. More refined measurement of cultural tightness may result in stronger predictive effects.

There is another important limit to the construct validity of cultural tightness. Perceived cultural tightness did not fully conform to a priori assumptions regarding cross-cultural differences in level of cultural tightness. In their empirical study, Chan, Gelfand, Triandis, and Tzing (1996) chose Japan and the U.S. as archetypical tight and loose cultures respectively as a method for contrasting cultural tightness differences. Although Japan empirically conformed to the tightness expectation in the present study, the U.S. was in no way extremely loose. Indeed, the U.S. fell approximately in the middle of the PCT distribution.

There are several conclusions that can be drawn from these contrasting results. Firstly, the self-report measure of PCT is contaminated and inefficient, and it may be successful in detecting only a part of the true societal level distribution of PCT (i.e., the tight end of the distribution). Secondly, these results could suggest that there is no cultural tightness construct; it is the equivalent of uncertainty avoidance. The final conclusion is that the conceptualization of cultural tightness is flawed and requires refinement. Specifically, the antecedents of cultural tightness are likely mis-specified. Although Japan fits the model of a tight society as geographically isolated with considerable homogeneity, the heterogeneous U.S. culture doesn't seem to promote looseness.

In fact, cluster analyses showed that many of the loosest cultures could be found in Arab and other non-Western regions where rigid norms for behavior would be expected. However, some of these countries could be identified as having weak national cultures. Social identification in countries like Nigeria and Zambia may indeed break along ethnic, religious, or tribal (e.g., in-group) lines rather than national boundaries. For all of its demographic heterogeneity and immigration, the U.S. has some of the most identifiable political (e.g., freedom of speech, freedom of religion) and economic (e.g., free market) principles. These qualities may contribute to a unified U.S. political culture that attracts and converts immigrants from multiple countries and ethnic backgrounds. There is literature to support a disconfirmation of the U.S. as a loose culture. In recent years, sociologists (DiMaggio, Evans, & Bryson, 1996; Evans, 2003) have found evidence of considerable agreement among Americans on social and political issues, despite media claims of a polarized American society.

Limitations

There are several general and specific limitations to this study. The first of the general limitations relates to sampling. The restriction of the sample to middle management counter-acted efforts to limit the unique cultural influences of multinational companies (i.e., the sampling of only domestic companies within each society). Managers in general and middle managers in particular may be influenced by the features of Western-style management practices. Middle managers are also more likely to have been educated in Western-style MBA programs. Finally, this study recruited approximately 170 co-country investigators (CCI's) who were responsible for obtaining usable within-country samples and making necessary survey translations for home country administration. Given that most of the universities that employ the CCI's are in urban and/or cosmopolitan environments, the organizational samples obtained could have been more Western in orientation. In other words, the respondents to this survey likely reported values that were more similar to Western cultural tendencies than those of many of their country compatriots. Societal members in rural and less industrialized areas of a country may not share the same values or perceive societal practices in the same way as the urban members that were the more likely respondents to this survey.

This sampling bias is particularly relevant to the purpose of this study. The primary concern of this study beyond the construct validity of cultural tightness is that cultural measures expressed in terms of central tendency neglect within-society variance as a meaningful construct of interest. If the within-society variance was restricted because of this sampling bias, the relationships among the variables of interest may have been attenuated.

This seems more likely in analyses conducted using values items. Although it is possible that the sampling bias supplied respondents with inflated levels of consensus regarding perceptions of societal practices, it is more likely that the sampled respondents shared values to a greater extent than if all regions and socioeconomic strata were sampled. This could have been (partly) responsible for a series of nonsignificant relationships involving variables measured with values items.

The one caveat to these concerns regarding the potential sampling bias is that the external validity demands of cross-cultural research in organizational contexts are not the same as those of more basic (i.e., less applied and less context-specific) research. In other words, research based on organizationally-restricted samples is often applied to organizational problems. (This makes for a meager defense of restricted samples as technology, transportation, and more open economies are increasingly enabling competition and collaboration within and across societies, not just in urban and industrialized areas.)

More informatively, the results of the study mitigate concerns regarding restricted variance and inflated consensus to some degree. In some non-Western societies, where a sampling bias might be expected to produce inflated consensus, consensus was actually lower than for Western societies. This suggests that, in reality, the hypothetical sampling bias did not come to fruition. Alternatively, consensus within those non-Western societies may have been even lower had a more representative sample been obtained.

The primary methodological limitation of this study was the measurement approach to cultural tightness. Practices and values items were appropriated from uncertainty avoidance, institutional collectivism, and humane orientation scales to form two respective scales of

PCT. This approach was not altogether disappointing as confirmatory factor analysis demonstrated some advantages to including a latent PCT variable to explain individual-level variance in perceptions of societal practices. However, factor analyses failed to produce a viable model of PCT for societal values. Furthermore, despite fitting the practices data rather well, the model of PCT was clearly operating with sub-optimal items. The three items on the PCT scale demonstrated poor factor loadings. Clearly, a scale with minimally-performing items is not going to be fully effective in determining the nature of the construct's relationship with other variables. In this particular case, such a scale is insufficient in establishing construct validity for a hypothesized societal construct. Any further research on cultural tightness must involve items specifically developed to assess this construct.

Multicollinearity, another limitation of this study, was mostly a function of the measurement approach. Confirmatory factor analyses assessing the discriminant validity of PCT demonstrated some evidence of multicollinearity. The model for values data did not converge, and thus not estimable, a likely result of a linear dependence of PCT on uncertainty avoidance. The model of practices data yielded adequate fit yet demonstrated a strong negative correlation between PCT and humane orientation. The strong linear relationship is so strong as to immediately conclude multicollinearity in the practices model. However, several but not all multicollinearity indicators calculated with hierarchical regression suggested fairly high degrees of multicollinearity between PCT and humane orientation. While the Durbin-Watson test produced a normal value, diagnostic tests showed extreme values.

As was the case with CFA, a high level of intercorrelations among these variables is expected for two reasons. Firstly, other authors have argued that PCT and uncertainty avoidance are at least strongly positively correlated (Chan, Gelfand, Triandis, & Tzing, 1996), and possibly equivalent (Hofstede, 2001; House & Javidan, 2004). Secondly, the items composing the PCT scale were originally written for scales—uncertainty avoidance, institutional collectivism—that PCT is expected to correlate with. The conclusion that can be drawn from both parameter estimation and multicollinearity calculation is that there is limited support for cultural tightness as a distinct, predictive construct. Yet, this limited support is generally positive given the incomplete method of measurement. That PCT was able to account for unique variance in societal culture strength in the present measurement context offers some support for the construct validity of cultural tightness.

Perceived cultural tightness showed some evidence of multicollinearity with both uncertainty avoidance and humane orientation. In fact, in the final CFA model, PCT was highly correlated with humane orientation and not uncertainty avoidance, which supports a distinction with uncertainty avoidance. On the other hand, high correlations with multiple variables points to common method variance as an explanation for the documented relationships among variables.

The second primary methodological limitation concerned levels of analysis. Even though a substantial portion of the sample had to be eliminated to ensure the integrity of item data, a large individual-level data set was available for analyses. However, the intention to investigate cultural emergence through measures of dispersion essentially limited the usable sample to the societal level of analysis. The low statistical power at this level of analysis is evident in hierarchical regression analyses, which produced a fairly large number of normally non-trivial effect sizes that failed to achieve significance at the α =.05 level. A final methodological limitation was found in the use of difference scores in calculating norm strength. Studies have established a concern regarding the reliability of variables contributing to the difference score and the resulting reliability of the difference score. Such concerns were relevant to the present study, as reliability estimates for norm strength values were frequently low. This may have contributed to attenuated results when attempting to predict the emergent variables with PCT.

There are several analytical techniques, including hierarchical linear modeling (HLM) and within and between analysis (WABA), that are geared toward capitalizing on high individual-level statistical power when unit-level statistical power is low. Although the principles of WABA were more aligned with the purposes of this study (e.g., HLM fits a more confirmatory model of analysis as it is generally used to test the causal effects of unit level variables on individual-level variables; WABA is generally more exploratory and non-causal), the dynamics of conducting analyses with dispersion measures made WABA unfeasible as well. WABA in particular is very concerned about parsing variance at multiple levels of analysis, thus may have some role in addressing dispersion as a construct of interest. An expansion of the principles and procedures of WABA would be fruitful for the technique and for expanding methods for testing multilevel emergence in organizational and societal contexts.

Research Implications.

Pelto (1968) and Triandis and colleagues (e.g., 1996) have theorized extensively about the nature or cultural tightness (and to a lesser extent, about the discriminant validity of cultural tightness). Results from this study both support and contradict previous cultural tightness hypotheses. Firstly, the present data suggests there may be unique individual-level variance regarding adherence to norms that is not accounted for by other cultural variables (uncertainty avoidance, prime among these). This is the case even given the limitations of the PCT measurement technique. However, expected cross-cultural differences were not confirmed. Univariate and multivariate analyses demonstrate that some Western societies have somewhat less tolerance for norm deviation than Eastern and Latin countries. Clusters analyses show a similar pattern for multiple measures of cultural emergence.

There are several explanations for this unexpected pattern of results: One explanation is primarily methodological, and the latter two (related) explanations are primarily theoretical. Firstly, as previously postulated, the PCT measure may be so deficient as a measure of cultural tightness that it revealed a false nature that is diametrically opposed to the (thus far only) hypothesized nature of cultural tightness. However, such a postulation complicates and begs future research: The unique variance explained by the PCT measure may not be the "true" variance for cultural tightness. Measures with greater content validity of cultural tightness may explain a different portion of variance. In other words, if the present PCT measure is flawed, it may very likely not explain the same variance as a stronger instrument. That variance may not point to stronger cultural tightness among a number of Western countries. Indeed, an instrument more discretely crafted to reflect tolerance for norm deviation may not account for any unique variance when included in the same model as uncertainty avoidance, humane orientation, and individualism-collectivism. In sum, the PCT measure may account for some unique variance, but given the contradictory and unexpected results of analyses involving PCT, that unique variance may not truly be reflecting cultural tightness. Combined, the deficiency of the instrument and the contradictory results restrict the ability to draw any firm conclusions regarding the construct validity of cultural tightness.

Two other explanations reflect the possible incomplete conceptualization of cultural tightness. As described above, one particular cluster made up of countries with Anglo and Germanic histories (and thus, strongly Western in modern historical experiences) showed a pattern of cultural emergence that suggested high consensus on cultural values, and thus could be called strong cultures. It is possible that Western societies longer historical experiences with national identities promote unified cultures. These countries have had somewhat stable and politically meaningful borders, and extensive experience (and success) with national governing bodies, marked by representative democracies, and centrally-organized fiscal, monetary, and social policies. Contrast these experiences with those of post-colonial Africa, Middle East, Persian Gulf, and South Asia. Departing colonialists constructed generally arbitrary borders in East and Central Africa (for example, in Rwanda and the Congo), and Iraq, Israel, and Palestine that paid little attention to ethnic and tribal allegiances. The British divided hundreds of millions of South Asians in cleaving overwhelmingly Muslim Pakistan and Bangladesh (formerly East Pakistan) from predominantly Hindu India. With some minor exceptions, national identities have been much weaker in these regions and countries than ethnic identities. Nationalism has generally had a stronger cultural impact in Western countries than African and Asian countries. As a result, the degree of consensus reflecting cultural emergence may be related to national identity. Certainly, ethnic identity may also contribute to stronger levels of consensus, but various measures of ethnicity and demographics were unavailable for this study.

The primacy of ethnic or national identity may also have an impact on cultural tightness. Although some traditional societies may circumscribe behavior more actively than Western societies, arbitrary national boundaries that subsume multiple ethnic groups may obscure those sanctioning patterns. This effect may be further magnified by another variable that has to do with the relationships among ethnic groups within countries. In-groups and out-groups have received much research interest in sociology and anthropology over several decades. In-groups are the collections of relations (e.g., kin, friends, ethnic groups) that have powerful effects on behaviors within those groups; out-groups are the individuals that exist outside the preferred social environment (Turner, Brown, & Tajfel, 1979). Out-groups are more than “everyone else”: out-groups as rivals often serve to help define the members of an in-group, by stating, “this is who we are, and this is who we are not”. Although in-groups may hold sometimes acute levels of animosity for certain out-groups, members of in-groups may also have very little concern for the behavior of members from an out-group: “They can do what they want; we will not concern ourselves with their lives or behavior.”

The results of this study were generally inconclusive but offer promise for future research. As a result, there are a number of directions for future research. These directions can be divided between organizational and individual level phenomena.

First among these issues is the potential impact of cultural tightness on organizational culture. Can cultural tightness predict features of organizational culture? Initially, the impact of cultural tightness on formality variables, such as mechanistic versus organic organizations (Burns & Stalker, 1961), can be addressed. Does cultural tightness contribute to these organizational cultural styles over and above uncertainty avoidance? Shifting to emergence, would it be valuable to address multilevel of organizational culture variables (Klein & Kozlowski, 2000)? Would organizations cluster according to emergence profiles? What might be revealed in emergence profiles? Can organization-wide interventions change the modal (or possibly, multimodal) profiles within organizations?

Secondly, it is also worth investigating the impact of several variables of interest on individual level behaviors. Does cultural tightness contribute to positive expatriate performance? How does cultural tightness relate to desirable (or undesirable) personality characteristics like openness and agreeableness? In more administrative scenarios, does cultural tightness contribute to performance appraisal biases?

Methodologically speaking, there are number of opportunities for expanding and improving research on cultural tightness and cultural emergence. First among these is to develop a scale of self-report items for assessing cultural tightness. Secondly, there is potential for investigating how WABA may be expanded to address multilevel emergence. Thirdly, this study addressed just one of the two components of dispersion, as described by Brown & Kozlowski (1999). Although some initial hypotheses regarding the strength (i.e., consensus/agreement) of cultural dimensions were partially tested, the absence of subunit data precluded tested a more complex model of emergence, one that includes strength and uniformity.

Organizational Implications

As previously described, the results of this study are not conclusive; furthermore, they are not sufficiently conclusive to merit a slate of recommended actions for organizations to implement. This study does, however, lay the groundwork for multinational organizations to consider multilevel emergence of cultural variables. It is likely no longer appropriate to assume that societal members adhere universally to expected values. As one example, China is undergoing a massive cultural shift that reflects this reality. Millions of rural Chinese are migrating to the country's burgeoning industrial centers to improve their economic lot. Most of these are young women, historically bound by custom to the collective control of the patriarchal family unit. They are cutting their family ties; some do not expect to return home again. The old collectivistic labels no longer apply to these ambitious and independent women. This isn't to say that predominant cultural patterns are shifting, but the global economy allows for greater variation within each society.

Importantly, this study did not definitively locate the unique variance hypothetically allocated to cultural tightness. The marginally unique variance reflected a distribution of country scores that ran opposite to expectations--open, liberal, Western societies tended to be tighter than traditional, circumscribed, Eastern societies.

Globalization, via the softening of trade barriers and the proliferation of communications technology, has brought countless workers from different societies in contact in recent decades. Correspondingly, the growth of multinational corporations and international business collaborations has provided more opportunities for investigating cross-cultural differences in management style, employee relations, work-life balance, career development, and theories of leadership (e.g., House & Javidan, 2004). However, far too much of cross-cultural research has been given over to between-country differences to the near complete neglect of within-country variance. Although organizational, industry-based, and business educational principles may produce homogenizing effects on organizational behavior, continued globalization and corollary urbanization of newly-industrialized countries will make the neglect of within-society variance increasingly problematic. As rural citizens of China, India, Brazil, Indonesia and other developing countries continue to flood the metropolitan centers in search of better-paying work, the cultural differences extant within such populous countries will push back against the convergence of the globalized organizational behavior.

As a result, organizations working to catch up to the cross-cultural differences in their business settings should avoid "skipping ahead" and assume that the cultural patterns of their multinational workforce hew to the documented patterns cited in this study. Neither should established multinational players stand pat with the expectation that their evolving workforces will be the culturally identical to those from 10 years ago. Both types of organizations would be wise to eschew the prototypical characteristics of the members of various constituencies and instead do what they can to assess the cross-cultural differences of their own workers.

Conclusions

This study provided an initial investigation into the construct validity of cultural tightness and also patterns of multilevel cultural emergence. Individual-level confirmatory factor analysis provided limited support for hypotheses distinguishing from established cultural variables. However, the observed societal distribution of scores contradicted expectations of looser, Western societies and tighter, Eastern societies. Although societal-level regression analysis provided minimal support for criterion-related hypotheses, cluster analysis of emergence variables affirmed the contradictory distribution patterns of cultural tightness.

Collectively, these results provide little conclusive evidence for cultural tightness or for multilevel cultural emergence. However, the generally positive-pointing nature of the results, given methodological constraints, suggests there are opportunities to investigate these variables in a more predetermined manner.

References

Aldenderfer, M. S. & Blashfield, R. K. (1984). *Cluster analysis.* Beverly Hills, CA: Sage.

Allport, G. (1954). *The nature of prejudice.* Reading, MA: Addison-Wesley.

Annett, A. (2001). Social fractionalization, political instability, and the size of government. International Monetary Fund. IMP Staff Papers, 48 (3), 561-592.

Asch, S.E. (1951). Effects of group pressure upon the modification and distortion of judgment. In H. Guetzkow (Ed.), *Groups, leadership, and men* (pp. 177-190). Pittsburgh: Carnegie Press.

Appadurai, A. (1990). Disjuncture and difference in the global cultural economy. *Theory, Culture and Society, 7,* 295-310.

Argote, L. (1989). Agreement about norms and work-unit effectiveness: Evidence from the field. *Basic and Applied Social Psychology, 10,* 131-140.

Avison, W. R., & Loring, P. L. (1986). Population diversity and cross-national homicide: The effects of inequality and heterogeneity. *Criminology, 24*, 733-750.

Bauer, T. N., & Green, S. G. (1996). Development of leader–member exchange: A longitudinal test. *Academy of Management Journal, 39,* 1538–1567.

Barrett, D. B. (Ed.). (1982). *World Christian encyclopedia*. New York: Oxford University Press.

Belsley, D.A., Kuh, E., & Welsch, R.E. (1980). *Regression Diagnostics: Identification Influential Data and Sources of Collinearity,* New York: John Wiley & Sons, Inc.

Bentler, P. M., & Bonnett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin, 88,* 588-606.

Bettenhausen, K. & Murnigan, J.K. (1985). The emergence of norms in competitive decision-making groups. *Administrative Science Quarterly, 30,* 350-372.

Bhawuk, D. P. S., & Brislin, R. W. (2000). Cross-cultural training: A review. *Applied Psychology: An International Review, 49(1),* 162-191.

Birenbaum. A., & Sagarin. E. (1976). *Norms and human behavior.* New York: Praeger.

Black, J.S., Oddou, G., & Mendenhall, M. (1991). Toward a comprehensive model of international adjustment: An integration of multiple theoretical prospectives. *Academy of Management Review, 16,* 291-317.

Blackhurst, M. (1986, June). The role of culture in affirmative action strategy. Paper presented at the International Conference on Organizational Symbolism and Corporate Culture, Montreal, Quebec, Canada.

Blau, P. M., (1977). *Inequality and heterogeneity.* New York: The Free Press.

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: implications for data aggregation and analysis. In K. J. Klein, & S. W. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349–381). San Francisco, CA: Jossey-Bass.

Bliese, P. D, & Halverson, R. R. (1996). Individual and nomothetic models of job stress: An examination of work hours, cohesion, and well-being. *Journal of Applied Social Psychology, 26,* 1171-1189.

Bliese, P. D., & Halverson, R. R. (1998). Group consensus and psychological well-being: a large field study. *Journal of Applied Social Psychology, 28,* 563–580.

Blood, M. R. (1974). Spin-offs from behavioral expectation scale procedures. *Journal of Applied Psychology,* 59, 513-515.

Bloor, G. & Dawson, P. (1994). Understanding professional culture in organizational context. *Organizational Studies, 15,* 275-295.

Bochner, S. (1982). The social psychology of cross-cultural relations. In S. Bochner (Ed.), *Cultures in contact* (pp. 5-44). Elmsford, NY: Pergamon.

Boyd, R., & Richerson, P. J. (1985). *Culture and the evolutionary process.* Chicago: The University of Chicago Press.

Brewer, M. B. (1995). Managing diversity: The role of social identities. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in Work Teams,* (pp. 47-68). Washington, DC: American Psychological Association.

Brown, K. G., Kozlowski, S. W. J., & Hattrup, K. (1996, August). The search for consensus on measures of consensus: Issues and recommendations in reconceptualizing agreement as a construct in organizational research. Paper presented at the annual meeting of the Academy of Management, Cincinnati, OH.

Brown, K. G., & Kozlowski, S. W. J. (1999). The dispersion model: Beyond a dichotomous conceptualization of emergent constructs. Unpublished manuscript.

Burke, M. J., & Dunlap, W. P. (2002). Estimating interrater agreement with an average deviation index: A user's guide. *Organizational Research Methods, 5,* 159-172.

Burke, M. J., Finkelstein, L. M., & Dusig, M. S. (1999). On average deviation indices for estimating interrater agreement. *Organizational Research Methods, 2,* 49-68.

Bushe, G. R. (1988). Cultural contradictions of statistical process control in American manufacturing organizations. *Journal of Management, 14,* 19-31.

Burns, T., & Stalker, G. M. (1961). *The management of innovation.* London: Tavistock Publications Ltd., Tavistock Centre.

Byrne, D. (1969). Attitude and attraction. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 4, pp. 35–90). New York: Academic Press.

Byrne, D. (1971). *The attraction paradigm.* New York: Academic Press.

Carpenter, S. (2000). Effects of cultural tightness and collectivism and self-concept and causal attributions. *Cross-cultural Research, 34,* 38-56.

Central Intelligence Agency. (2008, December). Field listings—ethnic groups. World factbook. Retrieved December 18, 2008 from https://www.cia.gov/library/publications/the-world-factbook/fields/2075.html

Chan, D. (1998). Functional relationships among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83,* 234-246.

Chan, D. K. S., Gelfand, M. J., Triandis, H.C., & Tzeng, O. (1996). Tightness-looseness revisited: Some preliminary analyses in Japan and the United States. *International Journal of Psychology, 31,* 1-12.

Chatman, J.A., & Flynn, F.J. (2001). The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams. *Academy of Management Journal, 44,* 956-974.

Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology,* (4th ed., Vol. 2, pp. 151–192). New York: McGraw-Hill.

Colquitt, J. A., Noe, R. A., & Jackson, C. L. (2002). Justice in teams: Antecedents and consequences of procedural justice climate. *Personnel Psychology, 55,* 83-109.

Dansereau, F., Yammarino, F. J., & Kohles, J. C. (1999). Multiple levels of analysis form a longitudinal perspective: Some implications for theory building. *Academy of Management Review, 24,* 346-357.

Darley, J.M., & Latane, B. (1970). Norms and normative behavior: Field studies in social interdependence. In J. Macaulay & L. Berkowitz (Eds.), *Altruism and helping behavior,* (pp.83-101). New York: Academic.

Deal, T. E., & Kennedy, A. A. (1982). *Corporate culture: The rites and rituals of corporate life.* Reading, MA: Addison-Wesley.

de Luque, M.S., & Javidan, M. (2004). Uncertainty avoidance. In R.J. House, Hanges, P.J., M. Javidan, P.W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies,* (pp. 602-644). Thousand Oaks: Sage.

Denison, D. R. (1984). Bringing corporate culture to the bottom line. *Organizational Dynamics, 13(2),* 14-22.

Denison, D. R. (1990). *Corporate culture and organizational effectiveness.* Ann Arbor, MI: Aviat.

Dent, J. F. (1986, June). A case study of the emergence of a new organizational rationality. Paper presented at the International Conference on Organizational Symbolism and Corporate Culture, Montreal, Quebec, Canada.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology, 51,* 629–636.

Dickson, M. W., Resick, C. J., & Hanges, P. J. (2006). When organizational climate is unambiguous, it is also strong. *Journal of Applied Psychology, 91,* 351-364.

DiMaggio, P., Evans, J., & Bryson, B. (1996). Have Americans' social attitudes become more polarized? *American Journal of Sociology, 102,* 690-755.

Edwards, J. R. (2001). Ten difference score myths. *Organizational Research Methods,4,* 265-287.

Engle, E. M., & Lord, R. G. (1997). Implicit theories, self-schemas, and leader–member exchange. *Academy of Management Journal, 40,* 988– 1010.

Evans, J. (2003). Have Americans' attitudes become more polarized?—An update. *Social Science Quarterly, 84,* 71-90.

Feldman, D. C. (1984). The development and enforcement of group norms. *Academy of Management Review, 9,* 47-53.

Frost, P.J., Mitchell, V., & Nord, W.R. (1997). *Organizational Reality: Reports from the Firing Line.* (4th ed.). New York: Addison-Wesley.

George, J.M., & James, L.R. (1993). Personality, affect, and behavior in groups revisited: Comment on aggregation, levels of analysis, and a recent application of within and between analysis. *Journal of Applied Psychology,* 78, 798-804.

Georgopoules, B. S. (1965). Normative structure variables and organizational behavior. *Human Relations, 18,* 155-169.

Gonzalez-Roma, V., Peiro, J. M., & Tordera, N. (2002). An examination of the antecedents and moderator influences of climate strength. *Journal of Applied Psychology, 87,* 465-473.

Gordon, G.G., & DiTomasso, N. (1992). Predicting corporate performance from organizational culture. *Journal of Management Studies, 29,* 783-799.

Gregory, K. (1983). Native-view paradigms: Multiple cultures and culture conflicts in organizations. *Administrative Science Quarterly, 28,* 359-376.

Hackman, J.R. (1976). Group influences on individuals. In M. Dunnette (Ed.), *Handbook of industrial and organizational psychology,* (pp. 1455-1525). Chicago: Rand McNally.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16,* 250-279.

Hall, E. T. (1989). *The dance of life: The other dimension of time.* New York: Doubleday.

Hannerz, U. (1992). *Cultural complexity: Studies in the social organization of meaning.* New York: Columbia University Press.

Hellriegel, D. & Slocum, J. W. (1976). *Organizational behavior: Contingency views.* St. Paul, MN: West Publishing.

Hermans, H. J. M., & Kempen, H. J. G. (1998). Moving cultures: The perilous problems of cultural dichotomies in a globalizing society. *American Psychologist, 53,* 1111-1120.

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

Hofstede, G. (2001). *Culture's consequences (2nd ed.).* Thousand Oaks, CA: Sage.

Hofstede, G., & Bond, M.H. (1988). The Confucian Connection: From cultural roots to economic growth. *Organizational Dynamics, 16,* 4-21.

Hollander, E.P. (1961). Some effects of perceived status on responses to innovative behavior. *Journal of Abnormal and Social Psychology, 63,* 247-250.

House, R.J., & Javidan, M. (2004). Cultural influences on organizational leadership: Literature review, theoretical rationale, and GLOBE Project goals. In R.J. House, Hanges, P.J., M. Javidan, P.W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies,* (pp. 9-26). Thousand Oaks: Sage.

House, R.J., Rousseau, D.M., & Thomas-Hunt, M. (1995). The meso paradigm: A framework for the integration of micro and macro organizational behavior. In L.L. Cummings & B.M. Staw (Eds.), *Research in organizational behavior,* (Vol. 17, pp. 71-114). Greenwich, CT: JAI Press.

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

Inglehart, R., Basanez, M., & Moreno, A. (1998). *Human values and beliefs: A cross-cultural sourcebook—Political, religious, sexual, and economic norms in 43 societies.* Ann Arbor: University of Michigan Press.

Jackson, J. (1965). Structural characteristics of norms. In I. D. Steiner & M. Fishbein (Eds.), *Current studies in social psychology.* New York: Holt, Rinehart, and Winston.

Jackson, J. (1975). Normative power and conflict potential. *Sociological Methods and Research, 4,* 237-263.

James, L.R. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of Applied Psychology, 67,* 219-229.

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group agreement interrater reliability with and without response bias. *Journal of Applied Psychology, 69,* 85-98.

James, L. A., & James, L. R. (1989). Integrating work environment perceptions: Exploration into the measurement of meaning. *Journal of Applied Psychology, 74,* 739-751.

James, L. R. & Jones, A. P. (1974). Organizational climate: A review of theory and research. *Psychological Bulletin, 81,* 1096-1112.

James, L. R., & Jones, A. P. (1980). Perceived job characteristics and job satisfaction: An examination of reciprocal causation. *Personnel Psychology, 33,* 97-135.

James, L. R., Joyce, W. F., & Slocum, J. W., Jr. (1988). Comment: Organizations do not cognize. *Academy of Management Review, 13,* 129–132.

Kameda, T., Takezawa, M, & Hastie, R. (2003). The logic of social sharing: An evolutionary game analysis of adaptive norm development. *Personality and Social Psychology Review, 7,* 2-19.

Katz, D., & Kahn, R. L. (1966). *The social psychology of organizations.* New York: Wiley.

Katz, D, & Kahn, R.L (1978). *The social psychology of organizations (2nd ed).* New York: Wiley.

Kiesler, C.A. & Kiesler, S.B. (1970). *Conformity.* Reading, Massachusetts: Addison-Wesley.

Kim, S., Frisby, C.L., & Davison, M.L. (2004). Estimating cognitive profiles using profile analysis via multidimensional scaling. *Multivariate Behavioral Research, 39,* 595-624.

Klein, K. J., Conn, A. B., Smith, D. B., Sorra, J. S. (2001). Is everyone in agreement? An exploration of within-group agreement in employee perceptions of the work environment. *Journal of Applied Psychology, 86,* 3-16.

Klein, K. J., Dansereau, F., & Hall, R. J. (1994). Levels issues in theory development, data collection, and analysis. *The Academy of Management Review, 19,* 295-230.

Kluckhohn, C. & Strodbeck, F. (1960). *Variations in value orientations.* New York: Row, Peterson.

Koene, B. A., Boone, C.A.J.J., & Soeters, J. L. (1997). Organizational factors influencing homogeneity and heterogeneity of organizational cultures. In S. A. Sackmann (Ed.), *Cultural complexity in organizations: Inherent contrasts and contradictions*, (pp. 273-293). Thousand Oaks, CA: Sage.

Kopelman, R.E., Brief, A.P., & Guzzo, R.A. (1990). The role of climate and culture in productivity. In B. Schneider (Ed.), *Organizational climate and culture,* (pp. 282-318). San Francisco: Jossey-Bass.

Kotter, J. O., & Heskett, J. L. (1992). *Corporate culture and performance.* New York: Free Press.

Kozlowski, S. W. J., Gully, S. M., McHugh, P. P., Salas, E., & Cannon-Bowers, J. A. (1996). A dynamic theory of leadership and team effectiveness: Developmental and task contingent leader roles. In G. R. Ferris (Ed.), *Research in Personnel and Human Resource Management, 14,* 253-305. Greenwich, CT: JAI Press.

Kozlowski, S. W. J., & Hattrup, K. (1992). A disagreement about within group agreement: Disentangling issues of consistency versus consensus. *Journal of Applied Psychology, 77,* 161-167.

Kozlowski, S. W. J. & Hults, B. M. (1987). An exploration of climates for technical updating and performance. *Personnel Psychology, 40,* 539-563.

Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent properties. In K. L. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.

Krebs, D.L, & Miller, D.T. (1985). Altruism and aggression. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (3rd ed., pp. 1-72). New York: Random House.

LaRocco, J. M. (1985). Effects of job conditions on worker perceptions: Ambient stimuli vs. group influence. *Journal of Applied Social Psychology, 15,* 735-757.

Law, K.S., Wong, C., & Mobley, W.H. (1998). Toward a taxonomy of multidimensional constructs. *Academy of Management Journal, 23,* 741-755.

Lindell, M. K., & Brandt, C. J. (2000). Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes. *Journal of Applied Psychology, 85,* 331-348.

Lindell, M. K., & Whitney, D. J. (1995). Effects of organizational environment, internal structure, and team climate on the effectiveness of Local Emergency Planning Committees. *Risk Analysis, 15,* 439-447.

Louis, M. R. (1983). Organizations as culture-bearing milieu. In L. R. Pondy, P. J. Frost, G. Morgan, & T. C. Dandridge (Eds.), *Organizational symbolism* (pp. 23-44). Greenwich, CT: JAI Press.

Martin, J. (1992). *Cultures in organizations: Three perspectives.* New York: Oxford University Press.

Martin, J. & Siehl, C. (1983). Organizational culture and counter-culture: An uneasy symbiosis. *Organizational Dynamics, 12,* 52-64.

Martin, J., Sitkin, S. B., & Boehn, M. (1985). Founders and the elusiveness of cultural legacy. In P. J. Frost, L. F. Moore, M. R. Louis, C. C. Lundberg, & J. Martin (Eds.), *Organizational culture* (pp. 99-124). Beverly Hills, CA: Sage.

Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology, 85,* 273–283.

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

McElreath, R., Boyd, R., & Richerson, P.J. (2003). Shared norms can lead to the evolution of ethnic markers. *Current Anthropology, 44,* 122–130.

Milliken, F. J. & Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review, 21,* 402–433.

Miller, J. G. (1997). Theoretical issues in cultural psychology. In J. W. Berry, Y. H. Poortinga, & J. Pandey (Eds.), *Handbook of cross-cultural psychology* (Vol. 1, pp. 85-128). Boston: Allyn & Bacon.

Mischel, W. (1976). Towards a cognitive social model learning reconceptualization of personality. In N. S. Endler & D. Magnusson (Eds.), *Interactional psychology and personality* (pp. 166–207). New York: Wiley.

Mohammed, S., & Dumville, B. C. (2001). Team mental models in a team knowledge framework: Expanding theory and measurement across disciplinary boundaries. *Journal of Organizational Behavior, 22,* 89–106.

Morgeson, F. P. & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review, 24,* 249-265.

Moynihan, L. M., & Peterson, R. S. 2004. The role of personality in group processes. In B. Schneider & D. B. Smith (Eds.), *Personality and organizations* (pp. 317–345). Mahwah, NJ: Erlbaum.

Murphy, P. J. (2003, April). On organizational culture, strength, and outcomes. Paper presented at the eighteenth annual meeting of the Society for Industrial and Organizational Psychology, Orlando, FL.

O'Reilly, C. A., Caldwell, D. F., & Barnett, W. P. (1989). Work group demography, social integration, and turnover. *Administrative Science Quarterly, 34,* 21–27.

Ouchi, W. G. (1981). *Theory Z: How American business can meet the Japanese challenge.* Reading, MA: Addison-Wesley.

Parker, C. P., Baltes, B.P., Young, S. A., Huff, J.W., Altmann, R. A., Lacost, H. A., & Roberts, J. E. (2003). *Journal of Organizational Behavior, 24,* 289-416.

Pascale, R. T., & Athos, A. G. (1981). *The art of Japanese management.* New York: Warner.

Pelto, P. J. (1968, April). The differences between "tight" and "loose" cultures. *Transactions,* 37-40.

Peters, T. J., & Waterman, R. J., Jr. (1982). *In search of excellence: Lessons from America's best-run companies.* New York: Harper & Row.

Pettigrew, A. M. (1979). On studying organizational cultures. *Administrative Science Quarterly, 23,* 570-581

Phillips, M.E. (1990, August 15). Industry as cultural grouping. *Dissertation Abstracts International,* 5102A.

Ployhart, R.E., Weekley, J.A., & Baughman, K. (2006). The structure and function of human capital emergence: A multilevel examination of the attraction-selection-attrition model. *Academy of Management Journal, 49,* 661-677.

Rae, D. W., & Taylor, M. (1970). *The analysis of political cleavages.* New Haven: Yale University Press.

Raven, B.H., & Rubin, J.Z. (1976). *Social psychology: People in groups.* New York: Wiley.

Rentsch, J. R. (1990). Climate and culture: Interaction and qualitative differences in organizational meanings. *Journal of Applied Psychology, 75,* 668-681.

Rousseau, D. M. (1985). Issues of level in organizational research: Multi-level and cross-level perspectives. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (vol. 7, 1–37). Greenwich, CT: JAI Press.

Rusted, B. (1986, June). Corporate entertainment as social action: The case of a service organization. Paper presented at the International Conference on Organizational Symbolism and Corporate Culture, Montreal, Quebec, Canada.

Sackmann, S. A. (1986, March). Cultural knowledge in organizations: The link between strategy and organizational processes. *Dissertation Abstracts International, 46,* 2748-A.

Sackmann, S. A. (1991). *Cultural knowledge in organizations: Exploring the collective mind.* Newbury Park, CA: Sage.

Sackmann, S. A. (1992). Cultures and subcultures: An analysis of organizational knowledge. *Administrative Science Quarterly, 37,* 140-161.

Sackmann, S. A., & Phillips, M. E. (1992). Mapping the cultural terrain in organizational settings: Current boundaries and future directions for empirical research. (CIBER Working Paper No. 92-05). Los Angeles, University of California at Los Angeles, Center for International Business, Anderson Graduate School of Management.

Sackmann, S.A., Phillips, M.E., Kleinberg, M.J. & Boyacigiller, N.A. (1997). Single and multiple cultures in international cross-cultural management research: Overview. In S.A. Sackmann (Ed), *Cultural complexity in organizations: Inherent contrasts and contradictions* (p.14-48). Thousand Oaks, CA: Sage Publications.

Schein, E. (1983). The role of the founder in creating organizational culture. *Organizational Dynamics, 12,* 13-28.

Schein, E. (1992). Organizational *culture and leadership.* New York: Jossey-Bass.

Schneider, B. (1975). Organizational climates: An essay. *Personnel Psychology, 28,* 447–479.

Schneider, B. (1983). Interactional psychology and organizational behavior. In L.L., Cummings, & B.M. Staw (Eds.), *Research in organizational behavior* (Vol. 5, pp. 1-31). Greenwich, *CT:* JAI Press.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40,* 437-454.

Schneider, B. & Bowen, D. E. (1985). Employee and customer perceptions of service in banks: Replication and extension. *Journal of Applied Psychology, 70,* 423-433.

Schneider, B., Goldstein, H. W., & Smith, D. B. (1995). The ASA framework: An update. *Personnel Psychology, 48,* 747-773.

Schneider, B., & Reichers, A. E. (1983). On the etiology of climate. *Personnel Psychology, 36,* 19-39.

Schneider, B. & Reichers, A. E. (1990). *Organizational culture and climate.* New York: Jossey-Bass.

Schneider, B., & Rentsch, J. R. (1988). Managing climates and cultures: A futures perspective. In J. Hage (Ed.), *Futures of organizations.* Lexington, MA: Lexington Books.

Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: A new direction for climate research. Journal *of Applied Psychology, 87,* 220-229.

Schneider, B., Smith, D. B., Taylor, S., & Fleenor, J. (1998). Personality and organizations: A test of the homogeneity of personality hypothesis. *Journal of Applied Psychology, 83*, 462-470.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). New York: Academic Press.

Schwartz, S. H. (1994). Are there universal aspects in the content and structure of values? *Journal of Social Issues, 50,* 19-45.

Schwartz, S., & Melech, G. (2000). National differences in micro and macro worry: Social, economic, and cultural explanations. In E. Diener & E. Suh (Eds.) *Subjective well-being across cultures and nations* (pp. 219-256). Boston: MIT Press.

Segall, M.H., Lonner, W.J., & Berry, J.W. (1998). Cross-cultural psychology as a scholarly discipline: On the flowering of cultural in behavioral research. *American Psychologist, 53,* 1101-1110.

Shaw, M. E. (1981). *Group dynamics: The psychology of small group behavior* (3rd ed.). New York: McGraw Hill.

Sherif, M. (1936). *The psychology of social norms.* New York: Harper & Brothers.

Sherif, M., & Sherif, C.W. (1969). Interdisciplinary coordination as a validity check: Retrospect and prospect. In M. Sherif & C.W. Sherif (Eds.), *Interdisciplinary relationships in the social sciences.* Chicago: Aldine Publishing.

Bergman, L. R., & El-Kouri, B. M. (2002). Sleipner (version 2.1). Stockholm, Sweden.

Smith, P.B., & Bond, M.H. (1998). *Social psychology across cultures (2nd ed.).* London: Harvester Wheatsheaf.

Smith, C.A., Organ, D.W., & Near, J.P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology, 68,* 653-663.

Smith-Jentsch, K. A., Mathieu, J. E., & Kraiger, K. (2005). Investigating linear and interactive effects of shared mental models on safety and efficiency in a field setting. *Journal of Applied Psychology, 90,* 523–535.

Soeters, J.L. (1986). Excellent companies as social movements. *Journal of Management Studies, 23,* 299-312.

SPSS for Windows (2007). Rel. 16. Chicago: SPSS Inc.

Symons, G. L. (1986, June). Corporate culture, managerial women, and organizational change. Paper presented at the International Conference on Organizational Symbolism and Corporate Culture, Montreal, Quebec, Canada.

Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American, 223,* 96-102.

Turner, J. C., Brown, R. J., & Tajfel, H. (1979). Social comparison and group interest in ingroup favoritism. *European Journal of Social Psychology, 9,* 187-204.

Triandis, H. C. (1972). *The analysis of subjective culture.* New York: John Wiley.

Triandis, H. C. (1977). *Interpersonal behavior.* Monterrey, CA: Brooks/Cole Publishing.

Triandis, H. C. (1989). The self and social behavior. *Psychological Review, 96,* 506-520.

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

Triandis, H.C., & Suh, E.M. (2002). Cultural influences on personality. *Annual Review of Psychology, 53,* 133-160.

Trompenaars, F., & Hampden-Turner, C. (1998). Riding *the waves of culture.* New York: McGraw-Hill.

Tsui, A. S., & O’Reilly, C. A. (1989). Beyond simple demographic effects: The importance of relational demography in supervisor–subordinate dyads. *Academy of Management Journal, 32,* 402–423.

Van Maanen, J., & Barley, S. (1985). Cultural organization: Fragments of a theory. In P. J. Frost, L. F. Moore, M. R. Louis, C. C. Lundberg, & J. Martin (Eds.), *Organizational culture* (pp. 27-53). Beverly Hills, CA: Sage.

Weick, K. E. (1969). *The social psychology of organizing.* Reading, MA: Addison-Wesley.

Wilderom, C. P. M., Glunk, U., & Maslowski, R. (2000). Organizational culture as a predictor of organizational performance. In N. M. Ashkanasay, & M. F. Peterson (Eds.), *Handbook of organizational culture and climate* (pp. 193-210). Thousand Oaks, CA: Sage.

Wilkinson, D. (1995). Central civilizations. In S. K. Sanderson (Ed.), *Civilizations and world systems: Studying world-historical change* (pp. 46-74). London: Altamira Press.

Witte, G. (2004, September). As income gap widens, uncertainty spreads. *Washington Post*, A01.

Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology, 65,* 96-102.

Table 1. Number of Respondents by Participating Countries (n = 57)

Country	n	Country	n
Argentina	61	Kazakhstan	23
Australia	161	Kuwait	25
Austria	68	Malaysia	59
Bolivia	58	Mexico	103
Brazil	109	Morocco	29
Canada (English-speaking)	118	Namibia	14
China	74	Netherlands	133
Colombia	98	New Zealand	85
Costa Rica	52	Nigeria	111
Czech Republic	105	Philippines	130
Ecuador	19	Poland	123
Egypt	82	Portugal	37
El Salvador	10	Russia	119
England	73	Singapore	65
Finland	203	Slovenia	110
France	127	South Africa (Black Sample)	73
Georgia	63	South Africa (White Sample)	81
Germany (Former West)	173	South Korea	111
Germany (Former East)	24	Spain	156
Greece	114	Sweden	794
Guatemala	47	Switzerland	142
Hong Kong	79	Taiwan	84
Hungary	74	Thailand	215
India	84	Turkey	108
Indonesia	147	United States	175
Ireland	62	Venezuela	77
Israel	166	Zambia	9
Italy	119	Zimbabwe	17
Japan	92		

Total N=5870

Table 2. AD_m Values for GLOBE Items Rated for Cultural Tightness (n = 11)

Item No.	Item	Mean	AD Index
P-32	In this society, people are generally: **very tolerant of mistakes / not at all tolerant of mistakes**	3.45	0.68*
V-1	I believe that orderliness and consistency should be stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	3.73	0.4*
V-31	In this society, people should be encouraged to be: **very tolerant of mistakes / not at all tolerant of mistakes**	3.00	0.73*
P-25	In this society, people are generally: **very friendly / very unfriendly**	2.18	0.93
V-16	I believe that a person who leads a structured life that has few unexpected events: **has a lot to be thankful for / is missing a lot of excitement**	2.45	0.96
P-21	In this society, people are generally: **very sensitive toward others / not at all sensitive toward others**	3.00	1.27
V-24	I believe that society should have rules or laws to cover: **almost all situations / some situations / very few situations**	3.73	0.76*
P-9	In this society, people are generally: **very concerned about others / not at all concerned about others**	2.73	1.07
V-25	I believe that leaders in this society should: **provide detailed plans concerning how to achieve goals / allow the people freedom in determining how best to achieve goals**	3.00	0.91
P-4	In this society, the accepted norm is to: **plan for the future / accept the status quo**	3.00	1.27
V-7	I believe that in general, leaders should encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	3.64	0.64*
P-35	In this society: **group cohesion is valued more than individualism / group cohesion and individualism are equally valued / individualism is valued more than group cohesion**	4.09	0.99
P-13	In this society, followers are expected to: **obey their leaders without question / question their leaders when in disagreement**	3.45	1.04
P-16	In this society, most people lead highly structured lives with few unexpected events. **SA / Neither / SD**	2.55	0.94
V-34	Members of this society should: **take no pride in being a member of the society / take a moderate amount of pride in being a member of the society / take a great deal of pride in being a member of the society.**	3.64	0.83*
P-29	In this society, being accepted by the other members of a group is very important. **SA / Neither / SD**	3.82	0.63*
V-13	I believe that followers should: **obey their leader without question / question their leader when in disagreement**	3.45	0.78*
V-37	I believe that: **group cohesion is better than individualism / group cohesion and individualism are equally valuable / individualism is better than group cohesion**	4.09	0.5*
P-7	In this society, leaders encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	3.73	0.45*
P-19	In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do. **SA / Neither / SD**	3.73	0.94
V-9	In this society, people should be encouraged to be: **very concerned about others / not at all concerned about others**	3.09	1.37

Table 2 continued

P-24	This society has rules or laws to cover: **almost all situations / some situations / very few situations**	3.82	0.63*
P-1	In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	3.82	0.45*

Note. Prefix P = Practice item. Prefix V = Values item. Response option anchors are in boldface. *Items for which average deviation index is equal or less than criterion for adequate interrater agreement (AD_m = .83).

Table 3. GLOBE Items Reflecting Cultural Tightness (n = 5870)

Item No.	Item	Mean	AD Index
	Practices		
1	(R) In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	4.13	0.45
7	(R)In this society, leaders encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	4.21	0.45
24	(R)This society has rules or laws to cover: **almost all situations / some situations / very few situations**	5.03	0.63
32	(R)In this society, people are generally: **very tolerant of mistakes / not at all tolerant of mistakes**	3.94	0.68
	Values		
1	(R)I believe that orderliness and consistency should be stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	4.24	0.40
7	(R)I believe that in general, leaders should encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	4.83	0.64
24	(R)I believe that society should have rules or laws to cover: **almost all situations / some situations / very few situations**	5.42	0.76
31	(R)In this society, people should be encouraged to be: **very tolerant of mistakes / not at all tolerant of mistakes**	4.68	0.73

Note. Response option anchors are in boldface. (R)= Reverse-scored.

*Table 4. Means, Standard Deviations, and Intercorrelations for Individual Level Cultural Dimensions, as Measured by Practices (*As is*) Items (n = 5870)*

	Scale	Mean	SD	1	2	3	4	5	6	7	8	9
				Pearson *r*								
1	Uncertainty Avoidance	4.31	1.11	(0.64)								
2	Institutional Collectivism	4.37	0.99	0.34	(0.49)							
3	In-group Collectivism	4.86	1.12	-0.29	-0.10	(0.58)						
4	Power Distance	5.12	0.94	-0.20	-0.16	0.27	(0.63)					
5	Humane Orientation	4.04	0.99	0.06	0.15	0.19	-0.20	(0.74)				
6	Performance Orientation	4.07	1.03	0.27	0.10	0.11	-0.28	0.23	(0.48)			
7	Future Orientation	3.91	1.00	0.44	0.26	-0.16	-0.35	0.09	0.36	(0.61)		
8	Gender Egalitarianism	3.42	0.84	0.02	0.04	-0.17	-0.28	0.01	-0.01	0.09	(0.49)	
9	Assertiveness	4.04	0.95	-0.08	-0.19	0.18	0.03	-0.24	0.16	0.08	-0.09	(0.61)

Note. Values in parentheses are Cronbach's alpha estimates of scale reliability.

Table 5. Means, Standard Deviations, and Intercorrelations for Individual Level Cultural Dimensions, as Measured by Values (Should Be) Items (n = 5870)

				Pearson *r*								
	Scale	**Mean**	**SD**	1	2	3	4	5	6	7	8	9
1	Uncertainty Avoidance	4.42	1.11	(0.65)								
2	Institutional Collectivism	4.58	0.91	0.31	(0.47)							
3	In-group Collectivism	5.68	0.91	0.11	0.11	(0.53)						
4	Power Distance	2.70	0.84	0.12	-0.20	-0.22	(0.52)					
5	Humane Orientation	5.44	0.82	0.00	0.10	0.26	-0.36	(0.62)				
6	Performance Orientation	5.85	0.88	0.13	0.18	0.41	-0.35	0.36	(0.64)			
7	Future Orientation	5.34	0.96	0.41	0.29	0.33	-0.20	0.18	0.40	(0.58)		
8	Gender Egalitarianism	4.63	0.85	-0.31	-0.02	0.16	-0.33	0.20	0.19	-0.04	(0.64)	
9	Assertiveness	4.22	0.90	0.09	-0.09	0.07	0.15	-0.16	0.09	0.07	-0.07	(0.42)

Note. Values in parentheses are Cronbach's alpha estimates of scale reliability.

*Table 6. Means, Standard Deviations, and Intercorrelations for Societal Level Cultural Dimensions, as Measured by Practices (*As Is*) Items (n = 57)*

				Pearson *r*								
	Scale	**Mean**	**SD**	1	2	3	4	5	6	7	8	9
1	Uncertainty Avoidance	4.13	0.60	(0.86)								
2	Institutional Collectivism	4.22	0.44	0.34**	(0.71)							
3	In-group Collectivism	5.15	0.75	-0.57**	-0.10	(0.79)						
4	Power Distance	5.21	0.44	-0.41	-0.29*	0.60**	(0.83)					
5	Humane Orientation	4.08	0.48	-0.03	0.36**	0.32*	-0.07	(0.86)				
6	Performance Orientation	4.08	0.40	0.62**	0.47**	-0.19	-0.37**	0.18	(0.67)			
7	Future Orientation	3.81	0.48	0.73**	0.43**	-0.37**	-0.42**	0.04	0.68**	(0.80)		
8	Gender Egalitarianism	3.34	0.40	-0.13	-0.10	-0.23	-0.29*	-0.24	-0.28*	-0.06	(0.71)	
9	Assertiveness	4.14	0.41	-0.15	-0.43**	0.10	0.21	-0.58**	0.01	0.04	0.01	(0.71)

Note. *p <.05. **p<.01. Values in parentheses are Cronbach's alpha estimates of scale reliability.

*Table 7. Means, Standard Deviations, and Intercorrelations for Societal Level Cultural Dimensions, as Measured by Values (*Should Be*) Items (n = 57)*

				Pearson *r*								
	Scale	**Mean**	**SD**	1	2	3	4	5	6	7	8	9
1	Uncertainty Avoidance	4.61	0.60	(0.83)								
2	Institutional Collectivism	4.72	0.50	0.41**	(0.78)							
3	In-group Collectivism	5.68	0.42	0.36**	0.34*	(0.64)						
4	Power Distance	2.73	0.39	0.00	-0.36*	-0.40**	(0.71)					
5	Humane Orientation	5.40	0.38	0.07	0.05	0.29*	-0.65**	(0.69)				
6	Performance Orientation	5.91	0.58	0.26	0.41**	0.69**	-0.62**	0.61**	(0.86)			
7	Future Orientation	5.46	0.50	0.62**	0.42**	0.67**	-0.39**	0.45**	0.71**	(0.73)		
8	Gender Egalitarianism	4.52	0.49	-0.46**	0.07	0.23	-0.49**	0.28*	0.30*	-0.07	(0.86)	
9	Assertiveness	4.25	0.51	0.16	-0.13	0.12	0.20	-0.21	0.00	0.06	-0.13	(0.34)

Note. *p <.05. **p<.01. Values in parentheses are Cronbach's alpha estimates of scale reliability.

Table 8. Individual Level Pearson r Product-Moment Intercorrelations among Cultural Tightness, Uncertainty Avoidance, Institutional Collectivism, and Humane Orientation (n = 5870)

				Pearson *r*			
Practices	**Scale**	**Mean**	**SD**	1	2	3	4
1	Cultural Tightness	4.36	0.90	(0.35)			
2	Uncertainty Avoidance	4.04	1.37	0.44	(0.55)		
3	Institutional Collectivism	4.42	1.05	0.33	0.27	(0.40)	
4	Humane Orientation	4.07	1.07	-0.03*	0.11	0.17	(0.76)
Values	**Scale**	**Mean**	**SD**	1	2	3	4
1	Cultural Tightness	4.45	0.95	(0.40)			
2	Uncertainty Avoidance	4.15	1.25	0.49	(0.49)		
3	Institutional Collectivism	4.50	0.93	0.30	0.25	(0.37)	
4	Humane Orientation	5.69	0.88	0.07	0.04	0.13	(0.24)

Note. Values in parentheses are Cronbach's alpha estimates of scale reliability. *p <.05; all other Pearson *r* correlation values significant at p <.01.

Table 9. Summary of Fit Indices for Multiple Null and Hypothesized Models of Cultural Tightness (n = 347)

Model	Description	df	χ2	SRMR	RMSEA	CFI	TLI	IFI
Original Three-Factor Model (Null)	Factors: UA, IC, HO	62	123.44	0.060	0.054	0.924	0.904	0.925
Original Four-Factor Model (Hypothesized)	Factors: UA, IC, HO, CT	55	99.54	0.050	0.048	0.945	0.921	0.946
Revised Three-Factor Model (Null)	Factors: UA, IC, HO; Item 9 removed from HO	51	80.68	0.053	0.041	0.954	0.940	0.955
Revised Four-Factor Model (Hypothesized)	Factors: UA, IC, HO, CT; Item 9 removed from HO scale; Item 24 allowed to load on UA and not on CT	46	60.72	0.043	0.030	0.977	0.967	0.978
Final Four-Factor Model (Hypothesized)	Factors: UA, IC, HO, CT; Item 9 removed from HO; Item 24 allowed to load on UA and CT	45	58.61	0.041	0.030	0.979	0.980	0.980

Note. UA=Uncertainty Avoidance; IC=Institutional Collectivism; HO=Humane Orientation; CT=Cultural Tightness; df=degrees of freedom; SRMR=standardized root mean residual; RMSEA=root mean squared error of approximation; CFI=Comparative Fit Index; TLI=Tucker-Lewis Index; IFI=Incremental Fit Index. Good fit indicated by SRMR<.080, RMSEA<.06, and (CFI, TLI, IFI)>.95.

Table 10. Factor Cross-loadings for Four-Factor Confirmatory Model of Cultural Tightness (n = 347)

Cultural Tightness			Original Factors		
Item No.	Unstandardized factor loading	SE		Unstandardized factor loading	SE
1	0.14	0.11	1[a]	0.83	0.10
7	0.20	0.11	7[b]	0.70	0.09
24	-0.14	0.11	24[a]	0.93	0.10
32	0.84	0.20	32	-	-

Note. [a]Original scale was Uncertainty Avoidance; [b]Original scale was Institutional Collectivism.

Table 11. Summary of Hierarchical Regression Analyses Predicting Perceived Cultural Tightness (n = 57)

Variable	*B*	SE B	β
Step 1			
Uncertainty Avoidance	0.68	0.05	0.87*
Step 2			
Uncertainty Avoidance	0.62	0.05	.79*
Institutional Collectivism	0.25	0.07	.24*
Step 3			
Uncertainty Avoidance	0.60	0.05	0.77*
Institutional Collectivism	0.34	0.07	0.32*
Humane Orientation	-0.18	0.05	-.20*

Note. R^2 = .76 for Step 1; R^2 = .81 for Step 2; R^2 = .84 for Step 3. *p <.01.

Table 12. Means, Standard Deviations, and Correlations between Values (Should Be) and Practices (As Is) Measures of Societal Culture Strength (n = 57)

						Pearson *r*	
	Measure	Min	Max	Mean	SD	1	2
1	Values SCS	0.74	1.39	1.10	0.12	(0.93)	
2	Practices SCS	0.73	1.35	1.00	0.13	0.81**	(0.94)

Note. **p<.01. Values in parentheses are Cronbach's alpha estimates of scale reliability.

Table 13. Descriptive Statistics for Measures of Cultural Dimension Values Consensus, as Measured by AD_m (n = 57)

						Pearson *r*								
	Scale	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9
1	Uncertainty Avoidance	0.81	1.48	1.24	0.14	(0.39)								
2	Institutional Collectivism	0.71	1.42	1.01	0.16	0.54	(0.61)							
3	In group Collectivism	0.59	1.44	1.02	0.17	0.38	0.39	(0.67)						
4	Power Distance	0.79	1.55	1.08	0.18	0.44	0.57	0.46	(0.72)					
5	Humane Orientation	0.54	1.47	0.88	0.18	0.50	0.53	0.44	0.65	(0.84)				
6	Performance Orientation	0.51	1.24	0.83	0.17	0.36	0.46	0.62	0.46	0.56	(0.65)			
7	Future Orientation	0.65	1.44	0.96	0.17	0.29	0.56	0.49	0.56	0.38	0.60	(0.63)		
8	Gender Egalitarianism	0.41	1.49	0.91	0.21	0.45	0.55	0.49	0.68	0.56	0.61	0.50	(0.80)	
9	Assertiveness	0.46	1.53	1.00	0.18	0.56	0.73	0.51	0.60	0.61	0.49	0.44	0.51	(0.62)

Note. All Pearson r values significant at $p<.05$. Values in parentheses are Cronbach's alpha estimates of scale reliability.

Table 14. Descriptive Statistics for Measures of Cultural Dimension Practices Consensus, as Measured by AD_m (n = 57)

	Scale	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9
						Pearson *r*								
1	Uncertainty Avoidance	0.77	1.60	1.18	0.17	(0.78)								
2	Institutional Collectivism	0.70	1.54	1.18	0.15	0.66	(0.64)							
3	In group Collectivism	0.64	1.34	0.98	0.13	0.29	0.38	(0.30)						
4	Power Distance	0.72	1.46	1.07	0.17	0.60	0.64	0.46	(0.75)					
5	Humane Orientation	0.68	1.49	1.06	0.17	0.72	0.72	0.33	0.63	(0.86)				
6	Performance Orientation	0.74	1.46	1.09	0.14	0.50	0.48	0.39	0.31	0.54	(0.46)			
7	Future Orientation	0.79	1.66	1.20	0.18	0.60	0.76	0.32	0.60	0.76	0.40	(0.76)		
8	Gender Egalitarianism	0.69	1.39	1.09	0.14	0.64	0.57	0.27	0.68	0.52	0.39	0.62	(0.70)	
9	Assertiveness	0.61	1.34	1.04	0.14	0.62	0.68	0.32	0.52	0.74	0.41	0.67	0.45	(0.77)

Note. All Pearson r values significant at $p<.05$. Values in parentheses are Cronbach's alpha estimates of scale reliability.

Table 15. Descriptive Statistics for Individual Level Cultural Dimensions Norm Strength, as Measured by Z-Score-Based Difference Scores (n = 5870)

						Pearson *r*								
	Scale	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9
1	Uncertainty Avoidance	0.16	3.35	1.21	0.56	(0.58)								
2	Institutional Collectivism	0.13	4.15	1.22	0.63	0.35	(0.47)							
3	In group Collectivism	0.14	4.87	0.82	0.64	0.10	0.07	(0.44)						
4	Power Distance	0.15	5.99	1.15	0.53	0.18	0.18	0.13	(0.57)					
5	Humane Orientation	0.16	4.31	1.16	0.60	0.29	0.23	0.12	0.35	(0.65)				
6	Performance Orientation	0.13	5.92	1.14	0.60	0.25	0.20	0.23	0.37	0.28	(0.43)			
7	Future Orientation	0.15	3.73	1.09	0.53	0.37	0.30	0.14	0.28	0.35	0.28	(0.47)		
8	Gender Egalitarianism	0.11	4.05	1.01	0.47	0.11	0.10	0.12	0.29	0.16	0.16	0.15	(0.46)	
9	Assertiveness	0.08	4.43	1.14	0.56	0.29	0.31	0.15	0.30	0.35	0.25	0.29	0.20	(0.51)

Note. All Pearson *r* values are significant at $p<.01$. Values in parentheses are z-score based reliability estimates.

Table 16. Descriptive Statistics for Societal Level Cultural Dimension Norm Strength, as Measured by Z-Score-Based Difference Scores (n =57)

						Pearson *r*								
	Scale	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9
1	Uncertainty Avoidance	0.72	1.73	1.20	0.23	(0.60)								
2	Institutional Collectivism	0.80	1.83	1.21	0.24	0.51**	(0.48)							
3	In group Collectivism	0.56	1.54	0.83	0.17	0.11	-0.12	(0.55)						
4	Power Distance	0.88	2.58	1.20	0.28	0.36**	0.32*	0.40**	(0.48)					
5	Humane Orientation	0.84	2.24	1.19	0.25	0.48**	0.43**	0.26*	0.75**	(0.71)				
6	Performance Orientation	0.78	3.07	1.15	0.30	0.48**	0.26*	0.58**	0.78**	0.62**	(0.71)			
7	Future Orientation	0.75	1.91	1.09	0.20	0.66**	0.44**	0.41**	0.65**	0.77**	0.65**	(0.68)		
8	Gender Egalitarianism	0.77	1.56	1.06	0.17	0.26	0.22	0.23	0.58**	0.45**	0.33*	0.45**	(0.67)	
9	Assertiveness	0.61	1.79	1.18	0.23	0.49**	0.62**	0.17	0.49**	0.54**	0.47**	0.60**	0.50**	(0.33)

Note. *p <.05. **p<.01. Values in parentheses are z-score based reliability estimates.

Table 17. Summary of Hierarchical Regression Analysis for Variables Predicting Societal Culture Strength-Practices (n=57)

Variable	*B*	SE B	β
Step 1			
Uncertainty Avoidance	-0.06	0.02	-.34*
Institutional Collectivism	-0.04	0.04	-.14
Humane Orientation	0.05	0.03	.21
Step 2			
Uncertainty Avoidance	-0.02	0.03	-.10
Institutional Collectivism	-0.01	0.04	-.03
Humane Orientation	0.03	0.03	.13
Cultural Tightness	-0.10	0.05	-.37

Note. R^2 = .13 for Step 1; . R^2 = .17 for Step 2; Δ R^2 = .05 (Step 2) ($p < .10$). Power (Step 2) = .75. *$p <.05$; **$p<.01$.

Table 18. Summary of Hierarchical Regression Analysis for Variables Predicting Societal Culture Strength-Values (n=57)

Variable	*B*	SE B	β
Step 1			
Uncertainty Avoidance	-0.03	0.03	-0.15
Institutional Collectivism	-0.05	0.04	-0.16
Humane Orientation	0.09	0.04	0.33*
Step 2			
Uncertainty Avoidance	0.01	0.04	.04
Institutional Collectivism	-0.02	0.05	-.07
Humane Orientation	0.07	0.04	.28
Cultural Tightness	-0.08	0.06	-.29

Note. R^2 = ..08 for Step 1; R^2 = .10 for Step 2; Δ R^2 (Step 2) = .03. Power (Step 2) = .46. *p <.05.

Table 19. Summary of Hierarchical Regression Analyses for Predicting Emergence of Cultural Dimension Practices, as Measured by AD_m: Unique Contributions of Perceived Cultural Tightness (n=57)

	Cultural Tightness					
Dependent Variable	β	R^2	ΔR^2	*F* Change	Power (α=.05)	Power (α=.10)
Uncertainty Avoidance	-0.25	0.35	0.03	-2.12	0.995	0.999
Institutional Collectivism	-0.39	0.1	.06	3.60	0.46	0.6
In-Group Collectivism	0.02	-0.02	0.0	0.01	0.11	0.19
Power Distance	-0.49*	0.09	.09	5.72*	0.41	0.55
Humane Orientation	.43*	0.26	.07	5.30*	0.95	0.97
Performance Orientation	-0.15	0.25	.01	0.69	0.93	0.97
Future Orientation	-0.34	0.11	.05	2.85	0.51	0.64
Gender Egalitarianism	-0.31	0.02	.04	2.13	0.11	0.19
Assertiveness	-0.14	0.13	.01	0.51	0.6	0.72

Note. *p <.05; **p<.01.

Table 20. Summary of Hierarchical Regression Analyses for Predicting Emergence of Cultural Dimension Values, as Measured by AD_m: Unique Contributions of Perceived Cultural Tightness (n=57)

	Cultural Tightness					
Dependent Variable	β	R^2	ΔR^2	*F* Change	Power (α=.05)	Power (α=.10)
Uncertainty Avoidance	-.23	.17	.02	1.34	0.75	0.85
Institutional Collectivism	-.38	.13	.05	3.49	0.6	0.72
In-Group Collectivism	.16	0.0	.01	.52		
Power Distance	-.28	.04	.03	1.49	0.19	0.3
Humane Orientation	-.49**	.31	.09	7.29**	0.98	0.99
Performance Orientation	-.24	-.02	.02	1.19	0.11	0.19
Future Orientation	-.38	.05	.06	3.28	0.23	0.35
Gender Egalitarianism	-.19	.11	.01	.87	0.51	0.64
Assertiveness	-.21	.11	.02	1.06	0.51	0.64

Note. Cultural Tightness scale composed of practices (*As Is*) items; *p <.05; **p<.01.

Table 21. Summary of Hierarchical Regression Analyses for Predicting Cultural Dimensions Practices Emergence, as Measured by Z-Score Based Difference Score: Unique Contributions of Perceived Cultural Tightness (n=57)

	Cultural Tightness					
Dependent Variable	β	R^2	ΔR^2	*F* Change	Power (α=.05)	Power (α=.10)
Uncertainty Avoidance	-.66**	.41	.17	15.85**	0.999	0.999
Institutional Collectivism	-.41*	.32	.07	5.38*	0.99	0.99
In-Group Collectivism	.08	-.03	.00	.13	0.14	0.24
Power Distance	-.24	.08	.02	1.34	0.37	0.5
Humane Orientation	-.36	.23	.05	3.55	0.9	0.95
Performance Orientation	-.16	-.01	.01	.57	0.07	0.14
Future Orientation	-.50*	.09	.10	5.89*	0.41	0.55
Gender Egalitarianism	-.43	.14	.07	4.54*	0.64	0.76
Assertiveness	-.27	.08	.03	1.74	0.37	0.5

Note. Cultural Tightness composed of practices (*As Is*) items; *p <.05; **p<.01.

Table 22. Descriptive Statistics for Measures of Demographic Heterogeneity (n=41)

	Heterogeneity Measure	Mean	SD	1	2
1	Demographic heterogeneity	0.34	0.27	--	
2	Ethno-linguistic fractionalization	0.41	0.29	.66*	--
3	Religious fractionalization	0.37	0.25	-0.08	-0.05

Note. *p<.01

Table 23. Summary of Hierarchical Regression Analyses for Variables Predicting Perceived Cultural Tightness (n=41)

Variable	*B*	SE B	β
Step 1			
Demographic heterogeneity	-0.04	0.28	-0.02
Step 2			
Demographic heterogeneity	0.38	0.37	0.22
Ethno-linguistic fractionalization	-0.6	0.34	-0.36
Step 3			
Demographic heterogeneity	0.45	0.31	0.26
Ethno-linguistic fractionalization	-0.61	0.29	.37*
Religious fractionalization	1.02	0.25	.55**

Note. R^2 = -.03 for Step 1; .R^2 = .03 for Step 2; R^2 = .32 for Step 3 ΔR^2 (Step 3) = .30 (p < ..001).

Table 24. Summary of Hierarchical Regression Analyses for Variables Predicting Societal Culture Strength-Practices (n=41)

Variable	*B*	SE B	β
Step 1			
Demographic heterogeneity	0.09	0.08	0.19
Step 2			
Demographic heterogeneity	0.1	0.1	0.21
Ethno-linguistic fractionalization	-0.02	0.1	-0.04
Step 3			
Demographic heterogeneity	0.09	0.1	0.18
Ethno-linguistic fractionalization	-0.02	0.09	-0.04
Religious fractionalization	-0.16	0.08	-0.32

Note. R^2 = .01 for Step 1; .R^2 = -.02 for Step 2; R^2 = .07 for Step 3

Table 25. Summary of Hierarchical Regression Analyses for Variables Predicting Societal Culture Strength-Values (n=41)

Variable	*B*	SE B	β
Step 1			
Demographic heterogeneity	0.08	0.07	0.17
Step 2			
Demographic heterogeneity	0.11	0.1	0.23
Ethno-linguistic fractionalization	-0.04	0.09	-0.09
Step 3			
Demographic heterogeneity	0.1	0.1	0.22
Ethno-linguistic fractionalization	-0.04	0.1	-0.09
Religious fractionalization	-0.05	0.08	-0.1

Note. R^2 = .00 for Step 1; .R^2 = -.02 for Step 2; R^2 = -.04 for Step 3

Table 26. Final Means (SD) and Homogeneity Coefficients for Practices Cluster Profiles

Cluster	n	HC	UA	IC	IGC	PD	HO	PO	FO	GE	AS
1	3	0.50	1.03	1.1	0.98	1.02	1.1	1.01	1.21	0.97	1.05
			(0.02)	(0.05)	(0.03)	(0.07)	(0.03)	(0.09)	(0.09)	(0.04)	(0.03)
2	8	0.97	1.22	1.18	1.08	1.14	1.06	1.16	1.16	1.09	1.02
			(0.07)	(0.07)	(0.09)	(0.08)	(0.08)	(0.08)	(0.10)	(0.06)	(0.05)
3	7	0.90	1.32	1.33	0.94	1.09	1.19	1.17	1.32	1.15	1.17
			(0.06)	(0.11)	(0.06)	(0.08)	(0.10)	(0.07)	(0.09)	(0.07)	(0.05)
4	6	0.97	1.14	1.03	0.91	0.86	0.93	1.11	1.08	1.04	1.04
			(0.09)	(0.05)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.09)	(0.07)
5	9	0.94	1.23	1.20	0.96	1.12	1.04	1.01	1.26	1.17	0.95
			(0.08)	(0.07)	(0.07)	(0.09)	(0.08)	(0.07)	(0.09)	(0.08)	(0.08)
6	11	0.91	0.98	1.08	0.96	0.97	0.89	1.03	1.01	0.99	0.92
			(0.11)	(0.05)	(0.09)	(0.08)	(0.10)	(0.06)	(0.07)	(0.05)	(0.07)

Note. Standard deviations are presented in parentheses below each mean. HC = homogeneity coefficient, where lower values indicate greater similarity among members. UA=Uncertainty avoidance; IC=Institutional collectivism; IGC=In-group collectivism; PD=Power distance; HO=Humane orientation; PO=Performance orientation; FO=Future orientation; GE=Gender egalitarianism; AS=Assertiveness.

Table 27. Cluster Memberships for Societies in Six Practices Consensus Clusters

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
South Korea	Costa Rica	India	Italy	Hong Kong	England
Japan	Hungary	Taiwan	Zimbabwe	Ecuador	Singapore
Finland	Poland	Russia	Spain	Israel	Austria
	Guatemala	Portugal	Ireland	Indonesia	Switzerland
	Bolivia	Morocco	Argentina	Kazakhstan	Netherlands
	France	Columbia		China	Australia
	Greece	Turkey		Kuwait	Sweden
	South Africa (W)	Brazil		Slovenia	Canada
				Malaysia	Germany (Former East)
					Germany (Former West)
					United States

Note. Societies excluded as outliers from cluster analysis: Namibia, Czech Republic, Venezuela, Mexico, El Salvador, Zambia, Egypt, South Africa (Black sample), Philippines, Nigeria, New Zealand, Georgia, and Thailand.

Table 28. Final Means (SD) and Homogeneity Coefficients for Values Cluster Profiles

Cluster	n	HC	UA	IC	IGC	PD	HO	PO	FO	GE	AS
1	11	1.03	1.28	1.03	0.91	1.01	0.85	0.69	0.85	0.81	1.00
			(0.09)	(0.11)	(0.08)	(0.08)	(0.08)	(0.10)	(0.13)	(0.09)	(0.11)
2	12	1.03	1.27	1.01	1.03	1.08	0.93	0.88	1.06	0.96	1.00
			(0.06)	(0.09)	(0.09)	(0.10)	(0.07)	(0.13)	(0.12)	(0.13)	(0.09)
3	6	1.30	1.35	1.14	1.12	1.26	1.02	1.02	1.09	1.17	1.15
			(0.12)	(0.10)	(0.11)	(0.06)	(0.12)	(0.09)	(0.18)	(0.14)	(0.03)
4	17	0.90	1.14	0.86	1	0.93	0.71	0.76	0.88	0.75	0.87
			(0.10)	(0.07)	(0.10)	(0.08)	(0.06)	(0.09)	(0.10)	(0.13)	(0.07)

Note. Standard deviations are presented in parentheses below each mean. HC = homogeneity coefficient, where lower values indicate greater similarity among members. UA=Uncertainty avoidance; IC=Institutional collectivism; IGC=In-group collectivism; PD=Power distance; HO=Humane orientation; PO=Performance orientation; FO=Future orientation; GE=Gender egalitarianism; AS=Assertiveness

Table 29. Cluster Memberships for Societies in Four Values Consensus Clusters

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Italy	Costa Rica	India	England
Namibia	Venezuela	Taiwan	Singapore
Israel	Ecuador	Morocco	Hong Kong
Zimbabwe	Hungary	Turkey	South Korea
Columbia	Russia	Kuwait	Portugal
Ireland	Indonesia	Georgia	Japan
Bolivia	Kazakhstan		Finland
South Africa (B)	Poland		Spain
Brazil	Greece		Austria
Philippines	Slovenia		Switzerland
Argentina	Malaysia		Netherlands
			Australia
			Sweden
			Canada
			Germany (Former East)
			Germany (Former West)
			United States

Note. Societies excluded as outliers from cluster analysis: Czech Republic, Mexico, El Salvador, Zambia, China, Egypt, South Africa (White sample), Guatemala, Nigeria, New Zealand, and Thailand.

Table 30. Final Means (SD) and Homogeneity Coefficients for Norm Strength Cluster Profiles

Cluster	n	HC	UA	IC	IGC	PD	HO	PO	FO	GE	AS
1	4	0.64	1.11 (0.09)	1.08 (0.16)	0.72 (0.04)	1.39 (0.17)	1.2 (0.10)	1.13 (0.06)	1.02 (0.07)	1.14 (0.13)	1.14 (0.04)
2	9	0.69	1.29 (0.10)	1.32 (0.14)	0.79 (0.08)	1.14 (0.10)	1.15 (0.14)	1.11 (0.08)	1.1 (0.09)	0.96 (0.09)	1.15 (0.15)
3	4	0.92	1.24 (0.09)	1.31 (0.10)	1.05 (0.14)	1.30 (0.12)	1.25 (0.01)	1.19 (0.13)	1.19 (0.14)	1.23 (0.07)	1.30 (0.19)
4	5	0.72	1.05 (0.10)	1.16 (0.12)	0.99 (0.08)	1.04 (0.07)	1.15 (0.14)	1.08 (0.11)	1.05 (0.06)	1.01 (0.10)	1.18 (0.17)
5	7	0.81	1.00 (0.12)	1.12 (0.15)	0.65 (0.07)	1.02 (0.12)	1.07 (0.12)	0.96 (0.10)	0.90 (0.10)	1.01 (0.14)	1.04 (0.09)
6	5	0.47	1.37 (0.15)	0.94 (0.09)	0.86 (0.06)	0.93 (0.05)	0.93 (0.05)	1.04 (0.07)	1.07 (0.12)	0.92 (0.05)	1.09 (0.11)
7	8	0.97	1.48 (0.12)	1.58 (0.16)	0.71 (0.13)	1.38 (0.11)	1.38 (0.15)	1.31 (0.09)	1.23 (0.11)	1.18 (0.12)	1.43 (0.10)
8	7	0.53	0.90 (0.11)	0.92 (0.05)	0.84 (0.08)	1.01 (0.10)	0.95 (0.10)	0.97 (0.11)	0.83 (0.05)	0.92 (0.09)	0.82 (0.10)

Note. Standard deviations are presented in parentheses below each mean. HC = homogeneity coefficient, where lower values indicate greater similarity among members. UA=Uncertainty avoidance; IC=Institutional collectivism; IGC=In-group collectivism; PD=Power distance; HO=Humane orientation; PO=Performance orientation; FO=Future orientation; GE=Gender egalitarianism; AS=Assertiveness.

Table 31. Cluster Memberships for Societies in Eight Norm Strength Clusters

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8
Taiwan	Italy	India	Costa Rica	Israel	Austria	Venezuela	England
Mexico	Ecuador	France	Namibia	Portugal	Switzerland	El Salvador	Singapore
Indonesia	Hungary	Kuwait	Japan	Finland	Netherlands	Morocco	Hong Kong
Bolivia	Kazakhstan	Nigeria	South Africa (B)	Spain	Germany (Former East)	Colombia	Australia
	Zimbabwe		Slovenia	Ireland	Germany (Former West)	Turkey	Canada
	Poland			Philippines		Guatemala	New Zealand
	Sweden			Malaysia		Greece	United States
	Brazil					Georgia	
	Argentina						

Note. Societies excluded as outliers from cluster analysis: Czech Republic, Russia, Zambia, South Korea, China, Egypt, South Africa (White sample), and Thailand.

Table 32. Analysis of Variance of Perceived Cultural Tightness by Assigned Practices Consensus Clusters

	Sums of squares	df	Mean squares	F
Practices consensus	5.05	5	1.01	8.34*
Within-group error	4.60	38	0.12	
Total	9.65	43		

*p < .001

Table 33. Analysis of Variance of Perceived Cultural Tightness by Assigned Values Consensus Clusters

	Sums of squares	df	Mean squares	F
Values consensus	5.19	3	1.73	14.63*
Within-group error	4.97	42	0.12	
Total	10.16	45		

*p < .001

Table 34. Analysis of Variance of Perceived Cultural Tightness by Assigned Norm Strength Clusters

	Sums of squares	df	Mean squares	F
Norm strength	6.50	7	0.93	8.14*
Within-group error	4.68	41	0.11	
Total	11.18	48		

*p < .001

Organizational Cultural *Practices* (As Is)						
The pay and bonus system in this organization *is* designed to maximize*:*						
Individual Interests						Collective Interests
1	2	3	4	5	6	7
Organizational Cultural *Values* (Should Be)						
In this organization, the pay and bonus system *should be* designed to maximize:						
Individual Interests						Collective Interests
1	2	3	4	5	6	7
Societal Cultural *Practices* (As Is)						
The economic system in this society *is* designed to maximize:						
Individual Interests						Collective Interests
1	2	3	4	5	6	7
Societal Cultural *Value* (As Is)						
I believe that the economic system in this society *should be* designed to maximize:						
Individual Interests						Collective Interests
1	2	3	4	5	6	7

Figure 1. Sample of parallel item quartets

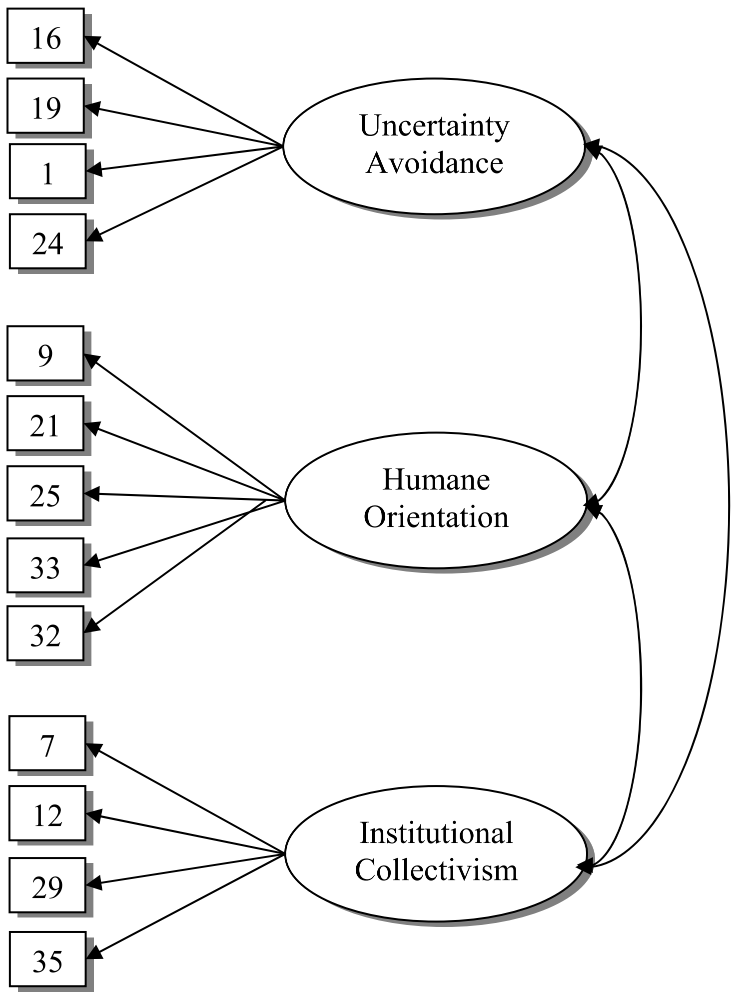

Figure 2. Three-factor (null) model of practices.

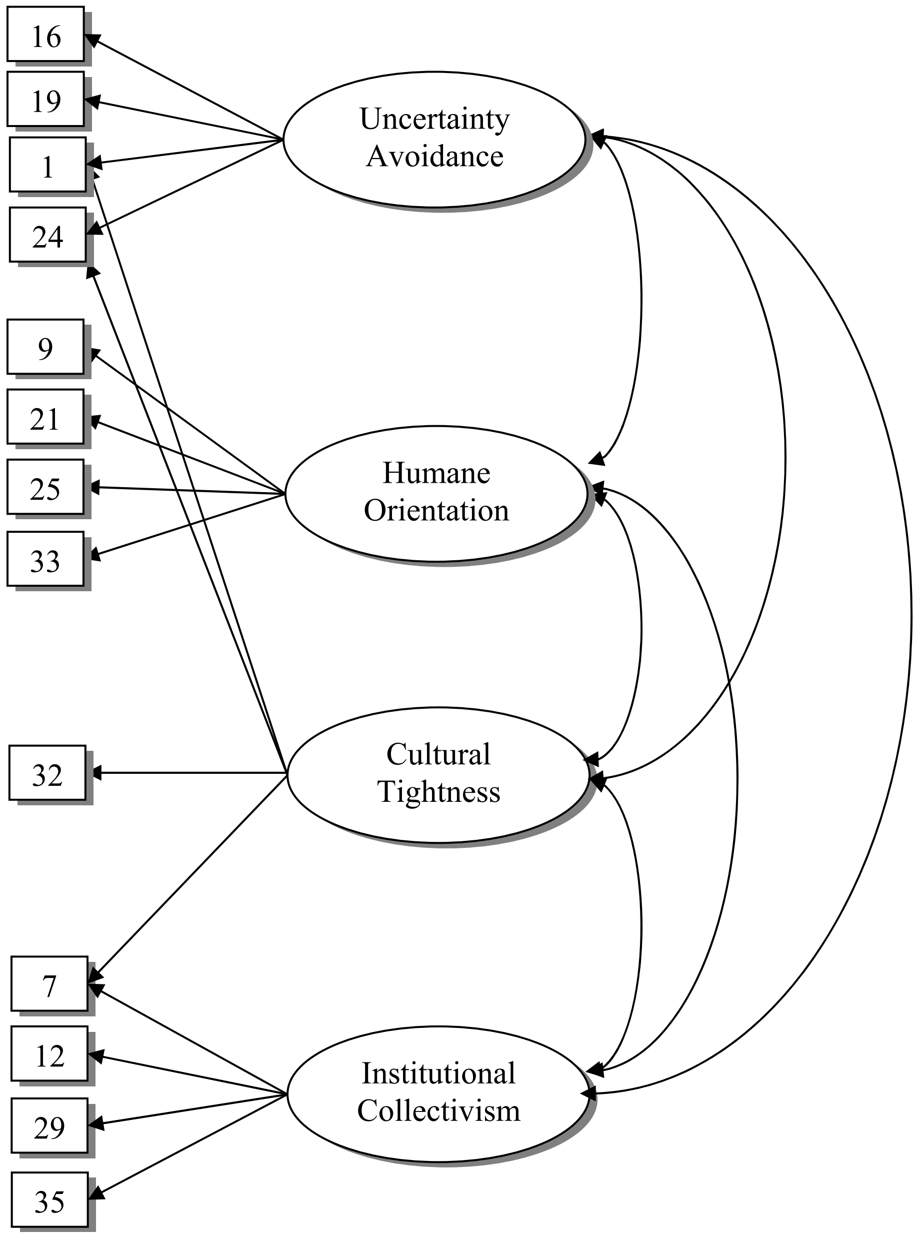

Figure 3. Hypothesized four-factor model of practices.

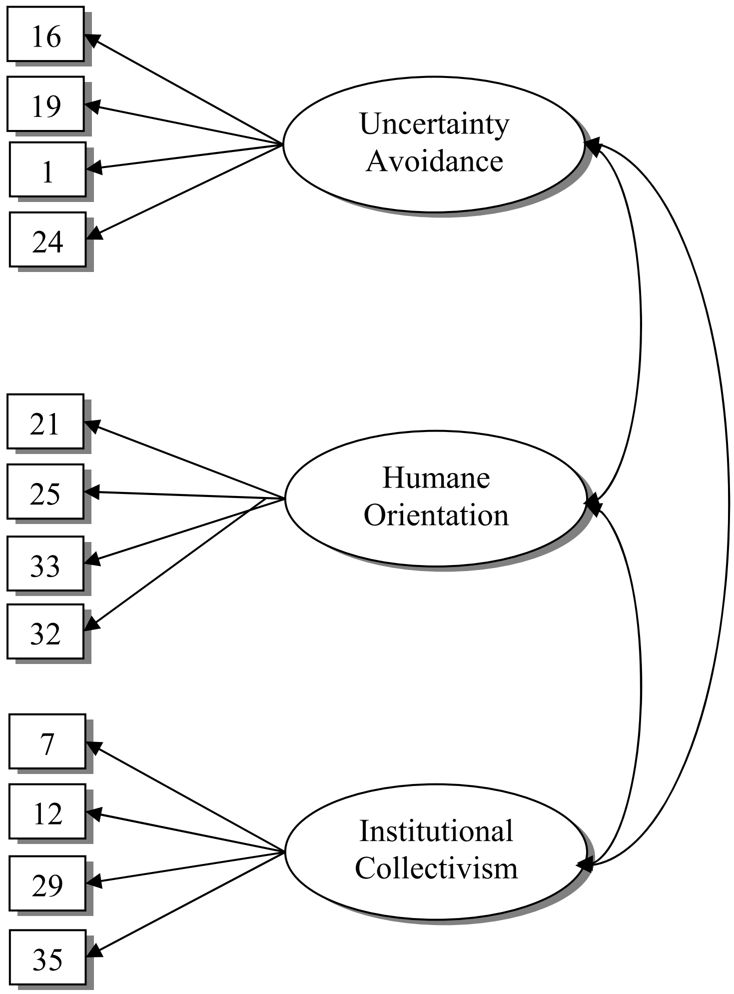

Figure 4. Revised three-factor (null) model of practices.

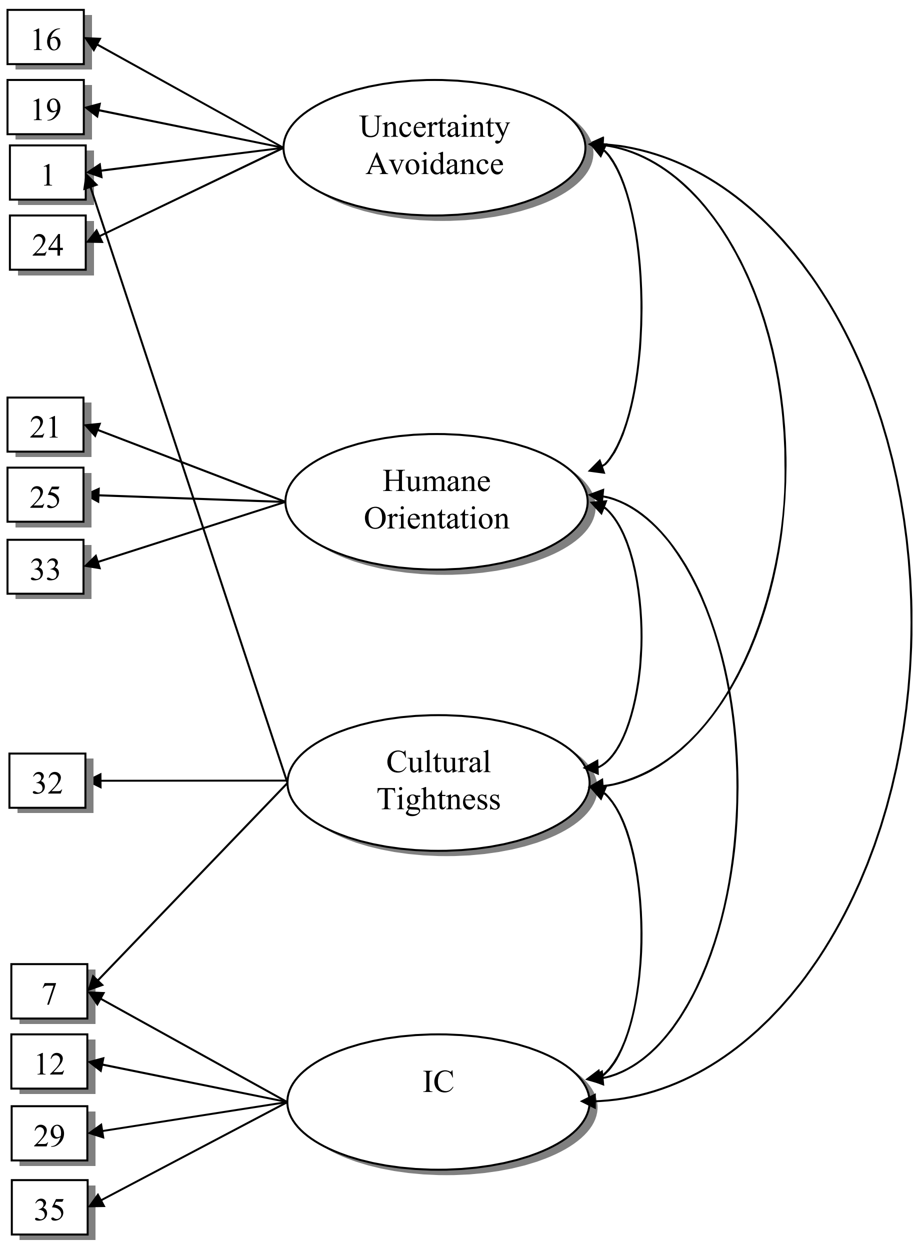

Figure 5. Revised four-factor model of practices.

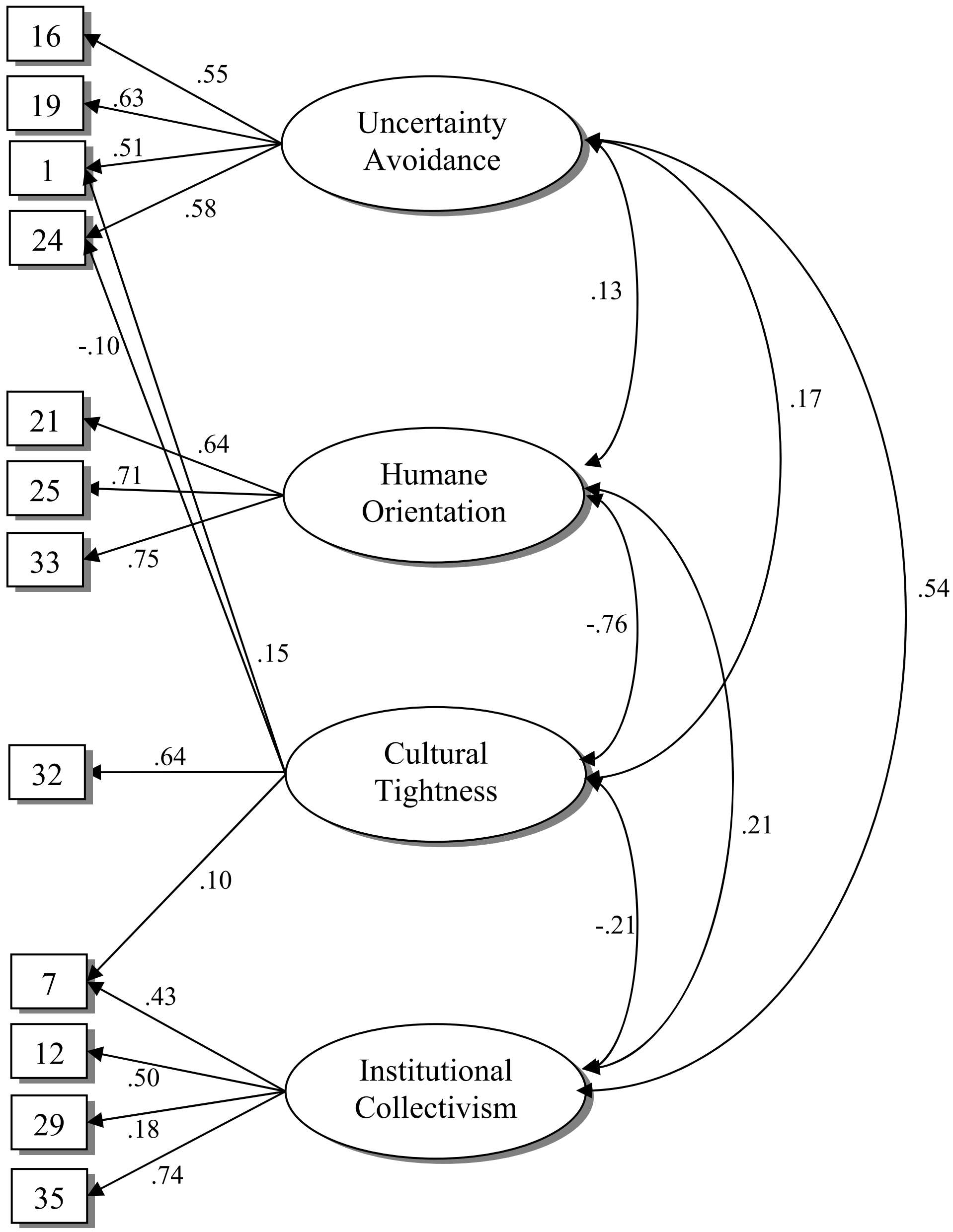

Figure 6. Revised four-factor model of practices with standardized parameter estimates.

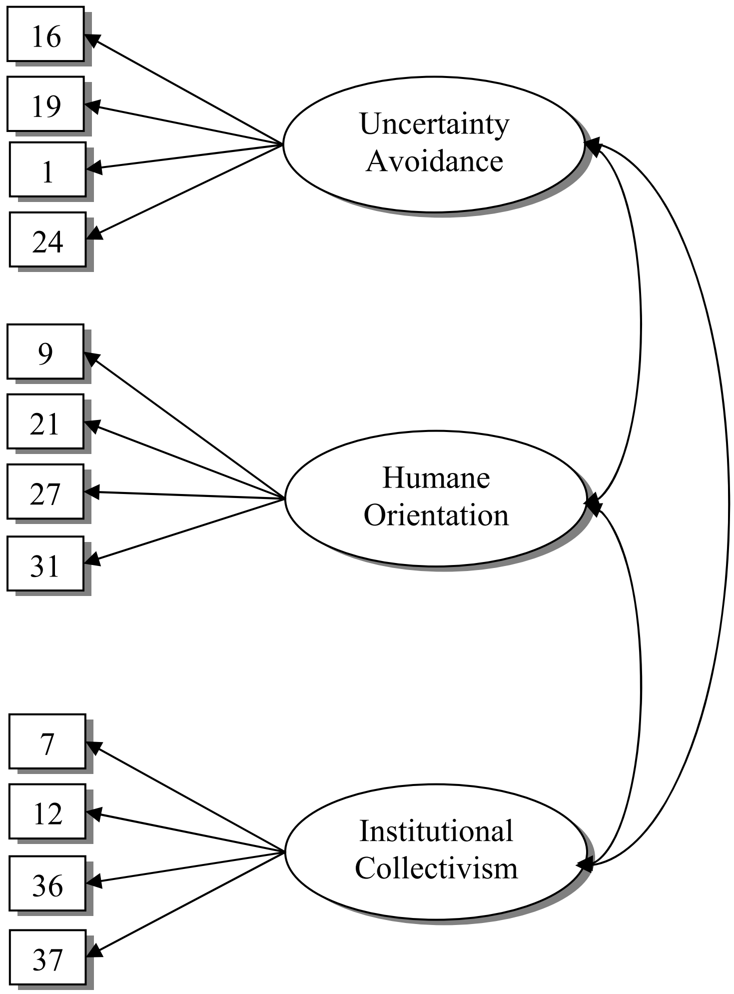

Figure 7. Three-factor (null) model of values.

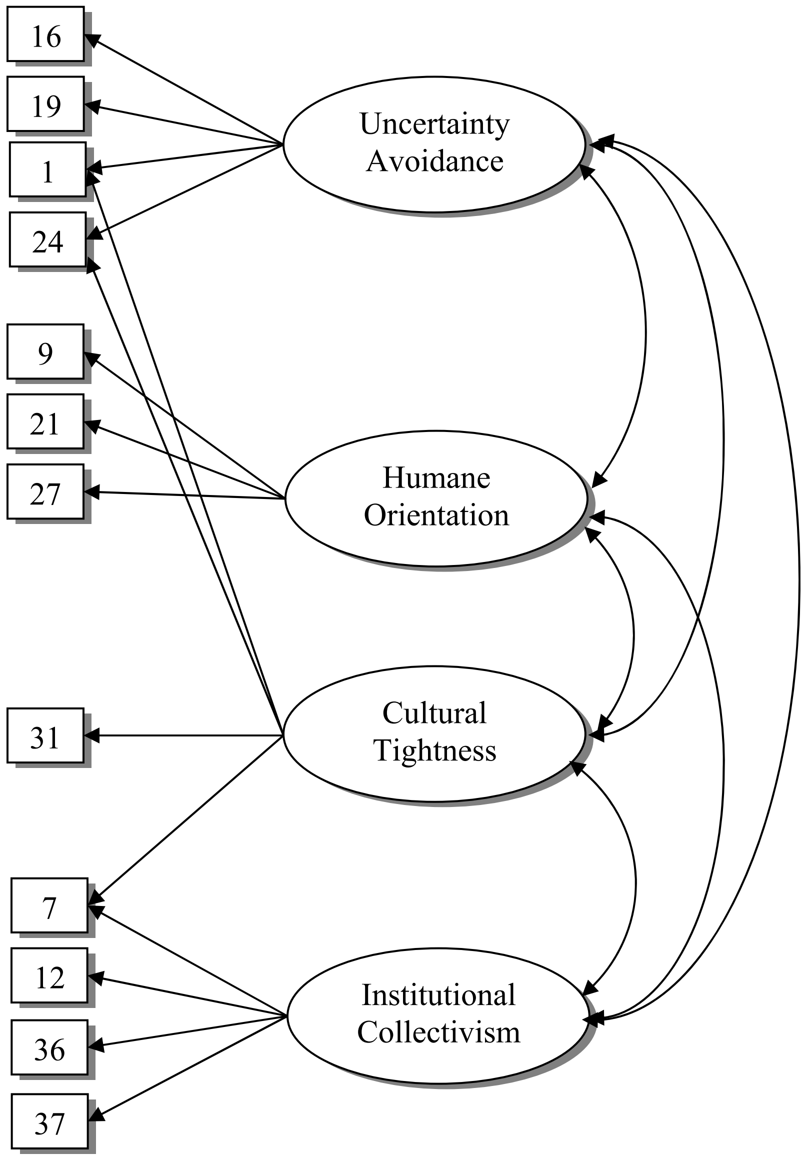

Figure 8. Hypothesized four-factor model of values.

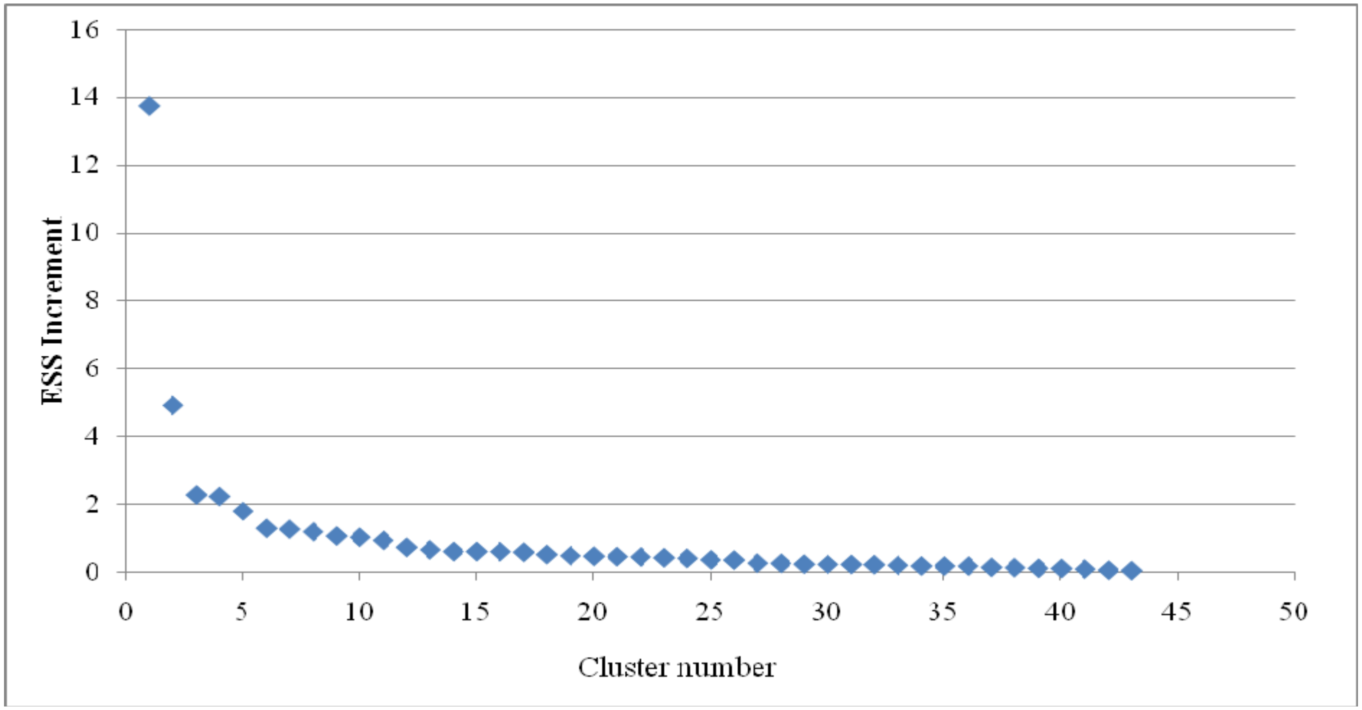

Figure 9. Error sum of squares for nine practices emergence scores. Initial cluster analysis suggests a six-cluster solution.

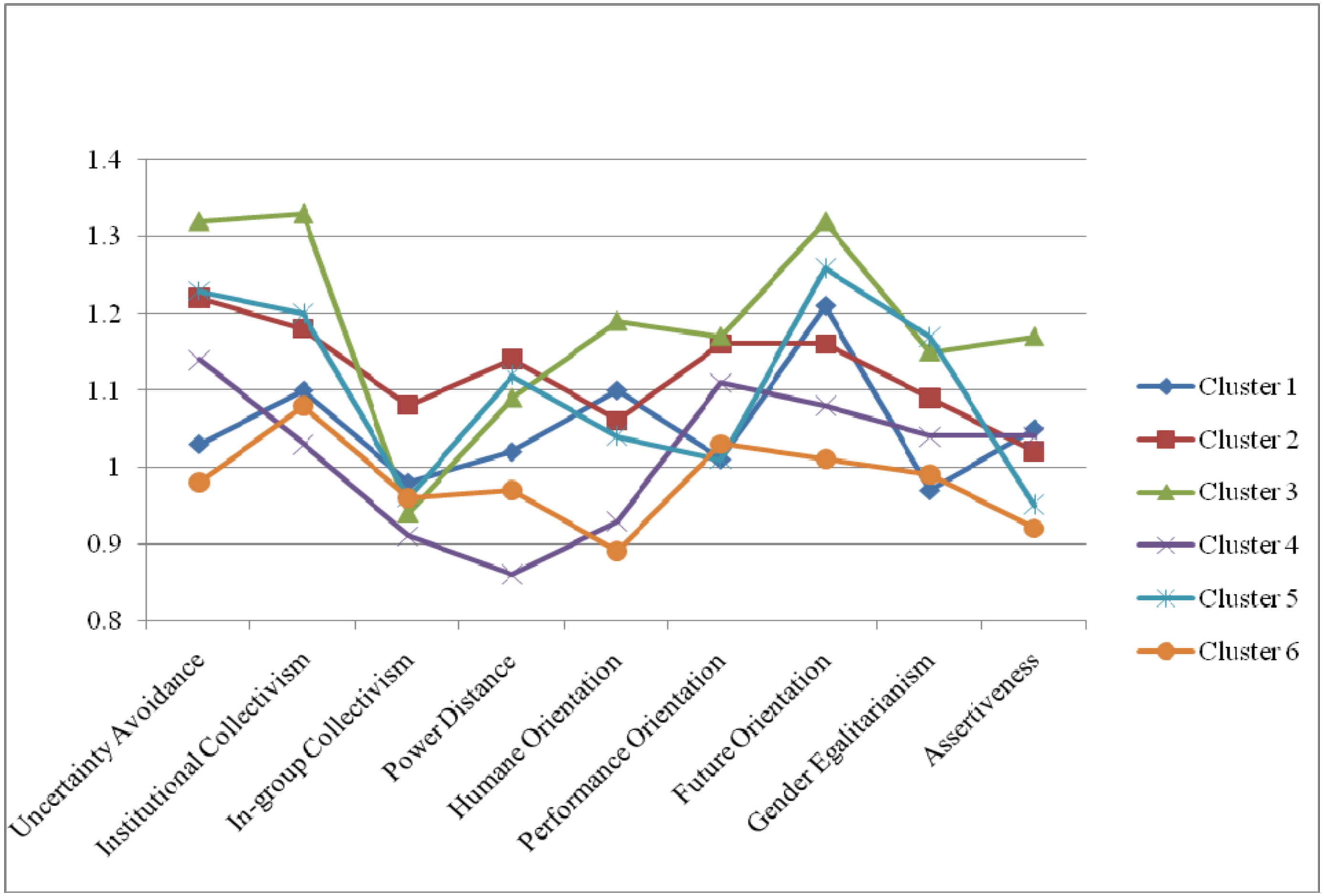

Figure 10. Practices emergence scores, by cluster profile.

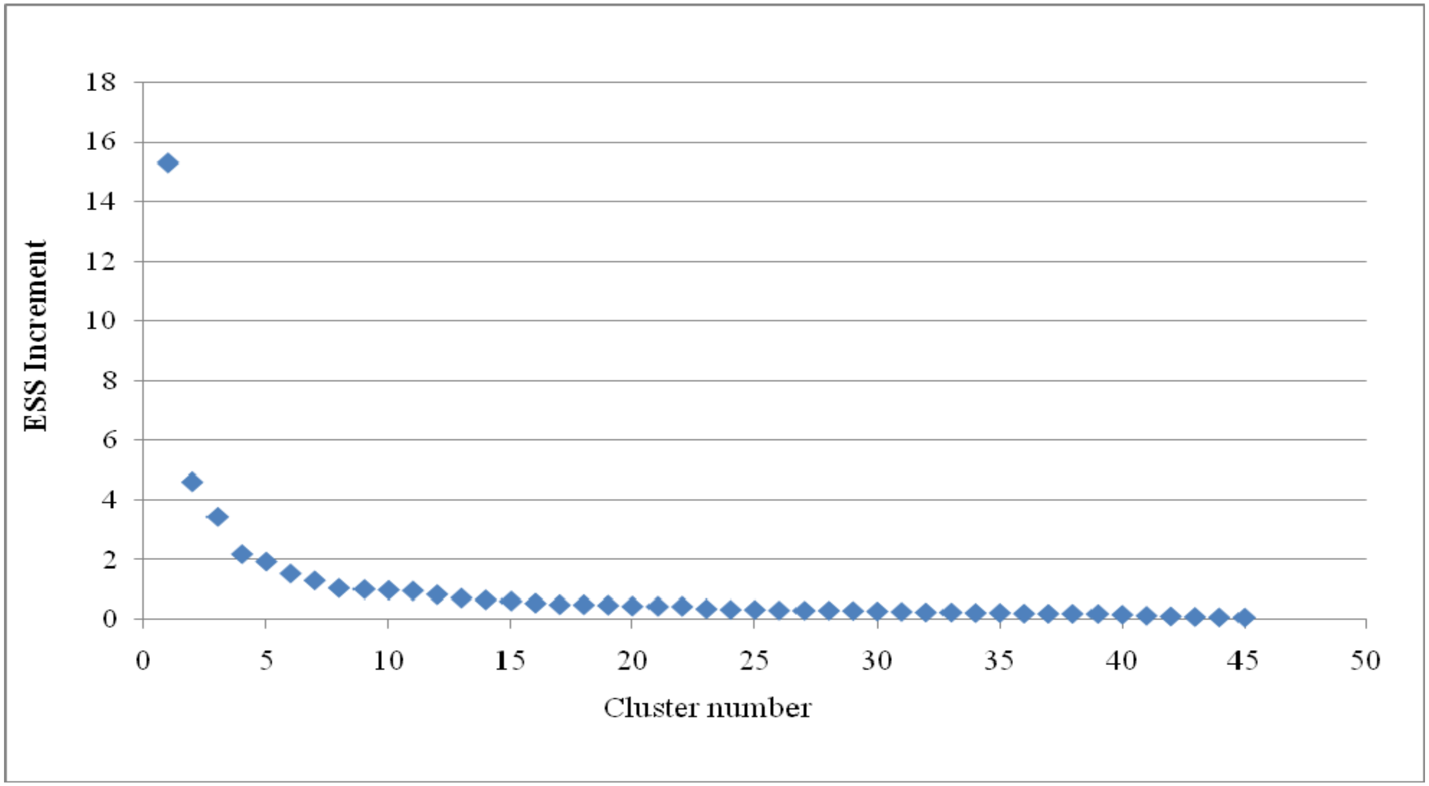

Figure 11. Error sum of squares for nine values emergence scores. Initial cluster analysis suggests four-cluster solution.

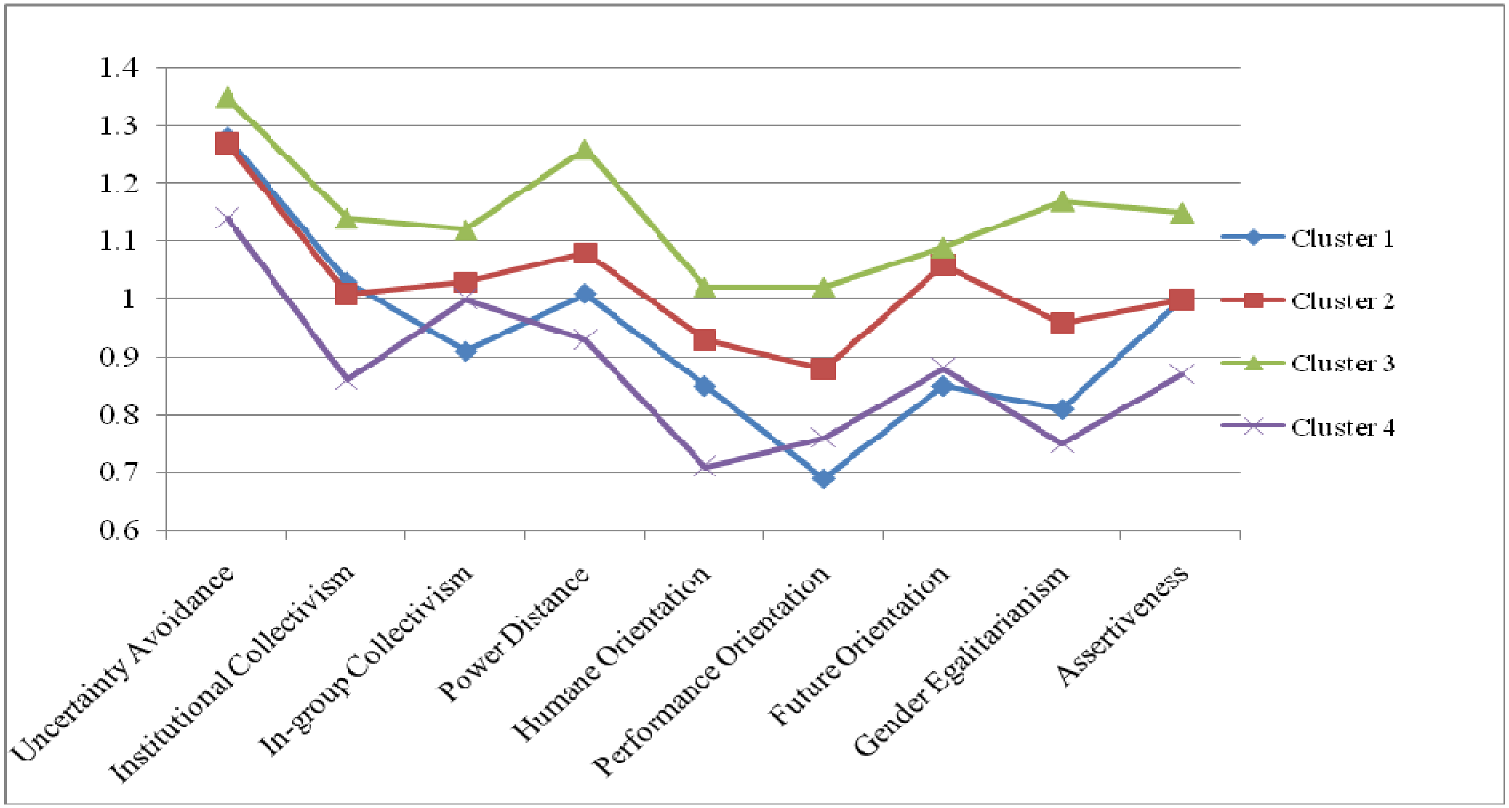

Figure 12. Values emergence scores, by cluster profile.

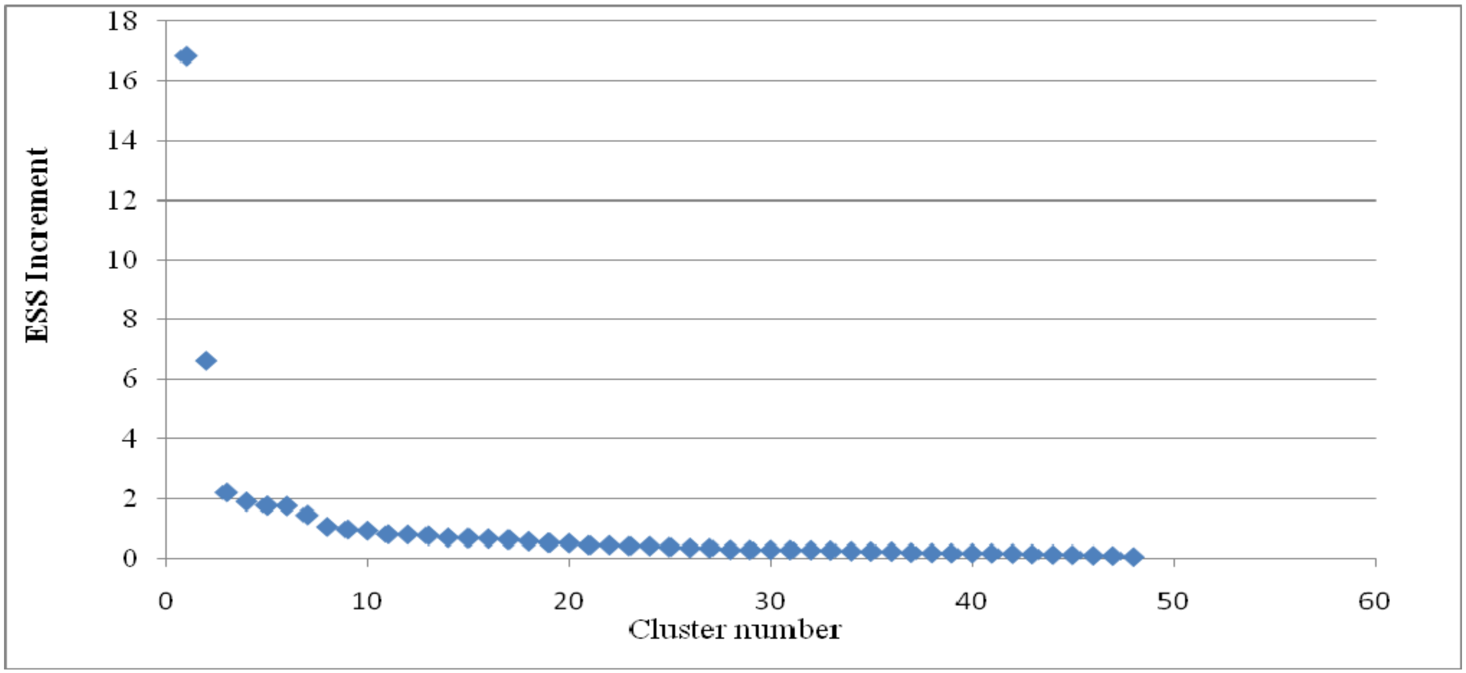

Figure 13. Error sums of squares for nine norm strength scores. Initial cluster analysis suggests eight-cluster solution.

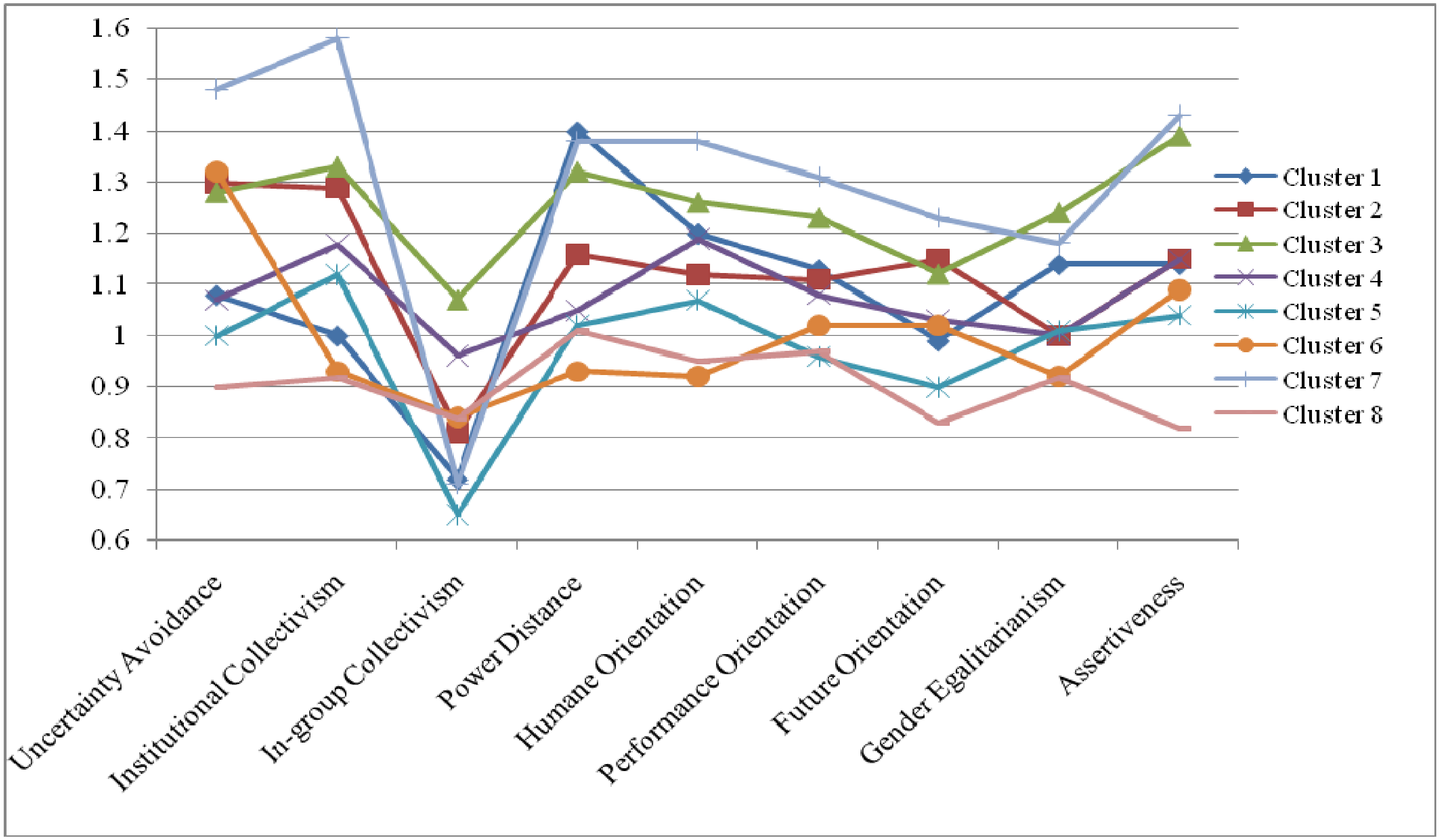

Figure 14. Norm strength scores, by cluster profile.

APPENDICES

Appendix A

Individual Level Descriptive Statistics for Practices Items

Item	Mean	SD
(R) In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	4.13	1.57
In this society, people are generally: **aggressive / non-aggressive**	3.98	1.53
(R)The way to be successful in this society is to: **plan ahead / take life events as they occur**	4.92	1.71
(R)In this society, the accepted norm is to: **plan for the future / accept the status quo**	4.05	1.71
In this society, a person's influence is based primarily on: **one's ability and contribution to the society / the authority of one's position**	4.92	1.62
(R)In this society, people are generally: **assertive / non-assertive**	3.93	1.40
(R)In this society, leaders encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	4.21	1.62
(R)In this society, social gatherings are: **planned well in advance (2 or more weeks in advance) / spontaneous (planned less than an hour in advance)**	4.65	1.59
(R)In this society, people are generally: **very concerned about others / not at all concerned about others**	3.73	1.52
(R)In this society, people are generally: **dominant / non-dominant**	4.12	1.35
(R)In this society, children take pride in the individual accomplishments of their parents. **SA / Neither / SD**	5.08	1.41
The economic system in this society is designed to maximize: **individual interests / collective interests**	3.59	1.81
(R)In this society, followers are expected to: **obey their leaders without question / question their leaders when in disagreement**	4.23	1.66
(R)In this society, people are generally: **tough / tender**	4.11	1.31
(R)In this society, teen-aged students are encouraged to strive for continuously improved performance. **SA / Neither / SD**	4.52	1.65
(R)In this society, most people lead highly structured lives with few unexpected events. **SA / Neither / SD**	4.23	1.65
In this society, boys are encouraged more than girls to attain a higher education. **SA / Neither / SD**	4.20	1.84
(R)In this society, major rewards are based on: **only performance effectiveness performance effectiveness and other factors (for example, seniority or political connections) / only factors other than performance effectiveness (for example, seniority or political connections)**	3.85	1.33
(R)In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do. **SA / Neither / SD**	3.86	1.66

(R)In this society, being innovative to improve performance is generally: **substantially rewarded / somewhat rewarded / not rewarded**	3.83	1.39
(R)In this society, people are generally: **very sensitive toward others / not at all sensitive toward others**	3.94	1.44
In this society, there is more emphasis on athletic programs for: **boys / girls**	2.97	1.09
(R)In this society, parents take pride in the individual accomplishments of their children. **SA / Neither / SD**	6.09	1.12
(R)This society has rules or laws to cover: **almost all situations / some situations / very few situations**	5.03	1.50
(R)In this society, people are generally: **very friendly / very unfriendly**	4.68	1.32
(R)In this society, people in positions of power try to: **increase their social distance from less powerful individuals / decrease their social distance from less powerful people**	4.99	1.45
(R)In this society, rank and position in the hierarchy have special privileges. **SA / Neither / SD**	5.82	1.26
(R)In this society, aging parents generally live at home with their children. **SA / Neither / SD**	3.54	1.99
(R)In this society, being accepted by the other members of a group is very important. **SA / Neither / SD**	5.55	1.21
In this society, more people: **live for the present than live for the future / live for the future than live for the present**	3.08	1.55
In this society, people place more emphasis on: **solving current problems / planning for the future**	2.87	1.37
(R)In this society, people are generally: **very tolerant of mistakes / not at all tolerant of mistakes**	3.94	1.46
(R)In this society, people are generally: **very generous / not at all generous**	3.94	1.32
(R)In this society, power is: **concentrated at the top / shared throughout the society**	5.63	1.35
(R)In this society: **group cohesion is valued more than individualism / group cohesion and individualism are equally valued / individualism is valued more than group cohesion**	4.12	1.60
In this society, it is worse for a boy to fail in school than for a girl to fail in school. **SA / Neither / SD**	3.95	1.72
In this society, people are generally: **physical / non-physical**	3.91	1.50
In this society, who is more likely to serve in a position of high office? **Men / Men and women are equally likely to serve / Women**	2.05	1.03
(R)In this society, children generally live at home with their parents until they get married. **SA / Neither / SD**	4.73	2.02

Note. N=5870. (R) indicates items that were reverse-scored.

Appendix B

Individual Level Descriptive Statistics for Values Items

Item Text	Mean	SD
(R)I believe that orderliness and consistency should be stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	4.24	1.80
(R)In this society, people should be encouraged to be: **aggressive / non-aggressive**	3.43	1.77
(R)I believe that people who are successful should: **plan ahead / take life events as they occur**	5.85	1.38
(R)I believe that the accepted norm in this society should be to: **plan for the future / accept the status quo**	5.87	1.25
I believe that a person's influence in this society should be based primarily on: **one's ability and contribution to the society / the authority of one's position**	1.93	1.12
In this society, people should be encouraged to be: **assertive / non-assertive**	5.63	1.27
(R)I believe that in general, leaders should encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	4.83	1.64
(R)I believe that social gatherings should be: **planned well in advance (2 or more weeks in advance) / spontaneous (planned less than an hour in advance)**	4.95	1.58
(R)In this society, people should be encouraged to be: **very concerned about others / not at all concerned about others**	5.74	1.12
(R)In this society, people should be encouraged to be: **dominant / non-dominant**	4.03	1.42
(R)In this society, children should take pride in the individual accomplishments of their parents. **SA / Neither / SD**	5.66	1.38
I believe that the economic system in this society should be designed to maximize: **individual interests / collective interests**	4.68	1.70
(R)I believe that followers should: **obey their leader without question / question their leader when in disagreement**	2.34	1.40
(R)In this society, people should be encouraged to be: **tough / tender**	3.80	1.45
(R)I believe that teen-aged students should be encouraged to strive for continuously improved performance. **SA / Neither / SD**	6.04	1.30
(R)I believe that a person who leads a structured life that has few unexpected events: **has a lot to be thankful for / is missing a lot of excitement**	3.54	1.78
I believe that boys should be encouraged to attain a higher education more than girls. **SA / Neither / SD**	5.55	1.69
(R)I believe that major rewards should be based on: **only performance effectiveness / performance effectiveness and other factors (for example, seniority or political connections) / only factors other than performance effectiveness (for example, seniority or political connections)**	5.54	1.35

(R)I believe that societal requirements and instructions should be spelled out in detail so citizens know what they are expected to do. **SA / Neither / SD**	5.22	1.67
(R)I believe that being innovative to improve performance should be: **substantially rewarded / somewhat rewarded / not rewarded**	6.02	1.15
(R)In this society, people should be encouraged to be: **very sensitive toward others / not at all sensitive toward others**	5.51	1.14
I believe that there should be more emphasis on athletic programs for: **boys / girls**	3.86	0.84
(R)In this society, parents should take pride in the individual accomplishments of their children. **SA / Neither / SD**	6.14	1.23
(R)I believe that society should have rules or laws to cover: **almost all situations / some situations / very few situations**	5.42	1.43
(R)I believe that leaders in this society should: **provide detailed plans concerning how to achieve goals / allow the people freedom in determining how best to achieve goals**	3.68	1.89
(R)I believe that this society would be more effectively managed if there were: **many more women in positions of authority than there are now / about the same number of women in positions of authority as there are now / many less women in positions of authority than there are now**	4.69	1.35
(R)In this society, people should be encouraged to be: **very friendly / very unfriendly**	5.83	1.05
(R)I believe that people in positions of power should try to: **increase their social distance from less powerful individuals / decrease their social distance from less powerful people**	2.60	1.50
How important should it be to members of your society that your society is viewed positively by persons in other societies? **It should not be important at all / It should be moderately important / It should be very important**	5.41	1.49
I believe that people should: **live for the present / live for the future**	4.68	1.53
(R)In this society, people should be encouraged to be: **very tolerant of mistakes / not at all tolerant of mistakes**	4.68	1.46
(R)I believe that people should set challenging goals for themselves. **SA / Neither / SD**	5.80	1.27
(R)When in disagreement with adults, young people should defer to elders. **SA / Neither / SD**	3.73	1.53
Members of this society should: **take no pride in being a member of the society / take a moderate amount of pride in being a member of the society / take a great deal of pride in being a member of the society**	5.51	1.54
(R)I believe that power should be: **concentrated at the top / shared throughout the organization**	2.93	1.55
In this society, most people prefer to play: **only individual sports / some individual and some team sports / only team sports**	4.23	0.99
(R)I believe that: **group cohesion is better than individualism / group cohesion and individualism are equally valuable / individualism is better than group cohesion**	4.60	1.41
I believe that it should be worse for a boy to fail in school than for a girl to fail in school. **SA / Neither / SD**	5.29	1.71
I believe that opportunities for leadership positions should be: **more available for men than for women / equally available for men and women / more available for women than for men**	3.77	0.75

Note. N=5870. (R) indicates items that were reverse scored.

Appendix C

Societal Level Descriptive Statistics for Practices Items

Item	Min	Max	Mean	SD
(R) In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	2.65	5.32	4.08	0.60
In this society, people are generally: **aggressive / non-aggressive**	2.22	5.73	4.15	0.70
(R)The way to be successful in this society is to: **plan ahead / take life events as they occur**	3.28	6.14	4.86	0.73
(R)In this society, the accepted norm is to: **plan for the future / accept the status quo**	2.05	5.66	4.02	0.67
In this society, a person's influence is based primarily on: **one's ability and contribution to the society / the authority of one's position**	3.04	6.22	4.90	0.52
(R)In this society, people are generally: **assertive / non-assertive**	2.70	5.34	3.96	0.55
(R)In this society, leaders encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	2.29	5.17	4.08	0.59
(R)In this society, social gatherings are: **planned well in advance (2 or more weeks in advance) / spontaneous (planned less than an hour in advance)**	3.02	5.89	4.49	0.68
(R)In this society, people are generally: **very concerned about others / not at all concerned about others**	2.30	5.08	3.69	0.63
(R)In this society, people are generally: **dominant / non-dominant**	3.21	5.24	4.25	0.42
(R)In this society, children take pride in the individual accomplishments of their parents. **SA / Neither / SD**	3.28	6.24	5.17	0.62
The economic system in this society is designed to maximize: **individual interests / collective interests**	1.96	5.34	3.30	0.78
(R)In this society, followers are expected to: **obey their leaders without question / question their leaders when in disagreement**	2.98	6.10	4.39	0.63
(R)In this society, people are generally: **tough / tender**	2.56	5.30	4.19	0.56
(R)In this society, teen-aged students are encouraged to strive for continuously improved performance. **SA / Neither / SD**	3.30	6.39	4.60	0.63
(R)In this society, most people lead highly structured lives with few unexpected events. **SA / Neither / SD**	2.56	5.53	4.00	0.75
In this society, boys are encouraged more than girls to attain a higher education. **SA / Neither / SD**	2.44	5.27	4.06	0.68
(R)In this society, major rewards are based on: **only performance effectiveness performance effectiveness and other factors (for example, seniority or political connections) / only factors other than performance effectiveness (for example, seniority or political connections)**	2.83	4.65	3.78	0.38

(R)In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do. **SA / Neither / SD**	2.55	5.17	3.67	0.69
(R)In this society, being innovative to improve performance is generally: **substantially rewarded / somewhat rewarded / not rewarded**	2.76	4.93	3.87	0.51
(R)In this society, people are generally: **very sensitive toward others / not at all sensitive toward others**	2.91	5.23	3.95	0.57
In this society, there is more emphasis on athletic programs for: **boys / girls**	1.72	3.86	2.97	0.45
(R)In this society, parents take pride in the individual accomplishments of their children. **SA / Neither / SD**	2.81	6.65	6.09	0.50
(R)This society has rules or laws to cover: **almost all situations / some situations / very few situations**	2.90	6.07	4.77	0.80
(R)In this society, people are generally: **very friendly / very unfriendly**	3.61	6.22	4.69	0.57
(R)In this society, people in positions of power try to: **increase their social distance from less powerful individuals / decrease their social distance from less powerful people**	3.22	6.10	5.12	0.54
(R)In this society, rank and position in the hierarchy have special privileges. **SA / Neither / SD**	3.10	7.00	5.91	0.54
(R)In this society, aging parents generally live at home with their children. **SA / Neither / SD**	1.20	6.62	4.10	1.26
(R)In this society, being accepted by the other members of a group is very important. **SA / Neither / SD**	3.92	6.44	5.52	0.42
In this society, more people: **live for the present than live for the future / live for the future than live for the present**	1.56	4.14	2.93	0.57
In this society, people place more emphasis on: **solving current problems / planning for the future**	1.67	4.08	2.73	0.52
(R)In this society, people are generally: **very tolerant of mistakes / not at all tolerant of mistakes**	2.82	5.33	4.05	0.62
(R)In this society, people are generally: **very generous / not at all generous**	3.08	5.89	4.01	0.58
(R)In this society, power is: **concentrated at the top / shared throughout the society**	2.46	6.60	5.75	0.63
(R)In this society: **group cohesion is valued more than individualism / group cohesion and individualism are equally valued / individualism is valued more than group cohesion**	2.93	5.72	3.98	0.58
In this society, it is worse for a boy to fail in school than for a girl to fail in school. **SA / Neither / SD**	1.89	4.91	3.76	0.66
In this society, people are generally: **physical / non-physical**	2.22	5.43	3.80	0.67
In this society, who is more likely to serve in a position of high office? **Men / Men and women are equally likely to serve / Women**	1.38	3.27	2.11	0.38
(R)In this society, children generally live at home with their parents until they get married. **SA / Neither / SD**	1.77	6.84	5.26	1.21

Note. N=57. (R) indicates items that were reverse scored.

Appendix D

Societal Level Descriptive Statistics for Values Items

Item Text	Min	Max	Mean	SD
(R)I believe that orderliness and consistency should be stressed, even at the expense of experimentation and innovation. **SA / Neither / SD**	2.83	6.11	4.41	0.88
(R)In this society, people should be encouraged to be: **aggressive / non-aggressive**	1.83	6.73	3.49	1.17
(R)I believe that people who are successful should: **plan ahead / take life events as they occur**	2.11	6.80	5.96	0.69
(R)I believe that the accepted norm in this society should be to: **plan for the future / accept the status quo**	2.01	6.53	5.90	0.65
I believe that a person's influence in this society should be based primarily on: **one's ability and contribution to the society / the authority of one's position**	1.40	2.73	1.89	0.31
In this society, people should be encouraged to be: **assertive / non-assertive**	2.65	6.90	5.62	0.74
(R)I believe that in general, leaders should encourage group loyalty even if individual goals suffer. **SA / Neither / SD**	2.99	6.60	4.97	0.75
(R)I believe that social gatherings should be: **planned well in advance (2 or more weeks in advance) / spontaneous (planned less than an hour in advance)**	2.22	6.32	5.19	0.81
(R)In this society, people should be encouraged to be: **very concerned about others / not at all concerned about others**	2.84	6.55	5.78	0.55
(R)In this society, people should be encouraged to be: **dominant / non-dominant**	2.60	6.49	4.08	0.67
(R)In this society, children should take pride in the individual accomplishments of their parents. **SA / Neither / SD**	3.33	6.80	5.73	0.58
I believe that the economic system in this society should be designed to maximize: **individual interests / collective interests**	3.21	6.50	4.89	0.83
(R)I believe that followers should: **obey their leader without question / question their leader when in disagreement**	1.41	5.47	2.35	0.67
(R)In this society, people should be encouraged to be: **tough / tender**	2.32	6.13	3.83	0.87
(R)I believe that teen-aged students should be encouraged to strive for continuously improved performance. **SA / Neither / SD**	2.58	6.90	6.12	0.69
(R)I believe that a person who leads a structured life that has few unexpected events: **has a lot to be thankful for / is missing a lot of excitement**	2.00	5.14	3.76	0.67
I believe that boys should be encouraged to attain a higher education more than girls. **SA / Neither / SD**	3.37	6.70	5.43	0.77

(R)I believe that major rewards should be based on: **only performance effectiveness / performance effectiveness and other factors (for example, seniority or political connections) / only factors other than performance effectiveness (for example, seniority or political connections)**	1.84	6.57	5.63	0.71
(R)I believe that societal requirements and instructions should be spelled out in detail so citizens know what they are expected to do. **SA / Neither / SD**	2.01	6.71	5.47	0.88
(R)I believe that being innovative to improve performance should be: **substantially rewarded / somewhat rewarded / not rewarded**	2.03	6.65	6.05	0.62
(R)In this society, people should be encouraged to be: **very sensitive toward others / not at all sensitive toward others**	3.08	6.18	5.48	0.51
I believe that there should be more emphasis on athletic programs for: **boys / girls**	2.87	4.20	3.84	0.31
(R)In this society, parents should take pride in the individual accomplishments of their children. **SA / Neither / SD**	2.25	6.81	6.14	0.65
(R)I believe that society should have rules or laws to cover: **almost all situations / some situations / very few situations**	3.02	6.56	5.57	0.72
(R)I believe that leaders in this society should: **provide detailed plans concerning how to achieve goals / allow the people freedom in determining how best to achieve goals**	2.30	5.04	3.84	0.68
(R)I believe that this society would be more effectively managed if there were: **many more women in positions of authority than there are now / about the same number of women in positions of authority as there are now / many less women in positions of authority than there are now**	2.80	6.26	4.57	0.66
(R)In this society, people should be encouraged to be: **very friendly / very unfriendly**	4.15	6.49	5.84	0.38
(R)I believe that people in positions of power should try to: **increase their social distance from less powerful individuals / decrease their social distance from less powerful people**	1.61	5.33	2.67	0.63
How important should it be to members of your society that your society is viewed positively by persons in other societies? **It should not be important at all / It should be moderately important / It should be very important**	4.51	6.42	5.38	0.47
I believe that people should: **live for the present / live for the future**	3.92	6.34	4.80	0.47
(R)In this society, people should be encouraged to be: **very tolerant of mistakes / not at all tolerant of mistakes**	2.91	5.67	4.49	0.67
(R)I believe that people should set challenging goals for themselves. **SA / Neither / SD**	3.10	6.79	5.84	0.72
(R)When in disagreement with adults, young people should defer to elders. **SA / Neither / SD**	2.67	5.38	3.80	0.60
Members of this society should: **take no pride in being a member of the society / take a moderate amount of pride in being a member of the society / take a great deal of pride in being a member of the society**	2.46	6.59	5.46	0.68

(R)I believe that power should be: **concentrated at the top / shared throughout the organization**	2.08	5.19	2.95	0.58
In this society, most people prefer to play: **only individual sports / some individual and some team sports / only team sports**	3.13	5.11	4.22	0.31
(R)I believe that: **group cohesion is better than individualism / group cohesion and individualism are equally valuable / individualism is better than group cohesion**	3.39	6.22	4.79	0.54
I believe that it should be worse for a boy to fail in school than for a girl to fail in school. **SA / Neither / SD**	3.12	6.54	5.06	0.78
I believe that opportunities for leadership positions should be: **more available for men than for women / equally available for men and women / more available for women than for men**	2.21	4.16	3.68	0.40

Note. N=57. (R) indicates items that were reverse scored.

Appendix E

Cultural Tightness Rating Form

Rating Instructions:

The purpose of this exercise is to determine the degree to which the following items reflect the concept of cultural tightness, which is defined as the degree of tolerance for deviation from established norms. Individuals can vary in their tolerance for these deviations. Likewise, societies can vary in how much they tolerate deviation from norms. To help make this determination, rate the items below on how purely they reflect cultural tightness, on a scale of 1 ("not at all a measure of tightness") to 5 ("a very pure measure of tightness"). You can do this by clicking on the box corresponding to your rating.

Please keep in mind that you are not responding to the actual items, but rating how much each item reflects degree of tolerance for deviation from norms.

Note: Some of the items presented here are nearly identical; these items are intended to measure concepts with very subtle differences.

Upon completion, please save the document as a new file with your initial added to the end of the file name, and return it via email. Please let me know if you would like to return it via snail mail.

Item 1-32	In this society, people are generally: very tolerant of mistakes				not at all tolerant of mistakes
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-1	I believe that orderliness and consistency <u>should</u> be stressed, even at the expense of experimentation and innovation. Strongly agree		Neither agree nor disagree		Strongly disagree
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-31	In this society, people <u>should</u> be encouraged to be: very tolerant of mistakes				not at all tolerant of mistakes
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-25	In this society, people are generally: very friendly				very unfriendly
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-16	I believe that a person who leads a structured life that has few unexpected events: has a lot to be thankful for				is missing a lot of excitement
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-21	In this society, people are generally: very sensitive toward others				not at all sensitive toward others
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-24	I believe that society <u>should</u> have rules or laws to cover: almost all situations		some situations		very few situations
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-9	In this society, people are generally: very concerned about others … not at all concerned about others			
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-25	I believe that leaders in this society <u>should</u>: provide detailed plans concerning how to achieve goals … allow the people freedom in determining how best to achieve goals				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-4	In this society, the accepted norm is to plan for the future … accept the status quo				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-7	I believe that in general, leaders <u>should</u> encourage group loyalty even if individual goals suffer. Strongly agree … Neither agree nor disagree … Strongly disagree				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-35	In this society: group cohesion is valued more than individualism … group cohesion and individualism are equally valued … individualism is valued more than group cohesion				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-13	In this society, followers are expected to: obey their leaders without question			question their leaders when in disagreement
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-16	In this society, most people lead highly structured lives with few unexpected events. Strongly agree		Neither agree nor disagree		Strongly disagree
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-34	Members of this society should: take no pride in being a member of the society		take a moderate amount of pride in being a member of the society		take a great deal of pride in being a member of the society
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-29	In this society, being accepted by the other members of a group is very important. Strongly agree		Neither agree nor disagree		Strongly disagree
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-13	I believe that followers should: obey their leader without question — question their leader when in disagreement			
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-37	I believe that: group cohesion is better than individualism — group cohesion and individualism are equally valuable — individualism is better than group cohesion				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-7	In this society, leaders encourage group loyalty even if individual goals suffer. Strongly agree — Neither agree nor disagree — Strongly disagree				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-19	In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do. Strongly agree — Neither agree nor disagree — Strongly disagree				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 3-9	In this society, people should be encouraged to be: very concerned about others … not at all concerned about others				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-24	This society has rules or laws to cover: almost all situations … some situations … very few situations				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Item 1-1	In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation. Strongly agree … Neither agree nor disagree … Strongly disagree				
Rating	Not at all a measure of cultural tightness	A modest measure of cultural tightness	A partial measure of cultural tightness	A mostly pure measure of cultural tightness	A very pure measure of cultural tightness
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

You’ve completed this rating exercise.