Validation of GLOBE Cultural Practices Constructs: An Unobtrusive Measures Approach

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ABSTRACT

A pervasive issue in empirical social science research focuses on the validation of research findings. It is well accepted, though infrequently practiced, that a result confirmed by independent replication of research methods is more credible than findings supported by a single method alone. In this article, we show how unobtrusive measure methodology can be extended to establish construct validity of cross-cultural scales; survey-based scales developed as part of the GLOBE program. The GLOBE's cultural scales were constructed using reports of the middle-level managers, aggregated to the societal level of culture in which these managers were embedded. These scales were designed to assess the prevalence of specific cultural practices and values of a society. We show how unobtrusive measures can help establish the extent and nature of society level behavior captured by these aggregated middle-level managerial responses.

Keywords: Unobtrusive measure, Cross-cultural scales, GLOBE's cultural scales, Content analysis design, Hofstede's scales.

Introduction:

A pervasive issue in survey research focuses on the validation of scales constructed using perceptual questionnaire items. A notable theme in assessing construct validity is the use of multiple methods, since some of the variance in scales may be a function of the measures. The purpose of the present article is to extend the research on construct validity of the scales to across cultural domains. There are two ways the present research adds to the small body of existing research. First, we use content analysis to develop unobtrusive measures of the cultural constructs. Survey-based cultural scales are derived from the perceptions of a specific group of sampled respondents. There is therefore a need to authenticate whether the responses of sampled subjects reflect the general characteristics of the society as a whole.

Unobtrusive measures belong to a class of research method that avoids obtrusive interaction between the investigator and the population being studied (Webb et al, 1966; 2000). They are non-reactive measures (Sechrest & Belew, 1983), because they do not require respondents to pay attention to specific purposes of an investigation, and they do not impose any burden on respondents for participating in the research process. We evaluate unobtrusive measures of the cultural constructs and demonstrate their consistency with the survey-based scales of each society. Thus, we show that survey-based cultural scales, when interpreted with appropriate thematic lens, are broadly rooted in the societal fabric, and that they do capture, at least partly, the tacit manifestations of the cultural behavior within the society.

Second, we use the unobtrusive measures for examining the construct validity of the survey-based scales. We also show how unobtrusive measures can help clarify the domain of meaning of cultural scales, and thereby shed light on the unexpected relationships with prior research. A result confirmed by independent replication of scales is more credible than findings supported by survey method alone (Webb, Campbell, Schwartz & Sechrest, 2000, 1966).

Each construct is intended to measure a common domain of meaning. The degree to which researchers have representatively sampled from that domain of meaning connotes content validity of the scale. Construct validity may be assessed through testing the convergent hypothesis and the discriminant hypothesis (Rossi, Wright & Anderson, 1983). The convergent hypothesis is that items within

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the domain of meaning, although derived from different methods, correlate together because they all reflect the same underlying construct or 'true' score. The discriminant hypothesis is that items from one domain will not correlate with items from another domain (Rossi, Wright & Anderson, 1983: 100-101).

In this study, we rely on the constructs and data obtained from the GLOBE project, and contrast the GLOBE scales with the findings of another landmark study of societal cultures by Hofstede (1980, 2001). GLOBE (Global Leadership and Organizational Behavior Effectiveness) is a major cross-cultural study that surveyed more than 15,000 middle level managers in 62 societies around the world. The managers were sampled from organizations in at least one of the following three industries: food processing, financial services, and telecom. The three industries were selected on the basis of their contrasting environmental contexts: food processing is quite mature, financial services sector is quite global, and telecom is quite regulated and localized in most societies. The survey items used a 7-point scale. The individual-level data from managerial respondents in each society were aggregated to obtain society-level scores.

Based on prior studies, as has been reported in House, Hanges, Dorfman, Javidan, Dickson, Gupta and Associates (1998), GLOBE identified nine attributes of culture. These are: (1) Uncertainty Avoidance, (2) Power Distance, (3) Collectivism I (Institutional), (4) Collectivism II (In-group), (5) Gender Egalitarianism, (6) Assertiveness, (7) Future Orientation, (8) Performance Orientation, and (9) Humane Orientation. The first two dimensions are similar to the dimensions in Hofstede's (1980) study of national culture. The other two dimensions in Hofstede's (1980) study, Individualism-Collectivism and Masculinity were refined further. Collectivism is assessed as two constructs. Institutional Collectivism reflects emphasis on collective interests, and has some similarities to Hofstede's (1980) Individualism dimension. In-group collectivism reflects pride and loyalty to the family, and group cohesiveness. The Masculinity dimension was defined as two dimensions, Gender Egalitarianism and Assertiveness Orientation, for better conceptual clarity. Equally important, additional dimensions were established in the GLOBE study. The Performance Orientation dimension was derived from McClelland's (1961) Achievement Motive construct. The Future Orientation dimension was derived from Kluckhohn and Strodtbeck's (1961) Past, Present and Future Orientation construct. Finally, the Humane Orientation dimension was derived, which may be related with Hofstede and Bond's (1988) Kind Heartedness. The definition of each of the GLOBE constructs is given in Table 1.

Table 1. Definitions of GLOBE's Culture Constructs

Uncertainty Avoidance is defined as the extent to which members of a society strive to avoid uncertainty by reliance on social norms, rituals, and bureaucratic practices to alleviate the unpredictability of future events.
Power Distance is defined as the degree to which members of a society expect and agree that power should be unequally shared.
Collectivism I reflects the degree to which societal institutional practices encourage and reward collective distribution of resources and collective action.
Collectivism II reflects the degree to which individuals express pride, loyalty and cohesiveness in their families.
Gender Egalitarianism is the extent to which a society minimizes gender role differences.
Assertiveness is the degree to which individuals in societies are assertive, confrontational, and aggressive in social relationships.
Future Orientation is the degree to which individuals in societies engage in future-oriented behaviors such as planning, investing in the future, and delaying gratification.
Performance Orientation refers to the extent to which a society encourages and rewards group members for performance improvement and excellence.
Humane Orientation is the degree to which individuals in societies encourage and reward individuals for being fair, altruistic, friendly, generous, caring, and kind to others.

Content analysis refers to the process of making inferences based on objective coding of archival records (Krippendorff, 1980; Shaughnessy et al, 2000; Weber, 1990). There is no simple universally agreed upon method for conducting content analysis (Carley, 1994; Krippendorff, 1980; Weber, 1990). We formulated the following approach for a systematic content analysis:

1. Applying the framework for content analysis.
2. Searching for suitable data.
3. Searching for contextual knowledge.
4. Developing a strategy and defining measurements for analysis to allow coding of variables.
5. Testing the coding scheme.
6. Assessing quality of accuracy.

Applying the Framework for Content Analysis

In our content analytic study, we sought to identify and code societal level textual indicators of the nine GLOBE cultural practices dimensions, in an effort to assess the validity of the GLOBE dimension measures. Selected for this study is a content analysis design to compare different methods, where "two or more methods are applied to the same data or to different data obtained from the same situation to test whether the two methods yield comparable results" (Krippendorff, 1980; pp. 51). Sometimes known as multiple operationalism (Webb et al, 1966; 2000), this design shows that different research methods that purport to be measuring the same construct result in similar findings. Figure 1 shows this design.

Searching for Suitable Data

Among of the most critical aspects of a scientific approach for content analysis is identifying the appropriate data source (Krippendorff, 1980; Weber, 1990). Many valid sources exist that could be used to conduct content analysis. We selected Culturgrams reports (1999) as our data text source in our content analyses. These reports are published by an academic research center (David M. Kennedy Center for International Studies at Brigham Young University), and provide comparable and consistent, four page descriptions of cultures of 170 societies around the world. These descriptions include daily customs and lifestyle, as well as historical events, and the political and economic structure of each culture1.

The construction of a Culturgram report is systematic and broad ranging. Generally, six to twelve months of research is required in the assessment of a society's culture. Initially, an expert with residential, educational, and professional knowledge is invited to write the first draft. Supplementary information is generated from volunteers in organizations such as the Peace Corps and International Red Cross; expatriate diplomats and businesspeople, as well as educators. Following this, an equally qualified panel reviews the draft to determine whether the expressed judgments and facts form a fair and accurate portrayal of the culture. Annually, an editorial staff reviews the text, and they periodically invite qualified reviewers to revise the text to keep it current. Culturgram reports did not exist for two of the countries covered in GLOBE study: Qatar and Kuwait. In the spirit of an

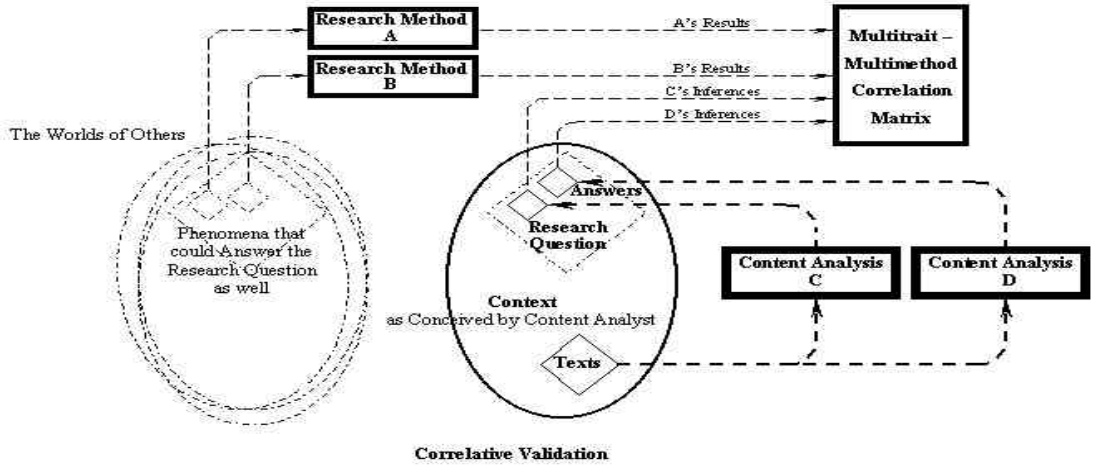

Fig. 1 Content Analysis Design to Compare Different Methods

Source: Krippendorff, personal communication (2002).

unobtrusive approach, we investigated the history of these nations, and found that Qatar's culture is most similar to United Arab Emirates, and Kuwait's culture is most similar to Saudi Arabia. Therefore, we chose to use United Arab Emirates' report as a proxy for Qatar, and Saudi Arabia's report as a proxy for Kuwait.2

Searching for Contextual Knowledge

In content analysis, establishing empirical links connecting the qualitative data to the GLOBE cultural practice dimensions, and to inferences made based on the data are fundamental. We refer to this as the construct inference link (Krippendorff, 1980). Analyzing the literature on which the nine GLOBE cultural dimensions were based helped support the inference as we identified the content analysis constructs.

To achieve this construct-inference link, we conducted a review of the textual information of the Culturgrams report from a sample of ten societies not included in GLOBE study. Involving experts who are familiar with the theoretical linkages between the data and the concepts of study is suggested in this search for contextual knowledge (Krippendorff, 1980). Thus, two members of the research team inspected the text data, each developing construct-inference examples independently. From this we identified culturally relevant concepts related to each of the nine GLOBE constructs. The following is an illustration of our process of developing a rationale for constructs.

The construct of uncertainty avoidance is related to the need for security and information. The medical sector is one of the critical domains predicated on reliable and stabilizing domestic initiatives. This is so because many diseases tend to be climate and society-specific and are subject to mutation over time. Thus, home-based research focused on accumulation of information about the domestic context is essential to develop preventive and curative solutions. Based on this inference clarification process the item, “medical facilities are effective in keeping the society essentially healthy and disease-free," was formed to represent uncertainty avoidance.

Strategy Development and Defining Measurements

Developing Strategies

We chose conceptual analysis strategy for conducting content analysis. Conceptual analysis sometimes referred to as thematic analysis (Stone, 1997) commonly focuses on detecting occurrences of specific words or concepts, as well as identifying patterns or themes in the text. Carley (1994) defines a concept “as a single idea regardless of whether it is represented by a single word or phase” (p. 726).

Two ways of analyzing concepts have been noted in the research: explicit concept analysis and implicit concept analysis (Carley, 1994). Actual words and phrases that appear in the text represent explicit concepts. Implied words and phrases that occur in the text denote implicit concepts. By using explicit concepts alone, researchers may overlook more indirect nuances in content analysis. Implicit analysis allows greater ability to extract deep meaning from the text. Thus, we used both implicit and explicit concept analysis in our research.

Examining embedded concepts within the text proved an important advantage in this analysis. For example, when analyzing concepts for Humane Orientation, “visiting one another” was identified as an important indicator of this dimension. In the Culturgram text the implicit messages regarding visiting included such things as (1) whether the importance of visiting was the primary variable mentioned in the section on the topic, implying a more humane culture (2) whether the author was emphatic about the importance of visiting, implying a more humane culture (3) whether visiting was a warm and sincere gesture (more humane) or was an expected ritualistic act (less humane), and (4) whether other implicit or explicit concepts throughout the text contradicted or diminished the importance of visiting. Additionally, when analyzing concepts for Institutional Collectivism, group importance at the macro or societal level was a central feature of this dimension. Implicit concepts indicating institutional collectivism in the Culturgram text included such phenomena as (1) whether there were either highly prominent sub-groups or segmentation in the culture, both of which may imply lower institutional level collectivism and (2) whether the members of the culture engaged in more group oriented activities (such as high numbers of team sports) or individual oriented activities (such as hiking and gardening). These examples imply a form of institutional collectivism other than families. Examining implicit concepts allowed for non-obvious concepts to surface.

In conceptual analysis, two methodological tactics are used: the dictionary approach and a rules-

based approach (Carley, 1994). In the dictionary approach all concepts and phrases need to appear in the text precisely as is directed in the dictionary. Conventional dictionaries such as the Lasswell Value Dictionary (Namenwirth & Weber, 1987) often guide researchers in the creation of a customized dictionary comprised of major concepts and equivalent phrases. Commonly, both dictionaries and translations rules are used in conceptual analysis (Carley, 1994), and this combination was employed in our study.

Assessing one of the conceptual items of Gender Egalitarianism, we used a dictionary approach. We developed a customized dictionary definition designed to determine if most women were given rights and privileges in their societies to achieve their aspirations. The item, "Most women have access to resources that allow them to pursue personal goals as freely as men," was coded very specifically using the United Nations human development indices reported in Culturgram texts. This information provides an indication of the overall level of resources and opportunities available for women in a particular society. This customized dictionary approach proved useful. However, a majority of the concepts required a set of guidelines or rules used to glean the information from the text.

Making implicit concepts explicit and then quantifying these concepts was important because it resulted in the construction of a translation rule. These rules established our confidence in the coding and ensured coding consistency throughout the text (Carley, 1994).

To illustrate, the construct of In-group Collectivism is related to a sense of group oriented integrity, responsibility, moral discipline (Triandis, 1995), as well as inhibited affective and intellectual autonomy that may destabilize the harmony within the group (Schwartz, 1994). One of the items devised to measure in-group collectivism, "The father usually plays the role of the family head" connotes a final decision-making authority that successfully assumes the role of breeding and enforcing group integrity within the family. This rules-based approach facilitated our gleaning of implicit concepts. The success of this process depended on the researchers' extensive background knowledge of the theory on which the cultural constructs were derived, except for the third coder who was naïve to the GLOBE questionnaire items and thus served as a check on the validity (and biases) of our final coding.

Defining Measurements

Concurrent with developing strategies for content analysis, it is important to formulate the units of analysis, which is sometimes called unitizing (Krippendorff, 1980). In our content analysis, the sampling unit was the four-page Culturgram report for each country that corresponded with the GLOBE project countries. The context units define the segment of the text to be examined in order to characterize a recording unit. In our study, the context units were sections of the text into which the Culturgram were divided. These sections of the text described aspects of the culture such as history, general attitudes, family and economy. For example, the Humane Orientation culture dimension evaluates such issues as concern for others, friendliness, sensitivity towards others, and generosity.

By contrast, recording units are seldom defined in terms of physical boundaries. The division between recording units is reached through a descriptive effort (Krippendorff, 1980). In this content analysis, the recording units were the theoretically driven ideas relating to the nine cultural dimensions. To illustrate, the Denmark Culturgram section on general attitudes among the statements were "Danes are known for their tolerance of other people and diverse points of view. They admire individuals with a friendly attitude, a sense of humor, intelligence, sociability, personal stamina, integrity and an open mind…A love for understatement, rather than exaggeration, prevails" (p.78). Thus, recording units in this section could be coded higher on Humane Orientation given the reference to friendliness and tolerance and lower on Assertiveness Orientation given the reference to non-assertive behavior. After designating these units, we then defined and delineated the actual coding of the units. Referential units were used in this analysis. Referential units indicate how a unit is represented, defining the ideas to which an expression refers. The referential unit denotes a similar expression in different ways, often defined by specific notions, events, persons, acts, or objects, (Krippendorff, 1980). For example, the Performance Orientation item, "The society maintains a diversity of religion" was coded in terms of the dominant religion, as well as openness to other religions such as in terms of state laws (secular or not), and recent growth of new religious ideologies in the society.

Defining Categories

It was necessary in this content analysis to take note

of issues pertaining to the definition of categories. Two basic decisions are suggested when developing category definitions, (1) should the categories be mutually exclusive, and (2) should the categories be broad or narrow (Weber, 1990). Mutually exclusive categories were required in this analysis to ensure that our variables were not confounded. Recording units needed to be classified in a single category. Simultaneous classification in two or more categories would have resulted in violation of fundamental statistical assumptions and would have rendered unreliable results (Weber, 1990). This decision process is illustrated below.

In power distance category, Economic growth tends to go hand-in-hand with the unemployment, poverty and stratification of society by income, and people derive little satisfaction from the work. While coding the information, we identified referent units relating to the effects of unequal distribution of income and private consumption expenditure in the society. Evidence of unemployment and poverty were found in the text regarding the economy, and occasionally these indications were embedded in the discussion, which required a thoughtful reading for discovering implicit information. To assess the stratification of society by income, we looked for references to gaps between rich and poor which were specific in the text and generally uncomplicated to code. A second decision in the development of category definitions involved how broad or narrow the categories should be. Decisions were made to code some concepts very specifically and some more broadly. For example,in the Collectivism category,

Table 2. Content Analysis Measures of GLOBE Society Practices Constructs

Scale	Content Analysis Measures
Performance Orientation	People tend to emphasize all-round economic accomplishments
	The society maintains a diversity of religion, indicating a lack of performance inhibiting dogmatism
Assertiveness Orientation	People have forceful and expressive behaviors
	People exhibit a toughness in their behavior
	Dominant behavior is characteristic
Future Orientation	People tend to arrange social and family visits in advance, and avoid spontaneous visits
	Most people seek to learn and use English as an important language for communication in modern world
Humane Orientation	Warm greetings are of the essence
	Hospitality/visiting are very important and highly cherished
	People show empathy in their interactions with others
Institutional Collectivism	Societal level group loyalties were important
	The culture engages in more group oriented activities
	Highly prominent sub-groups or segmentation do not exist in the culture.
In-Group Collectivism	The father usually plays the role of the family head.
	Most people lack access to the opportunities for personal advancement, indicating a group think
Gender	Most women have access to resources that allow them to pursue personal goals as freely as men
Egalitarianism Power Distance	It is proper for women to have a job
	Economic growth tends to go hand-in-hand with the unemployment, poverty and stratification of society by income
	People derive little enjoyment from their work, indicating power barriers that inhibit effort-reward linkage.
Uncertainty Avoidance	Medical facilities are effective in keeping the society essentially.
	healthy and disease-free, indicating certainty enhancing reliability and breadth of home research initiatives.
	The nation strives for an extensive and modern telecommunications system, indicating building of capability for the use of uncertainty absorbing information technology.

"Most people lack access to the opportunities for personal advancement" reflects a social system where intellectual autonomy is not facilitated. The Human Development Index value for each country was used as a narrowly defined category to assess the collectivism category. In contrast, the concept of Uncertainty Avoidance was defined broadly. This concept is related to the use of information technologies, for supporting ample feedback, and building capabilities for information technology usage. It should be noted that all initial decisions regarding strategy development and measurement defining issues were dependent on the information available in Culturgrams as identified at the time of exploratory analysis of non-GLOBE sample societies.

The unobtrusive items for each of the GLOBE society practices are presented in Table 2.

Testing a Coding Scheme

The next step in this content analysis process involved the actual coding of the text. Meticulous training was provided for the coders in the use of the rating scales to assure that the coders make appropriate qualitative judgments about the contents of the archival text.

All the items were rated on a 5-point scale, with 5 representing high scores on a dimension for a society. Using this type of scale required conceptualizing the source material on a continuum (Krippendorff, 1980). Two experts, each of whom had a Ph.D. in management, coded all societies independently. This enhanced the reliability of the study, since it promoted reproducibility of the findings through the use of multiple raters.

From the Culturgrams a sample of 10 countries not in the GLOBE sample was coded on each of the nine dimensions. The average initial results were compared across the ten societies and all unobtrusive items. In both the first and second round of preliminary coding, based on cultures not in the GLOBE study, items with lower coding agreement were discussed, and other discrepancies were sorted out, and recoding was conducted until an acceptable level of agreement was achieved. Thereafter, the coding rules for text analysis were applied to the sample of GLOBE countries represented in the Culturgrams.

Assessing Quality and Accuracy

Issues of validity and reliability are fundamental to the use of unobtrusive measures (Lee, 1998; Weber, 1990). High-quality content analysis results depend on the reliability of the data, the analysts, and the process (Krippendorff, 1980). Reliability has been defined as the agreement between two efforts to assess the same trait through similar methods (Campbell & Fiske, 1959: pp. 83). In this study, reliability was assessed as the consistency with which multiple raters coded the Culturgram texts. Table 3 gives inter-rater correlation for each of the nine unobtrusive measure scales. The scale score for each dimension is comprised of scores from two raters. The average inter-rater correlation was 0.70 across nine unobtrusive measure scales, which is within the accepted reliability range (Nunnally & Bernstein, 1993). In addition, using the Spearman-Brown Prophecy formula we produced reliability estimates for the average unobtrusive score. These consist of the averaging of rater responses and are also provided in Table 3.

Table 3. Inter-rater Correlation and Internal Consistency Reliability Estimates for Unobtrusive Measures

	Inter-rater correlation	Reliability estimate*
Performance Orientation	.83**	.90
Assertiveness	.74**	.86
Future Orientation	.92**	.96
Humane Orientation	.69**	.81
Institutional Collectivism	.55**	.70
In-Group Collectivism	1.00**	1.00
Gender Egalitarianism	.91**	.95
Power Distance	.88**	.93
Uncertainty Avoidance	.95**	.97

*Based on the Spearman-Brown Prophecy formula

** $p<0.01$

One way to assess validity of unobtrusive measures is to determine if the measured data are related to other analyses of the construct in ways predicted by the theory (Bowen and Bowen, 1999). Two primary aspects of validity are convergent

validity and discriminant validity (Campbell & Fiske, 1959; Weber, 1990). For this part of our study, convergent validity is represented as the agreement between the unobtrusive measures and the GLOBE measures to assess societal level cultural practices through text analysis and survey questionnaires respectively. A construct has discriminant validity when it is relatively distinct from other criteria variables. The issues of validity may best be clarified through the use of a multitrait-multimethod matrix, or MMTM (Campbell & Fiske, 1959). For this study, the multiple traits were comprised of the nine cultural dimensions, and the two methods comprised of the questionnaire-based method (GLOBE societal level practice scales) and the content coding method (unobtrusive measures of culture). Table 4 provides the multitrait-multimethod matrix.

Note. Letters A, B, C, D, E, F, G, H, I refer to statuses on the dimensions of culture, subscripts 1, 2, to refer to the 2 methods used in this study. Method 1 refers to the Unobtrusive items and method 2 refers to the GLOBE items. Validity coefficients are the diagonal set of boldface numbers; reliability coefficients are the numbers in parentheses along principal diagonal. For this study the reliability coefficient for the unobtrusive items was calculated by aggregating two raters to form the scores for the dimensions, then using Spearman-Brown Prophecy formula.

* A = Performance Orientation
B = Assertiveness Orientation
C = Future Orientation
D = Humane Orientation
E = Societal Collectivism
F = In-Group Collectivism
G = Gender Egalitarianism
H = Power Distance
I = Uncertainty Avoidance

Convergent Validity

Convergent validity exists when the coefficients in the validity diagonal are high and statistically significant (Campbell & Fiske, 1959). As shown in Table 5, the coefficients in the validity diagonal range from 0.51 to 0.65, and all of them are significant at $p<0.01$, confirming convergent validity for each of the nine constructs.

Discriminant Validity

Discriminant validity exists when (1) the validity coefficients are higher than values lying in their column and row in the same heterotrait-heteromethod triangle. (2) the validity coefficients are higher than all coefficients in the heterotrait-monomethod triangles, and (3) the same pattern of trait interrelationship is seen in all triangles (Campbell & Fiske, 1959). These conditions are very restrictive because they seek to test not only discriminant validity, but also if the results are generalizable to other methods. Therefore, these conditions have been rarely applied in practice. Using a more practical approach, one appropriate for the task of testing discriminant validity, we adopted two modified conditions for testing the discriminant validity of the constructs using the matrix:

Condition 1

In the heterotrait-heteromethod triangles, we computed the average heterotrait-heteromethod (HTHM) correlation of each Unobtrusive Measure with the nine GLOBE variables, as given in column 2a in Table 5. These unobtrusive HTHM correlations range from -0.09 to 0.08, with an average of 0.00. Similarly, we computed the average correlation HTHM of each GLOBE variable with the nine Unobtrusive Measures, as given in column 2b in Table 5. These GLOBE correlations for the HTHM range from -0.26 to 0.19, with an average of 0.00. For discriminant validity, the coefficient in the validity diagonal, as given in column 1 in Table 5, should exceed both of these two HTHM correlations. This condition holds true for all the nine measures3.

Condition 2

In the heterotrait-monomethod triangles, we computed heterotrait-monomethod (HTMM) correlations of each Unobtrusive Measure with the other nine Unobtrusive Measures, as given in column 4a in Table 5. These HTMM correlations ranged from -0.23 to 0.11, with an average of 0.01. Similarly, we computed HTMM correlation of each GLOBE measure with the other eight GLOBE measures, as given in column 4b in Table 5. These HTMM correlations ranged from -0.16 to 0.15, with an average of 0.01. For discriminant validity, the coefficient in the validity diagonal, as shown in column 1 in Table 5, should exceed the two HTMM correlations respectively. This condition holds true for all the nine measures.

Table 4

	Unobtrusive Variables									GLOBE Variables								
	A_1	B_1	C_1	D_1	E_1	F_1	G_1	H_1	I_1	A_2	B_2	C_2	D_2	E_2	F_2	G_2	H_2	I_2
Method 1																		
A_1	(.90)																	
B_1.	.10	(.86)																
C_1	.56**	.01	(.96)															
D_1	.19	-.20	.19	(.81)														
E_1	.10	-.29*	.13	.44**	(.70)													
F_1	-.33*	-.09	-.47**	-.08	-.05	(1.0)												
G_1	.23	.13	.38**	.18	.08	-.55**	(.95)											
H_1	-.50**	-.05	-.72**	-.07	-.08	.64**	-.32*	(.93)										
I_1	.56**	.11	.72**	.11	.01	-.56**	.39**	-.70**	(.97)									
Method 2																		
A_2	.56**	-.06	.31*	.13	.10	.04	-.03	-.26*	.35**	(.72)								
B_2	.15	.59**	.04	.07	-.12	.26*	.03	.15	.09	.05	(.75)							
C_2	.63**	.11	.62**	.26*	.12	-.13	.15	-.46**	.47**	.62**	.08	(.80)						
D_2	-.13	-.04	-.25	.51**	.03	.17	-.23	.08	-.30*	.25**	-.42**	.07	(.88)					
E_2	.30*	.20	.27*	-.06	.58**	-.11	.02	-.22	.26*	.42**	-.38**	.47**	.41**	(.67)				
F_2	-.47**	-.17	-.59**	-.21	-.17	.58**	-.44**	.61**	-.62**	-.11	.13	-.40**	.27*	.11	(.77)			
G_2	.10	.04	.10	.10	.03	-.27*	.65**	.01	.04	-.30*	-.10	-.07	-.14	-.03	-.23	(.66)		
H_2	-.49**	-.09	-.43**	-.26*	-.21	.37**	-.26*	.62**	-.36**	-.33**	.21	-.44**	-.15	-.30*	.61**	-.32*	(.80)	
I_2	.51**	.15	.54**	.22	.08	.30*	.29*	-.60**	.60**	.58**	-.08	.75**	.01	.38**	-.59**	-.06	-.48**	(.88)

Table 5. Discriminant Validity Summary for Societal Practice Scale Scores

	1	2a	2b	3a	3b	4a	4b	5a	5b
	Validity coefficients	HTHM* (Unobtrusive)	HTHM* (GLOBE)	HTHM **(Unob-trusive)	HTHM **(GLOBE)	HTMM* *(Unob-trusive)	HTMM *(GLOBE)	HTMM (Unob-trusive)	HTMM **(GLOBE)
Performance Orientation	0.44	0.08	0.07	0.35	0.16	0.11	0.15	0.32	0.33
Assertiveness	0.39	0.02	0.08	0.11	0.11	-0.04	-0.06	0.12	0.18
Future Orientation	0.58	0.00	0.14	0.32	0.29	0.10	0.14	0.40	0.36
Humane Orientation	0.70	0.03	-0.08	0.16	0.15	0.10	0.04	0.18	0.22
Institutional Collectivism	0.34	-0.02	0.08	0.11	0.18	0.04	0.14	0.15	0.31
In-Group Collectivism	0.50	0.08	-0.26	0.21	0.41	-0.19	-0.03	0.35	0.31
Gender Egalitarianism	0.51	-0.06	0.02	0.18	0.09	0.07	-0.16	0.28	0.16
Power Distance	0.48	-0.09	-0.22	0.30	0.31	-0.23	-0.15	0.39	0.36
Uncertainty Avoidance	0.83	-0.01	0.19	0.31	0.34	0.08	0.06	0.40	0.37
Average	0.53	0.00	0.00	0.23	0.23	0.01	0.01	0.29	0.29

Note: Discriminant validity exists when values in column (1) exceed those in other columns.

* Based on averages of raw correlations

**Based on averages of absolute correlations

Table 6. Correlation of Hofstede's Scales with GLOBE questionnaire-based scales and Unobtrusive measures

Hofstede Scales	GLOBE Questionnaire-based Scales	Unobtrusive Measures
	Power Distance Practices (As Is)	Power Distance Practices (As Is)
Power Distance	.61**	.64**
	Uncertainty Avoidance Practices (As Is)	Uncertainty Avoidance Practices (As Is)
Uncertainty Avoidance	-.61**	-.29*
	Institutional Collectivism Practices (As Is)	Institutional Collectivism Practices (As Is)
Individualism	.15	.14
	In-Group Collectivism Practices (As Is)	In-Group Collectivism Practices (As Is)
Individualism	-.82**	-.47**
	Gender Egalitarianism Practices (As Is)	Gender Egalitarianism Practices (As Is)
Masculinity	-.16	-.14
	Assertiveness Practices (As Is)	Assertiveness Practices (As Is)
Masculinity	.42**	-.03

NOTE: ** = $p < .01$;

Thus, we conclude that the GLOBE societal practice constructs have convergent as well as discriminant validity.

Assessing Generalizability and Unexpected Relationships

Another important aspect in assessing a research measure is the extent to which it is generalizable across similar domains of meaning in different studies. Table 6 shows the relationship between GLOBE practice scales the scales developed by Hofstede (2001). Similarly, the correlation of the Unobtrusive Measures with the Hofstede scales is given.

Both the GLOBE practice scale as well as the Unobtrusive Measure for Power Distance is significantly and positively correlated with Hofstede's Power Distance. Similarly, both the GLOBE practice scale as well as the Unobtrusive Measure for In-group Collectivism is significantly and negatively correlated with Hofstede's Individualism. On the other hand, Hofstede's Individualism Scale is not correlated with either GLOBE practice scale or the Unobtrusive Measure for Institutional Collectivism. Indeed, Hofstede's Individualism captures the disembeddedness of individuals from various groups, as opposed to the individuals not showing collective solidarity. The unobtrusive measure analysis helps better understand the unexpected relationships between the Hofstede measures and the GLOBE measures of societal cultures. Societal Uncertainty Avoidance Practices in GLOBE are negatively correlated with Hofstede's measure of Uncertainty Avoidance. Also, Societal Uncertainty Avoidance practices are positively correlated with the use of information and medical technology-which is negatively related with Hofstede's construct of Uncertainty Avoidance [$r=-.29$; $p<0.05$]. This negative correlation can be explained as follows: Hofstede's Uncertainty Avoidance reflects reactive behaviors of stress, anxiety, and paralysis in the face of uncertainty; however, GLOBE's Uncertainty Avoidance reflects proactive behaviors of using information, expertise, and creativity to manage and absorb debilitating uncertainty.

Further, Hofstede's Masculinity scale is significantly and positively related with GLOBE Assertiveness scale, but not with GLOBE Gender Egalitarianism scale. This suggests that Hofsetde's Masculinity scale reflects masculine and assertive behaviors, rather than gender role differentiation. However, the unobtrusive measure for Assertiveness is not correlated with Hofstede's Masculinity measure. It would be useful in future research to examine the correlation of both GLOBE Assertiveness and Hofstede's Masculinity with other data measures to discover their shared domain of meaning. For instance, GLOBE Assertiveness is related with the low share of natural resources in the exports of a nation, reflecting assertion of rights to add value to natural resources.

Summary and Conclusions

We examined two major issues in this article pertaining to the construct validity of survey-based culture scales. The first issue addressed relates to the sampling, questioning whether the responses of the middle-level managers in some organizations and industries could yield valid data concerning the general characteristics of the society as a whole. Our findings are that the content analysis of the societal culture information contained in the Culturgram reports yielded scores that were consistent with the GLOBE societal cultural practice scales. These findings imply that the cultural dimensions are broadly rooted in the societal fabric, and that they do capture, at least partly, the tacit manifestations of the cultural behavior within the society. Put differently, this suggests that the managerial responses reflect the society in which they are embedded, not merely the culture of managers.

The second issue addressed was interpretive in nature, leading to a better understanding of the insider's perspectives for cross-cultural comparative analysis. The above methodology also helped to address this issue of interpretation. The findings confirm that the GLOBE scales are indeed constructs that capture information and knowledge about the culture going beyond the items used to measure those scales in the GLOBE study. The content analysis of archival anthropological data supported and helped clarify the interpretations.

Each research method employed to study culture has its strengths and limitations. The use of an unobtrusive measure such as post hoc behavior data can highlight general psychological tendencies and show how these tendencies vary across different cultural contexts. However, several intervening variables may be missing in post hoc behavior data, which may affect the relationships and their interpretations. For instance, a

study of recycling behavior across cultures using post hoc behavior data could overlook the fact that in some societies there tends to be considerable in-home recycling, such as use of empty bottles and cans for storage purposes. By focusing on specific manifestations of recycling behavior (such as commercial recycling), it might be difficult to obtain a true and appropriate appraisal of environmental and waste sensitivity, which could be argued as a proxy for future orientation, across cultures.

Other limitations of using archival data are notable. Among the most important to note is that archival data are often gathered for alternative purposes, which tend to define the scope of samples and the choice of variables. These data can help infer specific sociological trends and relationships for each culture, and across cultures. However, the specific inferences derived from secondary analysis may not be relevant for each sub-group within a culture, or across cultures. Another limitation of unobtrusive measures relates to selective recording of data. Researchers with various interests, biases and experiences may focus on certain objects and relationships. For instance, female observers of men may document different features of communication, gestures and clothing than male observers of women, and vice verse (Kellehear, 2001). Accordingly, unobtrusive measures are best used in conjunction with other scientific approaches to research, with more objective or neutral recording of information.

Notwithstanding the above limitations, this study makes a significant contribution to the field of cross-cultural research methodology. It demonstrates that content analysis may be used to develop unobtrusive measures to clarify the thematic interpretations of the cultural constructs, and to validate the content and the convergent and discriminating properties of the cultural constructs. The present study also highlights that the aggregated managerial measures of cultural dimensions do not reflect merely managerial perceptions. Rather, managerial perceptions about societal practices are embedded in the broader societal culture, and are reliable measures of the cross-culturally comparable domain of meanings associated with the societal culture.

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