

LANGUAGE'S CONSEQUENCES: A TEST OF LINGUISTIC-BASED MEASURES OF CULTURE USING HOFSTEDE'S DIMENSIONS

Joel West, Graduate School of Management, University of California, Irvine, Irvine, CA 92697

John L. Graham, University of California, Irvine

ABSTRACT

Culture is traditionally measured in international management research using indices of cultural values. We develop a new linguistic-based measure of cultural similarity which is more representative and more widely available than values surveys, and use a structural equation model to show how it is related to three of Hofstede's four cultural dimensions.

INTRODUCTION

The concept of culture is a fundamental to managing firms engaged in global trade. From the early study of Haire, Ghiselli and Porter (1966), empirical management research on culture has tended to focus on values. The recent influence of this approach can be directly traced to Hofstede (1980), who provided numerical values for four measures of culture, allowing cultural differences to be directly used as independent (or moderating) variables to explain differences in behaviors in business settings between cultures. However, these values-based measures of culture have geographic limitations: for example, researchers using Hofstede's indices have been limited to countries where his IBM sample had operations. Meanwhile, concerns have been raised as to whether values measures within a particular multinational corporation reflect the population as a whole.

However, values are not the only manifestation of culture that can be measured. We propose an alternative cultural dimension based on linguistic similarity, available for a wider range of cultures than any previous measure, and inherently more representative of a culture's literate members. We show how this new measure is theoretically related to cultural distance and that it accounts for a large portion of the variance in Hofstede's study and its largest scale replication (Hoppe 1990).

RESEARCH ON CULTURAL DIFFERENCES

Before analyzing measures of culture, one must first define what culture is. Culture can be construed as either a behavioral or meaning system, and as being either an independent, measurable entity or a nominal construct that exists only in the minds of the researcher (Rohner, 1984; Jahoda, 1984). Though leading researchers do not share an exact definition, most concur on the idea of culture as a system of shared meanings, without assuming that it can be measured directly.

Measurement of culture has been most often operationalized using the subject's nationality such as country of citizenship or birth (Earley & Singh, 1995). This comprehensive and exclusive classification is a convenient one, but there are important theoretical and practical distinctions between national and cultural boundaries. A few researchers have considered culture at subnational levels of analysis, particularly salient for countries with distinctive language or regional variations.

Studies of National Values

Employee values have been shown to be managerially relevant because they help predict certain employee attitudes and actions. Measuring values also provides an appealing way for researchers to quantify cross-cultural differences in business environments. If values constitute conceptions of the desirable (Kluckhohn, 1951), and such values are used by individuals to filter their perceptions of the world around them, then shared values provide a cultural indicator that is both measurable and empirically relevant. Most definitions hold that "values are (a) concepts or beliefs, (b) about desirable end states or behaviors, (c) that transcend specific situations, (d) guide selection or evaluation of behavior and events, and (e) are ordered by relative importance" (Schwartz & Bilsky, 1987: 551).

Usually these values studies calculated country scores based on national averages of individual survey responses, which Hofstede (1983) termed “ecological factor analysis.” While a pragmatic approach to measuring national culture, a few researchers (e.g., Bond, 1994) questioned whether averages of individual measures truly represented constructs at the level of a nation, culture, or society. Also, psychology researchers warned (as had Hofstede) about projecting national averages upon individual citizens, which require individual-level measures of values instead of societal-level measures (Triandis et al., 1985; Leung & Bond, 1989). Three major approaches have been used to measure national cultures using these average scores: clusters, scales, and smallest space analysis.

National Clusters. One way to use cultural measures is to identify groups of similar cultures. Probably the first such study was that of Haire, Ghiselli and Porter (1966), which analyzed a 10-language study of 3,641 managerial respondents, clustering 14 countries into five groups (Nordic, Latin, Anglo-American, Japan and Developing). These results were generally consistent with those of Hofstede (1983), who, based on his studies of IBM employees in 66 countries from 1967-1973, clustered 50 countries (and three regions) into 13 groups. Four corresponded to the first four of Haire et al (1966), but Hofstede subdivided the developing nations into distinct cultural groups.

Linear Scales. Many studies have developed one or more specific numerical measures of culture, which are assumed to be interval scale. The most often cited is that of Hofstede (1980), whose *Culture's Consequences* provides measures for four composite variables developed from his surveys of IBM employees: individualism (IDV), power-distance (PDI), uncertainty avoidance (UAI), and masculinity (MAS). The original 40 countries were extended to 50 countries and three multi-country geographic regions (Hofstede, 1983; Hofstede & Bond, 1988). Various attempts to replicate the IBM results with other samples confirmed Hofstede's rank-orderings between cultures, but actual index values were specific to his sample (Hofstede, 1980; Hoppe, 1990; Punnett & Withane, 1990).

In parallel to Hofstede, the Chinese Value Survey developed by Michael Bond and others (Chinese Culture Connection, 1987; Bond, 1988) was an emic instrument explicitly centered on Chinese culture. Their 40-item Chinese Value Survey was administered in 22 countries with more than 2,000 respondents. Three of the factors produced correlations of .55 or greater to one or more of Hofstede's IBM factors in the 20 countries where the two studies overlapped. However, the fourth factor, the so-called “Confucian dynamism” did not correlate strongly to any of Hofstede's factors.

Hofstede was not the first to identify the tension between individualistic and collectivist values: such philosophical questions have been around for centuries, even though the systematic study of these values is comparatively recent (Kashima, 1987; Kim, 1994). Since Hofstede's study was published, a variety of empirical follow-up studies (Bond, 1988; Triandis et al., 1993; Schwartz, 1994) as well as extended theoretical/methodological works (Kim et al., 1994; Triandis, 1995) have been published on the individualism vs. collectivism dimension. In contrast to Hofstede's conception of individualism and collectivism as bipolar extremes, Kashima (1987) reported measures of the two as distinct, only loosely correlated dimensions, while Triandis et al. (1993) found measures that distinguished both between individual and group differences in individualism.

Smallest Space Analysis. Instead of differing importance levels ascribed to values between cultures, Schwartz and Bilsky (1990) examined the relationships *between* values *within* a given culture. They asked subjects in seven countries to classify the similarity of 36 values of the Rokeach Value Survey, and then used smallest space analysis to produce a four-dimensional map for each country; the maps were then used to group related values. A later study of 56 values across 88 samples in 40 countries (Schwartz & Sagiv, 1995) produced distinct groupings of values consistent across most countries, including three groupings — power, achievement, and tradition — found in at least 90% of the countries. From the relative importance assigned to each group of values, Schwartz (1994) concluded that one dimension of his map corresponds roughly to Hofstede's Individualism.

Among all these studies of cultural differences, it is Hofstede's that is most often mentioned in international business, with more than 1,000 citations (Søndergaard, 1994; Chandy & Williams, 1995). One reason is the study's unprecedented scope, but perhaps the main reason is the ease of application of his findings. In 274 studies published from 1980 to mid-1993, the dimensions were used as a variables for explaining cross-cultural differences (Søndergaard, 1994). His publication of

numerical country indices have been applied to help explain difference in outcomes between cultures, in what Earley and Singh (1995) refer to as “reduced form” international research strategies.

Language as an Indicator of Culture

Despite the prodigious efforts of Hofstede, Schwartz, and others, there are at least two limitations to the application of their measures to other cross-cultural studies. First, theoretical concerns have been raised about how representative Hofstede’s IBM workers were of their respective national populations; subsequent replications have reduced but not eliminated such concerns. Such concerns could also be raised for the Schwartz studies, primarily based on school teachers and university students. Second, when it comes time to apply these studies, even the largest multi-country studies will leave gaps in country coverage. As an example, when Hofstede and Bond (1984) compared two earlier studies, only 6 of the 10 cultures of Ng et al. (1982) corresponded to Hofstede’s IBM study.

So the ideal cultural measure would be one that was theoretically representative of an entire culture, and would be readily available for any given culture. One possible source of such a measure would be based on language, which is closely linked to both national and cultural boundaries. Fasold (1984) notes that designation of a national language facilitates the development of national identity and is thus in most cases a key prerequisite to the formation of a stable nation-state. At the same time, many of the most obvious subnational divisions of cultural groups are found between language groups in multi-lingual societies such as Belgium, Canada, or Malaysia.

What is the relationship between variations in language and culturally-transmitted beliefs (such as cultural values)? One possibility is a causal linkage of language influencing beliefs, derived from the Whorf (1940) (or Sapir-Whorf) hypothesis that language influences cognition. This hypothesis has led to two interpretations — a weaker form of linguistic relativism (“language influences thinking”) and the stronger linguistic determinism (“language determines thinking”). Penn (1972) notes that Sapir and Whorf did not unambiguously back one or the other, although some (e.g. Pinker, 1995) believe that the weak empirical evidence rules out the deterministic form.

Another possible linkage between language and values is offered by Triandis’ (1972) hierarchy of subjective culture. Triandis proposed that values are derived from elemental cognitive structures, which in turn are derived from lower-level abstractions of language: words, morphemes, and phonemes. Language is also one of several proximal antecedents to various cognitive processes, which in turn are the antecedents of values in his subjective culture model.

Finally, language enables the transmission of culture: “Human language is the medium by which memories outlive individuals and generations....Linguistic competence makes it possible to formulate rules for appropriate behavior in situations that are remote in space and time,” (Harris, 1989: 66). Language and cultural beliefs are correlated because the cross-cultural interactions that account for similarity in cultural beliefs (geographic proximity, migration, colonization) also produce linguistic similarity. So Haire et al. (1966) found Belgian French- and Flemish-speakers held values similar to the countries (France and Netherlands) with which they shared language, religion and other aspects of cultural heritage. In such cases, parallel similarities of language and values can be seen because they are part of a common cultural heritage transmitted over several centuries.

Even if there were no causal or correlational links to cultural beliefs, variations in language also have direct implications for managerial practice. For example, in Johanson and Vahlne (1990)’s internationalization process model, firms expand international operations in order of increasing “psychic distance,” of which language is a central component. Thus, operationalizing a measure of language has both theoretical and substantive implications for measuring cultural dissimilarity.

Hypothesis

If language similarity is an important indicator of cultural distance — either as a reflection of an underlying concept of culture or as a mediator of cultural convergence — then we should expect to observe a relationship between national language and other measures of national culture. One problem in operationalizing cultural distance in terms of language distance is that a reference point

must be chosen. The choice of such a reference point can be arbitrary and thus theoretically unjustifiable, given the risk of an ethnocentric researcher nominating his or her own language as the cultural center of the world. In this case, Hofstede's study involved employees of a single American multinational corporation with an official common language: English. Also, his process in developing the research instrument suggests that the instrument remained both lexically and analytically centered on the original English language or American culture (cf. Hofstede, 1980: 63).

Thus, we would expect that a fundamental cross-cultural difference — a difference in language — would be linked to Hofstede's final values measures. Specifically, we hypothesize that the similarity of a nation's language(s) to English will be related to the similarity between that nation's scores for Hofstede's four dimensions and the scores of English-speaking countries.

ANALYSIS AND CONCLUSIONS

To explore the possible use of language as a measure of cultural distance, analyses were performed using Hofstede's (1983) indices of cultural values and a new measure of language similarity. Because it provides linear measures for more countries than any other cross-cultural study, and because of the clearly identifiable reference language (English) for both the survey population and the research instrument, the Hofstede study provides a unique opportunity to test such a measure.

The study used all 50 countries and one region (Arabia) reported by Hofstede (1983). The language of survey administration was provided by Hofstede (1980), while the dominant national language(s) were determined from Grimes (1992). Languages were categorized in terms of their similarity to English via "genetic classification," arguably the best *a priori* choice in part because "the classification it gives is both comprehensive and exclusive" Dakubu (1992: 56). The genetic classification of Grimes (1992) provided English similarity values ranging from 6 (for English) to 0 (for non Indo-European languages). A dummy variable designated the 10 countries which were not primarily English-speaking, but where the questionnaires were administered in English.

The model was analyzed using EQS using the country scores from the original and Hofstede (1980) and the extended Hofstede (1983); the former was also analyzed using Hofstede's adjusted measures for UAI and MAS. The initial proposed single-factor model (A) produced a poor fit for both the 40- and 51- country datasets. Using Lagrange multiplier tests of path significance (Bentler 1995), a series of model modifications led to a new model (B) that produced an excellent fit that was robust across both datasets and using various measures of UAI, MAS and language similarity. Because the path coefficient for MAS was often insignificant and the explained variance for MAS less than 4%, a third model (C) was tested that dropped MAS and had an excellent fit; all remaining paths were significant at the $p < .001$ level when scaled to adjust for non-normality of data. The three models were retested using the Hoppe (1990) replication with generally similar results: specifically, Model A was rejected and Models B and C were accepted for the Hoppe sample.

The models validated in this study show a previously unremarked common factor in Hofstede's indices, one that measured commonality in three indices and was strongly correlated to measures of language similarity. The results were robust across adjusted measures of two of Hofstede's indices, and produced excellent fit by a wide range of available measures of fit. They were also consistent between Hofstede's original IBM sample and Hoppe's executive education alumni sample.

Additional information on the measures, analysis, conclusions, implications and limitations (deleted here for space reasons) are available from the authors.

REFERENCES

Bentler, Peter M. 1995. *EQS Structural Equations Program Manual*. Encino, Calif.: Multivariate Software.

Bond, Michael Harris. 1988. Finding universal dimensions of individual variation in multicultural studies of values: The Rokeach and Chinese value surveys, *Journal of Personality & Social Psychology*, 55, 6 (Dec.): 1009-1015.

- Bond, Michael Harris. 1994. Into the Heart of Collectivism: A Personal and Scientific Journey. In Uichol Kim, Harry C. Triandis, Çigdem Kâğıtçibasi, Sang-Chin Choi & Gene Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications*, 85-119. Thousand Oaks: Sage.
- Chandy, P.R. & Thomas G.E. Williams. 1995. The Impact of Journals and Authors on International Business Research: A Citational Analysis of JIBS Articles. *Journal of International Business Studies*, 25, 4 (4th Q): 715-728.
- Chinese Culture Connection. 1987. Chinese Values and the Search for Culture-Free Dimensions of Culture. *Journal of Cross-Cultural Psychology*, 18, 2 (June): 143-164.
- Dakubu, M. E. Kropp. 1992. Genetic classification, in William Bright (Ed.), *International Encyclopedia of Linguistics*, v.2: 53-57. Oxford: Oxford University Press.
- Earley, P. Christopher & Harbir Singh. 1995. International and Intercultural Management Research: What's Next? *Academy of Management Journal*, 38, 2 (April): 327-340.
- Fasold, Ralph. 1984. *Introduction to sociolinguistics*. New York: Blackwell.
- Grimes, Barbara (Ed.). 1992. *Ethnologue: Languages of the World*. 12th ed. Dallas, Texas: Summer Institute of Linguistics. <http://www.sil.org/ethnologue>
- Haire, Mason, Edwin E. Ghiselli & Lyman W. Porter. 1966. *Managerial Thinking: An International Study*. New York: John Wiley & Sons.
- Harris, Marvin. 1989. *Our Kind: Who we are, where we came from, where we are going*. New York: Harper & Row.
- Hofstede, Geert H. 1980. *Culture's consequences: international differences in work-related values*. Beverly Hills, Calif.: Sage.
- Hofstede, Geert. 1983. Dimensions of National Cultures in Fifty Countries and Three Regions. in J.B. Deregowski, S. Dziurawiec & R.C. Annis (Eds.), *Expiscations in Cross-Cultural Psychology*, 335-355. Lisse: Swets and Zeitlinger.
- Hofstede, Geert & Michael Bond. 1984. Hofstede's Culture Dimensions: An Independent Validation Using Rokeach's Value Survey. *Journal of Cross-Cultural Psychology*, 15, 4 (Dec.): 417-433.
- Hofstede, Geert & Michael Harris Bond. 1988. The Confucius Connection: From Cultural Roots to Economic Growth, *Organizational Dynamics* 16, 4 (Spring): 4-21.
- Hoppe, Michael Heinz. 1990. *A Comparative Study of Country Elites: International Differences in Work-related Values and Learning and their Implications for Management Training and Development*. Unpublished Ph.D. dissertation, University of North Carolina, Chapel Hill, School of Education.
- Jahoda, Gustav. 1984. Do we need a concept of culture? *Journal of Cross-Cultural Psychology*, 15, 2 (June): 139-151.
- Johanson, Jan & Jan-Erik Vahlne. 1990. The Mechanism of Internationalisation, *International Marketing Review*, 7, 4: 1-24.
- Kashima, Yoshihisa. 1987. Conceptions of Person: Implications in Individualism/Collectivism Research. In Çigdem Kâğıtçibasi (Ed.), *Growth and Progress in Cross-cultural Psychology*, 104-112. Lisse: Swets and Zeitlinger.

- Kim, Uichol. 1994. Individualism and Collectivism: Conceptual Clarification and Elaboration. In Uichol Kim, Harry C. Triandis, Çigdem Kâgitçibasi, Sang-Chin Choi & Gene Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications*. Thousand Oaks, Calif.: Sage.
- Kim, Uichol, Harry C. Triandis, Çigdem Kâgitçibasi, Sang-Chin Choi & Gene Yoon (Eds.). 1994. *Individualism and collectivism: Theory, method, and applications*. Thousand Oaks, Calif.: Sage.
- Kluckhohn, Clyde. 1951. Values and Value-Orientations in the Theory of Action. In Talcott Parsons & Edward A. Shils (Eds.), *Toward a General Theory of Action*. Cambridge: Harvard University Press.
- Leung, Kwok & Michael Harris Bond. 1989. On the empirical identification of dimensions for cross-cultural comparisons. *Journal of Cross-Cultural Psychology*, 20, 2 (June): 133-151
- Ng, S.H. & nine others. 1982. Human Values in Nine Countries. In R. Rath, H.S. Asthana, D. Sinha & J.B.F. Sinha, *Diversity and Unity in Cross-Cultural Psychology*, 196-205. Lisse: Swets and Zeitlinger.
- Penn, Julia M. 1972. *Linguistic Relativity vs. Innate Ideas: The Origins of the Sapir-Whorf Hypothesis in German Thought*. The Hague: Mouton.
- Pinker, Steven. 1995. Language Acquisition. In Lila R. Gleitman & Mark Liberman (Eds.), *An invitation to cognitive science*, Vol. I. Cambridge, Mass.: MIT Press.
- Punnett, Betty Jane & Sirinimal Withane. 1990. Hofstede's Value Survey Module: To Embrace or Abandon. *Advances in International Comparative Management*, 5: 69-89.
- Rohner, Ronald P. 1984. Toward a conception of culture for cross-cultural psychology. *Journal of Cross-Cultural Psychology*, 15, 2 (June): 111-138.
- Schwartz, Shalom H. 1994. Beyond individualism/collectivism: New cultural dimensions of values. In Uichol Kim, Harry C. Triandis, Çigdem Kâgitçibasi, Sang-Chin Choi & Gene Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications*. Thousand Oaks, Calif.: Sage.
- Schwartz, Shalom H. & Wolfgang Bilsky. 1987. Toward a universal psychological structure of human values. *Journal of Personality & Social Psychology*, 53, 3 (Sept.): 550-562.
- Schwartz, Shalom H. & Wolfgang Bilsky. 1990. Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality & Social Psychology*, 58, 5 (May): 878-891.
- Schwartz, Shalom H. & Lilach Sagiv. 1995. Identifying Culture-Specifics in the Content and Structure of Values. *Journal of Cross-Cultural Psychology*, 26, 1 (Jan.): 92-116.
- Søndergaard, Mikael. 1994. Hofstede's consequences: A study of reviews, citations and replications, *Organization Studies*, 15, 3: 447-456.
- Triandis, Harry C. 1972. *The Analysis of Subjective Culture*. New York: Wiley-Interscience.
- Triandis, Harry C. 1995. *Individualism & collectivism*. Boulder, Colo.: Westview Press.
- Triandis, Harry C. & nine others. 1993. An Etic-Emic Analysis of Individualism and Collectivism. *Journal of Cross-Cultural Psychology*, 24, 3 (Sept.): 366-383.
- Triandis, Harry C., Kwok Leung, M. V. Villareal & F.L. Clark. 1985. Allocentric versus idiocentric tendencies: Convergent and discriminant validation. *Journal of Research in Personality*, 19, 4 (Dec.): 395-415.
- Whorf, Benjamin Lee. 1940. Science and linguistics. *Technology Review*, 42, 6 (April): 229-248.