



What did GLOBE really measure? Researchers' minds versus respondents' minds

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Abstract

The GLOBE research program expanded the Hofstede model of five dimensions of national cultures to 18. A re-analysis based on GLOBE's 2004 summary book produced five meta-factors. One was significantly correlated with GNP/capita and, from the Hofstede dimensions, primarily with Power Distance. Three more correlated significantly with Hofstede's Individualism, Uncertainty Avoidance and Long-Term Orientation. The fifth included the few GLOBE questions that related to Hofstede's dimension of Masculinity versus Femininity. GLOBE's respondents' minds classified the questions in a way that the researchers' minds did not account for and which closely resembles the original Hofstede model. *Journal of International Business Studies* (2006) 37, 882–896.
doi:10.1057/palgrave.jibs.8400233

Keywords: GLOBE; Hofstede; national culture; dimensions; masculinity; survey method

The GLOBE study: an impressive international research effort

In the Spring of 2004, the eagerly awaited summary volume on the GLOBE (Global Leadership and Organizational Behavior Effectiveness) research program became available (House *et al.*, 2004). With more than 800 pages, five editors and 20 contributing authors, this is a handbook to be consulted rather than a reader. Although journal articles on GLOBE findings had appeared since 2001 (Javidan and House, 2001, 2002; House *et al.*, 2002), the new volume provides the first overall view of the results. Additional publications were announced.

The GLOBE study was conceived by Robert J. House in 1991. At first he aimed at an international research project on leadership. Later on the study branched out into other aspects of national and organizational cultures. In the period 1994–1997 some 170 voluntary collaborators collected data from about 17,000 managers in 951 local (non-multinational) organizations belonging to one of three industries – food processing, financial services, and telecommunication services – in 62 societies throughout the world.

The GLOBE study is one of four major cross-cultural research projects carried out in the 1990s. Another is the World Values Survey, expanded from a European Values Survey in the 1980s and now coordinated by US political scientist Ronald Inglehart (Inglehart *et al.*, 1998, 2004). It is based on surveys by market research agencies of samples of the adult population (ages 18 years and over) in an increasing number of countries, most recently 81. The third is the Survey of Values, designed and orchestrated by the

Received: 8 November 2004

Revised: 7 March 2006

Accepted: 5 June 2006

Online publication date: 7 September 2006



Israeli psychologist Shalom H. Schwartz. He used samples of students in 54 countries and of elementary school teachers in 56 countries (Schwartz and Bardi, 2001). Several of the GLOBE authors compare their findings with these two studies. The fourth project is the Smith *et al.* (2002) study of 'event management', which asked over 7,000 department managers in 47 countries how they handled each of eight common work events that normally occur in any work organization. There could be important links between this study and the GLOBE findings, still to be explored.

Robert House, in his Preface to the GLOBE book, pays tribute to my earlier study (Hofstede, 1980, 1991), which also used industrial data, in my case from first 40, later 53 national or regional subsidiaries of the IBM Corporation. My work served as GLOBE's model and paradigm, and is cited many times throughout the GLOBE book. The Preface concludes:

We have a very adequate dataset to replicate Hofstede's (1980) landmark study and extend that study to test hypotheses relevant to relationships among societal-level variables, organizational practices, and leader attributes and behavior.

My 1980 book introduced the 'dimensions' paradigm, showing that cultural differences between modern nations could be meaningfully measured and ordered along a discrete set of dimensions, representing different answers to universal problems of human societies. I had empirically derived four such dimensions: Power Distance (related to the problem of inequality), Uncertainty Avoidance (related to the problem of dealing with the unknown and unfamiliar), Individualism–Collectivism (related to the problem of interpersonal ties) and Masculinity–Femininity (related to emotional gender roles). In Hofstede (1991) I added a fifth dimension: Long- versus Short-Term Orientation (related to deferment of gratification). In the terminology of Kuhn (1970), the dimensions paradigm since the 1990s has become the 'normal science' approach to cross-cultural business studies, although researchers diverge in their choice of dimensions.

GLOBE not only adopted the dimensions paradigm, they also started from my choice of five. For conceptual reasons they expanded these to nine. They maintained the labels Power Distance and Uncertainty Avoidance (but not necessarily their meaning). They split Collectivism into Institutional Collectivism and In-Group Collectivism, and Masculinity–Femininity into Assertiveness and Gender

Egalitarianism. Long-Term Orientation became Future Orientation. They added two more dimensions: Humane Orientation and Performance Orientation. The nine dimensions served as the basis for the culture questions in the GLOBE questionnaire. For each of the nine, four scales were developed. Related to each of the dimensions GLOBE distinguished cultural practices ('as is') and cultural values ('should be'). Also, GLOBE distinguished organizational cultures (practices and values related to the work organization) from societal cultures (practices and values related to the wider society).

Leaving this latter distinction aside, GLOBE thus produced $9 \times 2 = 18$ culture scores for each country: nine dimensions 'as is' and nine dimensions 'should be'. In addition, and in line with House's initial research focus, GLOBE collected scores on six dimensions of leadership: Charismatic/Value-based, Team oriented, Participative, Humane oriented, Autonomous and Self-protective leadership. These six dimensions were based on a factor analysis of data collected in a pilot phase. In Chapter 21 of the book, leadership scores are related to country clusters and culture dimensions.

Differences and similarities between GLOBE and Hofstede

While taking the Hofstede (1980) study as a model, GLOBE differed from it in important respects. Comparisons between the two studies, in order to be meaningful, should take these differences into account. The following seven points are evident:

- (1) *New data versus existing data.* GLOBE used a large group of volunteers for collecting data in almost 1,000 local organizations in 62 societies. The Hofstede study was based on the re-analysis of an existing database of employee attitude survey scores assembled by one single multinational: the IBM Corporation, from its subsidiaries in 72 countries, between 1967 and 1973, and later expanded through replications to 75 countries and/or regions (Hofstede, 2001: 500–502). What the two studies have in common is an industrial setting, a large number of countries, seven years' delay between data collection and reporting, and a common publisher, Sage, who managed our bulky volumes (over 300,000 words each) in both cases through choosing a large format (7 in \times 10 in) with two columns per page.

- (2) *Team versus single researcher.* The analysis of the GLOBE data was a team effort, although closely coordinated by its designer Robert House. My analysis was a one-person effort (with excellent help: see the Prefaces), and in my 1980, 1991 and 2001 books I was the single author.
- (3) *Managers versus employees.* The respondents in GLOBE were managers. The respondents in Hofstede (1980) were matched groups of employees in seven occupational categories, two managerial and five non-managerial. Measuring leadership from survey answers by leaders is, in my eyes, a debatable approach. If you want to find out about the quality of a product, do you ask the producer or the consumers? Early in the IBM survey experience (Sadler and Hofstede, 1972) we had found dramatic differences between bosses' and subordinates' statements about the former's leadership.
- (4) *Theory-driven versus action-driven.* The development and analysis of the GLOBE questionnaire was theory-driven, based on the existing literature, including my 1980 book, and on statistical pretests. The IBM attitude survey questionnaires had been designed as a management tool and developed through open-ended pilot interviews with personnel in nine countries. The surveys were action-driven and dealt with issues that IBM employees from different categories and/or their management considered relevant in their work situation. There was immediate feedback to management and to employees (Klein *et al.*, 1971). My cross-national analysis came years later and developed its concepts from the database on file.
- (5) *US inspired versus decentered.* The term 'decentering' refers to conscious attempts at avoiding ethnocentric bias. Robert House was conscious of the danger of ethnocentrism: in his Preface to the 2004 book he states: 'Hopefully, GLOBE will be able to liberate organizational behavior from the US hegemony.' GLOBE's network and respondent population were very international, but its project design and analysis still reflected US hegemony. The book's 25 editors and authors overwhelmingly hold management or psychology degrees from US universities. In the IBM project, locally recruited company researchers with local degrees conducted the pilot interviews and contributed substantially to the questionnaires and the interpretation of the results. The international data analysis was mine. I was born in the Netherlands and got my

degrees there, reading Dutch, English, French and German language authors. My 1980 book refers to anthropological, historical, political science, psychological and sociological sources. An important decentering step in a later phase was the adding of the dimension of Long- versus Short-Term Orientation, based on Michael Harris Bond's team research in 23 countries using a questionnaire originally formulated in Chinese (Chinese Culture Connection, 1987).

- (6) *Organizational culture as similar or different in nature to/from societal culture.* GLOBE asked its culture questions in two formats: 'in this society' and 'in this organization'. One half of the respondents received the first format, the other half the second. Basically the same items were used in both contexts, and in the analysis the GLOBE researchers labeled the answers to the first format 'societal' and those to the second 'organizational' culture. In most cases societal and organizational culture dimension scores were closely correlated, and in the GLOBE book they are not treated separately. The study described in Hofstede (1980) focused solely on societal cultures (differences between IBM respondents from different countries). A separate study was carried out in 1985–1986 comparing the cultures of 20 units from very different organizations, unrelated to IBM, in Denmark and the Netherlands (Hofstede *et al.*, 1990). In-depth interviews generated survey questions that were administered to random samples of employees and managers in the 20 units. Factor analysis of the answers revealed six dimensions, unrelated to the five societal dimensions but reflecting known distinctions from organization sociology: Process- versus Results-Oriented, Employee- versus Job-Oriented, Parochial versus Professional, Open versus Closed, Tight versus Loose and Normative versus Pragmatic. Unit scores on these dimensions were subsequently validated against other data about the unit, such as their size, labor-intensiveness, structure, controls, gender and age composition of employees and management. The IBM questions distinguishing societal cultures were also included in the survey, but they showed smaller differences between organizations than between countries, and smaller differences between organizations than the new organizational culture questions did. A main conclusion from the organizational culture study was:



'After having done both a large cross-national and a large cross-organizational culture study, we believe that national cultures and organizational cultures are phenomena of different orders: using the term 'cultures' for both is, in fact, somewhat misleading...' (Hofstede *et al.*, 1990: 313).

With respect to the distinction between organizational and societal cultures there is therefore a basic and unbridgeable difference between the GLOBE approach and the Hofstede *et al.* approach. It seems to me the GLOBE approach lacks empathy for the essence of organization cultures, as we found it in our in-depth studies of 20 specific organizations. Our six-dimensional model of organizational culture differences has proven its face value in feedback to employees and managers. Two management consultant networks have developed it into organization development tools, among other things for monitoring the integration of fusion partners.

- (7) *National wealth as a part or as an antecedent of culture.* Many measures of national culture are correlated with national wealth (or national poverty): they are affected by economic factors. Wealth supports Individualism, but it also relates to other dimensions. The GLOBE authors are conscious of the role of wealth (House *et al.*, 2004: 117–20), but it does not influence their interpretations of culture. More than half (12 out of 18) of their dimension measures are significantly correlated with national wealth; the only dimension entirely uncorrelated, both 'as is' and 'should be', is Assertiveness.

In Hofstede (2001) I have argued that differences in values that can be accounted for by economic factors do not need to be explained by cultural factors. Therefore, in all my validations of the culture dimensions against external data, wealth has been controlled for, often by analyzing separately data from poor and from wealthy countries. From the original four IBM dimensions, Individualism and Power Distance were both strongly correlated with national wealth, and therefore (negatively) with each other, but after controlling for wealth their intercorrelation all but disappeared. Uncertainty Avoidance was weakly correlated with wealth; only Masculinity was entirely unrelated to wealth and therefore purely cultural. The fifth dimension, Long-Term Orientation, was

uncorrelated with wealth but significantly related with economic growth, that is, change in wealth.

GLOBE's operationalizations of values and practices

My main concern about the GLOBE research is that the questionnaire items used may not have captured what the researchers supposed them to measure. For the reader this is not easy to verify, as the GLOBE book does not show how exactly its culture dimensions were operationalized. Among all its over 800 pages the book does not reproduce the survey questionnaires, just one or two sample items per dimension.

These items are in a bi-polar seven-point format. 'As is' questions came in the first section of the questionnaire; in GLOBE's analysis they are referred to as 'practices'. The corresponding 'should be' items were contained in the third section of the questionnaire; in the analysis they are referred to as 'values'. In the 'societal' culture mode the 'as is' questions start with the words 'In this society...' and the 'should be' questions either the same or with 'I believe that...'. In the 'organizational' culture version, the word 'society' is replaced by 'organization', and where questions refer to 'students' this becomes 'employees'.

The items are formulated at a high level of abstraction, rather far from the respondents' daily concerns. Let's look at the following question, belonging to GLOBE's Uncertainty Avoidance dimension:

- (a) In this society, societal requirements and instructions are spelled out in detail so citizens know what they are expected to do: strongly agree – strongly disagree. (b) In this society, societal requirements and instructions should be spelled out in detail so citizens know what they are expected to do: strongly agree – strongly disagree.

Three other examples are:

- (1) For Institutional Collectivism: 'The economic system in this society is designed to maximize individual interests – collective interests.'
- (2) For Future Orientation: 'In this society, the accepted norm is to plan for the future – accept the status quo.'
- (3) For Humane Orientation: 'In this society people are generally very concerned about others – not at all concerned about others.'

Having spent half of my career as an employee and manager in industry, and during the other half having invested hundreds of hours in-depth inter-

viewing other employees and managers, I wonder how the respondents, practicing and mostly first-line managers in local food processing, financial services, and telecommunication companies in 62 countries, have interpreted such questions. Asking 'as is' questions basically assumed that these people were in a position to compare their society with other societies. This assumption, I believe, is naïve – it takes international experience plus an unusually open mind to produce anything like a credible comparison between one's own society and others.

One clue to the meaning of the questions to the respondents is the relationship between the 'as is' and the 'should be' answers. For seven of the nine dimensions the correlations between the mean country scores on the 'as is' and the 'should be' answers were significantly negative (House *et al.*, 2004: Appendix A, Table A.3). In decreasing order of correlation strength: for Uncertainty Avoidance ($r=-0.62$, $P<0.001$), Institutional Collectivism (-0.61), Power Distance (-0.43), Future Orientation (-0.41), Humane Orientation (-0.32), Performance Orientation (-0.28) and Assertiveness (-0.26 , $P<0.05$). All of these are about issues worded in an abstract, impersonal way. The negative correlations mean that 'as is' answers and 'should be' answers were not independent. When respondents were asked to describe their society 'as is' this reflected their 'should be' ideology. They tended to criticize their society from an ideological point of view (from 'things are A but should rather be B' to 'things are B but should rather be A').

The negative country-level correlations between 'as is' and 'should be' have also puzzled the GLOBE team. In the concluding chapter of the book, the editors state that the relationship between values and practices is nonlinear, more complex than initially assumed, and dimension specific. 'In short, our findings point to the need for a more complex understanding of the relationship which views it as dynamic and double directional rather than static and unidirectional' (p 730). My contribution to this understanding is to explain it from the respondents' inability to describe 'practices' in any other way than by applying their 'values'.

Asking someone to describe the actual situation may in fact be a more effective way for detecting her or his implicit ideology than asking for agreement with ideological statements. Let us take Uncertainty Avoidance, the GLOBE dimension for which, as we saw, the negative correlation between 'as is' and 'should be' was strongest. GLOBE's Uncertainty Avoidance value ('should be') scores

were weakly positively correlated with the Hofstede Uncertainty Avoidance scores, assumed to also measure values ($r=0.35$, $P<0.05$), but GLOBE's Uncertainty Avoidance practice scores were much more strongly negatively correlated with Hofstede ($r=-0.62$, $P<0.01$; House *et al.*, 2004: 626). In countries scoring high on Hofstede's Uncertainty Avoidance Index, GLOBE respondents described their own society as a place where societal requirements and instructions were not spelled out in detail, so citizens did not know what they were expected to do. Their subjective perception was the opposite from what my UAI and its validations would conclude for their country.

For only two dimensions were the country mean scores for the 'as is' and 'should be' answers positively correlated: for Gender Egalitarianism ($r=0.32$, $P<0.05$) and for In-Group Collectivism ($r=0.21$, not significant). These were, in my view, the easiest issues to answer, referring to basic human relationships (men-women and parents-children) with which everybody is intimately familiar. The positive correlations mean that in these cases the respondents tended to take the actual situation as their norm, which is a characteristic of a coherent culture.

GLOBE's operationalizations of 'values' and 'practices' differ considerably from mine. In the Hofstede (1980) study, values were defined as 'broad tendencies to prefer certain states of affairs over others' and as dealing with opposites such as evil versus good, dirty versus clean, and dangerous versus safe. After a study of the literature I also made a sharp distinction between 'values as the desired' and 'values as the desirable': what people actually and personally desire versus what they think they ought to desire. The associated differences are summarized in Table 1 (reproduced from Hofstede, 2001: 7).

The IBM survey questions mostly measured the personally desired. GLOBE's 'should be' items, 'in this society' or 'in this organization', obviously measured the desirable. For the seven questions for which 'as is' and 'should be' were negatively correlated, the 'as is' items were also (negatively) linked to the desirable. None measured the personally desired.

In Hofstede (1980) the term 'practices' was not used. It was introduced in the organizational culture study (Hofstede *et al.*, 1990) for distinguishing between national cultures (rooted in values learned before puberty) and organizational cultures (rooted in practices acquired on the work floor).

Table 1 The desirable versus the desired

<i>Nature of a value</i>	<i>The desired</i>	<i>The desirable</i>
Dimension of a value	Intensity	Direction
Nature of corresponding norm of value	Statistical, phenomenological, pragmatic	Absolute, deontological, ideological
Corresponding behavior	Choice and differential effort allocation	Approval or disapproval
Dominant outcome	Deeds and/or words	Words
Terms used in measuring instrument	Important, successful, attractive, preferred	Good, right, agree, ought, should
Affective meaning of this term	Activity plus evaluation	Evaluation only
Person referred to in measuring instrument	Me, you	People in general

Source: Hofstede (2001: 7).

Practices belonged to organizational cultures, values to national cultures. The term 'practices' subsumed perceptions of symbols, heroes and rituals, those aspects of a culture that are visible to an outside observer (Hofstede, 2001: 10) – usually the more superficial aspects. In a separate analysis (Hofstede, 1998) I showed practices to be statistically distinct from values. But these 'practices' were entirely different from the 'practices' in the GLOBE sense.

Defining culture dimensions by psycho-logic or eco-logic

GLOBE sought to define its dimensions in a way to hold face validity and to make psychological sense. In my own empirical analysis of the IBM database, I found that distinctions derived from comparing collective trends in respondents' answers across countries sometimes followed a different logic. 'Cultures are not king-size individuals. They are wholes, and their internal logic cannot be understood in the terms used for the personality dynamics of individuals. Eco-logic differs from individual logic' (Hofstede, 2001: 17). US anthropologist Marvin Harris (1981: 8) put it as follows: 'One point that anthropologists have always made is that aspects of social life which do not seem to be related to each other, actually are related.'

The difference between psycho-logic and eco-logic is most evident in my operationalizations of the dimensions Power Distance and Uncertainty Avoidance. The Power Distance Index (PDI) in my 1980 book was calculated from three survey questions:

- (a) the preference for one style of decision-making by one's boss over other styles;
- (b) the perception of the boss's actual decision-making style; and
- (c) (for non-managerial employees only) the feeling that employees were afraid to disagree

with their manager (which I saw as an indirect way of stating that they themselves were afraid).

In terms of psycho-logic these three belong to different categories, and they could not form a respectable survey instrument. I detected them by following the respondents' eco-logic, searching for those questions in the database for which the mean scores across countries were most strongly correlated. At the individual respondent level these questions did not correlate (Hofstede, 2001: 125). For individual respondents their answers to (a) did not predict their answers to (b) and (c), but if in a country many individuals answered one way to (a), we would also find in that country many people answering in the corresponding ways to (b) and (c).

Basing myself on the fact that the preferred boss was part of the three survey items, I interpreted the resulting Power Distance Index as revealing a shared value at the societal level: the amount of inequality between a superior and a subordinate that was both expected and accepted in this society. This was a value as the desired, and I found it to be negatively correlated with the desirable: in countries where IBM employees preferred for themselves a more directive over a more participative boss, they at the same time endorsed more frequently the statement 'employees in industry should participate more in the decisions made by management.' The ideological statement acts to some extent as a compensation for what happens at the pragmatic level (Hofstede, 2001: 91). GLOBE found my Power Distance Index scores to be correlated about zero with their 'should be' measure of power distance, but strongly with the 'as is' measure ($r=0.57, P<0.01$; House *et al.*, 2004: 543). GLOBE's 'as is' measure corresponded with what I called a shared value.

The Uncertainty Avoidance Index (UAI) in my 1980 book was also calculated from three survey items:

- (d) the feeling that company rules should not be broken, not even when the employee thinks it would be in the company's best interests to do so;
- (e) the respondent's intention to stay with the company for more than five years; and
- (f) the respondent's feelings of stress at work.

As in the case of Power Distance, these questions were detected empirically on the basis of the correlations of their mean scores across countries. Across individuals, (d) and (e) were marginally correlated, but (e) and (f) were negatively correlated (Hofstede, 2001: 184). This meant that these two questions represented alternative reactions of individuals to the same societal pressures. The three questions shared an eco-logic that my personal psycho-logic had not at first understood. I have interpreted the resulting Uncertainty Avoidance Index as revealing part of the respondents' collective anxiety level in view of the unknown and the unfamiliar, expressed for example in the feeling that 'what is different, is dangerous'. The UAI is correlated across countries with measures of anxiety symptoms, neuroticism, and lower subjective well-being (Hofstede, 2001: 155–158).

GLOBE's questions, as we saw, were about society, not about the respondents' own life, and asked for the desirable. As mentioned earlier, GLOBE's Uncertainty Avoidance dimension produced a strong negative correlation between 'as is' and 'should be'. As in the case of Power Distance, the 'as is' questions presented the strongest correlation with the corresponding Hofstede dimension; however, for Power Distance the correlation was positive whereas for Uncertainty Avoidance it was negative.

For the Hofstede dimensions of Individualism–Collectivism and Masculinity–Femininity the operationalizations were more straightforward: they were based on IBM employees' scores for the importance of various job aspects for describing their ideal job. These scores were measured ipsatively (i.e., each aspect relative to the others). The country means for the relative importance of 14 job aspects ('work goals') divided themselves empirically into two orthogonal factors. The first factor opposed the importance of time for one's personal life and freedom on the job to training opportunities, physical working conditions and being able

to use one's skills. It was interpreted as opposing an individual's independence from the company to collective things the company did for its employees, and correlations showed it to distinguish individualist from collectivist societies, a claim confirmed in many later country comparisons and strongly supported in a recent essay by Schimmack *et al.* (2005). Country Individualism scores were negatively correlated with country Power Distance scores. However, as mentioned earlier, both were correlated with national wealth (GNP/capita), and when wealth was controlled for, the correlation between Power Distance and Collectivism almost disappeared (Hofstede, 2001: 219).

The second factor in the analysis of country means on work goals opposed the importance of the relationship with one's direct manager and with one's colleagues, but also the possibility to live in a desirable area, receiving high earnings, recognition, advancement and challenge. It was called social versus ego-orientation, and afterwards reversed into Masculinity versus Femininity. A review of research into this dimension was published as Hofstede *et al.* (1998).

The empirical analyses that produced the first four Hofstede dimensions took place in the 1970s. Only after they had emerged did I discover a handbook article by Inkeles and Levinson (1954) that provided a theoretical rationale why precisely these four should have been found. From an anthropological review of the literature dealing with what was then called National Character, the authors in fact predicted the four dimensions (Hofstede, 2001: 31).

The fifth dimension, Long- versus Short-Term Orientation, was not based on the IBM survey material but on the results of a study across 23 countries worldwide using the Chinese Value Survey (Chinese Culture Connection, 1987). Respondents were 50 female and 50 male students in each country. The survey produced a new empirical dimension ('new' in the sense that it was based on questions not asked before, and uncorrelated with the first four Hofstede dimensions). It opposed the importance of (mainly) future-oriented life goals to past- and present-oriented life goals: perseverance and thrift on the future side, personal stability, respect for tradition and reciprocation of favors on the present side. As most of the related goals on either side belonged to the inheritance of Confucius (fifth century B.C.), the Chinese Value researchers called the future pole Confucian Dynamism. Taking into account that

the dimension was based on comparing 23 countries, of which at best in six the respondents had ever heard of Confucius, I re-baptized the dimension Long-Term versus Short-Term Orientation.

Re-analyzing GLOBE's dimension scores

The GLOBE research produced 18 scores for each country, nine dimensions 'as is' and nine 'should be'. The dimensions were significantly correlated among each other, which begs the question to what extent the matrix could be simplified: to this end, I factor-analyzed it. Scores for 60 countries, corrected for response bias, are listed in the GLOBE book (House *et al.*, 2004: Appendix B, Table 2), but according to Table B.4, France, Morocco, Qatar and Taiwan produced frequent outliers, suggesting systematic errors. Excluding these four countries I retained a matrix of 18 dimensions × 56 cases.

In a principal components factor analysis of the 18 dimension scores, five factors produced eigenvalues over 1; together they accounted for 75.7% of

the variance in the matrix. Maintaining all five I subjected the solution to an orthogonal varimax rotation. The rotated factors neatly separated the 18 dimension measures: with a cutoff point of 0.50 all but one dimension loaded on just one factor. The remaining one, Gender Egalitarianism Value, showed a highest loading of 0.47 on Factor 1. The factors are listed in Table 2.

The dimensions for which the practice and value measures load on the same factor are not surprisingly those where these measures were found to be most strongly (and negatively) correlated. As mentioned earlier, these are the five dimensions of Uncertainty Avoidance, Institutional Collectivism, Power Distance, Future Orientation, and Humane Orientation. For these the practice and value measures show two sides of the same sentiment.

Factor scores on each of the five factors were computed for each of the 56 countries. Checking for economic influences, I found Factor 1 to be strongly correlated with the countries' national wealth (per capita gross national product in 2000, $r=0.75$, $P<0.001$). It was therefore also related to the six GLOBE dimensions most strongly correlated with national wealth (House *et al.*, 2004: 118). These included four practices: stronger Uncertainty Avoidance, stronger Future Orientation, weaker In-Group Collectivism, and stronger Performance Orientation. The other four factors were unrelated to national wealth.

Factor 2 combined a rejection of institutional collectivism (like agreeing with 'the economic system in this society should be designed to maximize individual interests') with perceiving such collectivism in practice ('as is'), and with a preference for assertiveness ('should be'). Factor 3 combined two values ('should be'): in-group collectivism and performance orientation. Factor 4 combined the practice of a less humane orientation with a larger perceived power distance (GLOBE style) and more assertiveness and with the values of more humanity and less power distance. Factor 5 represented one single GLOBE dimension: gender egalitarianism 'as is', and this very strongly.

Next I correlated the five factor scores with the five country dimension scores from Hofstede (2001). From the 56 societies in the GLOBE matrix, eight had no equivalent in the Hofstede database (Albania, Bolivia, Georgia, Kazakhstan, Kuwait, Namibia, South Africa Blacks, and Zimbabwe). Scores for the remaining 48 countries were correlated with the Hofstede index scores; for Long-Term

Table 2 Results of an ecological factor analysis of 18 GLOBE dimension scores for 56 countries, varimax rotated with five factors

<i>Factor 1 (25.9% of variance):</i>	
0.90	Uncertainty avoidance practice
-0.87	Uncertainty avoidance value
0.84	Future orientation practice
-0.80	In-group collectivism practice
0.70	Performance orientation practice
-0.61	Future orientation value
(0.47)	Gender egalitarianism value
<i>Factor 2 (13.5% of variance):</i>	
-0.82	Institutional collectivism value
0.79	Institutional collectivism practice
0.63	Assertiveness value
<i>Factor 3 (13.3% of variance):</i>	
0.85	In-group collectivism value
0.75	Performance orientation value
<i>Factor 4 (13.2% of variance):</i>	
0.81	Humane orientation value
-0.67	Humane orientation practice
0.57	Power distance practice
-0.55	Power distance value
0.52	Assertiveness practice
<i>Factor 5 (9.9% of variance)</i>	
0.90	Gender egalitarianism practice

Total variance explained: 75.7% (figures are loadings).



Table 3 Correlations between GLOBE dimension factors, GNP/capita and Hofstede indices across 48 countries (30 for LTO)

	GLOBE factors				
	1	5	2	3	4
GNP/capita	0.75***				
<i>Hofstede indices</i>					
Power distance	-0.66***				
Individualism	0.61***	0.40**			
Uncertainty avoidance	-0.54***		-0.38**		
Long-term orientation				-0.58**	
Masculinity					0.15 ^a

Significance limits: *** $P < 0.001$; ** $P < 0.01$; ^asee text.

Orientation, the comparison is limited to the 30 countries for which this dimension has been measured. The results are shown in Table 3.

Factor 1, which was strongly correlated with wealth, shows significant correlations with the three dimensions that I also found to correlate with wealth (Hofstede, 2001: 519). The strongest correlation, negative, is with Hofstede's Power Distance, and the other two are with Individualism and Uncertainty Avoidance. In a stepwise multiple regression of Factor 1 on Hofstede's first four indices, Power Distance explained 42% of the variance and Uncertainty Avoidance explained another 19%. Remarkably, this factor was not associated with the 'as is' and 'should be' measures labeled as Power Distance in GLOBE.

Factor 2 was solely and negatively associated with Hofstede's Uncertainty Avoidance dimension, so in uncertainty-avoiding societies (Hofstede style) people would welcome institutional collectivism, find it lacking in practice, and reject assertiveness. In my research I found my UA dimension to be associated with people wanting government to take decisions for them, at the same time distrusting the government that did this, and rejecting competition between employees.

Factor 3 was solely negatively associated with Long-Term Orientation. Typical long-term-oriented societies are those in East Asia where strong in-group links and a stress on hard work prevail. Typical short-term-oriented societies are the USA and Britain, but also Islamic and African countries (Hofstede, 2001: Chapter 7). The negative correlation with this dimension shows that respondents in short-term-oriented societies tended to desire stronger in-group links and more performance orientation. They do not hold a weaker or stronger future orientation in the GLOBE sense.

Factor 4 as a whole was unrelated to any of the Hofstede dimensions, but a stepwise regression of Hofstede's Masculinity Index on all 18 GLOBE measures showed it to be significantly correlated with Assertiveness Practice ($r=0.30$, $P < 0.05$) and even more with Assertiveness Practice plus Assertiveness Value ($R=0.43$, $P < 0.01$), both positively in spite of a negative correlation between the two assertiveness measures. Conceptually the emergence of GLOBE's Humane Orientation in this factor fits with an association with Hofstede's Femininity.

Factor 5 correlated significantly with the Hofstede dimension of Individualism. Interestingly it separated itself from the corresponding 'should be' scores, which were related to Factor 1 and therefore to wealth. To what extent the value of gender equality was felt to be realized, was affected by Individualism. Factor 5 did not relate to Hofstede's Masculinity.

For none of the factors 2 through 5 did multiple regressions across all Hofstede indices produce any new links.

Re-analyzing GLOBE's item scores

If what we want to find out is the structure in the data according to the respondents' logic, factor-analyzing the 18 dimension scores is not ideal. Each of the dimensions is based on four or five questionnaire items, and their composition reflects to some extent the researchers' choice. The respondents' logic should become clearer if we start from the country means for the $2 \times 39=78$ items. These are not in the book, but the GLOBE research team kindly made the text of all 78 items as well as their mean country scores available. This allowed me to factor-analyze the 78 items \times 56 countries matrix. Factor-analyzing such a 'flat' matrix with fewer cases than variables implies obviously that the

usual caution of number of cases \gg number of variables is not heeded. What most texts on factor analysis do not mention is that for ecological factor analyses, based on means of populations, this caution does not apply: the number that counts is the number of individuals who went into the means, in this case more than 15,000, which is \gg the number of variables.

In a principal components factor analysis of the 78 item scores, 18 factors produced eigenvalues over 1; together they accounted for 85.6% of the variance in the matrix. I correlated the results of a varimax rotation with all 18 factors against the country scores for the 18 GLOBE dimensions. In all, 12 of the 18 factors were primarily correlated with one dimension only, which confirms the reliability of these dimensions as a country-level measure. Of the other six dimensions, three were split over two factors each: Gender Egalitarianism Practice, Assertiveness Value and Power Distance Value. The remaining three dimensions were divided over factors primarily linked to other dimensions: Performance Orientation Practice, In-Group Collectivism Practice and Power Distance Practice; the latter was significantly related to six factors. The items on which these six dimensions were based did not form distinct and reliable measures at the country level.

A scree plot of the item-based factor analysis suggested cutoff points at eight factors (67.1%) and at five factors (55.5% of the variance). I tried both solutions, varimax rotating first with eight factors and subsequently with five.

In the eight-factor solution, the first two factors were almost entirely composed of items from dimensions belonging to Factor 1 in the dimensional analysis (Table 2). The third and fourth factor were half composed of items from Factor 2 in the dimensional analysis, complemented with stray items from dimensional Factors 1 and 3. The fifth and sixth factors contained primarily items from Factor 4 in the dimensional analysis, but the fifth also showed a link with dimensional Factor 3. The seventh and eighth factor were the only ones with items from dimensional Factor 5. The overall picture looked like a blurred version of the dimensional factor analysis of Table 2.

The picture became clearer in the five-factor solution shown in Table 4. In this table, items are classified by the GLOBE dimension with which they are supposed to be associated. Items tend to appear in the same factor as in the cross-dimensional analysis of Table 2, although with a lot of

exceptions. Twenty-one GLOBE items did not load with over the 0.50 limit on any of the five factors, including all items related to Humane Orientation Value. (In the eight-factor solution, two of the Humane Orientation Value items associated with a factor similar to Factor 4 in Table 2; the other two again did not reach the 0.50 limit.)

Factor scores for the eight- and five-factor solutions were correlated with GNP/capita and the Hofstede dimensions. The results for the five-factor solution are shown in Table 5. These correlations can be compared with those based on dimension scores in Table 3. The strong first factor correlates again with GNP/capita and with Hofstede's Power Distance and Individualism, and this time weakly with Long-Term Orientation, but in a stepwise multiple regression of Factor 1 on Hofstede's five indices, Long-Term Orientation did not make an independent contribution. Power Distance explained 55% of the variance and Individualism another 8%, together 63%. Individualism this time did not correlate separately with a factor, but both Hofstede's Uncertainty Avoidance and Long-Term Orientation correlated strongly with a factor of their own, and even Masculinity reached a marginal correlation with another factor that also contained a split-off from Uncertainty Avoidance. All in all, both the item-based and the dimension-based factor analysis show significant correlations with Hofstede's country scores, but the dimension-based analysis that pre-grouped the item produces a slightly clearer picture.

Obviously the relationships between the two studies depend on the extent to which the GLOBE items replicated the meaning of the Hofstede dimensions. Table 6 shows a count of significant country-level correlations of all 78 GLOBE items with GNP/capita and the five Hofstede dimensions. The total count exceeds 78 as an item may be correlated with more than one dimension.

From Table 6 we read that the GLOBE questionnaire items were about equally frequently correlated with GNP/capita and with Hofstede's Power Distance, Individualism and Uncertainty Avoidance dimensions. For Power Distance and Individualism the correlations were equally distributed over the 'as is' and 'should be' items, but for Uncertainty Avoidance most correlations were with items formulated 'as is'. Relatively few items were correlated with Long-Term Orientation, and most of these were with items in the 'should be' mode. As we saw in Tables 3 and 5 these

Table 4 Results of an ecological factor analysis of 78 GLOBE item scores for 56 countries, varimax rotated with five factors

<i>Factor 1 (22.8% of variance), 18 items</i>		
5	Uncertainty avoidance value	(1)
4	In-group collectivism practice	(1)
4	Gender egalitarianism value	(1)
1	Uncertainty avoidance practice	(1)
1	Future orientation practice	(1)
1	Performance orientation practice	(1)
1	Future orientation value	(1)
1	In-group collectivism value	(3)
<i>Factor 2 (13.3% of variance), 11 items</i>		
3	Institutional collectivism value	(2)
2	Institutional collectivism practice	(2)
1	Assertiveness value	(2)
2	Future orientation value	(1)
2	Performance orientation value	(3)
1	Power distance value	(4)
<i>Factor 3 (7.8% of variance), 12 items</i>		
2	In-group collectivism value	(3)
4	Performance orientation practice	(1)
3	Future orientation practice	(1)
2	Uncertainty avoidance practice	(1)
1	Assertiveness practice	(4)
<i>Factor 4 (6.6% of variance), 9 items</i>		
4	Humane orientation practice	(4)
3	Assertiveness practice	(4)
2	Institutional collectivism practice	(2)
<i>Factor 5 (5.0% of variance), 7 items</i>		
2	Gender egalitarianism practice	(5)
3	Power distance practice	(4)
1	Power distance value	(4)
1	In-group collectivism practice	(1)

Total variance explained: 55.5%.

Items are classified by dimension; first column is numbers of items loading >0.50. Numbers in parentheses () refer to the factor in the GLOBE dimensions analysis (Table 2) on which this dimension loaded.

21 items did not load >0.50 on any factor.

Table 5 Correlations between factor scores of an ecological factor analysis of 78 GLOBE item scores for 56 countries, varimax rotated with five factors, and GNP/capita plus Hofstede indices across 48 countries (30 for Long-Term Orientation)

	<i>GLOBE factors</i>				
	1	5	3	2	4
GNP/capita	0.75***				-0.29*
<i>Hofstede indices</i>					
Power distance	-0.75***				
Individualism	0.74***				
Uncertainty avoidance		0.26 [†]	0.54***		0.43**
Long-term orientation	-0.41*			0.63***	
Masculinity					0.28 [†]

Significance limits *** $P < 0.001$; ** $P < 0.01$; * $P < 0.05$; [†] $P < 0.10$.

Table 6 Significant correlations between GLOBE item scores, GNP/capita and Hofstede indices across 48 countries (30 for LTO)

	Number of GLOBE items correlated				
	At level		Total	Item type	
	<i>P</i> < 0.01	<i>P</i> < 0.05		'As is'	'Should be'
With GNP/capita	28	14	42	21	21
<i>With Hofstede indices</i>					
Power distance	23	10	33	16	17
Individualism	24	10	34	16	18
Uncertainty avoidance	25	12	37	26	11
Masculinity	1	7	8	7	1
Long-Term Orientation	8	11	19	2	17

relatively few items were still sufficient to produce a clear LTO factor.

The one Hofstede dimension almost entirely missing among the GLOBE items is Masculinity versus Femininity. It is therefore not surprising that the GLOBE factor structures contained only weak links with this dimension. At the item level, one significant correlation at the 0.01 level and seven at the 0.05 level among 78 variables is hardly better than can be expected by chance. The item correlated with *P* < 0.01 was: 'People are generally aggressive' (*r* = 0.41**). Among the six correlations with *P* < 0.05 we find 'People are generally dominant' (*r* = 0.31*) and 'People are generally tough' (*r* = 0.31*). These confirm the relationship with the Assertiveness 'as is' GLOBE dimension already found in the dimension-level analysis.

Discussion

The GLOBE project was designed as a replication and elaboration of the Hofstede (1980, 1991) study. In this paper, I have outlined the similarities and differences between GLOBE's approach and mine, which should be understood in comparing the results. The empirical part of this paper consisted of correlating the Hofstede dimension scores with the result of two factor analyses. The first started from the country scores on GLOBE's twice nine dimensions for 56 countries, as reproduced in the GLOBE book. The second started from the country scores on GLOBE's 78 questionnaire items, made available for this purpose by the GLOBE team.

In the first, dimensions-based factor analysis, a best-fitting simple structure of five meta-dimensions emerged. Across 48 common countries, these five meta-dimensions were correlated with the five

dimensions in the Hofstede (2001) study. The links were not strong – except maybe for Power Distance – but, except for Masculinity, significant, and probably as clear as could be expected in the comparison of two studies with very different respondents answering differently formulated questions at points in time some 25 years apart. The second, item-based, factor analysis produced similar results, but somewhat blurred compared with the dimension-based analysis, undoubtedly because the data contained more random noise.

Remarkably, none of the correlations between the GLOBE factors and the Hofstede dimensions linked the latter to the GLOBE dimensions that were supposed to have been derived from them. Factor 1 did not relate to GLOBE's Power Distance, Factor 2 not to GLOBE's Uncertainty Avoidance, Factor 3 not to GLOBE's Future Orientation, Factor 5 not to either of GLOBE's Collectivism dimensions. Factor 4 was not significantly correlated with any of the Hofstede dimensions, but at least one of the GLOBE dimensions loading on it, Assertiveness, did relate to Hofstede's Masculinity.

This suggests that many of the GLOBE items at the country level may convey hidden meanings not intended and understood by their designers. For example, the prevalence in Table 6 of 'as is' over 'should be' items correlated with Hofstede's Uncertainty Avoidance, which fundamentally expresses societal anxiety (Hofstede, 2001: 155ff), shows that these 'as is' items reflect unconscious feelings more than perceptions of facts. For Long-Term Orientation the prevalence in Table 2, factor 3 and in Table 6 of 'should be' items is undoubtedly due to the fact that rather than the first four Hofstede dimensions that used work-related questions, LTO scores were based on questions about the impor-

tance of general life virtues among which future versus past was only one.

Quite remarkable in Table 6 is the scarcity of GLOBE items correlated with Hofstede's Masculinity–Femininity dimension. In designing their questionnaire, GLOBE split the Mas–Fem dimension into Assertiveness and Gender Egalitarianism. As we saw, the only clearly significant correlation found between Hofstede's Masculinity index and the GLOBE dimensions was with the combination of Assertiveness 'as is' plus Assertiveness 'should be'.

There were no indications of a relationship between Hofstede's Mas–Fem dimension and GLOBE's Gender Egalitarianism, nor should such a relationship have been expected. Other studies have shown that gender equality depends primarily on individualism and on national wealth (Hofstede, 2001: 305ff). Mas–Fem is not about gender equality as such, but about the differentiation of emotional roles between women and men. It is about whether boys, not girls, should fight, and whether girls, not boys, may cry. It is about the trade-off between the interest of the family and the interest of the job. It is about admiration for the strong versus support for the weak; it is about the balance between the two Christian Biblical commandments of loving God the Father versus loving one's neighbor. Country Femininity index scores correlate strongly with the percentage of national and private income that wealthy nations contribute to the development of poor nations (Hofstede, 2001: 319). The GLOBE questionnaire hardly covered such issues; it came closest with some items from the Assertiveness and Humane Orientation dimensions.

The lack of correlations of the GLOBE data with the Mas–Fem dimension is striking because other cross-national databases, if properly analyzed, rarely fail to link with this dimension. In my review of hundreds of other studies in the second edition of *Culture's Consequences*, the number of significant correlations of the MAS index with data from other sources, both survey results and country-level indicators, was just as large as for the other three original Hofstede dimensions (Hofstede, 2001: Appendix 6). The only difference was that Mas–Fem appeared more often as a second-order correlate. This was explained by the fact that Mas–Fem is unrelated to wealth (there are as many wealthy as poor masculine and feminine countries), and that many of the external data do contain a wealth component that leads to a first-order correlation

with one of the wealth-related dimensions before the effects of Mas–Fem differences emerge.

In Hofstede's (1980) analysis of work-related values in national subsidiaries of the IBM Corporation, Masculinity–Femininity and Individualism–Collectivism represented equally strong orthogonal twin factors. Mas–Fem separates countries in an entirely different way from Ind–Col. For example, in Europe it separates Austria (masculine) from Sweden (feminine); in Asia, Japan (masculine) from Thailand (feminine); and in Latin America Venezuela (masculine) from Costa Rica (feminine). Cultural differences between these countries can hardly be explained by other factors. Among European countries Uncertainty Avoidance and Masculinity–Femininity are crucial for understanding differences in consumer behavior (de Mooij, 2005).

A recent article compared national norms for McCrae's 'Big Five' personality dimensions to Hofstede's first four culture dimensions across 33 countries. In a stepwise regression of mean personality scores on culture dimensions, Individualism appeared once, Power Distance appeared twice, and Uncertainty Avoidance and Masculinity each appeared three times. Cultural Masculinity plays an important role in national variance in personality. For example, for the variance in national scores for Neuroticism, Uncertainty Avoidance explains 31% and Masculinity another 24% (Hofstede and McCrae, 2004: 72).

In missing out on the Mas–Fem dimension, GLOBE has followed a trend frequent in North American social science research. North American researchers have enthusiastically jumped on the Individualism–Collectivism dimension when it became available (Schimmack *et al.*, 2005), but virtually ignored the Mas–Fem dimension, which in their cultures is considered politically incorrect. There is a taboo on it (Hofstede *et al.*, 1998); it seems to conflict with strongly felt values, and many researchers seem unable to understand its essence. In the study of cultures taboos are mighty interesting reflections of values which should be faced, not repressed.

To conclude this article, let me dwell on the epistemological status of dimensions. Dimensions should not be reified. They do not 'exist' in a tangible sense. They are constructs, 'not directly accessible to observation but inferable from verbal statements and other behaviors and useful in predicting still other observable and measurable verbal and nonverbal behavior' (Levitin, 1973:



492). If they exist, it is in our minds – we have defined them into existence. They should help us in understanding and handling the complex reality of our social world.

Our minds have a limited capacity for processing information, and therefore dimensional models that are too complex will not be experienced as useful. In a now classic article, Miller (1956) argued that useful classifications should not have more than seven categories, plus or minus two. He may still have overestimated the optimal number.

With nine dimensions of culture times two, the GLOBE researchers' psycho-logic has surpassed the limits of our capacity for processing information. A form of data reduction is needed. As my re-analysis of GLOBE's data showed, their respondents' ecology allows reducing the GLOBE dimensions to five, and these show a family likeness with the Hofstede model.

The five dimensions in the Hofstede model have both an empirical base and a theoretical (or even

philosophical) rationale. Supported (at least in the case of the first four) by a classic and fundamental review of the existing insights about 'national character' and 'modal personality' half a century ago (Inkeles and Levinson, 1954), they claim to describe basic dilemmas that every human society faces and that each allow a range of solutions. If their status is indeed basic, they make a fair chance of being identified in any thorough and professionally executed study of cultures across societies. Their presence in the GLOBE material, in spite of the cultural constraints of the research team, speaks in favor of the thoroughness and professionalism of the GLOBE project.

Acknowledgements

The author thanks *JIBS* departmental editor Kwok Leung for negotiating access to the GLOBE country mean item scores, Robert J House and the GLOBE team for providing these scores, and Dr Frank Chau for handling my extensive requests for analysis.

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Accepted by Kwok Leung, Deputy Editor-in-Chief, 5 June, 2006. This paper has been with the author for two revisions.

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