



# On the misuse and misinterpretation of dimensions of national culture

Dimensions of national culture

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## Abstract

**Purpose** – The purpose of this paper is to respond to the article by Brewer and Venaik (*IMR* 29,6). The paper also aims to show fundamental differences between the Hofstede and GLOBE models of national culture, and their relevance to marketing.

**Design/methodology/approach** – Based on experience in the study of consumer behavior, a critical analysis of applications of dimensional models of national culture in the existing marketing literature is presented.

**Findings** – Differences between models are caused by confusing value types, design and type of questions used.

**Practical implications** – Researchers tend to select one of several models for analyzing cross-cultural variables in consumer behavior, marketing and advertising without understanding the basic differences between the models. Ignorance of the fundamental and conceptual differences may cause the formulating of wrong hypotheses.

**Originality/value** – Next to highlighting the misuse of dimensions to individuals, this paper focuses on the origin of the differences between the models from a marketing point of view.

**Keywords** National cultures, Cross-cultural research, Hofstede, GLOBE, Culture-versus individual-level analysis, Consumer behaviour

**Paper type** View point

## Introduction

This reaction to the paper by Brewer and Venaik (2012) in this journal underscores their objection to applying models of national culture to individuals. Such applications lead to erroneous applications in marketing and advertising. They distract from the value of such models. In addition this paper addresses other improper usage of cultural models and compares the models developed by Hofstede (2001) and GLOBE (House *et al.*, 2004). It points at several causes of misinterpretation: ignorance of the paradoxical aspects of human values, lack of understanding of the conceptual elements of cultural dimensions, and the influence of types of questions on the results. In particular the latter is rarely covered in comparative papers.

## Culture level vs individual level

In comparative cross-cultural research at the national-level individuals are sampled from a population in order to reach conclusions on that population. The average values or frequencies of priorities of individual members of one society are compared with the average value priorities or frequencies of priorities of individual members of other societies. There is overlap between individual values and values at national level because institutions reflect the values shared by the individual members of a society. If they would not do so, individuals would not be able to function adequately. Individuals are guided by their cultural priorities and in their behavior reinforce



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the social system (Hofstede, 2001, pp. 15-17; Schwartz, 1994, pp. 92-93). When the properties of individuals as observed within a country or group (e.g. reading ability) are aggregated they can only be treated as country-level variables, for example to find explanations for some phenomena at country level (e.g. level of literacy across countries). As Brewer and Venaik state we cannot use them to explain within-system differences. The aggregated data represent a mix of different people because a society consists of a variety of people, so patterns of associations observed at national culture level (also called ecological level) differ from patterns at the individual level.

Shalom Schwartz (1992) has demonstrated this phenomenon when he tried to extend his values study from individual level to culture level. Originally he validated ten motivationally distinct types of individual values at individual level but found that the value constructs appropriate for comparing the cultures of societies differ from those appropriate for comparing individuals. Analysis at the societal level, based on sample means obtained by aggregating the individual scores within each society, showed support for only seven cultural value constructs that overlapped with the individual-level structure, but the match was far from perfect (Fischer *et al.*, 2010).

Although Brewer and Venaik (2012) are correct in stating that dimensions of national culture do not apply to individuals, their objections to the way findings are reported in the Hofstede and GLOBE studies miss the point and suggest that they did not understand the logic of analyzing the same data at different levels of aggregation. Scores on national dimensions cannot be used to predict the behavior of a particular individual, but as long as authors are clear about reporting frequencies or averages, using the word individuals is not problematic. They should even less object to referring to people, which is a collective.

The logic of analyzing the same data at two levels can be illustrated from Table 1 in Brewer and Venaik's paper, derived from Hofstede (2001). This table shows that the three questions that together compose Hofstede's Uncertainty Avoidance Index: rule orientation, employment stability, and stress, are significantly correlated across 53 countries, but weakly or even negatively across individuals. This means that in national societies that score high on uncertainty avoidance we find more rule-oriented people, more people seeking stable employment, and more stressed people, but that these are not the same individuals. Individuals in a national society are like the pieces in a jigsaw puzzle; while each being unique, they fit together and produce a meaningful national picture. In describing the national culture, it is perfectly okay to refer to characteristics of individuals that in such a culture are relatively more frequent or more likely.

Although the fundamental error of extending culture-level findings to the individual level has been demonstrated by many, especially marketing researchers and teachers continue to apply cultural dimensions to individuals. In advertising academia Taylor (2005, 2007) on his research agenda for international advertising suggests that cross-cultural studies that examine the impact of culture should actually measure how the individual respondents stand on the cultural dimension investigated. The error is culture-bound in itself. Because of their strong belief in the uniqueness of individuals, generally, authors from individualist national cultures are in favor of individual-level studies; they feel reluctant to categorize people on the basis of group characteristics and insist that people should be treated, analyzed, and interpreted as individuals, not as group members. In more collectivistic cultures, the opposite bias can be found. Group differences are exaggerated and viewed as absolute. There is a tendency to treat

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people on the basis of the group that they belong to rather than as individuals (Minkov, 2007).

### **The use of cultural models in marketing: Hofstede vs GLOBE**

Although level confusion renders cultural models invalid, this paper wants also to address another improper usage of cultural models, by comparing the models developed by Hofstede (2001) and GLOBE (House *et al.*, 2004). In particular in international marketing the Hofstede model tends to be viewed as old and thus not valid anymore and new models, in particular GLOBE, are embraced without understanding the basic difference. Brewer and Venaik correctly state that many applications of the models by Hofstede and GLOBE reflect a lack of understanding as to the nature of such models. This paper points at ignorance of the different conceptual content of the two cultural models being at the basis of improper use. Lack of understanding of the conceptual elements of cultural models makes researchers formulate the wrong hypotheses and when the hypotheses are not supported the model is blamed. Several concepts must be understood when employing and comparing models of national culture:

- at the basis are human values and the fact is that most human values have paradoxical elements;
- values are measured by asking questions to human beings and the way questions are formulated influences the results; and
- cultural values of researchers are reflected in the purpose of a study, the type of topics and the questions they select.

### **Cultural values: the desirable and the desired**

Models of national culture measure values, expressed by norms and/or behavior. Two aspects of values must be distinguished: values as guiding principles in life, and a value as a preference for one mode of behavior over another. The distinction refers to the desirable and the desired, or what people think ought to be desired and what people actually desire – how people think the world ought to be vs what people want for themselves (Hofstede *et al.*, 2010). The desirable refers to the general norms of a society and is worded in terms of right or wrong. It applies to people in general. The desired is what we want, what we consider important for ourselves.

Answers to questions to individuals about how people in general in a society should behave will be different from answers resulting from questions about their own preferred state of being. The personal desire to be a powerful leader does not include the wish that all others are also powerful leaders. Where there is little freedom, one may want more freedom, but also citizens of free societies will mention freedom as their highest preference. Although an important aspect of US culture is “going it alone” or “doing it my way,” a value found in many lists of values of the USA is “belonging,” which seems paradoxical in view of even stronger individualistic values. In content analysis of advertising, group appeals, or the picture of a family tend to be hypothesized as a reflection of collectivism, but paradoxically it can also be a reflection of individualism where it is the desirable. In collectivistic cultures advertisers may feel little need to depict groups or families because the group and family are part of one’s identity; it is not the desirable (De Mooij, 2010). Not understanding this value paradox makes researchers set the wrong hypotheses and consequently express surprise about an unexpected outcome, as Okazaki and Mueller (2007) do when writing “Surprisingly,

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the data revealed that Japanese ads made less use of group/consensus appeals than did US ads.”

The paradoxical aspect of values explains why answers to questions about what people actually do and what they think should be done usually are negatively related. This causes the most basic conceptual difference between the models by Hofstede and GLOBE (House *et al.*, 2004). Hofstede asks for the desired, GLOBE asks for the desirable (Hofstede, 2010).

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### **The Hofstede model and GLOBE: difference in purpose and design**

The purpose of a study influences the type of questions and the interpretation of outcome as well as the selection of samples.

The purpose of the Hofstede model (Hofstede, 2001; Hofstede *et al.*, 2010) was to understand differences in work motivations of all levels of employees, caused by the nationality of the employees. House (House *et al.*, 2004), the initiator of GLOBE, was interested in a narrower aspect of behavior: the effectiveness of leadership styles. He wanted to find out if charismatic leader behavior is universally acceptable and effective.

The samples used for the models are different. Hofstede used matched groups of employees in seven occupational categories within one global company in 66 countries in order to understand differences in work-related behavior. By doing this within one global company he eliminated the influence of corporate culture. GLOBE surveyed middle managers in 951 local organizations in food processing, financial services, and telecom services in 62 societies.

The types of questions used follow different patterns. Hofstede asks respondents for their own, personal behavioral preferences. The GLOBE researchers measured respondents' perceptions of the organizations or national societies in which they live or work in terms of ideological abstractions, about society as it is and as it should be, which they call practices and values. This is similar to the contrast between the desired and the desirable. What the GLOBE researchers call values are in fact norms or how people state other people should behave. For seven of the nine GLOBE dimensions, cultural values and practices are negatively correlated (Javidan *et al.*, 2006). Only for in-group collectivism and gender egalitarianism do the two correlate positively, which may be due to the fact that the questions for these dimensions are more closely related to people's daily lives than those for the other dimensions.

The fundamental difference is that Hofstede asks about personal preferences and GLOBE's questions refer to the society in which the respondents live. For example, the question for institutional collectivism is: "The economic system in this society is designed to maximize individual interests – collective interests." Respondents have to assess their own society and how their society should be, for which they would need knowledge of other societies. Hofstede (2006) questions if middle managers in local food processing and telecommunication can answer such questions or are in a position to compare their society with other societies for which international experience is necessary. In particular researchers from individualistic cultures may phrase questions that are highly abstract and are not easy to answer by respondents in various cultures.

### **Different questions, different results**

The usefulness of cultural models depends on the type of questions asked in surveys. Understanding how these questions make a difference is necessary to understand the usefulness of the different models. Generally five types of questions can be

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distinguished, for which we refer to the Hofstede model and GLOBE, but also to the model by Schwartz (1994).

First, questions about what is important to people in their daily lives, questions about oneself, one's behavior or feelings, or personal preferences (self-reports) that reflect cultural values. Examples of such questions are about personal feelings of happiness, the frequency of feeling tense, the importance of having pleasant people to work with, or time available for family life. The Hofstede model is based on such self-reports of actual behavior of individuals or preferences related to people's daily lives at all layers of society. Hofstede asks people about individual behavioral preferences, preferred or actual states of being, which is the desired. Questions relate to recognizable aspects of daily life.

Second, judgmental self-reports, like asking people to define themselves according to personal characteristics, such as judging oneself as an honest, friendly, or aggressive person. Such definitions tend to be relative. When individuals make certain judgments about themselves, they implicitly draw comparisons with others. These referent others, however, are different for people in different cultures. For example, in a society where, on average, people are aggressive car drivers, an individual driver may not judge himself to be an aggressive driver whereas he would notice his driving as being aggressive in a society where most people are more tolerant drivers. We see a similar phenomenon in cross-cultural measurement of personality traits. In a large study (Schmitt *et al.*, 2007) of personality traits across cultures, the researchers were surprised to find Chinese, Korean, and Japanese people in the very bottom on the scale representing the degree of conscientiousness. It seems unlikely that most people would think of individuals of these cultures as extremely undisciplined and weak willed – a profile indicative of low conscientiousness. However, where the standards for being punctual, strong-willed, and reliable are very high, respondents may report that they are less disciplined than is generally the case in that particular culture.

Third, questions about value preferences, asking respondents to rate the importance of values “as guiding principles in my life” on a scale. Examples of such values are equality, politeness, wealth, and respect for tradition. The answers may not be the same as answers to questions about actual behavior. What people view as a guiding principle reflects more the norm, the desirable, or what one ought to view as the right behavior. The Schwartz model uses this type of questioning. As the formulation of value priorities tends to be quite abstract, such questions are best answered by well-educated people. The respondents sought for the Schwartz Value Survey are teachers and students.

Fourth, questions about behavior in relation to the society in which people live, which imply people's judgment of other members of their society (referent questions). Examples are questions to which respondents can agree or not, like: “In this society people are generally assertive,” or “In this society people are generally very concerned about others.” When answering the question respondents have to think about what their society actually is, and many may not be aware of characteristics of people outside their own group; some may answer in the context of the nation whereas others may refer to their family or neighborhood only. Asking ordinary respondents to describe their societies or their fellow citizens produces meaningful results only when the discussed issues are very simple, such as some types of relationships within families (Minkov, 2011). Thinking about how others behave or an abstract item such as society is much more difficult than thinking about oneself. When questions refer to issues people cannot be expected to be knowledgeable about, the answers may not

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make much sense or result in stereotypes that are far from reality. Basically, when referring to societal behavior, we measure a mix of two variables: the individual's personal values, reflected in their opinion and the society or group referred to. When the referent group is simple and nearby, such as family or nearby contacts in daily life, respondents will have no problem with such questions, but when referring to an abstract phenomenon like society, problems may arise. Maybe highly educated people can estimate the average values of their society without projecting their own values, but most people will project their own values or norms onto the desirable ones for the society in which they live. These may not represent reality. The GLOBE study uses this type of question.

Fifth, judgmental referent questions, asking people to express judgments about societal norms. These are questions asking respondents how other people in their society should behave. The GLOBE study uses such questions and the GLOBE researchers call the results values. Here three variables are at work: the respondents' personal values reflected in their opinion, the society of which he/she is part, and the norms for "others" in society. It is very complex questioning. Examples are agreement or disagreement with statements like "In this society students should strive for improved performance," or "In this society followers should obey their leaders" (GLOBE). Other examples are agreement or disagreement with abstract statements like "there should be more emphasis on family life"; or "less importance should be placed on work" or "there should be greater respect for authority" (World Values Survey). There can be a large difference between people's personal values and those they wish to see in others. For example, if I want to be powerful, I do not necessarily want others to be powerful too. A religious person who has espoused religion as a personal value may, however, want everybody else to become religious (Minkov, 2011).

Generally, in cross-cultural research the use of judgmental questions relating to people's own society, be it direct or indirect, asks for invalid results as people will give answers relative to the behavioral standards of their own culture. For example, people's level of agreement with the statement "There is too much sex on TV" will depend not only on whether they think sex should be allowed on TV, but also on how much sex there in fact is on TV in their particular country. A similar problem exists with the following statement: "We drink more wine at home these days." To agree with this statement in a wine-drinking country like Italy would imply something very different from the same response in the UK (Williams, 1991).

### **Misinterpretation of conceptual content of dimensions**

One cause of formulating the wrong hypotheses and thus faulty results is misinterpretation of the content of cultural dimensions. This is either due to the fact that different researchers use the same labels for dimensions with different content, or researchers do not have enough insight into the conceptual aspects of dimensions. An example of the first type is the use of the label uncertainty avoidance; an example of the second is interpreting the dimensions relating to male-female roles.

In an earlier paper Venaik and Brewer (2008) point at inconsistencies in labels used for the different models that will erode the confidence researchers have in the foundations of much cross-cultural research. One of the most misleading aspects is GLOBE's use of the same labels as Hofstede, although they have a different content.

In particular the name and definition of GLOBE's dimension uncertainty avoidance suggests similar aspects to the Hofstede dimension with that label, but it is very different from Hofstede's uncertainty avoidance. It is more a variant of collectivism,

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pointing at high importance of in-groups and relative lack of interest in out-groups (Minkov, 2011). It is defined as the extent to which members of collectives seek orderliness, consistency, structure, formalized procedures, and laws to cover situations in their daily lives (Sully de Luque and Javidan, 2004). This is not the same as avoiding ambiguity, anxiety, and stress, which all sorts of other coping mechanisms than orderliness and laws may serve to handle. The GLOBE dimension country scores correlate negatively with Hofstede's scores, resulting in opposing correlations with other variables. For example, measures of general life satisfaction and happiness correlate negatively with Hofstede's uncertainty avoidance dimension and positively with the GLOBE dimension. Reading ability (United Nations data on literacy) tends to correlate negatively with Hofstede's dimension, but positively with the GLOBE dimension. Whereas frequent use of the computer is found more in cultures that score low on Hofstede's dimension, it is found less in cultures that score low on GLOBE's dimension (data World Values Survey, 2005). A probable cause of confusion is the use of too complex questions containing two different concepts. For example, for measuring uncertainty avoidance, GLOBE asks the following question: "In this society, orderliness and consistency are stressed, even at the expense of experimentation and innovation," as if innovation is not possible in an orderly fashion. Interestingly, Brewer and Venaik in their example from the Luthans and Doh (2012, pp. 116-117) text omit to point to conceptual misuse of Hofstede's dimension uncertainty avoidance by associating it with risk taking, a commonly found misconception which is worse than using words like people or managers.

Even more conceptual insight is needed for comparing Hofstede's masculinity/femininity dimension with the GLOBE dimensions assertiveness and gender egalitarianism.

Hofstede's masculinity/femininity explains variation in the degree of assertiveness but also of role differentiation, which is an important concept for all sorts of consumer behavior. Role differentiation is small in feminine societies and large in masculine societies. In feminine cultures, a male can take a typical female job without being seen as a "sissy." In masculine cultures both males and females can be tough; in feminine cultures both males and females can be tender. This is the essence of the dimension. It explains differences in household roles like cleaning, child care, cooking, and shopping as well as differences in working part-time, by both males and females. In Europe, in the feminine cultures women spend more time in employment and in the masculine cultures women spend more time on domestic activities (Harmonised European Time Use Survey, 2007). It explains differences in frequency of internet access and using the internet for leisure and other personal reasons, to enhance the quality of life. In the masculine cultures of Latin America, men must be real men. For example, in a Latin American survey across seven countries, the percentages of answers agreeing with the statement "Real men don't cry" correlated with masculinity (De Mooij, 2010).

GLOBE's gender egalitarianism measures equal opportunity for women vs male domination. High scores point at the same opportunities for females and males; low scores indicate greater male domination. This is, however, more about equal opportunity in education and in the work place than about the existence or absence of specific male-female roles in society, in family life and in households. For example, the female-male ratio of enrollment in tertiary education and adult literacy rates (UNESCO Institute for Statistics) correlate positively with gender egalitarianism whereas the percentage of women in parliaments correlates negatively with Hofstede's masculinity

dimension, not with gender egalitarianism. The latter is more a matter of roles in society as it is not only about women's opportunities, but also about men; whether they are willing to vote for women.

The GLOBE dimension assertiveness is defined as "the degree to which individuals in organizations or societies are assertive, dominant, and aggressive in social relationships" (Den Hartog, 2004, p. 395). It correlates significantly with Hofstede's masculinity. Assertive societies are viewed as dominant. The USA is an example of an assertive culture. Competition is viewed as a fundamental aspect of human nature and people live in a dog-eat-dog world. However, Den Hartog (2004) links assertiveness with a direct communication style, making one's wants known to others and in no uncertain terms, as in low context communication. That characteristic presupposes that Asian societies that are high context, are not competitive, which is not the case. Competitive Japan scores quite low on this dimension, whereas it scores high on the Hofstede dimension masculinity that also measures the degree of assertiveness.

These are only a few examples of the complexity of dimensions of national culture. Before using them researchers must do in-depth study of the conceptual elements and not just rely on a label.

### Conclusion

This paper has tried to shed some light on the conceptual background of two models: the Hofstede model and GLOBE. Cultural models are increasingly applied in international business, marketing, and advertising research. These models may lose credibility by improper application as often such studies are not based on sufficient conceptual insight into the various cultural dimensions. New models are quickly embraced without proper analysis of the conceptual content. Frequent mistakes found are applying culture-level data to individuals and confusing the desirable and the desired. Loss of credibility of cultural models is also caused by using the same labels for different concepts. Researchers must understand the differences in design and purpose of the various models when selecting a model for their own comparative research. Next, before setting hypotheses for each dimension used, the values included in these dimensions must be understood.

### References

- Brewer, P. and Venaik, S. (2012), "On the misuse of national cultural dimensions", *International Marketing Review*, Vol. 29 No. 6, pp. 673-683.
- Den Hartog, D.N. (2004), "Assertiveness", in House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W. and Gupta, V. (Eds), *Culture, Leadership, and Organizations. The GLOBE Study of 62 Societies*, Sage, Thousand Oaks, CA, pp. 395-436.
- De Mooij, M. (2010), *Global Marketing and Advertising, Understanding Cultural Paradoxes*, 3rd ed., Sage, Thousand Oaks, CA.
- Eurostat (2009), *Harmonised European Time Use Surveys*. European Commission. Luxembourg Office for Official Publications of the European Communities.
- Fischer, R., Vaclair, C.M., Fontaine, J.R.J. and Schwartz, S.H. (2010), "Are individual-level and country-level value structures different? Testing Hofstede's legacy with the Schwartz value survey", *Journal of Cross-Cultural Psychology*, Vol. 4 No. 2, pp. 135-151.
- Hofstede, G. (2001), *Culture's Consequences*, 2nd ed., Sage, Thousand Oaks, CA.
- Hofstede, G. (2006), "What did GLOBE really measure? Researchers' minds versus respondents' minds", *Journal of International Business Studies*, Vol. 37, pp. 882-896.



- 
- Hofstede, G. (2010), "The GLOBE debate: back to relevance", *Journal of International Business Studies*, Vol. 41, pp. 1339-1346.
- Hofstede, G., Hofstede, G.J. and Minkov, M. (2010), *Cultures and Organizations. Software of the Mind*, 3rd ed., McGrawHill, New York, NY.
- House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W. and Gupta, V. (2004), *Culture, Leadership, and Organizations. The GLOBE Study of 62 Societies*, Sage, Thousand Oaks, CA.
- Javidan, M., House, R.J., Dorfman, P.W., Hanges, P.J. and Sully de Luque, M. (2006), "Conceptualizing and measuring cultures and their consequences: a comparative review of GLOBE's and Hofstede's approaches", *Journal of International Business Studies*, Vol. 37, pp. 897-914.
- Luthans, F. and Doh, J. (2012), *International Management: Culture, Strategy and Behavior*, McGraw-Hill Irwin, New York, NY.
- Minkov, M. (2007), *What Makes us Different and Similar*, Klasika I Stil, Sofia.
- Minkov, M. (2011), *Cultural Differences in a Globalizing World*, Emerald, Bingley.
- Schmitt, D.P., Allik, J., McCrae, R.R. and Benet-Martinez, V. (2007), "The geographic distribution of big five personality traits: patterns and profiles of human self-description across 56 nations", *Journal of Cross-Cultural Psychology*, Vol. 38 No. 2, pp. 173-212.
- Schwartz, S.H. (1992), "Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries", *Advances in Experimental Social Psychology*, Vol. 25 pp. 1-65.
- Schwartz, S.H. (1994), "Beyond individualism/collectivism", in Kim U., Triandis H.C. et al., (Eds), *Individualism and Collectivism: Theory, Method, and Applications: Vol. 18. Cross-Cultural Research and Methodology*, Sage, Thousand Oaks, CA, pp. 85-122.
- Sully de Luque, M. and Javidan, M. (2004), "Uncertainty avoidance", in House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W. and Gupta, V. (Eds), *Culture, Leadership, and Organizations. The GLOBE Study of 62 Societies*, Sage, Thousand Oaks, CA, pp. 602-653.
- Taylor, C.R. (2005), "Moving international advertising research forward", *Journal of Advertising*, Vol. 34 No. 1, pp. 7-16.
- Taylor, C.R. (2007), "Recent trends in international advertising research: current state of knowledge and where we need to go", Proceedings of the 2007 Conference of the American Academy of Advertising, Burlington, VT, April 12-15.
- Venaik, S. and Brewer, P.A. (2008), "Contradictions in national culture: Hofstede vs GLOBE", in Cantwell, J. and Kiyak, T. (Eds), *Proceedings of the 50th Annual Meeting of the Academy of International Business (AIB), Milan, June 20-July 3*, UQ Business School, St Lucia, Queensland, p. 274.
- Williams, J. (1991), "Constant questions or constant meanings? Assessing intercultural motivations in alcoholic drinks", *Marketing and Research Today*, August, pp. 169-177.
- World Values Survey (2005), *World Values Survey 2005 Official Data File v.20090901*, available at: [www.wvsevsdb.com/wvs/WVSDData.jsp](http://www.wvsevsdb.com/wvs/WVSDData.jsp)

### Web reference

UNESCO Institute for Statistics, available at: [www.uis.unesco.org/literacy/](http://www.uis.unesco.org/literacy/)

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