

# Cultural and Institutional Conditions for Using Geographic Information; Access and Participation

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*Abstract: Access to geographic information is a necessary and enabling but not a sufficient condition for participation in its use. Access and participation are both essentially behavioral in nature and therefore depend on social conditions, in particular, on culture and institutions. This article explores two existing models to describe different cultures (viz. well-known models proposed by Geert Hofstede and Mary Douglas, respectively) and the potentials of these models in analyzing cultural conditions for access to geographic information and participation in its use. Finally, the article proposes inclusion of cultural and institutional conditions in the emerging research agenda on access to and participatory approaches in using geographic information and suggests some steps to this end.*

## Introduction

Taken together, the Workshop by the European Science Foundation-U.S. National Science Foundation on Access to Geographic Information and Participatory Approaches in Using Geographic Information, held in Spoleto, Italy, from December 6-8, 2001, raised the question whether increased access to geographic information also increases public participation; if not: reinvigorates democracy, and benefits society at large? The obvious answer to that question is: it depends. Of course, the ultimate reason for being concerned with the issue of participatory use of geographic information – or of any information for that matter – is its potential support for some kind of “participatory development.” However, there is evidence of both empowerment and marginalization of people and communities due to differential access to information and to participation. (For a discussion of these contradictory aspects related to geographic information, see articles by Obermeyer and Pinto (1994:169-181) and Harris and Weiner (1998).)

What do we mean by access to and participatory use of geographic information? I suggest we view information as a resource that can be tapped but needs to be nurtured and maintained as well. It follows that participants can both make use of the stock of information and add (local) knowledge, facts, interpretations, analysis, and the like to it. Participatory use of information is an act of sharing, dialogue, and collaboration among individuals. Access to information would then enable these two-way flows. Geographic information and its participatory use are particularly significant when social groups (such as communities or societies at large) collectively deal with development problems most of which having important spatial or locational dimensions.

The relationship between access to and participatory use of geographic information (GI) is not a linear process. Certainly, making use of information necessitates some form of access to it. But access itself may also be a drive into participatory use of information and this, in turn, may be a condition for popular

participation in general. What are critical conditions in this respect? How will the information be integrated with folk perceptions about the world, which are generally in terms of narratives (stories) and images? In this article, I will argue that access to and participation in use of geographic information depend on social context, specifically on local culture and institutions. Participatory approaches in using geographic information – or any kind of information for that matter – are likely to have limited effects in societies that are not supportive to (popular) participation in general. The dependency on context does not ignore, however, the positive – although limited – role that availability of and access to (geographic) information can play in increasing public participation.

## Access and Participation Depend on Social Context

Access to (geographic) information and its usability are relevant concerns whenever people seek information. This will generally be the case when they meet or anticipate problems. Many of these problems have a strong spatial dimension as in spatial analysis, spatial planning, and decision-making, implementation of these plans, and environmental monitoring and management. Access to and use of geographic information are schematically situated between geographic information and its providing technology on the one hand and spatial problems on the other. Access to geographic information is important because the information may be used because of solving spatial problems.

Access to and participatory use of (geographic) information are essentially behavioral in nature. Access to information is both to be sought and seized by some, and to be enabled or facilitated by others. The same is the case for participation.

Although individuals exercise concrete problem-solving actions, these individual actions generally do take place within groups or societies. And so do access to and the use of geographic information. Consequently, both are subject to social conditions.

But both may contribute in shaping social conditions as well; be it to a limited extent. Because of these social interactions, I view geographic information as being socially constructed. Consequently, I view participatory approaches in using information as essentially social processes in the construction of information. (The traditions that I follow in the article include “symbolic actionism” (Blumer 1969) and “social construction of technology” (Bijker and Law 1992, Bijker 1995) (see also, for instance, Harvey 2000).

## Culture and Institutions

Which social conditions in particular influence access to and use of geographic information? Because culture and institutions guide individual actions and behavior, I would argue that both access to and use of geographic information are embedded in the culture and the institutional arrangements of the host society. But they are not fully determined by cultural and institutional conditions only. The situation, for example, that laws in the United States allow greater access to government information and use of that information than is generally allowed in the nations of Europe cannot be explained by differences in cultural conditions alone. Laws are only to a limited extent expressions of the dominant culture of the host society. But “the rule of law” as such might be culturally embedded.

### Culture

Culture is a major condition for access to and use of geographic information because both rely ultimately on behavior. In social sciences, the term “culture” refers to the shared ways and thinking that grow out of group experience and are passed from one generation to the next (Broom et al. 1981). Specifically, it refers to the deeper level of basic assumptions and beliefs that define in a basic taken-for-granted fashion a group’s view of itself and its environment. These assumptions and beliefs are learned responses to the group’s problems of survival in its external environment and its problems of internal integration (Schein 1985).

Culture is of particular relevance for the use of information in problem solving. First, culture shapes what people think ought to be. Second, what solutions and remedies are acceptable in a given problem-situation depends to a considerable extent on cultural values. In both ways, culture determines information needs. Finally, the very processes of collecting and interpreting data are also influenced by culture.

### Institutionalization

The sociological notion “institution” is relevant as well. It refers to a recurrent social mechanism that is established and valued by a group, community, or society. Specifically, an institution has a normative impact on the behavior of individuals and may develop within groups or within society at large (see, for example, Broom et al. 1981 and Robertson 1982). In this sociological view, institutions are embedded within the host culture.

Access to and use of geographic information interact with institutions. In this respect, one could argue that the provision

of geographic information must be “rooted” within society in order to be of real value. It is in this sense that one could view the provision of specific sets of geographic information itself as being institutionalized within a group or society (see, for instance, De Man 2000).

## Access and Participation are Culturally and Institutionally Embedded

We now can summarize the assumptions and speculations made so far (Figure 1). First, access to and use of geographic information are “between” spatial problems and geographic information technologies. Second, participatory approaches in using geographic information deal both with access to and use of geographic information. Third, participation in the use of geographic information is embedded in the culture and institutional arrangements of the host society.

## Cultural Differences

Culture differs from one society to another. How do we differentiate between them? A classic distinction is between active and passive societies. Active societies seek opportunities in their environment for improving their conditions and display a desire for attainment and to be in charge. Passive societies, on the contrary, seek to maintain their status quo and display a tendency to be under the control of natural processes, of social waves and developments, or of active others (Etzioni 1968). In other words, societies differ in they way they deal with uncertainties: do they perceive them as opportunities or as threats? It is self-evident that seeking new opportunities requires fundamentally different sets of information than the maintenance of a status quo.

Notwithstanding its merits, the active-versus-passive dimension will not be sufficient to describe and explain the interaction between culture and the application of (geographic) information technology. For example, it does not explain how different bureaucratic ways of management deal with information. To this end,

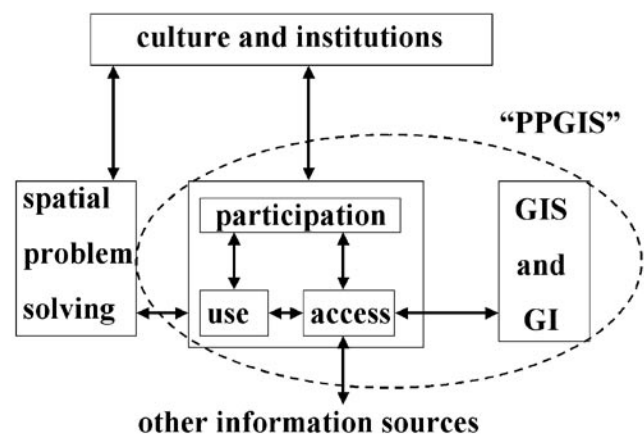


Figure 1. Access, use, and participation are culturally and institutionally embedded

the manner in which a society deals with differences in power and hierarchy and with uncertainty and risk has to be accounted for as well. A more elaborate view on “culture” will be necessary.

Geert Hofstede’s well-known four-dimensional model to describe different cultures seems attractive and promising to this end. However, an alternative model to deal with different cultural “biases” proposed by Mary Douglas and others is worth mentioning as well. In this section, both models are briefly sketched.

### Four Dimensions of Culture (Geert Hofstede)

Hofstede’s study on cultural values of people in over 50 countries revealed common problems, but with solutions differing from country to country (Hofstede 1980 and 1997). From Hofstede’s analysis of 116,000 questionnaires and more than 20,000 interviews with employees of the multinational IBM in over 50 countries, he found that (national) cultures differed by: 1) social inequality (including the relationship with authority); 2) the relationship between the individual and the group; 3) concepts of masculinity and femininity; and 4) ways of dealing with uncertainty. These terms seem to reflect reasonably well the basic (cultural) problems each society faces. Together, these dimensions form a four-dimensional model explaining, as Hofstede claims, around two-thirds of the value differences among national cultures. These cultural dimensions are crucial to issues as accessibility and sharing of information as well, and these are, in turn, most relevant to any information and communication technology (ICT). The latter is reflected in numerous applications of Hofstede’s work in research investigations within the field of ICT (see, for example, Grover et al. 1994 and Shore and Venkatachalam 1996).

The four dimensions of national culture in Hofstede’s model can be briefly described as follows:

**Power Distance.** Culture’s way to accommodate human inequality. Large power distance cultures are hierarchical, authoritarian, and elitist in the sense of accumulation of the good things in life at the higher levels in the hierarchy and of the bad things in life at the lower levels. Small power distance cultures demonstrate flat organisations and value participation (e.g., spread in the distribution of the good and the bad things in life).

**Individualism versus Collectivism.** Culture’s way to accommodate the individual and the ‘group.’ Individualist cultures are composed of calculating citizens. In collectivist cultures, group values are dominant. In such cultures, one’s sense of life is derived from one’s contribution to the common good (e.g., closely-knit crowds).

**Masculinity versus Femininity.** Culture’s way to accommodate masculine and feminine “values.” Masculine cultures focus on achievements and success. They are aggressive and have the visibility of success. Feminine cultures are caring cultures emphasizing quality of life, networking, and relationships as social values (e.g., egalitarian and compassion).

**Uncertainty Avoidance.** Culture’s way to accommodate uncertainty. Strong uncertainty avoiding cultures are characterized by little risk taking, minimal innovation, extensive institutions to bring security and stability, conservative, and thorough planning. Weak uncertainty avoidance cultures are innovative and creative, and tolerant of differences in views and behavior. Risk and excitement are greater values for such cultures than security and stability (e.g., play as it comes, incremental planning, and few contingency scenarios).

Cultures can be described in terms of various combinations of these dimensions. Hofstede found that countries with a generally large power distance are also likely to be more col-

Aspects of Participatory Use of Geographic Information	Power Distance		Uncertainty Avoidance		Masculinity versus Femininity	
	Large	Small	Strong	Weak	Masculine	Feminine
Access to geographic information	L – Top managers assume they know best with no need for further visibility	H – Accountability and transparency are valued	H – Emphasis on control, contingency, and (“hard”) sciences	L – GI may be interesting but not really needed (“who cares”)	L/H – GI is needed only in so far required to shine success (Masculinity is defensive and aggressive at the same time.)	H – The possible contribution of GI in adjusting various interests and in protecting the underprivileged is valued
Participation in using geographic information	L – Top managers assume they know best with no need to seek knowledge and experiences from others	H – Relatively “flat” social groups and organizations, and involvement of a wider circle of actors	L/H – GI needed only if it provides assistance to perceived security and stability	L – GI may be useful in involving others but little need for full-fledged (expensive) outputs	L – Communication is not valued	H – Networking, establishing relationships, and caring are valued

**Table 1** Possible connotation of cultural dimensions vis-à-vis access to and participatory use of geographic information (Adapted from Van den Toorn and E. De Man 2000)

lectivist, and countries with small power distance appear to be more individualist. Hence, the dimensions of power, distance, and individualism-versus-collectivism are correlated. This leads to three “independent” dimensions: power distance, uncertainty avoidance, and masculinity vs. femininity. Armored with Hofstede’s multidimensional model, we return to culture’s possible impact on access to geographic information and its participatory use. However, this can only be done speculatively at this stage (Table 1).

L, H = low (L) and high (H) support for access to and participation in using GI from the respective cultural dimensions

### **Cultural Biases as a Different Way of Life (Mary Douglas)**

Notwithstanding its merits, Hofstede’s model has some weaknesses. For example, data for the model were restricted to those countries with IBM establishments. Moreover, within national cultures, different sub-cultures can be identified (see, for instance, Riggs 1962 and 1964). The application of the model at the level of these sub-cultures is embryonic at best. In addition, Van Dongen (1997) argues that Hofstede is not analyzing culture but producing it by assuming homogeneity as a basis for his factor analysis, given that the assumption of heterogeneity would inhibit this analysis.

An alternative model is suggested by Thompson et al. (1990) and describes different cultures as different ways of life. They build upon the grid-group typology proposed by Mary Douglas (1978). Douglas argues that two dimensions of sociality can adequately capture the variability of an individual’s involvement in social life: group and grid. Group refers to the extent to which an individual is incorporated into bounded units. The greater the incorporation, the more individual choice is subject to group determination. Grid denotes the degree to which an individual’s life is circumscribed by externally imposed prescriptions. The more binding and extensive the scope of the prescriptions, the less of life that is open to individual negotiation.

These two dimensions (group and grid) together produce four different “ways of life” (summarized by Carver 2001):

Individualism (low group–low grid). Decisions present opportunity, except for those that threaten freedom of choice action (“the market” will provide control, so there is no need for other kinds of control).

Hierarchy (high group–high grid). Technological and environmental decisions should be left to experts).

Fatalism (low group–high grid). Fatalists feel that they have very little control over decisions that affect them and accept whatever decisions are made on their behalf).

Egalitarianism (high group–low grid). Egalitarians fear risk to the environment, the collective good, and future generations, and believe that power and influence should be spread more evenly within society.

Thompson et al. (1990) emphasize the dynamic character of these ways of life. Cultures are neither permanent nor singular.

When conditions change, ways of life may change as well. Within one social group, different ways of life can be recognized and are in permanent dynamic imbalance; forming alliances though remaining competitors.

As compared with Hofstede’s model, this “way of life” model lacks a quantifiable foundation (operationalization).

### **Unanswered Questions**

At first sight, both models show some similarity. However, more elaborate analysis is required before any sound conclusion can be drawn. For example, how does Hofstede’s observation that in his study “individualism” and “power distance” are inversely correlated across the full set of countries relate to “individualism” and “hierarchy” as two distinct but possible concurrent ways of life in the other model.

Both models reflect the understanding of “culture” as the group’s learned responses to problems of survival in its external environment and its problems of internal integration (Schein 1985). But how these models deal with spatial problems is not clear. For instance, is the “NIMBY syndrome” (Not In My Back Yard) a cultural response to a distinct category of spatial problems or is it a problem of internal integration itself?

### **Culture’s Possible Contribution to a Research Agenda**

Both (theoretical) literature and practice suggest that cultural and institutional conditions are important for answering questions regarding access to and use of geographic information, and participatory approaches in this respect. However, to deal with this in concrete and operational terms lies still ahead and more research will be needed. Here only a few steps – partly overlapping – to this end can be proposed.

Operational framework for analyzing culture’s influence. Integrating different existing models (like the models proposed by Hofstede and Douglas) and/or developing specific models for analyzing cultural conditions for access and participatory use of geographic information. Preferably, this will be part of a larger framework emerging from the ESF-NSF Spoleto-meeting in December 2001.

Cultural connotation of spatial problems. For example, how does culture influence the definition and perception of spatial problems? How does culture influence coping with spatial problems?

Cultural connotation of institutional arrangements. To which extent are differential institutional arrangements governing access to and use of geographic information culturally determined?

Real-life case studies. Learning-by-doing involving real-life case studies. What is the impact of participatory approaches in using geographic information? What are the cultural conditions in these real-life case studies?

## Conclusion

Central to the article is the question whether increased access to geographic information also increases public participation; if not: reinvigorates democracy and benefits society at large. The obvious answer to this question that it depends still remains. Therefore, the article has concentrated on some major conditions in this respect.

Access to and participation in use of geographic information are important conditions when communities (or societies at large) address common problems in their living environments. Access to (geographic) information is both a necessary and possibly an enabling condition for participation in its use; but not a sufficient condition. Because of their essentially behavioral character both access to and participatory use in (geographic) information depend on social conditions; specifically on local culture and institutions. Hence, approaches are needed for describing and analyzing the predominant cultural conditions in concrete and operational terms. Literature and practice suggest that such approaches can be found and developed.

Finally, the article proposes to include cultural and institutional conditions in the emerging research agenda on access to geographic information and participatory approaches in its use.

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