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The Origin of Cultural Differences in Cognition: Evidence for the Social Orientation Hypothesis

Michael E. W. Varnum[1], **Igor Grossmann**, **Shinobu Kitayama**, and **Richard E. Nisbett**
University of Michigan

Abstract

A large body of research documents cognitive differences between Westerners and East Asians. Westerners tend to be more analytic and East Asians tend to be more holistic. These findings have often been explained as being due to corresponding differences in social orientation. Westerners are more independent and Easterners are more interdependent. However, comparisons of the cognitive tendencies of Westerners and East Asians do not allow us to rule out alternative explanations for the cognitive differences, such as linguistic and genetic differences, as well as cultural differences other than social orientation. In this review we summarize recent developments which provide stronger support for the social orientation hypothesis.

Keywords

culture; cross-cultural differences; within-culture differences; reasoning; independence/interdependence; holistic/analytic cognition

Cultural psychologists have consistently found different patterns of thinking and perception in different societies, with some cultures demonstrating a more analytic pattern and others a more holistic pattern (see Table 1). Analytic cognition is characterized by taxonomic and rule-based categorization of objects, a narrow focus in visual attention, dispositional bias in causal attribution, and the use of formal logic in reasoning. In contrast, holistic cognition is characterized by thematic and family-resemblance-based categorization of objects, a focus on contextual information and relationships in visual attention, an emphasis on situational causes in attribution, and dialecticism (Nisbett, Peng, Choi, & Norenzayan, 2001). What unites the elements of the analytic style is a tendency to focus on a single dimension or aspect, whether in categorizing objects or evaluating arguments, and a tendency to disentangle phenomena from the contexts in which they are embedded, for example, focusing on the individual as a causal agent or attending to focal objects in visual scenes. What unites the elements of the holistic style is a broad attention to context and relationships in visual attention, categorizing objects, and explaining social behavior.

Cultures also differ in their social orientations (independence vs. interdependence) (see Table 2). Cultures that endorse and afford independent social orientation tend to emphasize self-direction, autonomy, and self-expression. Cultures that endorse and afford interdependent social orientation tend to emphasize harmony, relatedness, and connection. Independently-oriented cultures tend to view the self as bounded and separate from social others, whereas interdependently-oriented cultures tend to view the self as interconnected and as encompassing important relationships (e.g. Markus & Kitayama, 1991;Triandis,

[1] Address correspondence to Michael E. W. Varnum, Department of Psychology, University of Michigan, 530 Church St. Ann Arbor MI 48104. mvarnum@umich.edu.

1989). In independently-oriented cultural contexts, happiness is most often experienced as a socially disengaging emotion (i.e. pride), whereas in interdependently-oriented cultural contexts, happiness is most often experienced as a socially engaging emotion (i.e. sense of closeness to others; Kitayama, Mesquita, & Karasawa, 2006). Finally, in cultures which have an independent social orientation, people are more motivated to symbolically enhance the self at the expense of others; this tendency is not as common in interdependently-oriented cultures (Kitayama, Ishii, Takemura, & Ramaswamy, 2006;Kitayama et al., 2006).

The proposition that cultures which differ in their social orientation (independence vs. interdependence) also differ in their cognitive habits (analytic vs. holistic cognition) is by no means new (e.g. Markus & Kitayama, 1991;Witkin & Berry, 1975). Indeed one can trace the origin of this claim back at least to Tönnies (1887/2002). And certainly a large body of literature has demonstrated that cultures which differ in social orientation also show corresponding differences in cognitive style; Western societies tend to be more independent and more analytic, whereas East Asian societies tend to be more interdependent and holistic (Nisbett et al., 2001). On the basis of such evidence, it has been proposed that differences in social orientation are the driving force behind cultural differences in cognition (Markus & Kitayama, 1991; Nisbett et al., 2001).

While the link between social orientation and cognitive style has been widely accepted, the evidence presented until recently has not provided strong support for this connection. East Asia and the West are huge geographic and cultural areas differing from one another in many ways. There are fairly large genetic differences between the two populations. The linguistic differences are large. Western languages are almost all Indo-European in origin and differ in many systematic ways from the major languages of East Asia. And there are many large cultural differences between the two regions other than in social orientation along lines of independence and interdependence. East Asia was heavily influenced by Confucian values and ways of thought and European cultures were heavily influenced by ancient Greek, specifically Aristotelian, values and ways of thought (Lloyd, 1996). Just within this broad set of cultural differences it would be possible to find many hypotheses that might account for the kind of cognitive differences that have been observed between East and West. Examples of other large societal differences between East and West have to do with length of time that the societies have been industrialized and degree to which political institutions have a tradition of being democratic. Both of these latter dimensions are frequently invoked to account for a host of differences between East and West.

In the present review we focus on recent studies which narrow the plausible range of candidates for explaining the cognitive differences. These studies look at much tighter cultural comparisons than found in previous research. The studies compare Eastern and Western Europe, Europe and the U.S., northern and southern Italy, Hokkaido and Mainland Japan, adjacent villages in Turkey, and middle-class and working class Americans. All of these comparisons involve contrasting more interdependent cultures with more independent cultures. We also review research that manipulates independence vs. interdependence and finds differences in analytic vs. holistic cognition The recent studies make it much less likely that the cognitive differences observed between East and West are due to large genetic or linguistic differences and make it more plausible that the cognitive differences are indeed due to differences in social orientation having to do with independence vs. interdependence rather than to societal differences such as Aristotelian vs. Confucian intellectual traditions or degree of industrialization.

CROSS-CULTURAL COMPARISONS

Several recent studies have shown that the covariation between social orientation and cognitive style is not confined to North America and East Asia. Even within societies that are part of the European cultural tradition, one observes that cultures which differ in social orientation also differ in terms of cognitive style. For example, East Europeans and Americans differ along these dimensions. Russians are more interdependent than Americans (Grossmann, 2009; Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998) and are more holistic in terms of categorization, attribution, visual attention, and reasoning about change (Grossmann, 2009). Similarly, Croats are more interdependent than Americans (Šverko, 1995) and show more holistic patterns of cognition in terms of categorization and visual attention (Varnum, Grossmann, Katunar, Nisbett, & Kitayama, 2008). Recent evidence suggests that similar differences exist within Europe. Russians, who are more interdependent than Germans (Naumov, 1996), also show more contextual patterns of visual attention (Medzheritskaya, 2008).

WITHIN-CULTURE DIFFERENCES

The fact that social orientation and cognitive style covary in comparisons across and within broad cultural regions, does not fully address alternative explanations for this pattern. Cross-cultural differences in cognition might conceivably be accounted for by differences in linguistics, genetics, and degree and recency of industrialization and democratization. However, studies comparing groups within the same culture tend to argue against such interpretations.

In a recent study which compared Hokkaido Japanese with those from the Mainland Japan, Kitayama and colleagues (2006) found that those from Hokkaido (settled by pioneers from the southern Japanese islands) were more independent than those from the main islands, and also showed more dispositional bias in attribution. Similarly, Northern Italians, who are more independent than Southern Italians (Martella & Maas, 2000), also show more analytic cognitive habits, categorizing objects in a more taxonomic fashion (Knight & Nisbett, 2007).

Even more fine grained comparisons have found that within a culture groups which differ in social orientation also differ in cognitive style. For example, Uskul and colleagues compared neighboring villages in the Black Sea region of Turkey that differed in terms of their primary economic activity (Uskul, Kitayama, & Nisbett, 2008). Previous research has found that more sedentary communities (such as farming communities and cooperative fishing communities) tend to be characterized by a more interdependent social orientation and holistic cognition (specifically field dependence or the tendency to have difficulty separating objects from their contexts; Berry, 1967). Less sedentary communities, where individuals earn their living in relatively isolated ways (such as herding communities and hunter-gatherer groups) tend to be characterized by a more independent social orientation and analytic cognition (specifically field independence; Witkin & Berry, 1975). Uskul and colleagues (2008) found that those from farming and fishing communities categorized objects more thematically and showed more contextual patterns of visual attention than those from a neighboring herding community.

Similarly, one of the earliest studies which compared the cognitive habits of groups within a culture believed to differ in social orientation was conducted by Dershowtiz (1971), who found that Orthodox Jewish boys, who have a more interdependent upbringing than secular Jewish boys, also show more contextual patterns of visual attention. More recently, parallel differences have been observed between different social class groups in the U.S. Working-class adults are more interdependent than middle-class adults in terms of attention to vocal tone, patterns of emotional experience, and symbolic representation of the self (Varnum,

Grossmann, Na, Kitayama, & Nisbett, 2009). As one might expec, working-class adults also tend to show more holistic patterns of cognition, demonstrating greater attention to visual context, more thematic categorization of objects, and a more dialectical view of change (Grossmann, Na, Varnum, Kitayama, & Nisbett, 2009).

PRIMING SOCIAL ORIENTATION

The link between social orientation and cognitive style is further supported by a body of literature in which social orientation is primed. A recent meta-analysis by Oyserman and Lee (2008) finds that a variety of primes of social orientation can produce corresponding shifts in cognition (meta-analysis is a statistical technique in which many the results of many studies with similar hypotheses are combined). Some of the primes used included circling of first person singular (independent) pronouns vs. first person plural (interdependent) pronouns, reading stories in which characters make decisions reflecting independent or interdependent orientation, and primes in which participants are instructed to focus either on ways they are similar or different from others. Oyserman and Lee (2008) found that the effect sizes on average were generally moderate (mean d = .53). Further, the effects appear to be no different across different types of primes. Although the effects of social orientation priming on cognition have been demonstrated primarily in Western societies, preliminary evidence suggests that comparable effects can be observed among East Asians and Asian-Americans. Oyserman and Lee (2008) report comparable effect sizes for both Western and Asian samples.

INDIVIDUAL DIFFERENCES

A recent study which used a large battery of tasks designed to assess both social orientation and cognitive style found a very small correlation (r =.11) between individuals' standardized composite scores on both types of tasks (Na, Grossmann, Varnum, Kitayama, Gonzales, & Nisbett, 2009). Correlations measure the agreement between two variables and range from “−1.0” to “1.0”, with “1.0” being a perfect correlation and “0” indicating no relationship between the variables. Further, the researchers observed little correlation even among tasks within each domain (mean r's < .06). Thus the two dimensions are very weak as individual differences: individuals who are more independent on one measure are very little more likely to be independent on another measure than individuals who are more interdependent, and the same weakness is found for the cognitive dimension.

While this may seem puzzling, since psychologists are used to thinking of group differences as corresponding to individual differences, this need not be the case (see Shweder, 1973). There can be large differences between groups on a given dimension but only very weak individual differences within groups on the same measures that give rise to the group differences. In particular, it would seem likely that independence/interdependence or analytic/holistic mode of thought is expressed in different ways for different individuals (Kitayama, Park, Sevincer, Karasawa, & Uskul, in press; Na et al., 2009). For example, Sally may be independent by virtue of the fact that she has a strong sense of unique and distinct personal self; whereas Steve may be independent more in terms of his work ethic of getting things done by himself without relying on others. The measure(s) that best captures Sally's independence may or may not be the same measure(s) that captures Steve's independence. If different profiles of behavioral indicators of independence characterize different people's levels of independence (or interdependence), it should not come as a surprise that these indicators show little within-group correlations and, yet, an aggregate score of these indicators still meaningfully signifies the general levels of independence for the people involved. The same analysis could apply to analytic vs. holistic modes of thought[2].

WHAT CAUSES CULTURAL DIFFERENCES IN SOCIAL ORIENTATION?

While the present review suggests that cultural differences in *cognition* are due to the social orientation differences, this is not to say that other factors such as geographic mobility, industrialization, and political systems never have an impact on *social orientation*. For example, Greenfield and colleagues found that a shift toward a capitalist mode of production in Chiapas, Mexico in recent decades led to a more independent pattern of social organization (Greenfield, Maynard, & Childs, 2003). This in turn led to more analytic cognition. Similarly, residential mobility is associated with independence. For instance, those who have moved more often and those from cultures with greater levels of mobility demonstrate a more personal as opposed to collective sense of identity (see Oishi, in press for a review). The settling of frontiers has also been posited as an explanation for greater independence in Hokkaido than in the rest of Japan (Kitayama, et al., 2006).

GENERAL DISCUSSION AND FUTURE DIRECTIONS

The present review highlights recent research which has bolstered the claim that differences in social orientation are responsible for cultural differences in cognitive style. One line of evidence comes from the fact that that the two covary, whether one looks across cultures or within a culture. The second line of evidence comes from the fact that priming independence leads to analytic cognition, whereas priming interdependence leads to holistic cognition. Taken together these findings suggest that social orientation does indeed cause cultural differences in cognition. Certainly a good many otherwise viable hypotheses about the origin of cognitive differences between East Asians and Westerners are now much less likely. These include genetic and linguistic differences, large cultural differences conceptually orthogonal to social orientation such as Confucianism vs. Aristotelianism, and societal trends such as industrialization.

However, one must be cautious in drawing strong causal conclusions. One implication of the lack of correspondence between the individual and the cultural level on these dimensions is that some third variable may account for findings described throughout this review.

There are several questions which have not been answered by the research to date. Is the relationship between social orientation and cognition purely unidirectional? Might priming of cognitive style prompt different ways of relating to others? Why are these social and cognitive constructs coherent at the group- but not the individual-level? Some further questions for future researchers to explore have to do with the stability of social orientation and cognition. Do cultures change over time along these dimensions? Do individuals? To date there is little research that has looked at how cultures change in terms of their characteristic social orientation and cognitive habits (with the notable exception of Greenfield et al., 2003). Future research may take advantage of the fact that changes in political and economic systems, and other factors such as globalization, will likely reduce interdependence in many societies. We therefore expect analytic types of cognition to increase. It will be interesting to see whether changes toward independence precede changes toward analytic cognition or whether the two develop in parallel.

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[2]This is not to say that culture-level differences never correspond to individual-level differences, for example this seems to be the case for the Big Five personality traits.

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Table 1

Cognitive patterns

	Analytic Cognition	**Holistic Cognition**
Attention	Field Independent Narrow Focus on salient objects with intent to manipulate them	Field Dependent Broad Focus on relationship of elements, background
Categorization	Taxonomic, focus on a single dimension or shared property	Thematic, focus on functional relationship or overall similarity
Attribution	Dispositional Traits and attributes of individuals determine events	Situational External forces, context, & situations determine events
Reasoning	Analytic Use of formal logic Trends continue	Dialectical Middle way philosophy Trend reversals are likely

Table 2

Social Orientation Patterns

	Independent Social Orientation	**Interdependent Social Orientation**
Values & Beliefs	Individualism Autonomy	Collectivism Harmony
Self	Independent Self-Construal Personal social identity Self as bounded	Interdependent Self-Construal Relational social identity Self as overlapping with close others
Emotions	Higher propensity of socially disengaging emotions Happiness as a disengaging emotion	Higher propensity of socially engaging emotions Happiness as an engaging emotion
Motivation	Individual Achievement Self-enhancement Ego-inflation	Achievement for in-group Self-criticism Self-other interconnection