

The Origin of Cultural Differences in Cognition: The Social Orientation Hypothesis

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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 that 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, 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 that 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, Imada, Takemura, & Ramaswamy, 2006; Kitayama, Mesquita, & Karasawa, 2006).

The proposition that cultures differing 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

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Table 1. Analytic Versus Holistic Cognitive Patterns

Domain	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. Independent Versus Interdependent Social Orientation Patterns

Domain	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

Tönnies (/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, while 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 the length of time that the respective societies have been industrialized and the degree to which political institutions in these societies 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 that narrow the plausible range of candidates for explaining the cognitive differences. These studies look at much tighter cultural comparisons than those found in previous research. These studies compare Eastern and Western Europe, Europe with the United States, 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.²

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 differing 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 comparing Hokkaido Japanese with those from mainland Japan, Kitayama and colleagues (Kitayama, Ishii, et al., 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 & Maass, 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 differing 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, 1966; Witkin & Berry, 1975). Less sedentary communities in which 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; Berry, 1966; 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 did those from a neighboring herding community.

Similarly, one of the earliest studies comparing the cognitive habits of groups within a culture believed to differ in social orientation was conducted by Dershowitz (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 United States. Working-class adults are more interdependent than middle-class adults in terms of patterns of emotional experience and symbolic representation of the self and others (Na et al., 2009). As one might expect, working-class adults also tend to show more holistic patterns of cognition, demonstrating more situational patterns of attribution (Kraus, Piff, & Keltner, in press), greater attention to visual context, and a more dialectical view of change (Na et al., 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 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 $d = .53$, which is considered a moderately large effect). Further, the effects appear 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 that used a large battery of tasks designed to assess both social orientation and cognitive style found a very small correlation ($r < .15$) between individuals' composite

standardized scores on both types of tasks (Na et al., 2009). Further, the researchers observed little correlation even among tasks within each domain (mean r s < .1). 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, as 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 but that 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.¹

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, Ishii, et al., 2006).

General Discussion and Future Directions

The present review highlights recent research bolstering the claim that differences in social orientation are responsible for

cultural differences in cognitive style. One line of evidence comes from the fact 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 versus 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 that 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 at 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.

Recommended Reading

- Heine, S., & Norenzayan, A. (2006). Towards a psychological science for a cultural species. *Perspectives on Psychological Science*, 1, 251–269. A recent, comprehensive review of major findings in cultural psychology.
- Hofstede, G. (1980/2001). *Culture's consequences*. Beverly Hills, CA: Sage. A classic comparison of cross-national value differences.
- Nisbett, R.E. (2003). *The geography of thought: How Asians and Westerners think differently...and why*. New York: Free Press. An accessible overview of the relationship between culture and cognition.
- Norenzayan, A., Choi, I., & Peng, K. (2007). Perception and cognition. In S. Kitayama and D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 569–594). New York: Guilford Press. An in-depth review of East-West differences in cognitive style.

Oyserman, D., Coon, H.M., & Kimmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, *128*, 3–72. An in-depth analysis of studies dealing with independence and interdependence.

Declaration of Conflicting Interest

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Notes

1. 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.
2. Relative wealth is another explanation that might be invoked; in most of the comparisons discussed, the more wealthy group is more analytic. However, Hokkaido is less wealthy than the rest of Japan and more analytic; similarly, Asian Americans have higher incomes than European Americans on average and are also more holistic.

References

- Berry, J.W. (1966). Temne and Eskimo perceptual skills. *Journal of International Psychology*, *1*, 207–229.
- Dershowitz, Z. (1971). Jewish sub-cultural patterns and psychological differentiation. *Journal of International Psychology*, *6*, 223–231.
- Greenfield, P.M., Maynard, A.E., & Childs, C.P. (2003). Historical change, cultural learning, and cognitive representation in Zinacantan Maya children. *Cognitive Development*, *18*, 455–487.
- Grossmann, I. (2009). *Russian interdependence and holistic cognition*. Unpublished Manuscript, University of Michigan, Ann Arbor.
- Kitayama, S., Ishii, K., Imada, T., Takemura, K., & Ramaswamy, J. (2006). Voluntary settlement and the spirit of independence: Evidence from Japan's "Northern frontier." *Journal of Personality and Social Psychology*, *91*, 369–384.
- Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology*, *91*, 890–903.
- Kitayama, S., Park, H., Sevincer, A.T., Karasawa, M., & Uskul, A.K. (in press). A cultural task analysis of implicit independence: Comparing North America, Western Europe, and East Asia. *Journal of Personality and Social Psychology*.
- Knight, K.N., & Nisbett, R.E. (2007). Culture, class, and cognition: Evidence from Italy. *Journal of Cognition and Culture*, *7*, 283–291.
- Kraus, M.W., Piff, P.K., & Keltner, D. (in press). Social class, the sense of control, and social explanation. *Journal of Personality and Social Psychology*.
- Lloyd, G.E.R. (1996). Science in antiquity: The Greek and Chinese cases and their relevance to the problems of culture and cognition. In D.R. Olson & N. Torrance (Eds.), *Modes of thought: Explorations in culture and cognition* (pp. 15–33). Cambridge: Cambridge University Press.
- Markus, H.R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224–253.
- Martella, D. & Maass, A. (2000). Unemployment and life satisfaction: The moderating role of time structure and collectivism. *Journal of Applied Social Psychology*, *30*, 1095–1108.
- Matsumoto, D., Takeuchi, S., Andayani, S., Kouznetsova, N., & Krupp, D. (1998). The contribution of individualism vs. collectivism to cross-national differences in display rules. *Asian Journal of Social Psychology*, *1*, 147–165.
- Medzheritskaya, J. (2008). Intercultural differences in empathic-distress: Impact of holistic perception? Paper presented at the 19th International Congress of the International Association for Cross-Cultural Psychology, Bremen, Germany.
- Na, J., Grossmann, I., Varnum, M.E.W., Kitayama, S., Gonzalez, R., & Nisbett, R.E. (2009). *Cultural differences are not always reducible to individual differences*. Unpublished manuscript, University of Michigan, Ann Arbor.
- Naumov, A.I. (1996). Hofstede's measurement of Russia: The influence of national cultures on business management. *Management*, *1*(3):70–103.
- Nisbett, R.E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic vs. analytic cognition. *Psychological Review*, *108*, 291–310.
- Oishi, S. (in press). The psychology of residential mobility: Implications for the self, social relationships, and well-being. *Perspectives on Psychological Science*.
- Oyserman, D., & Lee, S. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychological Bulletin*, *134*, 311–342.
- Šverko, B.B. (1995). The structure and hierarchy of values viewed cross-nationally. In D.E. Super & B. Šverko (Eds.), *Life roles, values and careers* (pp. 225–241). San Francisco: Jossey Bass.
- Shweder, R.A. (1973). The between and within of cross-cultural research. *Ethos*, *1*, 531–545.
- Tönnies, F. (2002). *Community and Society*. (C.P. Loomis, Trans.). New York: Dover. (Original work published 1887).
- Triandis, H.C. (1989). Cross-cultural studies of individualism and collectivism. In R.A. Dienstbier & J.J. Berman (Eds.), *Nebraska Symposium on Motivation: Vol. 37. Cross-cultural perspectives*. (pp. 41–133). Lincoln: University of Nebraska Press.
- Uskul, A.K., Kitayama, S. & Nisbett, R.E. (2008). Ecocultural basis of cognition: Farmers and fishermen are more holistic than herders. *Proceedings of the National Academy of Sciences of the USA*, *105*, 8552–8556.
- Varnum, M.E.W., Grossmann, I., Katunar, D., Nisbett, R.E., & Kitayama, S. (2008). Holism in a European cultural context: Differences in cognitive style between Central and East Europeans and Westerners. *Journal of Cognition and Culture*, *8*, 321–333.
- Witkin, H.A., & Berry, J.W. (1975). Psychological differentiation in cross-cultural perspective. *Journal of Cross-Cultural Psychology*, *1*, 5–87.