

# Is Mindreading a Universal or Culture-Specific Construct?

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## Abstract

This paper discusses the extent to which mindreading capability is culture-dependent, and to determine if differences between cultures impose systematic differences in the trajectory of mindreading development. We start with the ways in which mindreading is defined within the framework of modern psychological research. Second, we will present the idea that human theory of mind is universal, together with the assumptions that can be derived from that idea. Next, arguments in favor of the hypothesis of the key cognitive capabilities being determined by social and linguistic factors will be provided. To show the influence of culture-specific factors on mindreading, three examples of empirical research allowing the formulation of a few fundamental hypotheses will be discussed. A set of the arguments given with the conclusions drawn from them indicate that the ability to read other people's mental states is shaped by socially-specific factors, including the specificity of a particular language.

**Keywords:** mindreading; culture; social knowledge; China

## Introduction

We attempt to discuss the extent to which mindreading capability is culture-dependent, and to determine if cultural differences impose systematic differences in the trajectory of mindreading development. The account we would like to build up here focuses on the issue of whether culture-specific factors (esp. language, narrative practices or social scripts) function as an inner mode of mindreading (perspective taking, attribution and understanding of mental states). The question whether mindreading capability is a function of cultural patterns appears to be of fundamental significance—especially if we take into account what has been claimed for a long time, namely that a) mindreading capability has an identical developmental trajectory across cultures and b) the cognitive endowment of mindreading is both rigid and universal (Botterill & Carruthers, 1999; Fodor, 1992; Leslie & Thaiss, 1992). Thus, we will present such arguments and findings from cross-culture comparative research that will allow the consideration of various hypotheses about the possible influence of cultural environment (i.e. those including language patterns, social dimensions: *collectivism vs. individualism*, education system) on the development and functioning of mindreading. Moreover, we cannot forget that mindreading capability is a central part of social knowledge and collective life—and hence investigating cultural variations in the mindreading system is linked to investigating crucial

issues of social cognition (Carpendale & Lewis, 2006; Hutto et al., 2011; Nelson, 1996).

## A Map of Mindreading

Defining mindreading, it should be stressed that it is linked to an ordinary understanding of the mind and to the construal of people as psychological beings (Apperly, 2011; Nichols & Stich, 2003; Wellman, Cross & Watson, 2001). Within the framework of modern psychological research, *mindreading* is most frequently a quasi-technical term used to describe a complex ability thanks to which we interpret both ourselves and others as psychological creatures, and thanks to which we are able to “mentalize” and reason about mental states (Wellman et al., 2001). Taking into account several dozen years of experience of research into capacities for reading mental states, “mindreading” is defined—in a broad sense—as “the ability to reason about mental states, such as beliefs, desires, and intentions, and to understand how mental states feature in everyday explanations and predictions of people's behavior” (Apperly, 2012, p. 826). In this sense, authors who recognize that an acquisition of mental concepts (“intention”, “desire”, “belief”, etc.) is bound to the possession of a corpus of folk psychological theory—will also recognize that the best explanation of the human ability to predict and explain others' actions is explained by the fact that humans possess “theory of mind” (Davies & Stone, 1995). This trend of associating the ability to mind-read and mentalize with having something like a naïve theory has become dominant, being something like a point of reference for most further analyses (Flavell, 2004; Perner, 1991). Connecting the possession of mindreading capability with the possession of a body of psychological knowledge is the core of the account called a “theory theory” (Gopnik & Meltzoff, 1997). In recent times, research on the emergence of theory of mind has also been put in the context of social interactions and has become a central part of the inquiry concerning social cognition (Carpendale & Lewis, 2006).

## Cognitive Universality

Discussing contemporary comparative research conducted in cognitive science, we have to bear in mind that the key issue in the profile of that research should be verifying such propositions which promote radical universalism and independence of the cognitive system from cultural

variables, advocated by Pinker, Fodor, Leslie and others, which most often took the form of such statements as

- (a) “people do not think in English or Chinese or Apache language, but in the innate language of thought” (Pinker, 1994, p. 72),
- (b) basic cognitive capacities are embodied in innate, genetically endowed modules (Fodor, 1992).

Accordingly, basic cognitive processes were assumed to be universal: every normal human being is equipped with the same set of attentional, memorial, learning, and inferential procedures. At the same time, it was argued that the basic cognitive processes work in much the same way, regardless of the content they operate on.

Such an universal approach to cognitive abilities and emphasizing their independence from cultural factors has become apparent also in the area of the emergence of basic categories of the mind and in research on the mindreading activity. As E. Slingerland puts it, “this position is perhaps best exemplified by Paul Bloom’s argument that the apparent early onset on mind—body dualism in infant development, its automaticity, and its apparent cross-cultural universality suggests that we are “natural Cartesians” (2013, p. 30) (for Bloom’s argument see Bloom, 2004). In turn, in the area of our particular interest—which concerns the issue of the core of social cognition—it was accentuated that “human theory of mind is not only phylogenetically distinctive, it is arguably ontogenetically universal” (Liu et al., 2008, p. 523).

The idea that human theory of mind is universal is linked to the following assumptions:

- (i) an understanding of mind develops via the preordained maturational unfolding of a neurobiological mindreading module (Leslie & Thaiss, 1992) or
- (ii) a trajectory of conceptual changes in the understanding of mind—i.e. from a situation-based to a representation-based understanding of behavior (Perner, 1991); from a simple desire to a belief-desire naïve psychology (Wellman, 1990); from connections to a representational understanding of mind during the preschool period (Flavell, 1998)—goes according to the same pattern, and should any modifications occur, they result from alterations in executive functions that are sensitive to some extraneous performance factors (i.e. linguistic and environmental demands),
- (iii) such basic mental concepts as “think”, “belief” or “know” have the same connotations in most cultures, and belong to a repertoire of basic categories (Wierzbicka, 1992),
- (iv) people are equipped with an innate system of heuristics thanks to which children explain others’ behavior with reference to intentions and belief-states (J. Fodor 1992).

It is important that the universal stance for the development of mindreading activity was not only advocated by supporters of Theory-Theory, but also by

supporters of the simulation theory. Both Goldman and Harris claimed that the “child’s conception of the mind is probably universal in the early years [because] children everywhere will have certain common experiences and arrive at a core set of conclusions” (Harris, 1990, p. 218; see Goldman, 2006).

### **New Shift in Cognitive Science**

Nevertheless, current debates over the basis of social cognition and epistemic intuitions provide convincing arguments in favor of the hypothesis of the key cognitive capacities being determined by social and linguistic factors. Numerous philosophical, anthropological and psychological studies (see, e.g., Bond, 1996; Markus & Kitayama, 1991; Nakamura, 1964/1985) show that comparative analyses with regard to Eastern Asians (e.g. Chinese) and Westerners—as two distinctive language and cultural systems—are particularly informative and instructive (Greenfield et al., 2003; Naito, 2003; Tomasello, 1999). In terms of theoretical background, research on cultural variations in mindreading is to some extent inspired by: (a) cognitive comparative research (between East Asians and Westerners) in the scope of such cognitive processes as perception, memory and categorization and the logic of thinking, (b) research (that has already been conducted for several years) into cultural diversity in the aspect of epistemic intuitions and understanding knowledge and morality, which are revealed in cognitive evaluations (e.g. Nisbett, 2007; Nisbett et al., 2001), and (c) extensive research into the involvement of language in the emergence of higher-order thinking ability (Astington & Baird, 2005).

It is worth mentioning that searching for cultural variations in mindreading is compatible with a generally established opinion according to which the concept of “mutual constitution” of culture and mind, which has been coined by cultural psychologists, should be understood more broadly and cannot be limited to interactions between culture and mind, but rather embrace “interactions among culture, genes, and the brain (Chiao & Ambady, 2007, p. 238). An increasing number of neuroscience experiments show that both the structure and functions in the developing human brain are shaped by environmental and cultural factors (Chiao & Ambady, 2007).

The studies mentioned above confirm that the statement “As a cognitive scientist, I am only interested in the universality of cognition” (Bender & Beller, 2013, p. 42) is not only methodologically narrow, and hence short-sighted, but also misleading due to a lack of empirical substantiation simply because “cognition is fundamentally cultural, and excluding this dimension necessarily impedes its understanding and investigation” (*ibid.*, p. 43). In the context of the new approach, it has been accepted that exploring the cultural dimension of cognitive structures remains the basic objective of cognitive science, and that neurobiology provides conclusive evidence for a deep impact of culture on cognition and architecture of the brain. It is also stressed that the latest research to a greater extent

gives evidence of the influence of the learning process as well as human experience on the architecture of the brain (Bender & Beller, 2011). Accordingly, three general assumptions in cognitive studies have been questioned: separation of cognitive processes from their content, contextual independence of processing cognitive content, and cultural independence of a conceptual system.

### **Cross-Cultural Variations in Mindreading**

In order to show the influence of culture-specific factors on mindreading—understood as a key cognitive system within social knowledge—it is necessary to discuss three examples meant to present three dimensions of empirical research, and, as a result, come to three different conclusions that will allow us to put forward a few fundamental hypotheses. To do so, we will refer to experimental research involving adults, which will enable us to show how cultural factors influence mindreading ability (perspective-taking) and take a look at the difference between the level of ability as such and the level of its use. By referring to experiments involving children, we will discuss developmental differences in the emergence of the fully-fledged mindreading capability, and link these differences to narrative scripts in parental education. Finally, by referring to a specific lexicon of mental terms in Chinese, we will show the relation between the knowledge of a particular language (and an ability to operate that knowledge) and the conceptual system mindreading capability consists of.

#### **Example 1. Experimental research including adults**

To study the influence of culture-dependent factors on the way people read mental states, Wu & Keysar (2007) designed a communication game (consisting in distinguishing cognitive perspectives) using eye-tracking measures and behavioural indices, which were further applied to compare the Chinese and Americans. The object of their research was to check if people from the two different cultures would show any differences in using knowledge concerning reading other people's mental states. Taking up the research, in its initial point Wu & Keysar (2007, p. 601) assumed that there were sound reasons for distinguishing East Asian culture from Western culture. They formulated a hypothesis that the Chinese would be less "egocentric" when taking a perspective, i.e. they would not be distracted by their own point of view, and when performing tasks that require perspective taking—they would first of all take others' perspectives into account. Accepting such a hypothesis is based on the assumption that in East Asian culture—what is shown in the work of Markus and Kitayama (1991)—the "self" is defined in relation to others, what translates into inducing a tendency to focus one's attention on others' knowledge.

The methodology of that research utilizes a game involving actual interactions between two individuals (Wu & Keysar, 2007, p. 601). It is assumed that a person's successful interpretation of the other person's actions depends on distinguishing what each person knows. In that

study, tasks were designed in such a way as to make the participants not only differentiate between two perspectives, but also split them on the basis of assessing each person's knowledge. Estimating the level of the subject's disorientation, based on eye-tracking measures and his further actions, significant differences between people belonging to each culture were noticed, namely: the Chinese had almost never been "egocentric" in the sense that they had not been distracted by their own perspective (they had unerringly directed their attention onto the object also seen from the perspective of another person—the experimenter). By comparison, most of the Americans had showed a higher level of mistakes and disorientation when trying to choose which object should be indicated and, earlier, which object should be paid attention to. As eye movement measurement detects which subject focuses his attention on himself before any action driven by intention is taken, it was also assumed that the influence of culture can be observed at the moment of pre-reflective perspective taking.

**Conclusion** The authors of the experiment found that cultural differences stimulate different patterns of perspective taking, which supports—in their opinion—the general assumption that Chinese culture (typical of interdependency and focusing on others) and American culture (typical of independence and focusing on the "self") will model different ways of applying the ability to read others' mental states. At the same time, they assume that in the case of adults the cultural factors have their effect at the level of using the ability, but not at level of ability as such.

#### **Example 2. Comparative experiments involving children from different cultures**

Bearing in mind the significance of research involving children in exploring cultural changes in the cognitive system, it is worth discussing experimental work on the emergence of an ability to read minds and a capability for using mental-state concepts.

Let us concentrate on the findings indicating the influence of culture on the performance of tasks in the context of psychological discussions of children's 'theory of mind'. A meta-analysis conducted by Liu et al. (2008), which involved children from China, Hong Kong, the United States and Canada and was aimed at demonstrating the performance of tasks specific for the theory of mind, showed notable differences as for the time when false-belief tasks are completed (the authors of the experiment regarded Chinese children as a perfect point of reference for Western children when a delay in performing false-belief tasks is compared to Western children on the grounds of significant differences in folk psychology, social expectations and parental attitudes, which—as they assumed—could potentially influence the development of understanding mental states; see Liu et al., 2008, p. 524).

It turned out that the children from Hong Kong revealed a significant delay in performing false-belief tasks. The delay was measured to be about 2 years as compared to the

children from the U.S.A. and Canada. Similar findings, with regard to a more global difference between East Asian and Western children, were observed in research studies by Naito (2003; 2004). According to them, Japanese children understand false beliefs and sources of their knowledge about 2 years later than Western children. Yet, it should be noted that in this process—apart from understanding mental concepts (what is measured in the FBT)—numerous executive functions that may affect the mindreading process should be taken into account (Carlson et al., 1998).

Other differences were spotted by Wellman et al. (2006) and Shahaeian et al. (2011) who applied a five-grade rating scale meant to determine stages of the development of the theory of mind (the scale shows progress in acquiring mental concepts). The experiments showed that American kindergarteners reach the stages in the development of the theory of mind in the following sequence: *diverse desires* (DD), *diverse beliefs* (DB), *knowledge access* (KA), *false beliefs* (FB) and finally *hidden emotions* (HE) (cf. Wellman et al., 2006). In turn, the experiment involving Chinese children revealed a different sequence. Namely, the children who spoke only Chinese first passed the knowledge task testing the understanding of sources of knowledge (the KA task checks understanding that seeing leads to knowledge and that a lack of seeing leads to limited knowledge acquisition), and later—the diverse beliefs task which tests how beliefs and perspectives are differentiated (the DB task indicates that the subject realizes that different people may have different beliefs or thoughts about one object).

**Conclusion** According to Liu et al. (2008), diverting the sequence of the ToM development is a sign of differences which are affected by some factors relevant from the cultural perspective. For instance, Naito (2004) formulates a quite bold hypothesis on deep cultural differences. According to her, the differences in question may result from the fact, that “in Asian cultures, including Japanese culture, people are more likely to attribute human action to contextual or relational factors than Western people, who tend to attribute it to individual’s internal causes” (Naito, 2004, p. 10). Accordingly, it is conceivable that in East Asian culture “Japanese children may hence find it more difficult to solve problems that chiefly concern how the mind works independently of contextual or behavioral cues” (*ibid.*; cf. Lillard, 1998). The remarks mentioned fit in perfectly with the findings regarding behavioral practices both in the aspect of social patterns and school structure. Many studies support that Chinese children, unlike children brought up in Western culture, experience collectivist and interdependent cultural practices, i.e. those where “many parents teach filial respect, emphasize the acquisition of well-established knowledge, and encourage children’s conformity to the cultural models, rules, and traditions conveyed by their elders rather than self-assertive expression of their own independent points of view” (Shahaeian et al., 2011, p. 1240). It is emphasized that such patterns, incentives, examples and social structure can affect

the development of the ToM in many Chinese children that, on the one hand, they faster acquire the ability to understand that other people know or do not know something on the grounds of previous perception, and hence—they faster acquire the concept of a lack of knowledge, source of knowledge or the concept of ignorance. On the other hand, discovering that people differ among one another as for their beliefs and opinions of the same topic is harder for them, and they do that later. This is linked by some scholars to the fact that Chinese parents often discourage their children or they do not give them a chance to express their own opinions, but rather endorse opinions that are commonly shared and accepted. However, this can be also linked to the fact that Chinese parents—as compared to Western ones—are indicative of more unilateral communication with their children (typical of an authoritarian parental style). Wang & Chang (2010) give examples of much research supporting this view. For instance, Wu et al. (2002) showed that Chinese mothers of preschoolers from Beijing favored compulsion to a far greater extent than American mothers, and—to a lesser extent—warmth and freedom of choice. According to the research of Pearson & Rao (2003), Chinese mothers of preschoolers from Hong Kong applied an authoritarian parental style toward their children more often as compared to mothers from Great Britain.

### Example 3. Language differences

Bearing in mind that the hypothesis about the influence of culture on our cognitive system is connected to the hypothesis about the influence of a particular language on our thinking (Astington & Baird, 2005), there is a question to be asked, i.e. whether in a language where terms expressing propositional attitudes (such as “to *think* that...”, “to *be sure* that...”) are not neutral—due to the logical value of the sentence “p” being the object in the sentence “x thinks that p”—but contain different connotations with regard to the probability of whether the thought or belief expressed by “p” is true or false, such terms model modifications in the performance in tests which examine the mindreading ability. What is meant here comes down to the hypothesis that the best research would show the way a given language affects the development of the theory of mind if the only variable were the use of different mental terms with different connotations with regard to a possible logical value of a given belief. Chinese serves as a good object of study as it contains propositional terms differently indicating if one’s belief is true or false. There are three such terms: (1) *xiang*, which has neutral connotations as for the fact whether the belief is true or false—similarly to the English *think*; (2) *yiwei*, which contains an assumption that “p” belief may be false, and (3) *dang*, exclusively used to describe a false situation. Conducting research in three situations differing from one another in the aspect of an application of a mental term in a control question in the false belief task is also interesting since such languages as English (with terms like *think*, *believe*) or Polish (with terms

like *myśleć*, *wiedzieć*) do not contain the connotative differences mentioned above.

**Conclusion** The research performed by Lee, Olson & Torrance (1999) clearly showed that a use of different propositional verbs in the control question in the false belief task considerably influenced Chinese children's answers. In the case of control questions where the verbs *yiwei* and *dang* were used, children's answers were more correct than in the case of the questions where the neutral verb *xiang* was used. This fact proves that in such languages as Chinese there are substantial differences owing to the presence of different ways of expressing mental concepts, which have not been spotted so far in research conducted in English.

### Final Thoughts—Two Options

A set of arguments together with the subsequently drawn conclusions provide grounds for a general conclusion that that mindreading capability is shaped by socially-specific factors—which are also connected to the specificity of a particular language. The deeper interpretation of the data shown indicates that cultural variations in theories of mind appear later in development on the level that involves a flexible cognitive process and a form of explicit knowledge, i.e. the knowledge that employs some form of verbal or other communicative performances as dependent measures (Gut, 2010; Liu et al., 2008; Shahaeian et al., 2011). It is suggested that an explicit understanding of mind—by involving wider knowledge in the cognitive system—becomes sensitive to culture-specific factors (Apperly & Butterfill, 2009). However, this stance may still be interpreted in two alternative ways:

- (A) *Weak interpretation.* It might be claimed that children's experience in their daily sociocultural context could affect their understanding of other people's mental states. If so, culture specific factors have their effect exclusively at the level of performance and use of mindreading ability. In consequence, it is also claimed that language itself—as a part of cultural system—is not strictly a prerequisite for the development of the mindreading system.
- (B) *Strong interpretation.* It might be claimed that early children's universal concepts and a universally structured theory of mind system are later replaced by culture-specific concepts and the culture-specific theory of mind system. According to this proposition, it is assumed that children's exposure to their daily sociocultural context and language specific factors affect their very corpus of knowledge and understating of mind. Cultural and language specific factors are implicated in, at least, the explicit system of mindreading.

The second interpretation seems to be more plausible as research involving children clearly shows how crucial cultural differences in mindreading development are, and that “theory of mind understanding appears on substantially

different timetables across numerous cultures and languages” (Liu et al., 2008). Accordingly, we can speak then about real differences in the mindreading development (Naito, 2003; 2004), which cannot be only explained by invoking the variations in executive functions. This approach is linked to the stance that the key factor in the development of mindreading is social context understood as a “community of minds” thanks to which a child becomes enculturated into a communal system of social norms and values that shape an understanding of mind and others as psychological and rational creatures (Carpendale & Lewis, 2006; Nelson et al., 2003). Familiarization with culture's social and narrative practices is a part of the development of cognitive system that is constitutive of a mindreading system (Hutto, 2008). In this view, the idea of explicit mindreading system before or without a particular culture seems to be of little sense.

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