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## **I, we and your thoughts: Cultural influences on social cognition**

Vu, T.V.

2019

### **document version**

Publisher's PDF, also known as Version of record

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### **citation for published version (APA)**

Vu, T. V. (2019). *I, we and your thoughts: Cultural influences on social cognition*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

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# CHAPTER 6

GENERAL DISCUSSION

Specific solutions to ecological problems with emphasis on one or another approach create different cultural orientations such as individualism and collectivism, which have been considered the key cultural dimension that distinguishes between East Asian and Western cultures. Individualism entails that the self is construed as separate and distinct from others (independent self-construal) and that individual goals and personal autonomy are highly valued. In contrast, collectivism entails that the self is construed as overlapping in identity with close others, especially with one's ingroup (interdependent self-construal) and collective goals and interpersonal harmony are important. Self-construal theory suggests that these differences in self-construal are fundamental, leading to wide-ranging implications for the way one perceives and thinks about oneself, about others, the way one responds in social situations, and how one prioritizes goals and appraises values (Markus & Kitayama, 1991, 2010; Oyserman & Lee, 2008; Oyserman et al., 1993; Singelis, 1994; Triandis, 1995a; Triandis et al., 1988).

This dissertation aims to gain insights into the influence of individualism and collectivism (via independent and interdependent self-construal) on the processes involved in making sense of the self and others. The first two studies of this dissertation addressed whether and how individualism and collectivism can influence perspective taking (the ability to take the visual perspective of another person) and theory-of-mind (ToM) performance (the ability to infer mental states of other people). The other two studies investigated if the social cognitive processes through which one makes inferences of others' emotional states and through which one experiences and modifies one's own emotional states (emotional responding) follow the predictions of the individualism vs. collectivism model. Throughout the studies in this dissertation, a multilevel approach to operationalizing culture was used. First, we used populations from individualism- and collectivism-representative countries (and conducted the experiments in their respective home countries) to approximate individualism and collectivism on the country level (which we refer to as Country IC). Second, we used questionnaires to assess the self-reported degree to which individuals internalize individualism and collectivism (Individual IC). Finally, we manipulated the temporary salience of individualism and collectivism with the use of culture priming (Situational IC). Studying the relations between culture and core social cognitive processes contributes to our accumulating understanding of how the cultural environment influences our psychological world, which is also the ultimate aim of the dissertation.

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## SUMMARY OF THE STUDIES

Previous work suggests that an individualistic self-construal leads to a sense of self as being a separate entity (independent self-construal) and a relatively higher likelihood to use one's own thoughts and feelings as the primary reference points for making inferences of others' perspective. Conversely, when the self is construed to be interdependent with other people, it leads to a sense of the self as embedded in social relationships. They are then relatively more likely to reference others and to (consciously or unconsciously) allow their behaviors to be conditional on the thoughts, feelings, and behaviors of other people and their relationship with them. For a collectivistic construal of self, the immediate reference point is the thoughts, feelings, and actions of others with whom one has social connections (Markus & Kitayama, 2010). This in turn could lead to being more accurate and faster at taking the perspective of another person (the attentional hypothesis). However, construing the self as a separate entity from others, which is inherent in independent, individualistic self-construal, could lead to a better distinction between one's and another's mental states. This could, in turn, lead to individualism being associated with a better understanding of another's mental state, because egocentric bias (the tendency to conflate what oneself sees with what another sees) is better mitigated (the representational hypothesis). *Chapter 2* described a study testing these hypotheses in a Dutch sample. We measured cultural orientations with a questionnaire (Individual IC), primed participants with either individualism or collectivism (Situational IC), and assessed their accuracy and speed of perspective taking in an experimental task (Keysar et al., 2000). A human avatar instructed the participants to relocate objects in an array. The twist was that while all of the objects were visible to the participants, from where she was standing the avatar could see only a subset of the objects (Epley, Morewedge, et al., 2004; Keysar et al., 2003). To move the correct object, the participants needed to take into account what the human avatar could see and to take her perspective instead of using their own egocentric perspective. The results showed that the participants who were primed with collectivism were significantly faster in perspective taking, but only than those in the control group (who were not primed) and not than those primed with individualism. Individual IC (the degree to which one internalized collectivism more relative to individualism), however, did not have any similar effect. Being predominantly collectivistic did not lead to faster perspective taking, but instead was associated with slower non-perspective-taking performance (general visuospatial processing). These findings gave more support for the attentional hypothesis than for the representational hypothesis.

The consequences of IC should theoretically extend beyond visual perspective taking. In *Chapter 3* we investigated whether these independent vs. interdependent differences had consequences for how accurate and fast one makes inferences of the thoughts and feelings of another person (theory-of-mind, ToM). Students from an individualism-representative (i.e. the Netherlands) and a collectivism-representative (i.e. Vietnam) country answered a questionnaire (Individual IC) and were randomly assigned to an individualism-primed, a collectivism-primed, or a control condition (Situational IC) before performing a ToM task. The ToM task was stories told in the form of comic strips. Success in this task depended on understanding the social situations in the stories and the characters' thoughts and beliefs (cognitive ToM) and feelings (affective ToM). The data showed that on the country level (Country IC), the differences were much larger than could be expected if they were due to differences in IC and highlighted the challenges that researchers conducting cross-country experimental research face (a point discussed at length in the chapter). Results also showed that Individual IC did not predict ToM accuracy or reaction time. Regarding Situational IC, when primed with individualism, Vietnamese participants became less accurate in inferring the emotions of the characters compared to when primed with collectivism and when no prime was used. Furthermore, within each group, Dutch participants were least accurate, while Vietnamese participants were fastest in inferring affective states.

Culture and self-construal theoretically do not only have consequences for perspective taking and ToM, but also for making inferences of others' emotional states, especially for detecting negative emotions that signal social disruption such as anger. Individualism recognizes the unique, independent position of an individual within a group while collectivism puts the group above the individual (Kitayama & Markus, 1994; Markus & Kitayama, 1991; Triandis, 1995b, 2001). Where the prevailing cultural orientation is individualism, the thoughts and feelings of each individual, including anger, are more likely considered to represent internal attributes. Expressing one's emotions is thus a way to realize one's independent sense of self. In contrast, where the prevailing cultural orientation is collectivism, people are more often encouraged to adjust to social groups, to find a meaningful position among group members, and to maintain interpersonal harmony (Ishii & Eisen, 2017; Kim & Markus, 1999; Morling et al., 2002). Consequently, anger detection might have a stronger association with collectivism than with individualism (Markus & Kitayama, 1991). Yet, the question is whether collectivism leads to heightened perceptual sensitivity (being more astute at differentiating anger and

neutral expressions) or to a stronger response bias to seeing anger more often than it actually is there. In the study described in *Chapter 4*, we again used a multilevel approach to culture similar to Chapter 3. Dutch participants in the Netherlands and Chinese participants in China performed a social threat detection task where they had to categorize ambiguous facial expressions as “angry” or “not angry.” The stimuli varied in degrees of scowling and frequency of presentation, which allowed measuring the participants’ perceptual sensitivity and response bias following the principles of Signal Detection Theory. On the Country IC level, individualism-representative Dutch participants had higher perceptual sensitivity (i.e. better discrimination of anger and non-anger stimuli) than collectivism-representative Chinese participants did. Whereas, Chinese participants were *more* biased towards categorizing a scowling face as “angry” than the Dutch (i.e. stronger liberal bias). Although the Chinese had a similar correct detection rate, they tended to commit more false alarms. In both groups, collectivism on the Individual IC was associated with a bias towards recognizing a scowling face as “not angry” (i.e. stronger conservative bias). Cultural priming (Situational IC) affected neither perceptual sensitivity nor response bias.

Finally, individualism and collectivism also differ in terms of how one construes the relations between the self, ingroup (high-affiliation), and outgroup (low-affiliation) members (Matsumoto & Hwang, 2010). This influence can be revealed in the way one experiences and modifies one’s emotional states in situations where people of different degrees of affiliation are present. People from collectivistic cultures tend to perceive themselves as strongly connected to those from their own ingroup. People from individualistic cultures, on the contrary, tend to perceive themselves as separate from other people and have a highly independent sense of self. In collectivistic cultures, the distinction between ingroup and outgroup is also stronger, while people from individualistic cultures usually have more than one ingroup and feel less connected to one specific ingroup (Matsumoto, Yoo, & Fontaine, 2008; Triandis et al., 1988). Furthermore, individualism and collectivism might have an influence on the range of emotions that individuals allow themselves to experience and express. Collectivism, focusing on harmony in social relationships and interdependence, encourages emotional control to achieve positive interpersonal outcomes. Individualism, however, emphasizes personal feelings and their free expression, which helps to reaffirm the position of an autonomous individual (Butler et al., 2007; Markus & Kitayama, 1991; Safdar et al., 2009). *Chapter 5* is an investigation of how one experiences and modifies one’s own emotional states given these differences. In this study using

electroencephalography, we focused on the neural responses of participants when they were exposed to stimuli that evoked different valences across different social situations. The situations varied in the degree of affiliation for the participants. Event-related brain potentials were recorded when individualism-representative Dutch in the Netherlands and collectivism-representative Chinese participants in China viewed pictures that induced positive and negative emotions. They did this while sitting alone, while being accompanied by a culturally similar person (i.e. ingroup), and while being accompanied by a culturally dissimilar person (i.e. outgroup) in the experiment room. The electro-cortical activities in Dutch participants showed a differentiation in emotional responding between valences (i.e., large differences between responses to positive vs. negative pictures), while this was not the case for Chinese participants. However, the Dutch group only differentiated between the self and any other (no distinction between ingroup and outgroup); whereas, the Chinese group differentiated between self, ingroup, and outgroup. However, this effect was only evident when contrasting between the left and right hemisphere. These valence and situation effects in the EEG data were not reflected in the participants’ self-reported emotional responding.

## DISCUSSION OF THE FINDINGS AND IMPLICATIONS

### Individualism and collectivism on the country level

Individualism and collectivism on the *country level* were linked to differences in making inferences of others’ emotional states and regulating one’s own emotional states. In *Chapter 4* the existing, implicit knowledge of collectivism of those living in a collectivistic country seemed to mean a tendency to perceive higher demand or incentive for detecting emotions that signal undermined interpersonal harmony and to attach high costs of missing such events. While previous research suggests that collectivism might influence sensitivity to anger, the signal detection framework in our work allowed us to disentangle an effect on perceptual processing from that on behavioral tendency. In addition, the investigation in *Chapter 5* concludes that the cultural knowledge acquired through living in a collectivistic country (Country IC) is associated with a tendency to restrain emotional arousal, which was probably a practiced and automatized psychological pattern given that there were no explicit instructions to do so. Together, these results gave partial support for the idea that people, through chronic exposure to culture, adjust their emotional experience in a way that follows the individualism-collectivism model.

## Individualism and collectivism on the individual level

Individualism and collectivism on the *individual level* indicated that individuals' internalized, predominant cultural orientations measured by questionnaires seemed to have little effect – or, the effects did not follow the pattern predicted by the self-construal theory – on the processes involved in taking other people's perspective (*Chapter 2*) and making inferences of their mental states (*Chapter 3*). Internalizing collectivism to a high degree only led to a tendency to *underestimate* – instead of overestimate, according to the self-construal theory – the occurrence of emotions that signal social disruptions. Together, these results suggest that the individual differences in these processes could not be adequately explained by self-construal theory alone.

Another possibility is that culture might not be a form of explicit, declarative knowledge that participants can report on in questionnaires (T. R. Levine et al., 2003; Oyserman, 2011), which we used to measure Individual IC. Some previous research highlighted the difficulty with measuring interdependent self-construal relative to measuring independent self-construal (Cross et al., 2011) and we also did not always observe that collectivism-representative populations score higher on interdependent self-construal. This seems to stem from the possibility that the consequences of interdependent self-construal might ironically complicate its measurement. For instance, measures of self-construal do not usually specify a reference group and participants are likely to use their own cultural group as the referent point, which then biases the scores (the reference group effect, see Heine, Lehman, Peng, & Greenholtz, 2002).

In *Chapter 5*, with the use of electro-cortical recordings and a highly reliable neuromarker of emotional arousal (the LPP component), we observed different emotional experiences and regulations between cultural groups that were not always evident in questionnaire scores. The participants also showed emotional attenuation following the predictions of the cultural model in the absence of explicit instructions. This suggests that studies of cultural influences on affective processing that is either non-declarative or subject to self-report bias can be complemented by the use of neurophysiological techniques. These findings provide some support for one of the newer theoretical accounts suggesting that cultural concepts might not only be explicitly endorsed, but also embodied unconsciously (a point we will come back to below) (Markus & Kitayama, 2010).

## Individualism and collectivism on the situational level

Our findings on the *situational level* indicate that a momentary focus on collectivistic concepts and construing the self as overlapped with others seemed to have led to heightened attention to others' perspective (*Chapter 2*) and affective states (*Chapter 3*), but did not have any relation with the detection of negative emotional expressions (*Chapter 4*). Through making individualistic and collectivistic concepts salient the individualistic and collectivistic cognitive schemas were indeed provided and then had a spillover effect on subsequent perspective taking and selectively on a certain type of mental state inferencing (affective mental states).

The absence of interactions between Individual IC and Situational IC in our findings provides another piece in the puzzle concerning the exact mechanism through which culture priming works. Understanding the mechanism does not only provide further explanation for how exactly culture can influence cognition, emotion, and motivation but also will enrich our current grasp of the mechanism of behavioral priming and the influence of automatic or unconscious processes on behavior. The semantic-procedure model proposes that cultural concepts are represented by a network of pre-existing knowledge. Culture priming is supposed to draw out these concepts saved in the long-term memory and activate a procedural mode of thinking. Procedures then in turn encourage the corresponding processing style (Oyserman & Lee, 2008). Following this semantic-procedure reasoning, we should have observed that those who already internalized I or C to a higher degree drew out from their memory a richer or better connected semantic network of I or C concepts which should lead to more elaborate and practiced I or C procedure. However, this was not what we found (*Chapter 2, 3, and 4*).

The finding that internalized IC did not interact with primed IC opens up two possibilities. One is that culture priming might not simply bring about stored knowledge and activate semantic networks. A newer account – the situated inference model of behavioral priming – suggests that although a prime increases information accessibility the primed content still needs to be mistakenly attributed to be one's own internal thoughts and feelings in the immediate situation for the prime to be effective (Loersch & Payne, 2014). Indeed, the semantic-procedure account was agnostic as to whether cognitive procedures should be explicit and conscious processes. Our findings then support the notion that culture priming works by either making implicit cultural knowledge salient or by causing cultural concepts to be processed implicitly for the situation at hand. Cultural priming might then simply provide cues with regards to which cognitive schemas are relevant for

the immediate situation independently of the degree to which conceptual cultural content was previously internalized.

### Culture as a multilevel phenomenon and IC as multifaceted constructs

The other possibility is that collectivism measured in our Individual IC questionnaire might have focused on one aspect of IC (e.g., how much the participants valued interpersonal harmony and close relationships, which is essentially about value). In contrast, Situational IC might have drawn out another aspect: independent vs. interdependent self-focus, which is a cognitive style. This suggests that each level of culture can lead to one or another type of consequence and fine-grained measures are needed to fully capture the multi-faceted nature of IC and their heterogeneous consequences for values, group processes, cognition, and well-being.

Some previous work also suggests that collectivism itself can entail a set of constructs that may have distinctive consequences for cognition, emotion, and motivation (Brewer & Chen, 2007; Cross et al., 2011). Specifically, collectivism has been defined as prioritizing values and goals of large, impersonal groups over individual values and goals (Markus & Kitayama, 1991), or having a higher degree of attachment to ingroup (Triandis et al., 1988), or putting an emphasis on close relationships (Cross et al., 2011). These constructs, despite being interrelated, can result in distinctive downstream consequences. Our findings make it clear that the multiple constructs within collectivism should be addressed. For instance, future research could create three separate culture priming or questionnaire subscales that tap into these three aspects of collectivism and assess the divergent consequences for social cognitive tasks.

In sum, using multilevel assessments of culture paints a complete picture of the relationship between culture and mental life. Although the multilevel and multifaceted nature of culture had been sporadically discussed in previous research, the studies included in this dissertation are among the small number of empirical studies that systematically investigate cultural orientations on three separate levels on the same set of social cognitive performances.

### Culture and the self

Our findings also have implications for research on the self. Using questionnaires to measure self-concepts assumes that what people are consciously aware about themselves defines the self and hence, cultural self-construal contains explicit, declarative cultural knowledge. On the other hand, many research traditions also take the stance that culture is also materialized in the interpersonal routines,

situations, and practices that a person is surrounded with and is imposed by social institutions and social systems (Markus & Kitayama, 2010). By following these cultural rituals, one develops highly patterned procedures of processing information and regulating one's behaviors. This means that explicit knowledge alone does not fully mediate the influence of culture. Our findings (the presence of country and situational effects coupled with the scarcity of individual effects) give support for this hybrid view of the self. They suggest that the cultural concepts and procedures acquired through living in a country *and* those made salient in the situation together matter. Implicit, situated cultural knowledge and procedures are important for how we navigate through our cultural world. This view also aligns with what our findings reveal about the mechanism of culture priming (see above).

In conclusion, it is crucial to take a variety of aspects into consideration when conducting psychological research, because as classical social psychological theories point out thoughts, feelings, and behavior are a function of the individual and the situation (Lewin, 2013). Given the results in our studies and many others upon which our work is built, an updated account seems to be that thoughts, feelings, and behaviors are a function of the individual, the immediate situation, and the chronic situations that are culture.

## SUGGESTIONS FOR FUTURE RESEARCH

Our experiences with cross-cultural studies point out that there exist potential interactions between cultural differences and experimental settings, which can complicate the extraction of the cultural effects induced by the experimental manipulation. Such issue had not attracted much attention in previous research, possibly because the majority of Western versus non-Western experiments were not multinational studies. Non-Western participants were not tested in their home countries and respective cultural contexts. Identical experimental paradigms were not often used either (D. Cohen & Gunz, 2002; Duan et al., 2008; Haberstroh et al., 2002; Oyserman & Lee, 2008; Oyserman et al., 2009; Wu & Keysar, 2007). All studies included in this dissertation were efforts to improve these shortcomings.

Specifically, our multinational studies reveal that biases might emerge due to an interaction between experimental settings and cultural differences other than those measured or manipulated in the experiment. For example, in one of our studies (Chapter 3) the participants from the collectivism-representative country who had very different perception and usage of time than those from the individualism-representative country also ended up having an enormously different reaction time range that might not be attributable to experimental manipulation. Our findings



highlight this issue and we put forward a number of suggestions about how to identify and alleviate the biases for future research.

Future research with large sample sizes are needed as our studies alone cannot conclusively establish the robustness of culture priming on perspective taking and mental state inferencing. The latest studies suggest that behavioral priming effect in general might not be robust or difficult to replicate (Cesario, 2014; Shanks, 2017). Moreover, previous culture priming studies with moderate-to-high effects usually have small sample sizes (Oyserman & Lee, 2008), which can suffer a lack of statistical stability (Lakens & Evers, 2014). Given that all of our experiments have large sample sizes (at least larger than 88% of the 104 experiments included in the meta-analysis of culture priming effects, Oyserman & Lee, 2008), it does indicate the reliability of our results. Nevertheless, replications with even larger sample sizes and more diverse priming procedures will further improve our certainty about the robustness of culture priming.

Despite our use of hard-to-reach samples in their home countries our participants were still mainly university students. These participants might not be representative of the populations in their countries. Cultural values of university students might not be identical to those of the remainder of the population because of, for example, a higher socioeconomic status or a lack of religious beliefs (A. B. Cohen & Varnum, 2016; Hanel & Vione, 2016). Future efforts to internalize psychological research and to use samples that are even more diverse are highly valuable.

In our studies, we also used individualism-representative and collectivism-representative countries to operationalize culture at the country level. However, countries that are in the same individualistic (e.g., Netherlands and the USA) or collectivistic cultural spheres (e.g., Japan, China, and Vietnam) are not identical in the degree of representation of these cultural orientations (Oyserman et al., 2002) due to variations in distal cultural factors. Differences in language, history, philosophy, and religion can serve as moderating factors in the relation between IC and the psychological outcomes. For example, Japanese culture is heavily influenced by Shinto-ism while this is not the case for Chinese; and Confucianism might have a greater impact on Chinese culture than on Japanese culture (Zhang, Lin, Nonaka, & Beom, 2005). Shinto-ism might create a kind of collectivism that emphasizes loyalty to the people and the country at large while Confucianism might prescribe a type of collectivism that stresses familial relationships (father-son, husband-wife, elder-younger relationships, Chang & Holt, 1991). Similarly, whether a country has adopted communism – which also differentiates China and Japan from each

other – might also have strong implications for the type of interdependent self that people more frequently construct (Antalíková et al., 2017). As discussed above, these different subtypes of collectivism might lead to different consequences for social cognitive processes. Our findings also corroborate that it matters to unpack the constructs within collectivism and to know who are perceived to be included in the collective in different ways of conceptualizing collectivism. Furthermore, an independent line of research also contented that differences in other dimensions of culture and subculture (such as socioeconomic background, political viewpoints, or philosophical tradition such as dialectical thinking) could also produce group differences that mimic the commonly and previously found differences between individualistic and collectivistic cultures (A. B. Cohen & Varnum, 2016; Schimmack, Oishi, & Diener, 2002).

Finally, the studies in this dissertation were set up with the aim to understand the content and processes of cultural influence on social cognition. Multiple approaches to culture were employed, as were multiple assessments of social cognitive outcomes. However, like most of current cultural psychological research, the studies in this dissertation relied on the interface between cultural universals and cultural specifics. A currently still under-used but prominent approach to reach an understanding of the mechanism behind how culture influences our minds is to formally model it. One specific way to do this is to model how people, upon contact with a new culture, learn about it and adapt to it (e.g., how migrants, individuals or groups, from a collectivistic country to an individualistic country navigate through their new world). Mathematical modeling of cultural learning following the principles of cognitive sciences of social learning can illuminate the precise mechanism and quantify how cultural environments influence our minds. Although there is currently little computational cultural psychological research, some works in computational social learning are available to pave the way (Christopoulos & Tobler, 2016; Diaconescu et al., 2017; Heyes, 2017; Hoppitt & Laland, 2013; McElreath et al., 2005). Practical implications of this kind of research include a great deal of potential societal impact as this knowledge should improve the understanding and management of our increasingly multicultural societies.

