

Interdependence of emotion: Conceptualization, evidence, and social
implications from cultural psychology

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Abstract

People feel a wide range of emotions. In many psychological traditions, emotions are defined as primarily emerging from within the individual, even if influenced by other external factors (i.e., approval from others), consistent with an independent self-construal. However, in some contexts, emotions have more “interdependent” characteristics which can be shared with others, arising from interdependent social contexts and collective, shared situations. We define the lay theory of interdependence of emotion (IOE) as the perception of “sharedness” of emotional experience or the cause and consequence of the emotions. IOE can be conceptualized along a spectrum, rather than as a categorical emotional experience. Additionally, the degree to which people understand emotions as interdependent likely varies by cultural context. In this article, we review the literature that investigates IOE across cultures, focusing on their functions. We suggest that people from non-WEIRD cultures are more likely to experience IOE. Next, we highlight examples of IOE, focusing on two specific emotions: happiness and awe, where the latter may sometimes have more or less IOE characteristics. The mechanisms and functions of IOE will also be discussed through the example of a current collective threat, such as COVID-19.

Key words:

Interdependence of emotion, culture, happiness, health, awe

Introduction

Imagine that you are watching an interview with an Olympic gold medalist. She is responding to the interviewer, talking about how happy she is feeling right now. You try to guess the specific question the interviewer asked immediately preceding the Olympian's response, and why she is talking about happiness. You might think that she was asked about her inner feelings regarding this achievement. Alternatively, you might think that she was being asked about the support received from her family and friends during training.

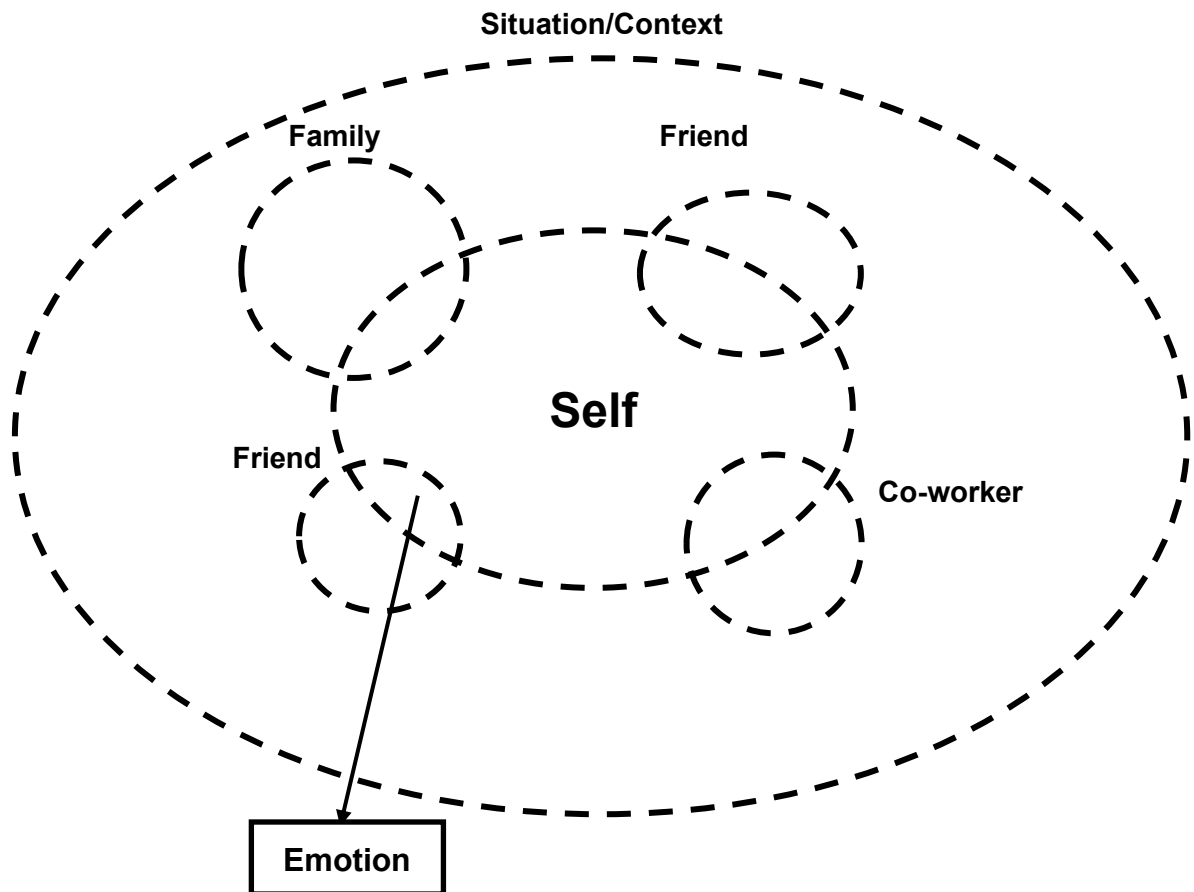
The former represents an *independent* lay theory of emotion, whereby emotions arise from *within* the individual and are seen as reflecting an independent self-construal. The latter represents an *interdependent* lay theory of emotion (IOE: see Figure 1), where emotions are understood to arise between inside (self) and *outside* (others, situations) intersubjectively, reflecting social contexts and collective or shared situations (Uchida et al., 2009). The majority of emotion research is based upon the independent lay theory of emotion, despite evidence showing that it also serves social functions (see Mackie et al., 2008 for a review of "intergroup emotion").

We define IOE as one of the lay theories of emotion. IOE is not a label or category of emotion. Rather, IOE exist as a continuum of whether emotions are understood as interdependent and can be socially shared. Thus, each emotion (e.g., happiness) may or may not be understood via IOE in any given context. For example, personal hedonic happiness that is experienced when one wins a personal gamble might be less likely understood through IOE,

whereas interpersonal eudaimonic happiness that is experienced when accomplishing a collaborative group task over several months might be more likely to be understood through IOE.

Figure 1. Lay theory of Interdependence of Emotion (IOE).

With IOE, emotions are understood to arise between inside (self) and *outside* (others, situations) intersubjectively, reflecting social contexts and collective or shared situations



IOE and culture

The prevalence of IOE as a lay theory varies across cultural contexts. Although emotions serve social and intergroup functions, emotions are more likely to be construed as independent both theoretically and methodologically in psychology (Mesquita & Leu, 2007). This is especially true within “WEIRD” psychological traditions (Western, Educated, Industrialized, Rich, and Democratic; Henrich, 2020), in which emotions are more likely to be conceptualized as evoked and experienced within a person. However, if we unpack the processes involved in experiencing and expressing emotions, emotions’ interdependent features – conjoint phenomena such as between self and others, between self and the world, and between ingroup and outgroup – are easy to see. We define the interdependence of emotion (IOE) not only through its social functions but also through its emergence, including how and when we feel emotions that guide the self.

Lay theories of emotion, regarding where emotions reside, how they are felt, and what consequences they have, would be conceptualized relative to the self as the agentic source of emotion experience. For example, it has been shown in cultural psychology that Japanese, as a representative of East Asian culture, and North Americans, as a representative of WEIRD culture, have different understandings of the sources of behavior (Markus & Kitayama, 1991). In this regard, Uchida et al. extend a model of agency to emotions (Figure 1). In contexts where agency is understood as more conjoint, situation-dependent, or interdependent (e.g., Japanese culture), emotions are understood to be more characteristic of IOE. When engagement with others

is salient, emotions are more likely to be experienced or expressed strongly (de Almeida et al., 2022), and there is a greater tendency to infer the emotions of others (Uchida et al., 2009). Conversely, in contexts where agency is more disjoint and understood as situation-independent (e.g., North American culture), emotions tend to be understood as less characteristic of IOE. In such cases, emotions are more likely to be experienced and understood as something that resides within the individual and is, relatively speaking, independent of the thoughts and feelings of others. Thus, people are more likely to experience, express, and infer emotions by paying deeper attention to and considering their own internal psychological states (Uchida et al., 2009).

While it is useful to present this concept from an interdependent cultural perspective, we acknowledge that the concept of IOE is also accessible in independent cultures. For example, in response to the COVID-19 pandemic, people have experienced a range of emotions, including anxiety, anger, and sadness (Dyer & Kolic, 2020). Each emotion can be understood in varying degrees of interdependence. Anxiety that is dimensionally low in IOE can occur when people feel concern for their own health after a coughing fit. Dimensionally higher-IOE anxiety might arise when people become aware of the tensions at the collective level such as through adherence to strict behavioral regulations. Thus, we can conceptualize IOE as dynamic and falling on a spectrum, rather than as a categorical emotional experience.

This review summarizes a decade of research on the interdependent view of emotions from three perspectives: (1) its variance across cultural

contexts, (2) its individual functions, such as health related outcomes, and (3) its collective functions, such as promoting prosocial behavior.

Interdependence of Emotion

Emotion contagion and emotion sharing are some of the most prominent paradigms in emotion research (Mesquita & Leu, 2007). In these traditions, emotions can be defined as “ongoing, dynamic, and interactive processes that are socially constructed (Boiger & Mesquita, 2012, p.221).” Thus, emotions are not only social by virtue of their socially expressive *functions*, but are also collective and interdependent by virtue of their construction and emergence *processes*, especially when the emotions occur within interpersonal or group dynamics.

Although we posit that IOE is a less prominent conceptualization of emotion in WEIRD psychology, lay theories of emotion in interdependent contexts (Markus & Kitayama, 1991) exhibit characteristics consistent with our IOE concept, such as by inherently defining emotions relative to others and situations. For example, in interdependent cultural contexts (e.g., Japan), emotions are considered to exist “between people” (Uchida et al., 2009) or “between the self and the situation.” In this study, Japanese participants defined, evoked, and inferred emotions by contextualizing them within their social relationships. Japanese Olympic athletes generated emotion-related words and sentences when asked about their social relationships with coaches and family members, whereas American athletes did not. In addition, Japanese participants inferred athletes’ emotions when reading articles that

described the athletes' relationships, whereas American participants inferred athletes' emotions from descriptions of their personality traits and intentions.

These interdependent emotion characteristics are also linked to varying cognitive styles across cultures. Consistent with the features of a holistic cultural worldview proposed by Nisbett (2004), Masuda and colleagues (2008) found that Japanese participants judged a person's emotions by incorporating the emotions of surrounding people. In a series of experiments, participants were presented with pictures of groups of people with varying facial expressions and were asked to evaluate the central person's emotions. In the congruent condition, the central figure and the people around him/her had matching facial expressions, but in the incongruent condition, the central person's facial expression (e.g., smiling) did not match the others' (e.g., all frowning). Compared to North American participants, Japanese participants rated the incongruent smiling target as less happy. Interestingly, this effect was also reflected in differences in attention (e.g., eye gaze). Thus, people who define emotions interdependently tend to include relational information, such as others' facial expressions, to holistically assess an individual's emotions.

Interdependent Happiness

Positive emotions, like happiness, have cultural nuances. Understandably, happiness is a primary positive emotional state that many people seek. However, in interdependent cultures, happiness or the pursuit of happiness is more likely to be associated with socially engaging situations

(Kitayama et al., 2006). It is also likely to co-occur with both positive and negative affect for balance seeking (Uchida & Kitayama, 2009; Lomas et al., 2022), eliciting thoughts about possible negative consequences, especially with regards to social disruption such as “too much happiness would elicit others’ jealous/envy or sense of inequivalence” (for a review, Zerwas & Ford, 2021).

From the perspective of IOE, the pursuit of interdependent happiness often emphasizes balance and harmony, with “relational” and “transcendental” characteristics. In comparison, the pursuit of independent happiness often emphasizes self-actualization, which are related to “self-esteem” and “achievement.” The characteristics of interdependent happiness as understood through IOE emerge because, an individual’s state of happiness is considered to be inseparable and interdependent with the happiness of others, in the context to which the individual belongs. Hence, there is an understanding that sustainable happiness is achieved by seeking harmony with others who share the same context (or are in the same group). For example, even if an individual obtains immense happiness through achievements by exploiting others in the same group, it is understood to be unsustainable. Therefore, relational meaning emerges in IOE when individuals affirm positive relationships with others (e.g., Delle Fave et al., 2016), such as by perceiving high emotional support (Uchida et al., 2008). For example, the personal hedonic happiness one experiences when winning a gold medal in the Olympic game may be less likely experienced through IOE, but the interpersonal happiness one experiences after getting a gold medal

with team members may be more likely understood through IOE (Uchida et al., 2009). Similarly, when belonging to communities with strong social capital (e.g., mutual trust), one's own happiness is correlated with perceptions of others' happiness (Fukushima et al., 2021). A transcendental sense of meaning in IOE takes the form of balance seeking, reflecting holistic lay theories such as "yin and yang" (e.g., a positive thing cannot exist without its negative counterbalance; a concept primarily rooted in Eastern Confucianism and Taoism). The Interdependent Happiness Scale developed by Hitokoto and Uchida (2015) measures interdependent happiness through relational (e.g., others' contentment) and transcendental (e.g., seeking quiescence) tendencies, and this concept has been shown to exist across 12 cultures (Krys et al., 2019).

The Interdependence of Emotion and Physical Health

IOE, which is a lay theory about emotions, may lead to a variety of outcomes. If IOEs are more strongly shared as cultural values and beliefs, then experiencing emotions in line with such beliefs may lead to cultural adaptation, which may in turn benefit physical health. Therefore, IOE may not only influence the appraisal of emotion elicitors, but also predict differences in downstream psychosocial resources. This acts as a mechanistic pathway linking experiences and emotions to physical functioning. IOE facilitate resources relevant to interdependent contexts, such as harmony or mixed emotions (experiencing both negative and positive emotions). For example, in cultures which is more likely to emphasize IOE, people tend to appraise their negative emotional responses towards a stressor as more

valued, relative to participants from cultures that place less emphasis on IOE . Such appraisals not only predicted attenuated cardiovascular stress reactivity (CVR, increase in blood pressure from baseline) within that cultural context, but they also mediated the effect of culture on CVR (Yoo et al., 2021).

A similar pattern has been observed for other health risk factors such as in inflammatory markers and diurnal cortisol patterns (Kitayama et al., 2016; Park et al., 2020). Less genetic transcription when up-regulating inflammation (CTRA response; Cole, 2014) was also observed in Japanese workers who perceived high levels of interdependence and eudaimonic well-being (e.g., purpose), whereas hedonic well-being (e.g., pleasure) was unrelated to this inflammation mechanism (Fredrickson et al., 2013; Kitayama et al., 2016). Additionally, positive affect predicted healthier biomarker profiles (HDL, DHEA) in the U.S. regardless of social connectedness, but positive affect alone predicted worse profiles in Japan when paired with low social connectedness (Yoo, Miyamoto, & Ryff, 2016). Thus, the health-relevant pathways of IOE extend to both positive affect and negative affect.

Awe and the Interdependence of Emotion

In elucidating IOE's functions, awe serves as a helpful example, as it contains both independent and interdependent elements. Awe is an emotion felt towards something vast which exceeds our understanding of the world (Keltner & Haidt, 2003). This vastness can be either non-social or social, with

common elicitors including magnificent natural scenery, a threatening disaster, a charismatic, innovative leader, or a powerful yet cruel king. In a past work, Chinese participants reported experiencing awe from social elicitors more often than North American participants did, demonstrating that cultural context is associated with variations in the distribution of awe's elicitors (Bai et al., 2017). However, awe serves an inherently IOE-linked function because it enhances our attention to others, even when experienced in independent cultures and when the elicitor is non-interpersonal or non-social (e.g., nature). More specifically, awe makes people experience a "diminished self" (Piff et al., 2015) and a sense of connectedness and oneness with humanity or "everything" (Yaden et al., 2019), which evokes humility (Stellar et al., 2018) and prosocial motives (Piff et al., 2015).

From the perspective of IOE, such emergent findings have potential implications for awe's collective functions. Given that awe is experienced toward vast elicitors, the elicitors may constitute a shared experience on a large scale (e.g., pandemic). Such situations may encourage the IOE view of the emotional experience, since the emotion is shared and exists among self and others. In turn, this widely shared awe experience could generate collective motivation to act. In the face of such collective threats, individual survival is often dependent upon the behavior and survival of others. For example, during the COVID-19 pandemic, an individual's infection risk depends on the behavioral regulation of others, both in the immediate vicinity (e.g., mask wearing) and on a larger scale (e.g., degree of overall community spread). For cases when awe arises from collective threat, rather than

personal threat, and reinforced by mutual interaction, prosocial motivation and behavior become collective and effective. Such coordinated behavioral regulation may be better facilitated by interdependent social orientations (Gelfand et al., 2011), with awe acting as one of the possible pathways.

Conclusion and Implications

In this article, we conceptualized IOE as one of the lay theories of emotion by which emotions are understood as interdependent and socially shared. We then showed that the prevalence of IOE as a lay theory varies across cultural contexts. We reviewed literature demonstrating that in certain cultures, IOE motivates people to pay attention to social relationships and cooperate with others, promoting well-being and influencing health outcomes.

IOE is a lay emotion theory that differs from personalized emotion theories. Until now, emotions have been conceptualized as controlled or amplified within individuals which then guide behaviors. For example, as typified by “empowerment”, paying attention to one’s emotions is believed to increase pro-sociality toward society. When understood through IOE, however, the sources of emotions and related behaviors are perceived differently, including not only one’s internal state but also considering social contexts and socially shared goals/expectations. Unlike the previous example of empowerment, paying attention to the feelings of others as well as to their own, as seen in “empathy” and “intersubjective understanding of situations”, is thought to enhance prosociality toward society. Therefore, attention and

commitment to social norms is also believed to be important for regulating emotions.

The present IOE model for understanding emotions may be useful in situations with increased threat and conflict. Currently, we face an array of increasingly collective global threats: COVID-19, global warming, sustainability, and natural disasters. By focusing on emotions of the self and others, IOE can facilitate compliance with social norms to protect others or to cope with outgroups.

In fact, collective values encouraged people to follow lockdown orders during the COVID-19 pandemic (Lu et al., 2021). In addition, emotion suppression and calmness-seeking to avoid arising panic in communities promoted collective survival after the 3/11 tsunami disaster in Japan (Uchida et al., 2014). Of course, the activation or adoption of IOE varies across contexts and there exist both individual differences and broader cross-cultural differences. Future studies should elucidate the links between IOE and its individual and social consequences in relation to the above issues, which will require global collaboration and cooperation.

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 # This empirical study provides a specific example of the mechanisms by which interdependence has implications for physical health outcomes.
3. Uchida, Y., Townsend, S. S. M., Rose Markus, H., & Bergsieker, H. B. (2009). Emotions as within or between people? Cultural variation in lay theories of emotion expression and inference. *Personality and Social Psychology Bulletin*, *35*(11), 1427-1439
 # This empirical research examines lay theories of emotion, and specifically the lay theory for interdependence of emotion.
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 # This paper discusses the conceptualization and measurement of interdependent happiness.
5. Mesquita, B., Boiger, M., & De Leersnyder, J. (2016). The cultural construction of emotions. *Current Opinion in Psychology*, *8*, 31-36.
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