



Cross-cultural and inter-group research on emotion perception

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The face plays an important role in communicating emotions. We constantly find ourselves reading others' faces on different occasions, such as in the office and in school as well as in the bar and in the bedroom, to gain knowledge about others' feelings, thoughts, and intentions, and improve our social interactions (Ekman, 1992; Frijda et al., 1989; Van Kleef, 2009). However, accurately decoding emotion expressions is not always easy, and it may become even more challenging when we interpret displays of people from another cultural, ethnic, or social group. In this paper, we first provide a brief overview of research on perceptions of emotional facial expressions from both the cross-cultural and intergroup perspectives, summarizing three distinct phenomena/mechanisms in each domain. Second, we introduce four articles in this special issue that address an array of questions in the broad area of emotion perception, ranging from perceptions of emotion expressions displayed by members of own- vs. other- social

groups to children's emotion understanding across cultures.

Although the boundaries between cross-cultural and intergroup research are not always clear, we considered studies to be cross-cultural investigations if they focused primarily on comparisons across cultural and national boundaries, and intergroup investigations if they focused primarily on comparisons of different ethnic or social groups within a nation. Importantly, these two lines of research may overlap.

Emotion perception across cultures

The extent to which emotion perception is universal versus culturally specific is the subject of considerable debate (e.g., Ekman & Cordaro, 2011; Elfenbein & Ambady, 2003; Gendron et al., 2018; Jack et al., 2012; Keltner et al., 2019). Early research suggests that the perception of expressions of so-called basic emotions is highly similar across cultures, such that people from different backgrounds perceive similar emotions in a given facial expression (e.g. Ekman, 1973; Izard, 1994). In one study, Ekman et al. (1969) showed photographs of facial expressions of six basic emotions (happiness, sadness, anger, disgust, fear, and surprise) to individuals in America, Borneo, Brazil, Japan, and New Guinea. Participants were provided with the six emotion categories and instructed to select the one term that best described the emotion expressed

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in each photo. Results showed that participants from all groups could recognize all six basic emotions at above chance performance. This finding has been replicated in a variety of other cultures (e.g., Ekman, 1972; Ekman et al., 1987; Izard, 1971). Consequently, Ekman and his colleagues claimed that facial expressions of emotion are universal. More recent research, however, has uncovered cultural differences in the more subtle aspects of emotion processing. In this section, we review three of the most prominent cultural differences in the perception of emotional facial expressions: a general ingroup advantage in accurately interpreting facial expressions (Elfenbein, 2013; Elfenbein & Ambady, 2002), Easterners' being less accurate in recognizing negative facial expressions than Westerners (Jack et al., 2009; Matsumoto, 1989), and Easterners having a greater tendency than Westerners to perceive mixed emotions in facial expressions (Fang et al., 2018, 2019).

Just as dialects of a language can differ in accent, grammar, and vocabulary, the universal language of emotion may also have dialects that differ subtly from each other (Tomkins & McCarter, 1964). Elfenbein and Ambady (2002) conducted a meta-analysis of 97 studies on cross-cultural recognition of emotional expressions. They found that expressions of emotion were recognized better when both the perceiver and the expresser were from the same cultural background. Furthermore, this ingroup advantage was smaller for cultural groups with greater exposure to one another. The researchers reasoned that this effect can be explained by the dialect theory of communicating emotion. Dialect theory proposes that members of different cultures differ in their styles of both the encoding (i.e., production) and decoding (i.e., perception) of emotion. These cultural differences are systematic even if subtle enough to allow generally accurate emotion communication across cultural boundaries (Elfenbein & Ambady, 2002).

The second established cultural difference in emotion perception is the lower recognition accuracy for negative facial expressions among Easterners than Westerners (Beaupré & Hess, 2005; Jack et al., 2009; Matsumoto, 1992; Yik & Russell, 1999). Matsumoto (1992) revealed that, compared to Japanese perceivers, American perceivers were better at identifying anger, disgust, fear, and sadness. Similarly, Jack et al. (2009) showed that East Asian (mostly Chinese) perceivers performed worse than Europeans in

categorizing disgust and fear. Three explanations have been put forth to account for this phenomenon. The first of them is related to display rules (Ekman, 1972). Negative emotions may pose a threat to group harmony, which is valued more in collectivistic cultures (including many Eastern countries) than in individualistic cultures (including many Western countries; Nisbett et al., 2001). According to this view, Easterners may be less accurate in categorizing different negative expressions due to low exposure to such expressions (Biehl et al., 1997). The other explanation is related to decoding rules proposed by Matsumoto (1989). He argued that people from individualistic cultures are more effective at recognizing negative emotion expressions because they do not suppress their true understanding of such displays out of concern for group harmony. The last explanation is that Easterners use a decoding strategy that is inadequate for distinguishing some negative facial expressions. Specifically, Easterners have been proposed to focus more on information from the eye region, and Westerners—to weigh information more evenly across different parts of the face (Yuki et al., 2007). Easterners may therefore be poorer at judging expressions that involve similar movements in the eye region, such as anger and disgust, or fear and surprise (Jack et al., 2009). These accounts suggest that Easterners' lower performance in categorizing negative facial expressions is caused by their inability to accurately identify the emotions felt by the expresser.

Rather than failing to accurately label negative facial expressions, other researchers proposed that Easterners tend to see multiple concurrent emotions when perceiving negative emotion expressions (Fang et al., 2018, 2019). In a study by Fang et al. (2019), Chinese and Dutch participants were asked to rate theoretically-based facial expressions (Western prototypes from the Facial Action Coding System) by Asian actors and White actors in one condition and realistic facial expressions (participants were asked to produce expressions that can be understood by their friends) of Chinese and Dutch people in the other condition. Across conditions, both perceiver groups consistently rated intended emotions higher than non-intended emotions, suggesting that Chinese perceivers could accurately identify the emotions conveyed by facial expressions. Importantly, however, differences in ratings between intended and non-intended emotions were smaller for Chinese participants than for

Dutch participants. An analysis using a machine learning algorithm showed that Chinese participants' poorer categorization performance on forced-choice emotion categorization tasks could be explained by these participants' tendency to perceive multiple emotions (intended as well as non-intended) in facial expressions. These findings imply that Easterners are more likely than Westerners to see mixed emotions in facial expressions. This difference may reflect cultural differences in cognitive styles (Ji et al., 2000; Markus & Kitayama, 1991; Nisbett et al., 2001) and dialectical thinking (Peng & Nisbett, 1999; Peng et al., 2006). On one hand, Western individuals' inclination to focus on a specific target category may make them less likely to endorse multiple emotions compared to Eastern individuals. On the other hand, perceiving distinct emotions in one emotional face can be seen as contradictory, and Eastern individuals, who are higher in dialectical thinking (Peng & Nisbett, 1999), may feel more comfortable endorsing multiple emotions than Western individuals.

Emotion perception across groups

Compared to cross-cultural investigations of emotional facial expressions, studies investigating emotion perception within nations, from an intergroup perspective are relatively scarcer. This line of research investigates how people from different racial and social groups perceive facial expressions of ingroup vs. outgroup members, with an emphasis on revealing differences rather than similarities. In this section, we review three of those differences: a general ingroup advantage, an outgroup advantage related to majority vs. minority status of groups, and a target group bias due to using stereotypes when judging emotions of stereotypical groups. These effects are not entirely separate from each other. Rather, they can co-occur in a single situation. For example, a study of White perceivers judging White vs. Black targets' facial expressions may encompass all of the three effects as the White vs. Black targets are considered as an ingroup vs. outgroup (an ingroup advantage), a majority vs. minority group (an outgroup advantage), and a non-threatening vs. threatening stereotypical group (a target group bias).

An ingroup advantage in emotion perception occurs when perceivers are more accurate in identifying emotions expressed by ingroup than outgroup members. While this advantage is very similar to the one discussed in the previous section on cultural differences, it may have different underlying mechanisms. Specifically, it may result from individuals' increased motivation to understand members of their in- vs. outgroup and their greater experience with ingroup members. That is, people may be more motivated to decode emotions of their own group relative to the outgroup. This can be due to social interactions with ingroup members being usually more frequent, more important, and more likely to be beneficial than interactions with outgroup members (Malpass, 1990). This explanation is congruent with research showing that perceivers are more accurate in judgments of emotions that they believe to have been expressed by ingroup rather than outgroup members even though the expressions are the same or the two groups share the same cultural and linguistic background (Thibault et al., 2006; Young & Hugenberg, 2010). Individuals may also have more experience with their own group members than outgroup members in terms of exposure to facial morphological features and emotional dialects. As a result, perceivers may show an advantage when recognizing emotions from an ingroup member's face. Friesen et al. (2019) found that White participants distinguished more in their happiness ratings between true and false expressions on White compared to Black faces. Two explanations have been proposed to account for this difference. The first is White participants' tendency to attend more to the eyes of White vs. Black people (Friesen et al., 2019). The second reason could be that White individuals have more experience with Black people displaying false smiles, which might also cause their poor differentiation between true vs. false smiles on Black people's faces.

An outgroup advantage occurs when minority group members judge emotional expressions of majority group members. In seven out of 11 studies that included both majority groups judging minority groups and minority groups judging majority groups, the minority group members were more accurate in judging emotional expressions of the majority group members than vice versa (Elfenbein & Ambady, 2002). In fact, this effect was so large that the minority groups recognized the majority's emotional

expressions better than their own. Researchers suggest that this outgroup advantage might be related to differences in power and exposure across groups (Elfenbein & Ambady, 2002). Minority group members may have more exposure to majority group members in a majority group-dominated nation and they may also attend more to the emotions and needs of the majority group members who usually have high power.

In addition to an outgroup advantage related to majority status, decoding facial expressions of outgroups may also be influenced by stereotypes. In particular, when individuals do not know each other, they tend to resort to stereotypical knowledge about social group members when decoding facial expressions (Hess & Kirouac, 2000). This target group bias has been commonly observed in the perception of Black faces. For example, because Black people are stereotyped as threatening and potentially dangerous in the U.S. (Devine, 1989), White Americans perceive expressions as angrier on Black than White faces (Hutchings & Haddock, 2008; Maner et al., 2005; Shapiro et al., 2009), categorize angry expressions faster on Black than White faces (Hugenberg, 2005), and see angry expressions lingering longer and appearing earlier on Black than White faces (Hugenberg and Bodenhausen, 2004). Beyond the perception of Black faces, a target group bias has also been found in the decoding of Moroccan faces. For example, in the Netherlands, perceivers with stronger stereotype associations between Moroccan men and anger are more likely to see anger on Moroccan male faces (Bijlstra et al., 2014).

Overview of articles

Despite growing research on the effect of different social backgrounds on emotion perception, many questions still await more empirical scrutiny. For instance, only few studies documented the effect of social groups on emotion perception within one country. Even less research focused on younger participants, despite the fact that such populations are less affected by socialization and could provide valuable insights into how growing up in a given culture shapes emotion communication. Importantly, the processes underlying group differences in emotion perception are still under debate. Moreover, only a few

studies went beyond facial expressions when investigating cultural effects. Last but not least, it remains largely unclear whether and to what extent the observed effects of culture apply to positive emotions, compared to the much more frequently investigated negative emotions. This special issue aims to showcase novel research examining emotion communication across cultural, ethnical, and social groups and addressing some of the questions listed earlier.

Möller and colleagues (2022) compared emotion recognition and emotion comprehension among pre-schoolers from Germany and Singapore. Children completed a task in which they interpreted facial expressions produced by European American and Asian European models. Findings show that, compared to pre-schoolers from Germany (a low-context collectivistic culture), pre-schoolers from Singapore (a high-context individualistic culture) performed significantly better in the emotion recognition task. Emotion comprehension was comparable in the two countries and the researchers did not observe an in-group advantage in judgments of facial expressions. These findings are consistent with theoretical accounts suggesting that children growing up in high-context cultures like China or Singapore become more sensitive towards subtle cues, such as facial expressions, than children growing up in low-context cultures, such as Germany.

Sara Konrath and Olivier Luminet (2022), however, found that people who prioritize independent self-construals (which are more common in individualistic relative to collectivistic cultures) have less difficulty in identifying and describing their emotions. By manipulating self-focus and other-focus, the researchers found that high self-focus improved emotional skills including emotion recognition and emotion verbalization, but there was no overall effect of high other-focus.

Cong and colleagues (2022) investigated how culture affects appraisal patterns of positive emotions. Specifically, the researchers compared appraisals of nine positive emotions as rated by participants from the U.S. and China. Two findings stand out from this comparison. First, discriminant analyses indicated that the emotions could largely be predicted above chance level from their appraisal patterns. In both cultures, amusement, awe, compassion, desire, gratitude, pride, and relief could be predicted above chance level, whereas interest could be predicted only slightly

above chance level in both cultures, and love only slightly above chance level in the U.S. but not in China. Second, exploratory comparisons showed cultural variability of the appraisal patterns for different emotions. Participants from the U.S. and China differed partly in their appraisal patterns for awe, compassion, and desire. Thus, the study supports the conclusion that the appraisal profiles of positive emotions are largely distinct for most positive emotions, yet culture also shapes how people evaluate emotion-eliciting situations.

Finally, the research by Ursula Hess and colleagues (2022) examined how the mere labelling of an emotional face as an ingroup or outgroup social group member affects facial mimicry and judgments of genuineness. The study revealed group-specific biases in facial mimicry and judgments of genuineness. However, introducing cooperative goals abolished differences in judgments of genuineness of facial expressions displayed by ingroup and outgroup members.

Emotional perception has been a hot topic of research in the past few decades. We believe that this fervor will continue in the coming decades. Nowadays, more than ever, we need to explore emotion perception from diverse perspectives, adopting multiple research methods, and using novel, increasingly sophisticated analytical tools. We also need to bring together theoretical and empirical evidence from different fields of emotion research (e.g., anthropology, biology, philosophy, linguistics, sociology, and computer science) in order to develop a broad framework for emotion communication. This framework will not only help us better understand the nature and function of emotions, but also provide new directions and avenues for future emotion research. We hope that the present collection of articles contributes to reaching these goals.

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Conflict of interest The authors have no conflicts of interest to declare that are relevant to the content of this article.

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