Revisiting diversity: cultural variation reveals the constructed nature of emotion perception

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The extent of cultural variation in emotion perception has long been assumed to be bounded by underlying universality. A growing body of research reveals, however, that evidence of universality in emotion perception is method-bound. Without the assumption of underlying universality, new lines of inquiry become relevant. Accumulating evidence suggests that cultures vary in what cues are relevant to perceptions of emotion. Further, cultural groups vary in their spontaneous inferences; mental state inference does not appear to be the only, or even most routine, mode of perception across cultures. Finally, setting universality assumptions aside requires innovation in the theory and measurement of culture. Recent studies reveal the promise of refinements in psychological approaches to culture. Together, the available evidence is consistent with a view of emotion perceptions as actively constructed by perceivers to fit the social and physical constraints of their cultural worlds.

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Emotions are central to the human experience — emotions characterize the most profound moments in our lives, and sharing these experiences can bring us closer to other people, forming a foundation for intimacy. It is appealing, then, to assume that this capacity for sharing emotions transcends what sets humans apart — the knowledge, values, beliefs, practices, institutions, roles and languages that vary substantially across individuals and groups as aspects of human culture. A large amount of empirical work has centered on whether *emotion perceptions*, the inferences people form about the emotional experiences of others, can occur across cultural divides. Evidence consistently reveals a 'gap' in emotion

perception across cultures: people are better at perceiving the emotions of others in their same cultural group (typically defined along national borders) than from another cultural group [1].

Variation in emotion perception is often interpreted within the constraints of *universality:* A set of innate, evolved emotional expressions universally exist — but the deployment and subsequent perception of these expressions is modulated by culture. Critical to this viewpoint are the ideas that certain content (i.e., facial actions that are mechanistically produced by emotions such as the wide-eyed expression for fear), and certain attributions (i.e., the ability to perceive another person as angry, sad and so on), are universal. The assumption of underlying universality has long been based on a small set of experiments (for reviews [2••,3]) conducted in the 1960s and 1970s by Ekman and colleagues [4–6] in which individuals from relatively isolated samples perceived the predicted emotions posed by Westerners at above-chance levels.

Does universality undergird cultural variation?
In the last decade [7–9], and at an accelerated pace in the last few years [10,11•,12,13,14,15•,16], several research groups have revisited the assumption that emotional expressions are universally perceived. These tests are a critical and timely endeavor in the face of many shifting sociodemographic factors across the globe (e.g., from rural to urban, from culturally isolated to interconnected, from subsistence agriculture to commerce, and so on), that are serving to produce profound cultural changes [17]. The pace of this cultural change is closing the window of opportunity to observe human diversity in its broadest scope, including in the remaining small-scale societies around the world.

These recent tests reveal that evidence for universality is not robust when less constrained (see Figure 1) methods are employed [11•,12,13,14,15•]. When free labeling [13,14,15•] and sorting [14] methods are used to study emotion perceptions, agreement with universality predictions is extremely low (and often at-chance). For example, facial actions that are labeled as expressions of sadness, disgust, fear, and so on, by Europeans or Americans are rarely labeled as translational equivalents by individuals from small-scale societies in Africa and Papua New Guinea [12,15•]. Similarly, when perceivers are asked to free-sort expressions, they do not generate piles for the canonical expressions built into the set (i.e.,

Figure 1
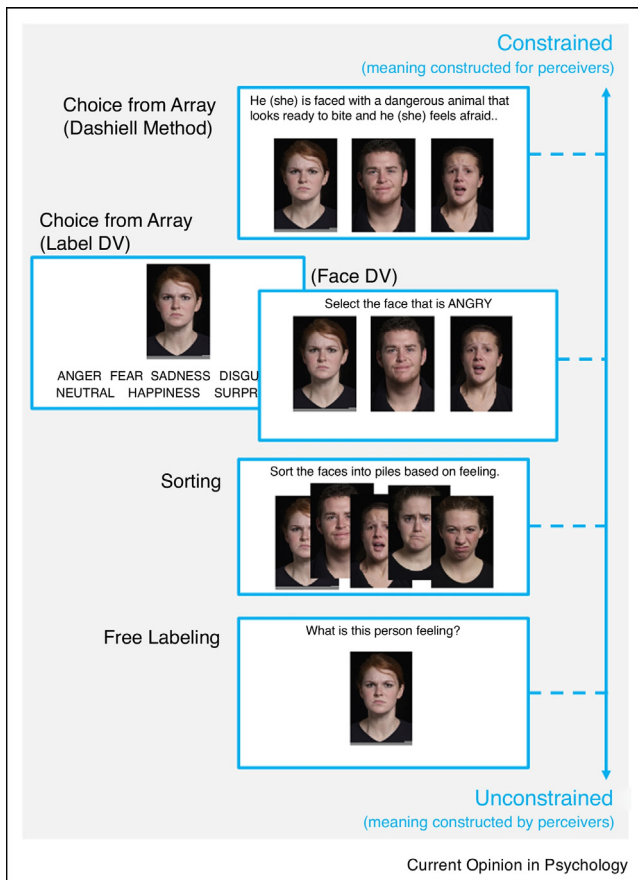
Examples of experimental tasks employed in the cross-cultural study of emotion perception. Tasks range from more conceptually constrained (choice-from-array) to less constrained (sorting, free labeling) varieties. More constrained tasks are confirmatory-oriented; words and stories provide content for the perceiver that narrows the meaning that can be constructed. Less constrained tasks are discovery-oriented; without conceptual content provided to the perceiver, the researcher can observe how meaning is spontaneously constructed by the perceiver.

poses for anger, fear, sadness, disgust, happiness and neutral) [14]. Further, when spontaneous expressions (taken from Ekman's observational work in Papua New Guinea) were presented to perceivers in a small-scale society in Papua New Guinea, use of Ekman's predicted labels was extremely low (0–16%), even in a forced-choice task (13–38%) [13]. These findings also replicate in other samples in the US and Middle-East [18,19].

In contrast, a handful of recent studies have used more constrained methods in research aimed to expand the scope of universality. These experiments were conducted to test whether an expanded cadre of facial expressions [7,16] and vocalizations [9,10] can also be considered universal cues to emotional states such as pride and awe. These studies have used choice-from-array tasks

(Figure 1), akin to those used by Ekman and colleagues in their classic work, and have found evidence consistent with universality, although not as robustly as in Ekman's classic work. That is, perceivers from small-scale societies can match facial actions (e.g., a wide-eyed pose) and vocalizations (e.g., a scream) to a word (e.g., 'fear') or story in a manner consistent with universalist predictions (above-chance). Yet these research findings should be contextualized by lab-based research revealing that methods involving forced-choice can produce artifactual agreement on an emotion label, even a nonsense one [20]. Further, some research has not revealed robust universalist performance, even when the constrained choice-from-array method (Figure 1) is used, but with modifications (e.g., minimizing repeated measures) [12]. This evidence indicates that support for universality is highly method-bound and calls into question the widely-held assumption that cultural variation in emotion perception is only superficial, due to undergirding universal emotion mechanisms.

These recent tests of the universality of emotion perception also underscore the value of replication, direct and conceptual, and mirror a critical discussion occurring in the field of psychological science more broadly [21]. Careful consideration of experimental methods as a context is critical to our ability to integrate findings and arrive at meaningful conclusions [22]. Perhaps more importantly, this literature points to future directions for the study of emotion perception across cultures: (1) certain cues (e.g., facial actions) are not privileged, such that future work must consider how culture impacts what types of cues inform emotion perception; (2) certain attributions (e.g., perceptions of 'fear' 'sadness' and so on) are not privileged, such that future work must consider what types of attributions are spontaneously made by perceivers across cultures; (3) to understand variation in emotion perception, research needs to take a deeper, more theoretical approach to culture. In the remaining sections, emerging work that speaks to each of these important directions is reviewed.

Culture modulates which cues inform emotion perception

Universalist accounts of emotion perception assume that a uniform set of facial expressions (and now vocalizations and body postures) serve as cues to emotion perception. For example, if someone widens their eyes and gasps, a perceiver will infer that behavior is an expression of *fear*. Without the assumption of universal perception of a uniform set of expressions, there is the possibility of profound variation in how human actions (e.g., facial movements, vocalizations, bodily movements) are used as cues to infer emotion. To address this possibility, it is critical that researchers evaluate how a larger variety of human behavior may variably inform perceptions of emotion across cultures. In the history of emotion perception

research, embracing this question has typically involved broadening the scope of research from a focus on the face to other types of information (e.g., vocalizations, body posture) [23], or by 'contextualizing' the face by embedding it in other information (e.g., vocalizations, body posture, other people, visual scenes) [24]. The integration of these approaches within cultural and cross-cultural investigations is resulting in intriguing findings. For instance, vocalizations appear to be consistently privileged over facial actions (in neural response and in contribution to perceptions) by East Asians compared to Europeans or European Americans [25–27], an effect that tracks with acculturation [28]. East Asians also use facial actions of the group (i.e., surrounding individuals) to inform their perceptions of the facial actions of target individual to a greater extent than European Americans [29,30]. Critically, this effect is not context-general. European Americans are just as likely to integrate context (e. g., a visual scene) when it does not violate the agency/independence of the target expressing emotion [31•]. This finding is consistent with European Americans' relatively independent cultural framework, in which emotions are conceptualized of as internal states driven by external factors in the situation, but separable from the emotions of other people [32].

Of course, perceivers use more than non-verbal behavior to infer the emotional states of others. Language is a critical way that people communicate about, and therefore perceive, emotions. In European and European American cultural contexts, emotion terms are frequently used to communicate about emotions as mental states [33]. Yet the same communicative functions that are typically assumed for mental state labels — allowing people to bridge subjectivity and elicit sympathy, may be served by non-mental language. For instance, when Koreans describe negative emotional events, they more frequently use words referring to body states (e.g., headache, dizziness) than Americans. Not only are these words perceived to be more effective at communicating distress by Koreans, they actually elicit more sympathy in Korean perceivers compared to American perceivers [34]. This type of variation may be more rampant than this single study suggests. For instance, it was recently documented that 'emotion' terms in two languages in West Africa actually reference bodily states, when literal translations were elicited [35].

These relatively few findings suggest that cultural variation in the content that informs emotion perception is present, particularly when experimental tasks provide context beyond single cues like facial expressions. More research is necessary to capture emotion perception as it occurs *in vivo*. Studying interactions that better approximate those that occur in the real-world will help researchers model how perceivers from different cultural contexts spontaneously use non-verbal and verbal cues, in conjunction with environmental information, to infer emotion.

Meaning is variously constructed across cultures

Cultural variability is present in how people attribute meaning to emotional cues (e.g., facial actions) when their spontaneous inferences are assessed. A growing body of evidence suggests that perceptions of emotional cues (e. g., facial actions) often emphasize situated behaviors rather than mental states. For instance, the African pastoralists (the Himba of Namibia) frequently perceived facial actions and vocalizations as instances of situated behaviors ('crying at a death') rather than emotional feelings ('feeling sad'), despite instructions that emphasized feelings [14,15•]. This style of perception is likely the product of cultural learning [36••], including caregiver shaping, as is the typical European and European American pattern of mental state inference ([37], Atzil, this issue). Evidence from China reveals this type of cultural shaping: Chinese mothers more frequently emphasize situated behaviors, rather than mental states, when discussing emotional events with their children [38,39]. Additional empirical investigation is needed to determine whether these finding extend to other cultural contexts. For example, it may be that individualist-collectivist dimension accounts for the emphasis on emotions as internal mental states or situated behaviors. The emphasis on external, observable actions rather than internal feelings is consistent with the cultural patterns of external attribution of behavior (as opposed to internal traits) in collectivist societies (i.e., valuing tight-knit relationships fostering dependence and supportiveness) compared to more individualistic societies (i.e., valuing loosely-knit social relationships fostering individual agency and achievement) [32]. Consistent with this interpretation, a recent cross-national comparison revealed that individuals from collectivist societies are less adept than individuals from individualistic societies at applying mentalized emotion labels (as stipulated by researchers) to nonverbal expressions [40•].

Perceptions of emotional cues can also reflect socialmotives as opposed to emotional states. A social-motives framework suggests that perceivers infer an expressor's intent, rather than an internal emotional state, because facial actions are tools for social influence [41]. Perceptions of social motives are similar to perceptions of situated behavior in that an internal emotional state is not the implied cause of emotional cues. But these modes are perception are also distinct in that the target's goal is made more explicit in the case of social motives and the goal is specific to influencing another social agent. For example, a perceiver might describe the smile of another person as 'wanting to get along' (a social motive), rather than simply 'smiling at me' (a situated behavior). People within a cultural group can consistently associate social

motives with emotional cues like facial actions, indicating this is one way that shared social meaning about facial expressions can be constructed [42,43]. Critically, new research indicates there is variability in this particular social meaning of facial actions, depending on the cultural context [11•]. The wide-eyed gasping expression (consistently associated with 'fear' in European and European American samples) was associated the social motive to 'threaten another' by Trobriand Islanders, but not Europeans. Recent evidence on the social motives inferred from smiling behavior [Niedenthal, this issue] similarly reveals variability across cultures.

Universalist approaches to studying emotion perception did not leave room for these findings, because emotion perception was typically tested in a confirmatory manner. Take the forced-choice paradigm, which provides perceivers with a set of mental state labels (anger, fear, disgust etc.) and asks them to select which best describes the emotion conveyed on a face. This method not only limits perceivers' choices to certain categories of emotion, which are not universally present as lexicalized concepts [44], but it tacitly assumes that all cultural groups will spontaneously infer a causal mental state (as opposed to a behavior or social motive) from observable action [45,46]. This approach does not capture the range of spontaneous perceptions even in a Western cultural context, where individual differences exist in tendency to use mental states or behaviors to explain the actions of others [47]. The use of open-ended methods can reveal multiple modes of inference and allows for systematic variation across cultural groups to be mapped.

Refining our approach to culture

Cross-cultural comparisons in the emotion perception literature are conducted in an atheoretical manner; 'culture' is typically operationalized along national boundaries or broad geographic areas. As definitional issues continue to be hashed out in cultural psychology [48,49], these debates have brought with them advances in the operationalization of culture. For example, approaching culture as within-the-head, as set of mental representations [49,50],[1] has led to the 'cultural priming' paradigm, in which the accessibility of these mental representations is manipulated. This culture priming approach was recently employed to demonstrate that the impact of 'group' facial actions on emotion perception in a target individual, previously documented in East Asians, can be produced by priming a collectivistic cultural value orientation (compared to an individualistic orientation) in Greek participants [51]. Similarly, research that reveals the internal perceptual representations of

emotions via psychophysical methods [52] also underscores how culture, in-the-head, shapes emotion perception [Jack, this issue].

Approaching culture as in-the-world, a set of 'practices, institutions, products and artifacts' [48], has led to an emphasis on discovering the distal causes of these cultural features. For instance, the well documented 'gap' in the accuracy of emotion perception between in-group and out-group members [1] was recently illuminated by analyzing broad-scale, historical, sociodemographic patterns. Cultures with a history of individuals migrating from a high number of source countries, termed historical heterogeneity (HH), tend to portray emotions that are consistently perceived by other-cultural groups (i.e., these expressions produce less of a cultural gap in perception) [40•]. This is consistent with the earlier finding [53] that HH is associated with prioritizing non-verbal displays of emotion[2] as communicative tools.

Work on 'culture' in emotion perception is also being refined by incorporating additional 'groups' that meet definitions of a culture. For instance, socioeconomic status, as a form of culture [57], impacts the perception of emotion, such that individuals of lower social class are more accurate about the emotions of interaction partners [58]. This finding underscores the active role that culture plays in the construction of emotion perception. Emotion perception may be a more critical interpersonal process for lower class individuals who must frequently tune their behavior to meet the demands of higher status individuals.

Conclusions

Advances in the methods used to assess emotion perception and in the operationalization of culture are revealing diversity in how emotional cues are perceived. The cues that perceivers anchor on, and the types of inferences that perceivers make appear to depend on cultural context. These new findings challenge the conclusions of some of the most widely accepted emotion experiments, including the conclusion that there is strong cross-cultural consistency in emotion perception. The evidence is broadly consistent with a constructionist framework for understanding the nature of emotions, a viewpoint that emphasizes that the human brain evolved [59] to wire itself to its physical and cultural context over the course of development [60]. This cultural learning affords diversity in experiences and behaviors, allowing for multiple models of successful social functioning that are tuned to a given context [61••,62••].

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[1] This approach has grown out of both situated-cognition [49] and dynamic social constructivist [50] approaches to culture, which vary in the assumption of whether cultural models reflect universal but situationally-constrained, versus culturally generated, meanings.

[2] When universality is assumed, this modulation is proposed to occur via culturally set rules for what (and when) inborn expressions are appropriate to display, i.e., display rules [54], or via culturally acquired accents that modulate the form of innate facial actions [55] and vocalizations [56].

Conflict of interest statement

Nothing declared.

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- •• of outstanding interest

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