

Comment

Language limits the experience of emotions

Comment on “The quartet theory of human emotions: An integrative and neurofunctional model” by S. Koelsch et al.

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Emotions are phylogenetically ancient and involve complex interactions of neural, behavioral, and physiological processes. A complete theory of emotions must incorporate, or at least be informed by, current knowledge from neurobiology and comparative psychology [1]. The Quartet Theory of Human Emotions by Koelsch and colleagues [2] is therefore a welcome step towards a more integrative affective science.

A notable feature of the Quartet Theory is the clear proposed relationship between language and emotion systems, which diverges from current trends in affective science. Many theories of emotion that specify a role for language in affective processes suggest that language and concepts either create, differentiate, facilitate awareness of, and/or express emotional states [e.g., 3–5]. These theories are based in part on the assumption that emotion words can accurately and precisely encapsulate internal feeling states. Some even suggest that verbally categorizing diffuse affective states coheres them into what we then experience as discrete and differentiated emotions [4,5].

In contrast, the Quartet Theory suggests that linguistic categorization of emotion percepts—the summed “felt” components of affect—is neither an automatic nor essential step in an emotion experience. Language facilitates regulation (e.g., through reappraisal), and sometimes, expression of emotions. However, the authors argue that translating a pre-verbal emotion percept into language results in the loss of important diagnostic information [6], which is problematic (as the philosopher Ludwig Wittgenstein argued) because speakers cannot be confident that their understanding of an emotion word is the same as another person’s.¹ Thus it is unlikely that language and concepts play a fundamental role in the emotion itself because categorizing an emotion percept reconfigures it.

We agree that emotion percepts are pre-verbal internal states and emotion labels therefore do a poor job of communicating them. We also agree that language is a powerful tool for conscious emotion regulation. We would like to push the argument even further and suggest that the simple act of labeling an ongoing emotion percept automatically

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¹ We do not completely agree with Koelsch et al. on this point. People can learn through experience that a particular emotion word (e.g., “anger”) correlates with a set of observable nonverbal expressions (fist clenching, scowling) and patterns of behavior (aggression). If underlying emotions reliably correspond to nonverbal displays across people, a learner can indirectly infer that the emotion word refers to the accompanying feeling. Thus, using the proxy of outward signs of emotion, people should have a degree of agreement about the feelings that “anger” refers to.

alters—and most likely inhibits—experience of the emotion [7,8]. Language regulates emotions both via intentional (as discussed by Koelsch et al. [2]) and unintentional appraisal by limiting the nature of the emotion experience. Words are added to a lexicon when they are collectively useful [9], and we suggest that emotion words are useful for regulation, not expression.

A number of findings suggest that affect labeling has a regulatory effect on the intensity of emotion states. Generating or viewing affective labels for aversive stimuli reduces amygdala activation [10,11], self-reported distress [12], and physiological markers of arousal [13,14]. Emotion-focused introspection reduces amygdala activation compared to autobiographical self-reflection [15]. Although most demonstrations of labels down-regulating emotions have used negative emotions, at least one study suggests that the effect holds for positive emotions (Study 4, [12]).

Indirect evidence from clinical and developmental work further suggests that the ability and tendency to categorize emotion states are related to emotion regulation skills. Children's ability to differentiate between and verbalize emotions reduces internalizing behaviors, such as social withdrawal and irritability [16]. An intervention designed to increase children's emotion knowledge, including their ability to label emotions, decreased aggressive and anxious behavior and improved their social competence [17]. Emotion dysregulation is observed in conditions that hinder affective labeling, such as alexithymia (although the direction of causality is not well-established [18]) and semantic dementia [19]. Affective labeling potentially contributes to the efficacy of Cognitive Behavioral Therapy [20], mindfulness training [21], and expressive writing [22,23] all of which promote emotional well-being partly by encouraging conscious processing of affective states (e.g., [24] for discussion).

It may not be immediately obvious why applying emotion words, especially highly specific ones [25], should reduce the intensity and complexity of an emotion percept. Emotions are immediate, consuming, and all-encompassing experiences that focus the organism's attention on the elicitor. Consciously labeling one's emotion percept redirects attention away from the elicitor and to the internal emotion percept, which by itself may reduce the intensity of the emotion. Furthermore, unlike dwelling on the sensational experience of the emotion percept [6], labeling forces it into a particular category that is cognitively economical and therefore more abstract than the percept itself [26]. The act of categorizing decouples the emotion percept from the current context, rendering it into an observable object [27]. This abstract reconstrual functions in opposition to emotions, which have evolved to organize attention and behavior to respond to an immediate eliciting event or stimulus² [28], and thus down-regulates them.

Indeed, Lieberman and colleagues have suggested that affective labeling entails abstracting away from the emotional state in order to connect it to past emotional experiences [12]. Separate work on the regulatory strategy of self-distancing suggests that effective regulation involves abstracting the internal affective state as opposed to ruminating on the concrete elicitors or features of the emotion [29]. Of course, shifting to a more abstract construal level in order to label may not be possible during particularly intense emotion episodes since speech tends to be disfluent during these high-arousal states [6].

Clinical [23] and popular psychology writers [30] take advantage of the notion that verbalizing emotions diminishes them, but this idea has yet to widely influence basic theories of emotion (cf. [1]). As just one example of the persistent idea that emotion words enable emotion experiences, Kashdan, Barrett, and McKnight [31] recently suggested that conceptualizing and labeling an internal state ground the otherwise “objectless” emotion to the situation, enabling the person to act adaptively. This is unsupported by neurobiological evidence that intense emotional states are associated with *decreased* activity in the neocortical regions necessary for conscious conceptualizing [1]. It is unclear how a process that reduces the intensity of an ongoing emotion could simultaneously construct the emotion percept.

If labeling or symbolically processing an ongoing emotion dampens it, current thinking about the nature of emotions (and even the methodologies we use to study them [14]) must be adapted. Researchers will also need to consider what information self-report measures of emotion actually capture if Koelsch and colleagues are correct that “there is no direct bridge or translation between feelings and words” (p. 32, [2]). More generally their theory underscores the importance of distinguishing between neurobiologically-based emotion systems and linguistically-constructed emotion schemas (how people think about and categorize emotions), that may or may not have a high degree of overlap [32].

² The Quartet Theory suggests that the affect systems are not exclusively involved in episodic responses to internal or external stimuli (“emotions”), but also play a role in more stable moods and attitudes. Nonetheless, the authors appear to agree that affect systems evolved to coordinate adaptive behavior.

The Quartet Theory puts forth an ambitiously comprehensive and integrative model of human emotions. We think it is on the right track with regards to the role language plays (or does not play) in the experience of emotion. As the new theory generates debate and further research, perhaps the anthropocentric assumption that language is necessary for a functional emotional life will be challenged.

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References

- [1] Panksepp J. Neurologizing the psychology of affects: how appraisal-based constructivism and basic emotion theory can coexist. *Perspect Psychol Sci* 2007;2(3):281–96. <http://dx.doi.org/10.1111/j.1745-6916.2007.00045.x>.
- [2] Koelsch S, Jacobs A, Menninghaus W, Liebal K, Klann-Delius G, von Scheve C, et al. The quartet theory of human emotions: an integrative and neurofunctional model. *Phys Life Rev* 2015;13:1–27 [in this issue].
- [3] Johnson-Laird PN, Oatley K. The language of emotions: an analysis of a semantic field. *Cogn Emot* 1989;3(2):81–123.
- [4] Lindquist KA, MacCormack JK, Shablack H. The role of language in emotion: predictions from psychological constructionism. *Front Psychol* 2015;6. <http://dx.doi.org/10.3389/fpsyg.2015.00444>.
- [5] Barrett LF. Solving the emotion paradox: categorization and the experience of emotion. *Personal Soc Psychol Rev* 2006;10(1):20–46. http://dx.doi.org/10.1207/s15327957pspr1001_2.
- [6] Bucci W, Maskit B, Murphy S. Connecting emotions and words: the referential process. *Phenomenol Cogn Sci* 2015. <http://dx.doi.org/10.1007/s11097-015-9417-z>.
- [7] Wood A, Lupyan G, Niedenthal P. Why do we need emotion words in the first place? Commentary on Lakoff. *Emot Rev* 2015 [in press].
- [8] Lieberman MD. Why symbolic processing of affect can disrupt negative affect. In: Todorov A, Fiske S, Prentice D, editors. *Social neuroscience: toward understanding the underpinnings of the social mind*. 2011. p. 188–209.
- [9] Harnad S. The origin of words: a psychophysical hypothesis. In: Velichkovsky B, Rumbaugh D, editors. *Communicating meaning: evolution and development of language*. NJ: Erlbaum; 1996. p. 27–44.
- [10] Hariri AR, Bookheimer SY, Mazziotta JC. Modulating emotional responses: effects of a neocortical network on the limbic system. *NeuroReport* 2000;11(1):43–8. <http://dx.doi.org/10.1097/00001756-200001170-00009>.
- [11] Lieberman MD, Eisenberger NI, Crockett MJ, Tom SM, Pfeifer JH, Way BM. Putting feelings into words: affect labeling disrupts amygdala activity in response to affective stimuli. *Psychol Sci* 2007;18:421–8. <http://dx.doi.org/10.1111/j.1467-9280.2007.01916.x>.
- [12] Lieberman MD, Inagaki TK, Tabibnia G, Crockett MJ. Subjective responses to emotional stimuli during labeling, reappraisal, and distraction. *Emotion* 2011;11:468–80. <http://dx.doi.org/10.1037/a0023503>.
- [13] Tabibnia G, Lieberman MD, Craske MG. The lasting effect of words on feelings: words may facilitate exposure effects to threatening images. *Emotion* 2008;8:307–17. <http://dx.doi.org/10.1037/1528-3542.8.3.307>.
- [14] Kassam KS, Mendes WB. The effects of measuring emotion: physiological reactions to emotional situations depend on whether someone is asking. *PLoS ONE* 2013;8:e64959. <http://dx.doi.org/10.1371/journal.pone.0064959>.
- [15] Herwig U, Kaffenberger T, Jäncke L, Brühl AB. Self-related awareness and emotion regulation. *NeuroImage* 2010;50:734–41. <http://dx.doi.org/10.1016/j.neuroimage.2009.12.089>.
- [16] Rieffe C, De Rooij M. The longitudinal relationship between emotion awareness and internalising symptoms during late childhood. *Eur Child Adolesc Psychiatry* 2012;21:349–56. <http://dx.doi.org/10.1007/s00787-012-0267-8>.
- [17] Izard CE, King KA, Trentacosta CJ, Morgan JK, Laurenceau J-P, Krauthamer-Ewing ES, et al. Accelerating the development of emotion competence in Head Start children: effects on adaptive and maladaptive behavior. *Dev Psychopathol* 2008;20(01):1–33. <http://dx.doi.org/10.1017/S0954579408000175>.
- [18] Mikolajczak M, Luminet O. Is alexithymia affected by situational stress or is it a stable trait related to emotion regulation? *Pers Individ Differ* 2006;40:1399–408. <http://dx.doi.org/10.1016/j.paid.2005.10.020>.
- [19] Snowden JS, Bathgate D, Varma A. Distinct behavioural profiles in frontotemporal dementia and semantic dementia. *J Neurol* 2001;70:323–32. <http://dx.doi.org/10.1136/jnnp.70.3.323>.
- [20] Sukhodolsky DG, Kassirnov H, Gorman BS. Cognitive-behavioral therapy for anger in children and adolescents: a meta-analysis. *Aggress Violent Behav* 2004;9:247–69. <http://dx.doi.org/10.1016/j.avb.2003.08.005>.
- [21] Lutz A, Slagter HA, Dunne JD, Davidson RJ. Attention regulation and monitoring in meditation. *Trends Cogn Sci* 2008;12:163–9. <http://dx.doi.org/10.1016/j.tics.2008.01.005>.
- [22] Hemenover SH. The good, the bad, and the healthy: impacts of emotional disclosure of trauma on resilient self-concept and psychological distress. *Pers Soc Psychol Bull* 2003;29:1236–44. <http://dx.doi.org/10.1177/0146167203255228>.
- [23] Pennebaker JW. Writing about emotional experiences as a therapeutic process. *Psychol Sci* 1997;8:162–6.
- [24] Creswell JD, Way BM, Eisenberger NI, Lieberman MD. Neural correlates of dispositional mindfulness during affect labeling. *Psychosom Med* 2007;69:560–5. <http://dx.doi.org/10.1097/PSY.0b013e3180f6171f>.
- [25] Barrett LF, Gross J, Christensen TC, Benvenuto M. Knowing what you're feeling and knowing what to do about it: mapping the relation between emotion differentiation and emotion regulation. *Cogn Emot* 2001;15:713–24. <http://dx.doi.org/10.1080/02699930143000239>.

- [26] Rosch E. Principles of categorization. In: Margolis E, Laurence S, editors. *Concepts: core readings*. 1999. p. 251–70.
- [27] Clark A. Magic words: how language augments human computation. In: Carruthers P, Boucher J, editors. *Language and thought: interdisciplinary themes*. Cambridge: Cambridge University Press; 1998. p. 162–83.
- [28] Scherer KR. What are emotions? And how can they be measured? *Soc Sci Inf* 2005;44(4):695–729.
- [29] Kross E, Ayduk O, Mischel W. When asking “why” does not hurt distinguishing rumination from reflective processing of negative emotions. *Psychol Sci* 2005;16:709–15. <http://dx.doi.org/10.1111/j.1467-9280.2005.01600.x>.
- [30] Siegel DJ, Bryson TP. *The whole-brain child: 12 revolutionary strategies to nurture your child’s developing mind*. Random House Digital, Inc.; 2011.
- [31] Kashdan TB, Barrett LF, McKnight PE. Unpacking emotion differentiation: transforming unpleasant experience by perceiving distinctions in negativity. *Curr Dir Psychol Sci* 2015;24(1). <http://dx.doi.org/10.1177/0963721414550708>:10–6.
- [32] Izard CE. Basic emotions, natural kinds, emotion schemas, and a new paradigm. *Perspect Psychol Sci* 2007;2(3):260–80. <http://dx.doi.org/10.1111/j.1745-6916.2007.00044.x>.