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More Than Happy: The Need for Disentangling Positive Emotions

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Abstract

Despite great advances in scientific understanding of emotional processes in the last decades, research into the communication of emotions has been constrained by a strong bias toward negative affective states. Typically, studies distinguish between different negative emotions, such as disgust, sadness, anger, and fear. In contrast, most research uses only one category of positive affect, "happiness," which is assumed to encompass all positive emotional states. This article reviews recent research showing that a number of positive affective states have discrete, recognizable signals. An increased focus on cues other than facial expressions is necessary to understand these positive states and how they are communicated; vocalizations, touch, and postural information offer promising avenues for investigating signals of positive affect. A full scientific understanding of the functions, signals, and mechanisms of emotions requires abandoning the unitary concept of happiness and instead disentangling positive emotions.

Emotional communication is an exciting field of current research in psychology, and we are making great advances in our understanding of emotional processes. A wealth of research has demonstrated that certain affective states differ in terms of facial and vocal displays, effects on cognitive functions, and neural substrates. This set of emotions is often referred to as the "basic emotions" (Ekman, 2003) and includes emotions such as sadness, anger, disgust, and fear. The basic emotions are often contrasted with secondary emotions, which are thought to be primarily products of cultural, rather than biological, factors. To date, the vast majority of emotion research has focused on the basic emotions. This set includes only one category of positive affect, "happiness," which is assumed to encompass all positive emotional states. But just like there are different ways of feeling bad, there are also many different ways of feeling good. An experience of fear is different from that of disgust or anger. Similarly, the feeling of amusement is distinct from pride or sensual pleasure, both on an experiential level and in what causes these emotions to occur.

While negative emotions have evolved to help us deal with threats to our well-being, positive emotions are considered adaptive in that they help reinforce activities that make us feel good, such as eating, sex, and socializing. One account, the broaden-and-build theory, proposes that positive emotions widen the available array of thoughts and actions, thereby facilitating flexibility, exploration, and play. These behaviors in turn promote social bonding and gaining knowledge of our environment, which are advantageous for our chances of both survival and reproduction (Fredrickson, 1998). How experiences and expressions of positive emotions are related to life satisfaction, success, and longevity is the subject of a growing body of empirical work, but little is known about the communication of these emotions. This article presents an overview of the newly emerging field of research into signals of positive feelings. As an illustration of these findings, Figure 1 shows the modes of communication that reliably signal particular categories of human positive affective states. Taken together, these studies provide exciting insights into positive emotions and emphasize the need to examine signals other than facial expressions to understand the communication of different kinds of "happiness."

What's in a Happy Face?

Research into facial expressions has dominated the research of emotions in the last 40 years, and this work has yielded many

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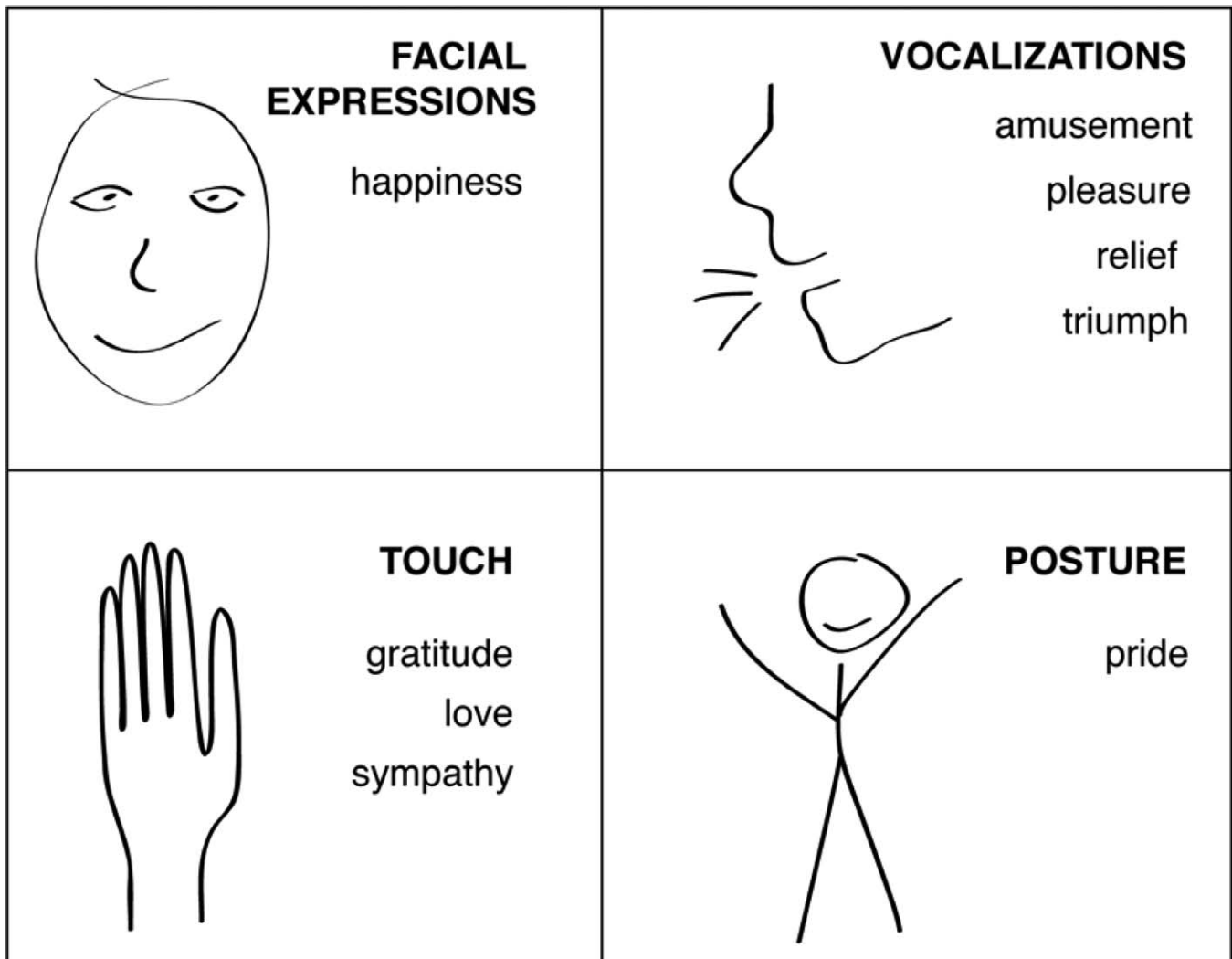E-mail: disa.sauter@mpi.nl

Fig. 1. Emotion categories of positive affective states that can be recognized reliably from human signals, and the body parts involved in the production of each of the states. Although happiness is easily identified from facial expressions (Ekman, 2003), many of the affective cues that communicate positive emotions use other (or additional) parts of the human body. Listeners can infer amusement, pleasure, relief, and triumph from human vocalizations (Sauter & Scott, 2007; Sauter, Calder, Eisner, & Scott, in press). Touch reliably communicates gratitude, love, and sympathy (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006), and a number of studies have shown that postural and facial cues can be used to signal pride (see Tracy & Robins, 2007).

important discoveries (see e.g., Ekman, 2003). One consistent finding is that happiness is the most easily recognized emotion in studies of facial affective signals. However, although the face may be good for communicating a generally "happy" state, it may not allow for the communication of more specific positive emotions (Ekman, 2003).

To date, only one study has investigated the facial signals of distinct positive emotions. Shiota, Campos, and Keltner (2003) asked participants to produce expressions of awe, amusement, and pride with their face and upper body. They found that displays of amusement and pride were signaled by smiles, but that amused smiles tended to be open-mouthed, whereas smiles of pride had compressed lips. In contrast, awe was typically expressed with raised eyebrows and a slightly open mouth, but not with smiles. This study highlights that there is likely more

than one kind of smile and that different smile configurations may communicate different affective states. It also demonstrates that other facial muscles can be associated consistently with particular positive emotions. It is currently unknown whether these displays are recognizable to naïve viewers and, if so, which cues are important for recognition of positive emotions from facial expressions. It will also be essential to examine the link between the distinct facial signals described by Shiota et al. and the experiential aspects of those emotions.

Pride

Pride requires relatively complex evaluation of oneself in relation to others, similarly to embarrassment, shame, and guilt. Together, these are often referred to as the self-conscious

emotions and are commonly considered to be secondary emotions, contrasted with the more ''basic'' states like happiness and fear. As a consequence they have tended to receive less attention from psychologists. However, pride has recently become the subject of systematic investigation (for a review, see Tracy & Robins, 2007). One notable study examined nonverbal expressions of pride, based on real-life displays produced by athletes in response to winning Olympic Judo matches (Tracy & Matsumoto, 2008). Using photographs of participants from over 30 nations, Tracy and Matsumoto showed that individuals who won a fight produced a number of behaviors typically associated with pride expressions, including raising their arms, tilting their head back, smiling, and expanding their chest. This configuration of cues is recognized by observers as communicating pride (Tracy & Robins, 2007). Crucially, congenitally blind Olympic athletes produced similar displays in response to winning matches. This suggests that these behaviors were not learned from visual observation but, rather, that pride is signaled with innate, universal displays. The methodology employed by Tracy and Matsumoto is a promising addition to research into affective communication, and future work will hopefully utilize the method of systematic coding of detailed affective cues in highly emotional, real-life situations.

Happy Sounds

Although the visual modality has been emphasized in emotion research, human beings also communicate their feelings by using a range of nonvisual signals, including sounds. Ekman (2003) has hypothesized that a number of positive emotions have distinct vocal signals. For example, the sound of laughter is dramatically different from a sigh of relief, although they both communicate positive emotional states. In light of this, it may seem surprising that studies of emotion recognition from vocal cues have found that listeners typically have difficulty identifying vocal expressions of happiness in speech (Scherer, Banse, & Wallbott, 2001). However, studies have tended to use one unitary category of ''happiness.'' If different positive states are communicated with distinct vocal signals, it may be that no common signal ties them together, which would account for the poor recognition of vocalizations intended to communicate ''happiness.''

In a recent study, we investigated the recognition of five positive emotions from nonverbal vocalizations, testing Ekman's (2003) hypothesis that vocal expressions of distinct positive emotional states would be well identified by naïve listeners (Sauter & Scott, 2007). Participants from two language groups (English and Swedish) performed a forced-choice categorization task and a set of rating tasks with sounds such as amused laughter, triumphant cheers, and relieved sighs. Results from both groups of listeners indicated that vocal expressions of most of the emotions could be accurately categorized and were rated consistently as expressing the intended emotion. We concluded that our findings provided evidence for the existence of recognizable expressions of the positive emotions

amusement, triumph, sensual pleasure, and relief. Notably, expressions of contentment were consistently perceived to signal sensual pleasure in the categorization task and were also rated highly on the sensual-pleasure rating scale, indicating that contentment may reflect a subset of sensual pleasure rather than constituting a separate emotion category. A recent study showed that the perceived emotional character of the sounds could be predicted on the basis of their acoustic features and that a different constellation of cues was used for each emotion, linking the listeners' perception of the sounds to their physical features (Sauter, Calder, Eisner, & Scott, in press). Research into vocal signals of emotions has shown that happiness may be fractionated into different positive emotions and that these states are communicated via nonverbal vocalizations. Whether they are better recognized from vocal as compared to other types of signals, such as facial, postural, or multimodal cues, is a question for future studies to examine.

A Touch of Happiness

Touch is one mode of human communication that has received almost no attention from emotion researchers. However, touch is important for social development in humans and other mammals (Uvnäs-Moberg, 1998). To date, few empirical studies have examined the communication of emotions in human touch. Hertenstein and colleagues investigated whether naïve participants could identify emotions from the touch of a stranger (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006). They found that participants from two cultures (USA and Spain) could decode affective states from tactile stimulation on the arm. Emotions that were well recognized included several positive states, such as love, gratitude, and sympathy. Hertenstein et al. also showed that love was typically signaled with stroking, gratitude was communicated with a handshake, and sympathy was expressed with a patting movement. However, not all positive emotions included in the study were well recognized. For example, participants were not able to identify pride from tactile stimulation, and they also failed to recognize the general state ''happiness.'' This study is an important first step in the investigation of affective communication in human touch. Given the role of touch in promoting positive affect (Uvnäs-Moberg, 1998), tactile stimulation may be a particularly fruitful tool for the investigation of communicating positive emotions.

Happy Animals

Comparative studies of nonhuman animals offer a valuable way to investigate which aspects of human psychology are products of our biology and which are the results of cultural processes. A recent study by Parr and colleagues examined the discrimination of conspecific facial expressions in chimpanzees (Parr, Waller, & Heintz, 2008). Along with a number of negative states, several positive facial expressions, such as bared-teeth display (similar to human smiles), play face (similar to human laughter), and pant-hoot (reflecting feelings of

excitement) were included. The study employed a match-to-sample task, in which the participant indicates which of two stimuli is most like a target stimulus. Parr et al. showed that the chimpanzees were able to distinguish between facial expressions of different positive as well as negative emotions. This finding is interesting in its own right, but it could also be used to generate hypotheses about facial configurations that may signal distinct positive states in humans.

In addition to their similarity in terms of muscular movements, the chimpanzee play face and human laughter are similar in that they are commonly produced as a result of tickling and rough-and-tumble play (Provine, 2000). But these types of vocalizations may not be unique to primates. Panksepp and Burgdorf (2003) have found that rats consistently produce ultrasonic vocalizations when playing with other rats. Furthermore, rats also commonly produce these vocalizations when being tickled by human experimenters. Panksepp and Burgdorf argue that this vocalization pattern may be the rat equivalent of human laughter. This would indicate that the origin of the human vocalizations that are used to communicate positive affect may be evolutionarily older than previously thought; they may be shared across a wide range of species.

Humans can infer positive emotions from vocalisations other than laughter, including relief from sighs (Sauter & Scott, 2007). These signals have also been investigated in rats. A study by Soltysik and Jelen (2005) examined whether rats were more likely to produce sighs during fear or relief. A stimulus was paired with a tail shock to evoke fear. Another stimulus, presented before the expected shock, was followed by the omission of shock, in order to produce relief. The researchers found a selective facilitation of sighs by relief, such that the rats were much more likely to sigh during relief as compared to both fear and baseline periods. Soltysik and Jelen concluded that sighs in social mammals may function as signals of safety.

Research into nonhuman social animals has offered valuable insights into the communication of positive affect, demonstrating that distinct signals of several positive emotional states exist in nonhuman animals as well. In addition to increasing our understanding of animal communication, this research can be used to generate new hypotheses about which positive emotions may have distinct signals in humans, and what modalities are likely used to signal those states. However, it is worth noting that more studies into the functional meaning of animal social signals are needed to inform this research.

Conclusion

In recent years, significant advances have been made in our understanding of positive emotions. The research into the communication of positive emotions has tended to study signals other than facial expressions, such as touch, vocalization, and postural cues (see Fig. 1), although a number of these lines of inquiry are still in their infancy. These studies have varied greatly in what positive emotion categories they examined. This limits the inferences we can draw from this research and

our understanding of the functions, mechanisms, and signals of positive affect. For example, it is currently not known whether some positive states are preferentially communicated via particular types of signals. This possibility is suggested by the finding that pride is reliably inferred from postural cues but not from touch, and that happiness is easily recognized from facial cues but not from touch or vocal cues. To address this issue will require studies including a wide range of modalities and emotions. These data should ultimately be examined in a multimodal framework, considering interactions between different types of cues. It will be interesting to consider whether ease of communication via different types of signals may relate to different ''families'' of emotions, such as self-conscious emotions including pride, and prosocial emotions like love.

Empirical work into positive emotions is crucial for informing theoretical accounts. Some theories consider positive emotions as being opposites of negative states, since positive emotions are elicited by desirable outcomes while negative feelings result from undesirable situations (see Shaver, Schwartz, Kirson, & O'Connor, 1987). Research into the signals, antecedent events, and functions of distinct positive states will allow for detailed consideration of the opposition of positive and negative emotions. Some theories, such as the basic-emotion account, hold that each emotion has evolved to serve a distinct function and has a unique, recognizable signal. From this perspective, the fact that a number of positive emotional states have recognizable signals opens up the possibility that they may constitute basic emotions, although a number of other conditions have to be met for an emotion to be considered basic (Ekman, 2003). Cross-cultural research should examine whether distinct positive emotional states exist in different cultures and the extent to which the signals used to communicate them are universal.

Disentangling positive emotions deserves further investigation in all areas of social-communication research and is needed for a full scientific understanding of the functions, signals, and neural underpinnings of emotions.

Recommended Reading

Ekman, P. (2003). (See References). A clearly written and relatively comprehensive book describing emotion signals in a basic-emotion framework.

Panksepp, J., & Burghdorff, J. (2003). (See References). An accessible paper discussing rat laughter in more detail.

Sauter, D.A., & Scott, S.K. (2007). (See References). A representative study illustrating original research on emotion recognition, in the context of positive non-verbal vocalizations.

Tracy, J.L., & Robins, R.W. (2007). (See References). A paper providing an accessible overview of research on pride.

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Declaration of Conflicting Interests

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