Reading emotions, reading people: Emotion perception and inferences drawn from perceived emotions

Lange, J.; Heerdink, M.W.; van Kleef, G.A.

DOI
10.1016/j.copsyc.2021.06.008

Publication date
2022

Document Version
Final published version

Published in
Current Opinion in Psychology

Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in Psychology

Review

Reading emotions, reading people: Emotion perception and inferences drawn from perceived emotions

Jens Lange[1], Marc W. Heerdink[2] and Gerben A. van Kleef[2]

Abstract

Emotional expressions play an important role in coordinating social interaction. We review research on two critical processes that underlie such coordination: (1) perceiving emotions from emotion expressions and (2) drawing inferences from perceived emotions. Broad evidence indicates that (a) observers can accurately perceive emotions from a person's facial, bodily, vocal, verbal, and symbolic expressions and that such emotion perception is further informed by contextual information. Moreover, (b) observers draw consequential and contextualized inferences from these perceived emotions about the expresser, the situation, and the self. Thus, emotion expressions enable coordinated action by providing information that facilitates adaptive behavioral responses. We recommend that future studies investigate how people integrate information from different expressive modalities and how this affects consequential inferences.

Addresses

[1] Department of Differential Psychology and Psychological Assessment, University of Hamburg, Von-Melle-Park 5, 20146 Hamburg, Germany

[2] Department of Social Psychology, University of Amsterdam, PO Box 15900, 1001 NK Amsterdam, the Netherlands

Corresponding author: Lange, Jens (lange.jens@outlook.com)

Current Opinion in Psychology 2022, **43**:85–90

This review comes from a themed issue on **People-Watching: Interpersonal Perception and Prediction (2022)**

Edited by **Kate Barasz** & **Tami Kim**

For complete overview about the section, refer People-Watching: Interpersonal Perception and Prediction (2022)

Available online 21 June 2021

https://doi.org/10.1016/j.copsyc.2021.06.008

Keywords

Emotion expression, Emotion perception, Inference, Context.

Introduction

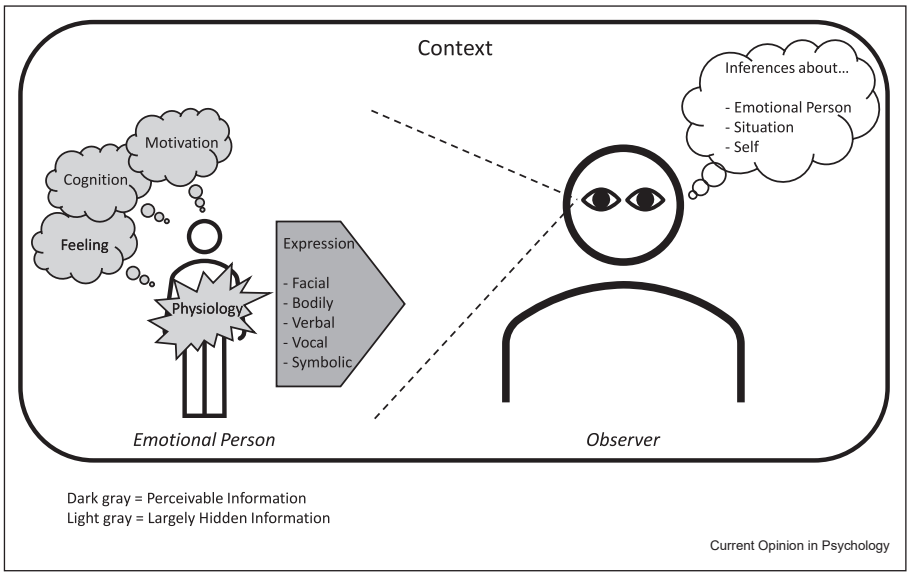
Imagine it is your first day at work and you barely know anyone. Because you could not find your way in the new building, you are unfortunately late to the first meeting. When rushing into the room, one person gets up, frowns at you, growls, and then yells that you should sit down and be quiet. In light of these expressions, you may rightfully conclude that the person is angry [1]. Furthermore, the fact that this particular person expressed anger tells you that the person is probably higher up in the organizational hierarchy [2] and is no one to mess around with [3]. Moreover, you learned the hard way that, in your team, being late to meetings is inappropriate [4], leading you to feel rejected [5]. In response, you show a controlled smile, look downward, blush, and moan, that is, express embarrassment [1]. This expression tells most of your new teammates that you actually are a person who respects social norms [6], soothing the situation. However, one teammate misinterprets your averted gaze as disinterest [7], bringing you your first enemy already on the first day at work.

The example illustrates that emotions play a pivotal role in human interactions: When people express emotions, observers perceive these emotions and draw inferences. However, people may express their emotions in a multitude of ways, and the emotions they express may not be the emotions that observers perceive. Furthermore, any expressed emotion can lead to diverse inferences in observers about the expresser, the situation, and the self. Hence, the pathway from emotion expression via emotion perception to ensuing inferences is bumpy and curvy. Our goal is to review research illuminating this pathway (for an overview, see Figure 1).

Emotion and emotion perception

Understanding emotion perception and ensuing inferences requires defining what emotions are. Most theories agree that emotions are synchronized changes in multiple components in response to a (socially) relevant stimulus (e.g. Refs. [8,9]). Specifically, when a person encounters a relevant challenge or opportunity, this changes the person's feelings, cognitions, physiology, motivation, and expressive behaviors in a coordinated fashion. For instance, when someone holds the person back from pursuing a goal, the person may feel hostile, have aggressive thoughts, get sweaty hands, be motivated to hit the other, and frown. Collectively, these changes represent anger [1].

Figure 1



Schematic overview of the pathway from emotion expression via emotion perception to inferences drawn from perceived emotions.

If emotions manifest in various components, observers can also perceive emotions from the components a particular emotion includes. However, only expressive behaviors are immediately perceivable by observers. A person's feelings, cognitions, physiology, and motivation often defy direct observation. Therefore, most studies on emotion perception asked participants which emotion a certain (nonverbal) expression represents. One of the response options would be denoted correct as per theoretical considerations and/or expert judgments.

Initial research on emotion perception based on this paradigm focused primarily on facial expressions. Influential studies indicated that people from different, even remote cultures can correctly label still pictures of faces as showing one of a limited set of emotion expressions—anger, disgust, fear, happiness, sadness, and surprise (e.g. Refs. [10,11]). A large meta-analysis of cross-cultural studies corroborated that people can perceive emotions from facial expressions [12]. More recent evidence extends these earlier investigations. Observers also accurately recognized facial expressions of emotions as diverse as amusement, contentment, embarrassment, or pride [13].

Beyond facial expressions, observers can also use nonfacial expressions to perceive a person's emotion. For instance, participants recognized emotions from a person's bodily changes (for a recent review, see Ref. [14]), from vocalizations such as gasps, screams, or sighs [15–17], from changes in the voice such as pitch, loudness, or speech rate ([18,19], for a recent meta-analysis on vocalizations and changes in the voice, see Ref. [20]), or from specific forms of touching such as squeezing, hugging, or stroking [21]. Notably, the recognition of emotions from vocal or bodily expressions applies to various emotions and is not limited to a small selection [22]. In digital communication, observers also recognized a person's emotion from emoticons [5,23], written statements [24,25], or even typos in emails [26]. Collectively, research on facial, bodily, vocal, verbal, and symbolic expressions indicates that observers can perceive emotions of another person via diverse channels.

Other evidence challenges the conclusion that emotion perception is straightforward. As a first challenge, studies on emotion perception may be limited in that they used high-intensity, stylized expressions. In real life, however, people oftentimes do not express an emotion fully, even if they experience it strongly [27,28], and cultures differ in how people express emotions (e.g. Ref. [29]). Furthermore, recognition accuracy was reduced when studies used real vocal [30] or facial expressions [31,32]. Countering this challenge, however, evidence suggests that in intense situations, people frequently express emotions in prototypical ways. For instance, children expressed prototypical surprise when confronted with a scary face in an online game [33]. Moreover, participants still recognized even realistic, multimodal expressions at least above chance level [34], and other features that make an expression more realistic, such as dynamic as compared with static displays, also increased recognition accuracy [35].

As a second challenge, studies on emotion perception, especially earlier studies, suffered from methodological limitations (for an early critique, see Ref. [36]). When

participants are offered a fixed number of emotion labels to indicate which emotion they perceive in a particular expression, successful recognition may be higher than it is in real life, where emotion perception is not aided by the availability of limited options (e.g. Ref. [37]). Relatedly, when repeatedly choosing among a set of emotion labels to assign to emotion expressions, participants may try to assign every label at least once. This process can artificially increase recognition accuracy if only labels of to-be-presented expressions occur in the study. Supporting this logic, when exploiting this elimination explanation, participants assigned common emotion labels to an expression that actually does not represent an emotion, assigned made-up (i.e. nonexisting) labels to different expressions, or assigned actual emotion labels to unpredicted emotions [38]. Moreover, when choosing among a set of emotion expressions to assign to a common story that also includes the emotion label, the story and emotion label are confounded. This confound can also artificially increase recognition accuracy. Indeed, participants assigned the same emotion expression to multiple stories that mentioned different, plausible emotion labels, leading to seeming evidence that the same expression can represent multiple emotions [39]. Finally, when participants from a remote culture could freely label expressions with emotion terms, they labeled them with terms that matched the expression's valence, yet they rarely used the predicted discrete emotion terms, rendering it unclear whether they accurately perceived the specific emotions ([40], but see also [41]). Thus, it may be that frequently applied methods steered evidence in favor of accurate emotion perception.

As a third challenge, characteristics of the observer affect emotion perception. For instance, participants from some cultures did not recognize Western emotions (e.g. Ref. [42]), observers' social rank affected their emotion perception differently (for a review, see Ref. [43]), and higher recognition accuracy is a defining feature of people higher in emotional intelligence [44]. Moreover, people were less accurate in recognizing the emotions of outgroup members [12,20], ascribed fewer secondary emotions (e.g. shame) to them [45], misperceived their embarrassment as disinterest [7], or perceived their emotions as less intense [46].

In sum, research implies that it is possible, yet challenging, to perceive emotions. Perceiving emotions is challenging most likely because the expression and recognition of emotions are highly contextualized [47,48]. Two lines of research support this conclusion. First, a recent large-scale study indicates that many emotion expressions occur in specific contexts across the globe, although each expression can occur in different contexts, and the same context can lead to different expressions ([49], but see also [50]). Second, when observers perceive facial emotion expressions, they also encode surrounding contextual information [51]. The combination of facial expressions and contextual information then collectively informs emotion recognition, and contextual information may sometimes even be of primary importance for observers' judgments [52,53]. Thus, we think it is fair to conclude that observers can recognize emotions from different expressions, yet it is important to consider the context in which these expressions are embedded. If contextualized emotion perception is indeed possible, the next question is which inferences people draw from these expressions.

Inferences drawn from perceived emotions

After perceiving an emotion, observers infer additional information from the emotion expression. Broadly speaking, emotion expressions serve as (social) information in that observers use emotion expressions to draw inferences about characteristics of (a) the expresser, (b) the situation, and/or (c) the self, which can all influence observers' behavior [54,55]. Observers accomplish this process, in part, because they reverse engineer the emotional episode. Specifically, from emotion expressions, observers conclude which feelings, cognitions, or motivations the expresser had (e.g. Refs. [56–61]), allowing them to draw further inferences [3]. Just as emotion perception itself, also the three kinds of inferences observers draw critically depend on the context.

First, observers infer characteristics of the expresser. For instance, from a facial expression of anger, participants reverse engineered a cognition involved in anger, namely that the expresser wants to urgently remove an obstacle, predicting observers' inferences of higher aggressiveness [3]. In other contexts, such as in working groups, the expression of anger instead led observers to infer higher competence [2], especially when anger was expressed mildly and when the expression occurred in a context in which it was appropriate [62]. In other studies that go beyond anger, observers concluded that a person who expressed pride is self-interested and therefore inferred that the expresser supports meritocracy [63]. Furthermore, observers concluded that a person who expressed embarrassment cares about social norms and therefore inferred that the expresser is prosocial [6]. Moreover, in an emergent leadership situation, observers concluded that a person who expressed contempt or compassion is more intelligent and therefore a more suitable leader [64].

The inferences people draw about an expresser's characteristics subsequently influence observers' behavior. For instance, observers conceded more to angry counterparts in negotiations because they thought these counterparts had higher limits [25]. Notably, such heightened concessions occurred only for

Western participants; the effect reversed for Eastern participants because they perceived expressions of anger as inappropriate [65]. Beyond anger, inferences about a proud person's status [66] predicted envious observers' tendencies to emulate or impede the expresser in a competitive context, depending on whether the proud person was perceived to attribute success to invested effort or talent [67]. Finally, the prosociality observers inferred from expressed embarrassment led them to trust and affiliate with the expresser [6].

Second, observers infer broader information about the social situation from others' emotional expressions. For instance, when a person acted inappropriately in a group context, an expression of anger predicted inferences of social norms regarding fair and considerate behavior in the group, whereas an expression of disgust predicted inferences of social norms regarding repulsive and decent behavior [4]. Relatedly, observers construed a situation as more competitive when an interaction partner expressed anger, and they construed the same situation as more cooperative when the interaction partner expressed happiness or disappointment [68]. When group members responded to specific behaviors with anger as opposed to sadness or neutrality, observers inferred that norm-incongruent behavior occurred, which in turn predicted correct inferences of the prevalent norm [69]. As another example, third parties who observed gratitude expressed in a dyad were more likely to affiliate with the dyad members because they perceived the grateful person as responsive, especially when the person praised the benefactor and when they thought the benefactor is a morally good person [70]. Moreover, a person's happy or sad expressions in response to a certain event positively or negatively affected observers' attitudes toward the event, depending on whether the event was positively or negatively framed [71].

Finally, observers infer characteristics of themselves from others' emotional expressions, which affect their (social) behaviors. For instance, emotions expressed by fellow group members affect inferences regarding group membership and ensuing behaviors [5]. When fellow group members expressed happiness, targets of the expression felt more accepted by the group, whereas when fellow group members expressed anger, targets felt rejected. When an alternative group was available, rejected persons abandoned the current group; when no alternative group was available, rejected persons conformed to the current group. Along similar lines, being the target of an expression of contempt in a business strategy simulation lowered a person's self-esteem, predicting increased task performance as well as interpersonal aggressiveness [72]. Furthermore, baseball and soccer coaches' expressions of happiness predicted team members' inferences of good performance as well as better actual team performance, whereas coaches' expressions of anger predicted team members' inferences of bad performance as well as worse actual team performance [73].

Summary and discussion

The review allows drawing two broad conclusions regarding the pathway from emotion expression via emotion perception to inferences drawn from perceived emotions. First, observers can accurately perceive emotions from facial, bodily, vocal, verbal, and symbolic expressions. Doing so requires taking contextual information into account, such as aspects of the situation in which the emotion is embedded, characteristics of the observer, or broader cultural factors. Second, based on these perceptions, observers draw various consequential and similarly contextualized inferences. These inferences can concern an expresser's characteristics such as traits or intentions, broader aspects of a situation such as prevalent social norms, or characteristics of the target of the expression such as whether the person is part of a group. The inferences are consequential in the sense that they, in turn, predict various (social) outcomes in fields as diverse as negotiations, leadership, or competitions, and they are contextualized in the sense that inferences observers draw from a perceived emotion may vary depending on the circumstances under which the emotion is expressed.

While reviewing the literature, we identified one avenue for future research that we deem of importance. Specifically, studies have hardly investigated how people integrate information from different expressive modalities and how this integrated perception affects consequential inferences. Even though different modalities have equivalent (social) effects on observers (e.g. Ref. [55]), it is unknown whether one or more modalities primarily determine observers' perceived emotions, especially in a situation in which different modalities contradict each other (e.g. when a person suppresses the facial expression but still expresses an emotion in the voice). Relatedly, it is an open question whether reverse-engineered feelings, cognitions, and motivations then additively foster consequential inferences, whether they each foster different inferences, or whether they have combined effects in more complicated patterns. Such future research will further illuminate the bumpy and curvy pathway from emotion expression via emotion perception to ensuing inferences.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest statement

Nothing declared.

References

Papers of particular interest, published within the period of review, have been highlighted as:

* of special interest
** of outstanding interest

1. ** Keltner D, Sauter D, Tracy J, Cowen A: **Emotional expression: advances in basic emotion theory**. *J Nonverbal Behav* 2019, **43**:133–160.

The article reviews research on emotion expressions. It concludes that people can express and recognize up to 20 different emotions. The article also discusses the role of context in emotion perception.

2. Tiedens LZ: **Anger and advancement versus sadness and subjugation: the effect of negative emotion expressions on social status conferral**. *J Pers Soc Psychol* 2001, **80**:86–94.

3. * Hareli S, Hess U: **What emotional reactions can tell us about the nature of others: an appraisal perspective on person perception**. *Cognit Emot* 2010, **24**:128–140.

Two studies provide evidence that observers reverse-engineer cognitions underlying a person's expressions of anger, sadness, happiness, or neutrality, which then affects observers' inferences about the person's personality.

4. * Heerdink MW, Koning LF, van Doorn EA, van Kleef GA: **Emotions as guardians of group norms: expressions of anger and disgust drive inferences about autonomy and purity violations**. *Cognit Emot* 2019, **33**:563–578.

Three studies indicate that a group's expressions of anger and disgust lead observers to infer whether and why a certain behavior is inappropriate.

5. Heerdink MW, van Kleef GA, Homan AC, Fischer AH: **On the social influence of emotions in groups: interpersonal effects of anger and happiness on conformity versus deviance**. *J Pers Soc Psychol* 2013, **105**:262–284.

6. Feinberg M, Willer R, Keltner D: **Flustered and faithful: embarrassment as a signal of prosociality**. *J Pers Soc Psychol* 2012, **102**:81–97.

7. Kommattam P, Jonas KJ, Fischer AH: **We are sorry, they don't care: misinterpretation of facial embarrassment displays in Arab–White intergroup contexts**. *Emotion* 2017, **17**:658–668.

8. Keltner D, Haidt J: **Social functions of emotions at four levels of analysis**. *Cognit Emot* 1999, **13**:505–521.

9. Moors A: **Theories of emotion causation: a review**. *Cognit Emot* 2009, **23**:625–662.

10. Ekman P, Sorenson ER, Friesen WV: **Pan-cultural elements in facial displays of emotion**. *Science* 1969, **164**:86–88.

11. Ekman P, Friesen WV: **Constants across cultures in the face and emotion**. *J Pers Soc Psychol* 1971, **17**:124–129.

12. Elfenbein HA, Ambady N: **On the universality and cultural specificity of emotion recognition: a meta-analysis**. *Psychol Bull* 2002, **128**:203–235.

13. Cordaro DT, Sun R, Kamble S, Hodder N, Monroy M, Cowen A, Bai Y, Keltner D: **The recognition of 18 facial-bodily expressions across nine cultures**. *Emotion* 2020, **20**:1292–1300.

14. Witkower Z, Tracy JL: **Bodily communication of emotion: evidence for extrafacial behavioral expressions and available coding systems**. *Emot Rev* 2019, **11**:184–193.

15. Cordaro DT, Keltner D, Tshering S, Wangchuk D, Flynn LM: **The voice conveys emotion in ten globalized cultures and one remote village in Bhutan**. *Emotion* 2016, **16**:117–128.

16. Hawk ST, van Kleef GA, Fischer AH, van der Schalk J: **"Worth a thousand words": absolute and relative decoding of nonlinguistic affect vocalizations**. *Emotion* 2009, **9**:293–305.

17. Sauter DA, Eisner F, Ekman P, Scott SK: **Cross-cultural recognition of basic emotions through nonverbal emotional vocalizations**. *Proc Natl Acad Sci Unit States Am* 2010, **107**:2408–2412.

18. Banse R, Scherer KR: **Acoustic profiles in vocal emotion expression**. *J Pers Soc Psychol* 1996, **70**:614–636.

19. Laukka P, Elfenbein HA, Thingujam NS, Rockstuhl T, Iraki FK, Chui W, Althoff J: **The expression and recognition of emotions in the voice across five nations: a lens model analysis based on acoustic features**. *J Pers Soc Psychol* 2016, **111**:686–705.

20. Laukka P, Elfenbein HA: **Cross-cultural emotion recognition and in-group advantage in vocal expression: a meta-analysis**. *Emot Rev* 2021, **13**:3–11.

21. Hertenstein MJ, Holmes R, McCullough M, Keltner D: **The communication of emotion via touch**. *Emotion* 2009, **9**:566–573.

22. Cowen AS, Sauter D, Tracy JL, Keltner D: **Mapping the passions: toward a high-dimensional taxonomy of emotional experience and expression**. *Psychol Sci Publ Interest* 2019, **20**:69–90.

23. Cherbonnier A, Michinov N: **The recognition of emotions beyond facial expressions: comparing emoticons specifically designed to convey basic emotions with other modes of expression**. *Comput Hum Behav* 2021, **118**:106689.

24. Cheshin A, Rafaeli A, Bos N: **Anger and happiness in virtual teams: emotional influences of text and behavior on others' affect in the absence of non-verbal cues**. *Organ Behav Hum Decis Process* 2011, **116**:2–16.

25. Van Kleef GA, De Dreu CKW, Manstead ASR: **The interpersonal effects of anger and happiness in negotiations**. *J Pers Soc Psychol* 2004, **86**:57–76.

26. Blunden H, Brodsky A: **Beyond the emoticon: are there unintentional cues of emotion in email?** *Pers Soc Psychol Bull* 2021, **47**:565–579.

27. Duran JI, Reisenzein R, Fernández-Dols J-M: **Coherence between emotions and facial expressions: a research synthesis**. In *The science of facial expression*. Edited by Fernández-Dols J-M, Russell JA, Oxford University Press; 2017:107–129.

28. Reisenzein R, Bördgen S, Holtbernd T, Matz D: **Evidence for strong dissociation between emotion and facial displays: the case of surprise**. *J Pers Soc Psychol* 2006, **91**:295–315.

29. Boiger M, Ceulemans E, De Leersnyder J, Uchida Y, Norasakkunkit V, Mesquita B: **Beyond essentialism: cultural differences in emotions revisited**. *Emotion* 2018, **19**:1142–1162.

30. Atias D, Todorov A, Liraz S, Eidinger A, Dror I, Maymon Y, Aviezer H: **Loud and unclear: intense real-life vocalizations during affective situations are perceptually ambiguous and contextually malleable**. *J Exp Psychol Gen* 2019, **148**:1842–1848.

31. Aviezer H, Trope Y, Todorov A: **Body cues, not facial expressions, discriminate between intense positive and negative emotions**. *Science* 2012, **338**:1225–1229.

32. Naab PJ, Russell JA: **Judgments of emotion from spontaneous facial expressions of New Guineans**. *Emotion* 2007, **7**:736–744.

33. Shuster MM, Camras LA, Grabell A, Perlman SB: **Faces in the wild: a naturalistic study of children's facial expressions in response to an Internet prank**. *Cognit Emot* 2020, **34**:359–366.

34. Sauter DA, Fischer AH: **Can perceivers recognise emotions from spontaneous expressions?** *Cognit Emot* 2018, **32**:504–514.

35. Krumhuber EG, Kappas A, Manstead ASR: **Effects of dynamic aspects of facial expressions: a review**. *Emot Rev* 2013, **5**:41–46.

36. ** Russell JA: **Is there universal recognition of emotion from facial expressions? A review of the cross-cultural studies**. *Psychol Bull* 1994, **115**:102–141.

The article offers an elaborate methodological critique of early research on emotion perception. Many of its recommendations still apply today.

37. Widen SC, Christy AM, Hewett K, Russell JA: **Do proposed facial expressions of contempt, shame, embarrassment, and compassion communicate the predicted emotion?** *Cognit Emot* 2011, **25**:898–906.

38. DiGirolamo MA, Russell JA: **The emotion seen in a face can be a methodological artifact: the process of elimination hypothesis**. *Emotion* 2017, **17**:538–546.

39. Kollareth D, Esposito J, Ma Y, Brownell H, Russell JA: **On evidence for a dozen new basic emotions: a methodological critique**. *Emotion* 2020, https://doi.org/10.1037/emo0000904.

40. Gendron M, Roberson D, van der Vyver JM, Barrett LF: **Cultural relativity in perceiving emotion from vocalizations**. *Psychol Sci* 2014, **25**:911–920.

41. Sauter DA, Eisner F, Ekman P, Scott SK: **Emotional vocalizations are recognized across cultures regardless of the valence of distractors**. *Psychol Sci* 2015, **26**:354–356.

42. Crivelli C, Jarillo S, Russell JA, Fernández-Dols J-M: **Reading emotions from faces in two indigenous societies**. *J Exp Psychol Gen* 2016, **145**:830–843.

43. Van Kleef GA, Lange J: **How hierarchy shapes our emotional lives: effects of power and status on emotional experience, expression, and responsiveness**. *Curr Opin Psychol* 2020, **33**: 148–153.

44. Mayer JD, Roberts RD, Barsade SG: **Human abilities: emotional intelligence**. *Annu Rev Psychol* 2008, **59**:507–536.

45. Leyens J-P, Paladino PM, Rodriguez-Torres R, Vaes J, Demoulin S, Rodriguez-Perez A, Gaunt R: **The emotional side of prejudice: the attribution of secondary emotions to ingroups and outgroups**. *Pers Soc Psychol Rev* 2000, **4**:186–197.

46. Kommattam P, Jonas KJ, Fischer AH: **Perceived to feel less: intensity bias in interethnic emotion perception**. *J Exp Soc Psychol* 2019, **84**:103809.

47. ** Barrett LF, Adolphs R, Marsella S, Martinez AM, Pollak SD: **Emotional expressions reconsidered: challenges to inferring emotion from human facial movements**. *Psychol Sci Publ Interest* 2019, **20**:1–68.
The article discusses several challenges to common research on emotion perception. It emphasizes the variability of how people express their emotions.

48. ** Greenaway KH, Kalokerinos EK, Williams LA: **Context is everything (in emotion research)**. *Soc Personal Psychol Compass* 2018, **12**, e12393.
The article reviews research on the role of context in emotions. It also includes a review on the role of context in emotion perception.

49. * Cowen AS, Keltner D, Schroff F, Jou B, Adam H, Prasad G: **Sixteen facial expressions occur in similar contexts worldwide**. *Nature* 2021, **589**:251–257.
By analyzing thousands of videos using machine learning, two studies indicate that 16 different facial expressions are more likely to occur in specific contexts and that the associations between facial expressions and context tend to hold across multiple cultures.

50. Barrett LF: **AI weighs in on debate about universal facial expressions**. *Nature* 2021, **589**:202–203.

51. Barrett LF, Kensinger EA: **Context is routinely encoded during emotion perception**. *Psychol Sci* 2010, **21**:595–599.

52. Carroll JM, Russell JA: **Do facial expressions signal specific emotions? Judging emotion from the face in context**. *J Pers Soc Psychol* 1996, **70**:205–218.

53. Kayyal M, Widen S, Russell JA: **Context is more powerful than we think: contextual cues override facial cues even for valence**. *Emotion* 2015, **15**:287–291.

54. Van Kleef GA: **How emotions regulate social life: the emotions as social information (EASI) Model**. *Curr Dir Psychol Sci* 2009, **18**:184–188.

55. ** Van Kleef GA, Côté S: The social effects of emotions. Annu Rev Psychol in press.The article presents a broad review of research on inferences drawn from emotions about characteristics of the expresser, the situation, and the self as well as affective reactions and behavioral responses to emotional expressions.

56. de Melo CM, Carnevale PJ, Read SJ, Gratch J: **Reading people's minds from emotion expressions in interdependent decision making**. *J Pers Soc Psychol* 2014, **106**:73–88.

57. Horstmann G: **What do facial expressions convey: feeling states, behavioral intentions, or actions requests?** *Emotion* 2003, **3**:150–166.

58. Parkinson B: **Do facial movements express emotions or communicate motives?** *Pers Soc Psychol Rev* 2005, **9**: 278–311.

59. Scherer KR, Grandjean D: **Facial expressions allow inference of both emotions and their components**. *Cognit Emot* 2008, **22**: 789–801.

60. Shuman V, Clark-Polner E, Meuleman B, Sander D, Scherer KR: **Emotion perception from a componential perspective**. *Cognit Emot* 2017, **31**:47–56.

61. Van Doorn EA, Van Kleef GA, Van der Pligt J: **Deriving meaning from others' emotions: attribution, appraisal, and the use of emotions as social information**. *Front Psychol* 2015, **6**.

62. Gaertig C, Barasch A, Levine EE, Schweitzer ME: **When does anger boost status?** *J Exp Soc Psychol* 2019, **85**: 103876.

63. Horberg EJ, Kraus MW, Keltner D: **Pride displays communicate self-interest and support for meritocracy**. *J Pers Soc Psychol* 2013, **105**:24–37.

64. Melwani S, Mueller JS, Overbeck JR: **Looking down: the influence of contempt and compassion on emergent leadership categorizations**. *J Appl Psychol* 2012, **97**:1171–1185.

65. Adam H, Shirako A, Maddux WW: **Cultural variance in the interpersonal effects of anger in negotiations**. *Psychol Sci* 2010, **21**:882–889.

66. Tracy JL, Shariff AF, Zhao W, Henrich J: **Cross-cultural evidence that the nonverbal expression of pride is an automatic status signal**. *J Exp Psychol Gen* 2013, **142**: 163–180.

67. Lange J, Crusius J: **The tango of two deadly sins: the social-functional relation of envy and pride**. *J Pers Soc Psychol* 2015, **109**:453–472.

68. Van Doorn EA, Heerdink MW, Van Kleef GA: **Emotion and the construal of social situations: inferences of cooperation versus competition from expressions of anger, happiness, and disappointment**. *Cognit Emot* 2012, **26**:442–461.

69. Hareli S, Moran-Amir O, David S, Hess U: **Emotions as signals of normative conduct**. *Cognit Emot* 2013, **27**:1395–1404.

70. Algoe SB, Dwyer PC, Younge A, Oveis C: **A new perspective on the social functions of emotions: gratitude and the witnessing effect**. *J Pers Soc Psychol* 2020, **119**:40–74.

71. Van Kleef GA, van den Berg H, Heerdink MW: **The persuasive power of emotions: effects of emotional expressions on attitude formation and change**. *J Appl Psychol* 2015, **100**: 1124–1142.

72. Melwani S, Barsade SG: **Held in contempt: the psychological, interpersonal, and performance consequences of contempt in a work context**. *J Pers Soc Psychol* 2011, **101**: 503–520.

73. * Van Kleef GA, Cheshin A, Koning LF, Wolf SA: **Emotional games: how coaches' emotional expressions shape players' emotions, inferences, and team performance**. *Psychol Sport Exerc* 2019, **41**:1–11.
Two studies investigate how coaches' expressions of happiness and anger influence players' affect, cognition, and emotion, including inferences about the self.