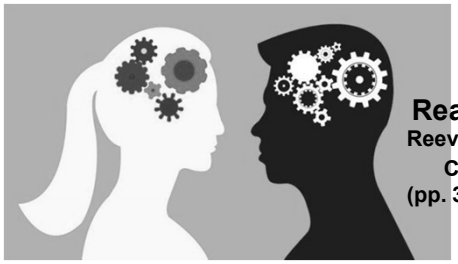
MOTIVATION & EMOTION

Aspects of emotion



Reading:
Reeve (2018)
Ch 13
(pp. 313-338)

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University of Canberra
2021

Image source

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Outline – Aspects of emotion

- Biological
- Cognitive
- Social
- Affective computing

Based on Reeve (2018, p. 313) 2

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Biological aspects of emotion

Image: https://commons.wikimedia.org/wiki/File:Bipolar_Dyptych_1_365.jpg 3

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What is the role of the body in emotion?

Stimulus → Emotion → Bodily reaction

OR

Stimulus → Bodily reaction → Emotion

Known as the

James-Lange theory of emotion

(the first but not the best theory of emotion)

Based on Reeve (2018, pp. 314–315)

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James-Lange theory of emotion
Example

sudden cold shower

↓

increased heart-rate

↓

surprise? shock? fear?

Based on Reeve (2018, pp. 314–315)

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James-Lange theory of emotion
Assumptions

Emotional experience is a way of making sense of bodily changes.

The body:

- reacts uniquely to different emotion-eliciting events different patterns of activity → different emotions
- does not react to non-emotion-eliciting events no body changes → no emotions

Based on Reeve (2018, pp. 314–315)

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James-Lange theory of emotion
Criticisms

- Bodily reactions are part of a general fight-or-flight response that does not vary much between emotions.
- Emotional experience occurs more quickly than physiological reaction.
- Physiological arousal augments, rather than causes, emotion.

Based on Reeve (2018, pp. 314–315) **7**

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James-Lange theory of emotion
Contemporary perspective

- Distinct physiological differences (e.g., heart rate and skin temperature) are evident for some emotions (e.g., anger, fear, sadness, and disgust). But only a few emotions have distinct ANS patterns (ones with survival value).
- Emotions recruit biological and physiological support to enable adaptive behaviours such as fighting, fleeing, and nurturing.

Based on Reeve (2018, pp. 316–317) **8**

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Brain activity for specific emotions
Distinct neural circuits (Gray)

- Fight or flight system
- Behavioural inhibition system
- Behavioural approach system

→ Joy, Fear, Rage and Anxiety

Based on Reeve (2018, pp. 317–318) **9**

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Brain activity for specific emotions

- Happiness: Superior temporal gyrus + rostral anterior cingulate cortex
- Sadness: Medial frontal gyrus + caudate anterior cingulate cortex
- Anger: Inferior frontal gyrus + parahippocampal gyrus
- Fear: Amygdala + insula
- Disgust: Anterior insula + right inferior frontal gyrus
- Interest: Anterior insula + right inferior frontal gyrus

Based on Reeve (2018, pp. 317–318) **10**

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Facial feedback hypothesis

Does smiling make you happy?

Does scowling make you angry?

Based on Reeve (2018, pp. 318–324) **11**

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Facial feedback hypothesis

Emotion stems from arousal of feelings via:

- Facial muscle movements
- Facial temperature changes
- Glandular activity in the facial skin

Based on Reeve (2018, pp. 318–324) **12**

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- 80 facial muscles
- 36 used in facial expressions

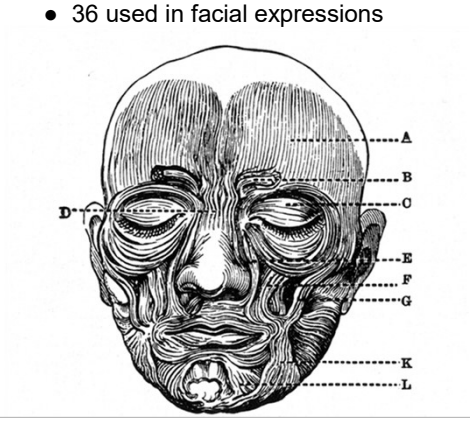

Image source: http://commons.wikimedia.org/wiki/File:Expression_of_the_Emotions_Figure_1.png

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Facial musculature

Facial muscles are used to distinguish 8 basic emotions:

- **Upper**:
  - frontalis (forehead)
  - corrugator (eyebrows)
  - orbicularis (around eyes)
- **Middle**:
  - zygomaticus (corners of mouth to cheekbone)
  - nasalis (wrinkles nose)
- **Lower**:
  - depressor (corners of mouth down)
  - orbicularis oris (circular muscle around mouth)
  - quadratus labii (draws corners of mouth backwards)

Based on Reeve (2018, pp. 318–324)

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Facial feedback hypothesis

- Strong: FF causes emotion
- Weak: FF modifies emotion intensity (bidirectional relationship between feeling and expression)
- Critics: FF effect is small

Based on Reeve (2018, pp. 318–324)

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Cross-cultural facial expression of emotion

- Ekman tested cross-cultural recognition of facial expressions
- Very high agreement across cultures
- Facial expression of emotion is cross-culturally universal and has an innate, unlearned component

Based on Reeve (2018, pp. 318–324)

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Ekman's work on basic emotions

YouTube

(11:24 mins)

http://www.youtube.com/watch?v=-PFqzYoKkCc

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Cognitive aspects of emotion

Image: https://commons.wikimedia.org/wiki/File:Bipolar_Dyptych_1_365.jpg

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Cognitive perspective

- Basic emotions have some biological origin.
- Biology alone cannot explain "complex" emotions (e.g., hope, pride, envy, gratitude, pity).
- Cognitive and sociocultural perspectives are needed.

Based on Reeve (2018, p. 324) **19**

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Cognitive aspects of emotion

- **Appraisal**:
  Evaluating the significance of an event in terms of one's well-being
  ("Is this situation significant to me?")
- **Emotion knowledge**:
  Capacity to discriminate different types and shades of the same emotion
  (anger → irritation, frustration, rage, etc.)
- **Attribution**:
  Reason used to explain why an outcome to a life event occurred
  (e.g., pride, gratitude)

Based on Reeve (2018, p. 324) **20**

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Appraisals

- Estimate the significance of an event for well-being, which elicits emotional reaction:
  - Primary: Is there potential benefit/gain or harm/loss from the event?
  - Secondary: Can I cope with this situation?
- Without appraisal, emotions do not occur
- Appraisal, not the event, causes emotion
- If appraisal changes, emotion changes

Based on Reeve (2018, p. 324) **21**

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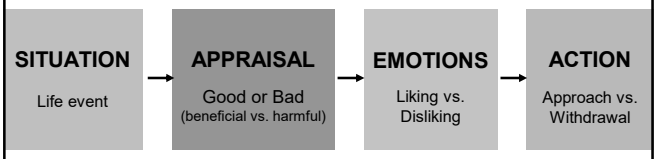
Appraisal theory of emotion
Arnold



Based on Reeve (2018, Figure 13.6, p. 325, based on Arnold, 1960, 1970)

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Lazarus' complex appraisals

Cognitive processes intervene between important life events and physiological and behavioural reactivity.

SITUATION
Life event

Based on Reeve (2018, Figure 13.7, p. 327)

Appraisal	Emotion
Type of benefit	
• Making progress toward a goal	• Happiness
• Taking credit for an achievement	• Pride
• Improving on a distressing condition	• Pride
• Believing a desired outcome is possible	• Hope
• Desiring or participating in affection	• Love
• Being moved by another's suffering	• Compassion
• Appreciating an altruistic gift	• Gratitude
Type of harm	
• Being demeaned by a personal offense	• Anger
• Transgressing a moral imperative	• Guilt
• Failing to live up to an ego ideal	• Shame
• Experiencing an irrevocable loss	• Sadness
• Taking in an indigestible object or idea	• Disgust
Type of threat	
• Facing an uncertain, unspecific threat	
• Facing immediate, overwhelming danger	• Anxiety • Fright
• Wanting what someone else has	• Envy
• Resenting a rival for one's own loss	• Jealousy

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Appraisal theory of emotion

Complex appraisal theories are 65-70% accurate in predicting emotion - why not 100%?

- Other processes contribute e.g., biology
- Appraisals intensify rather than cause emotion
- Patterns of appraisal for many emotions overlap
- Also consider emotion knowledge and attributions

Based on Reeve (2018, p. 330)

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Emotion knowledge

- Ability to differentiate emotional experience into discrete categories and to distinguish various shades of basic emotions.
- A component of emotional intelligence.
- As we develop, we learn to distinguish finer shades of emotion.

Based on Reeve (2018, pp. 330–332)

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Attributions

Causal explanation (reason) a person uses for an important life outcome e.g.,

- Why did you win?
- Why were you fired from your job?

Based on Reeve (2018, pp. 332–334)

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Attributions

- Primary – good or bad?
- Secondary – cause?
- Primary + secondary attributions → emotion
- Different attributions → different emotions

Based on Reeve (2018, pp. 332–334)

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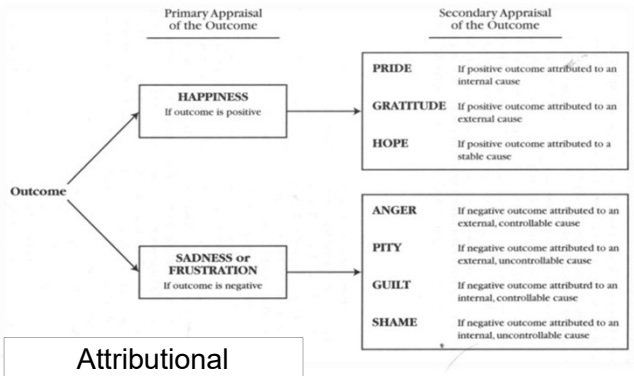
Attribution theory of emotion



Attributional roots of 7 emotions

Based on Reeve (2018, Figure 13.9, p. 332)

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Social aspects of emotion

Image: https://commons.wikimedia.org/wiki/File:Just_love.jpg

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Mimicry

- Exposed to emotional expressions of others, we mimic their facial expression, voice, posture, movement, and behaviour.
- FF illustrates how mimicry can affect the observer's emotional experience, and hence lead to a contagion effect.

Based on Reeve (2018, pp. 332–334)

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Contagion

Mimicry → convergence on the same emotional experience. People unconsciously:

- mimic other's facial expressions, voice, posture, movements, etc.
- experience emotion-related feedback from such facial, vocal, etc., movements.
- thus, tend to "catch" other's emotion.

Based on Reeve (2018, pp. 332–334)

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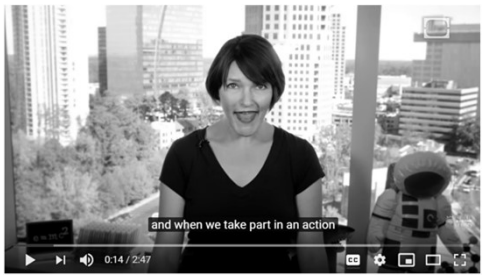
Why We Can't Not Smile

- Epic Science #66

YouTube

(2:47 mins)

https://www.youtube.com/watch?v=TdsFGqhoAEo



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Emotional sharing

Conversational context in which we put ourselves in position to re-experience and re-live emotional experiences. People:

- recount what happened
- recount how they felt
- solicit others' assistance with coping, making sense, and reconfirming self-concept (esp. after negative emotions)
- build and maintain relationships that are central to their lives

Based on Reeve (2018, pp. 335–336)

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Social sharing of emotion

Recounting an emotional episode in conversation - what happened, what it meant, how person felt, etc.

- **Social-affective sharing**
  - listening; understanding; unconditional positive regard
  - comforting; offering consolidation; caring; reassuring
  - perspective taking/empathy; revalidating self-esteem
  - providing social and concrete help and assistance
- **Cognitive sharing**
  - reframing; reappraising the emotional episode
  - creating meaning; encouraging the abandonment of failed goals
  - reprioritising one's goals and motives

Based on Reeve (2018, pp. 335–336)

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Affective computing

Image: https://commons.wikimedia.org/wiki/File:Sophia_(robot).jpg

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Affective computing

- AI that recognises and responds to human emotion.
- Aim is to give AI emotional intelligence, including ability to simulate empathy.
- Affective AI should interpret emotional state of humans and adapt its behaviour, giving appropriate response to those emotions.

Based on Wikipedia: https://en.wikipedia.org/wiki/Affective_computing

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Affective computing

- If emotions show ANS specificity (e.g., anger, fear, sadness, joy, and disgust → distinct changes in blood pressure and skin temperature)
- then sensors built into computers, mobile devices, equipment, etc. can monitor our emotion and adjust accordingly.
- Humanoid robots could also respond to us empathetically.

Based on Reeve (2018, p. 316)

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Tony Robbins interviews Sophia (AI humanoid robot)

YouTube
(9:55 mins)
https://www.youtube.com/watch?v=Sq36J9pNaEo

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Summary

- **Biological**: Events trigger bodily actions via the ANS, neural brain circuits, and facial feedback, which are interpreted as emotion.
- **Cognitive**: Appraisal evaluates significance of events. Attribution explains cause of events. Different appraisals/attributions lead to different emotions.
- **Social**: Other people are rich sources of emotion (e.g., through mimicry, feedback, contagion, and social sharing of emotion).

Based on Reeve (2018, pp. 336–338)

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References

- Reeve, J. (2018). *Understanding motivation and emotion* (7th ed.). Hoboken, NJ: Wiley.

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