



Faculty of Humanities



Emotions and Cognition

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Emotions

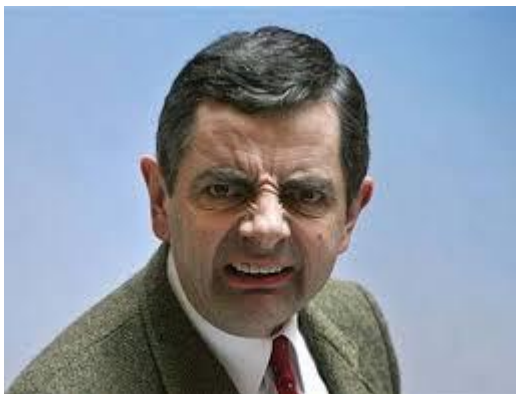
Introduction (what, how, where?)

- **Projects preceding years**
- Ekman (1992). An Argument for Basic Emotions.
- **Midways evaluation**
- Moors, Ellsworth, Scherer and Frjda (2013). Appraisal Theories of Emotion: State of the Art and Future Development
- Mather and Sutherland (2011). Arousal-biased competition in perception and memory.



Emotions

- What are they?
- Why are they interesting?
- How are they expressed?
- Basic and secondary emotions (Ekman)
- Appraisal theories



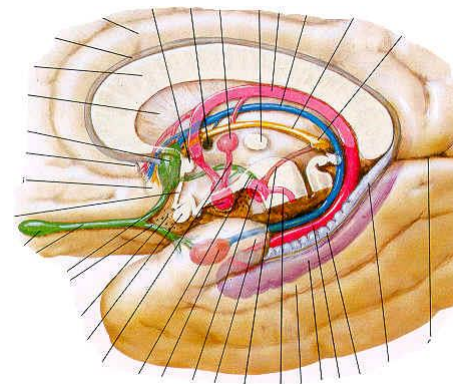
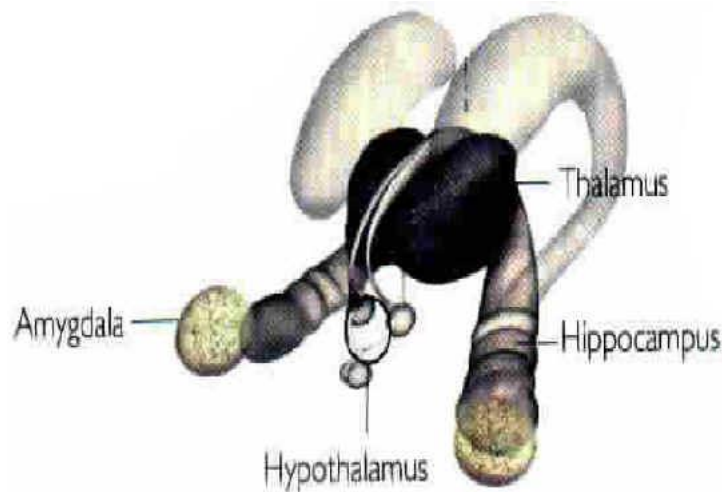
What are emotions?



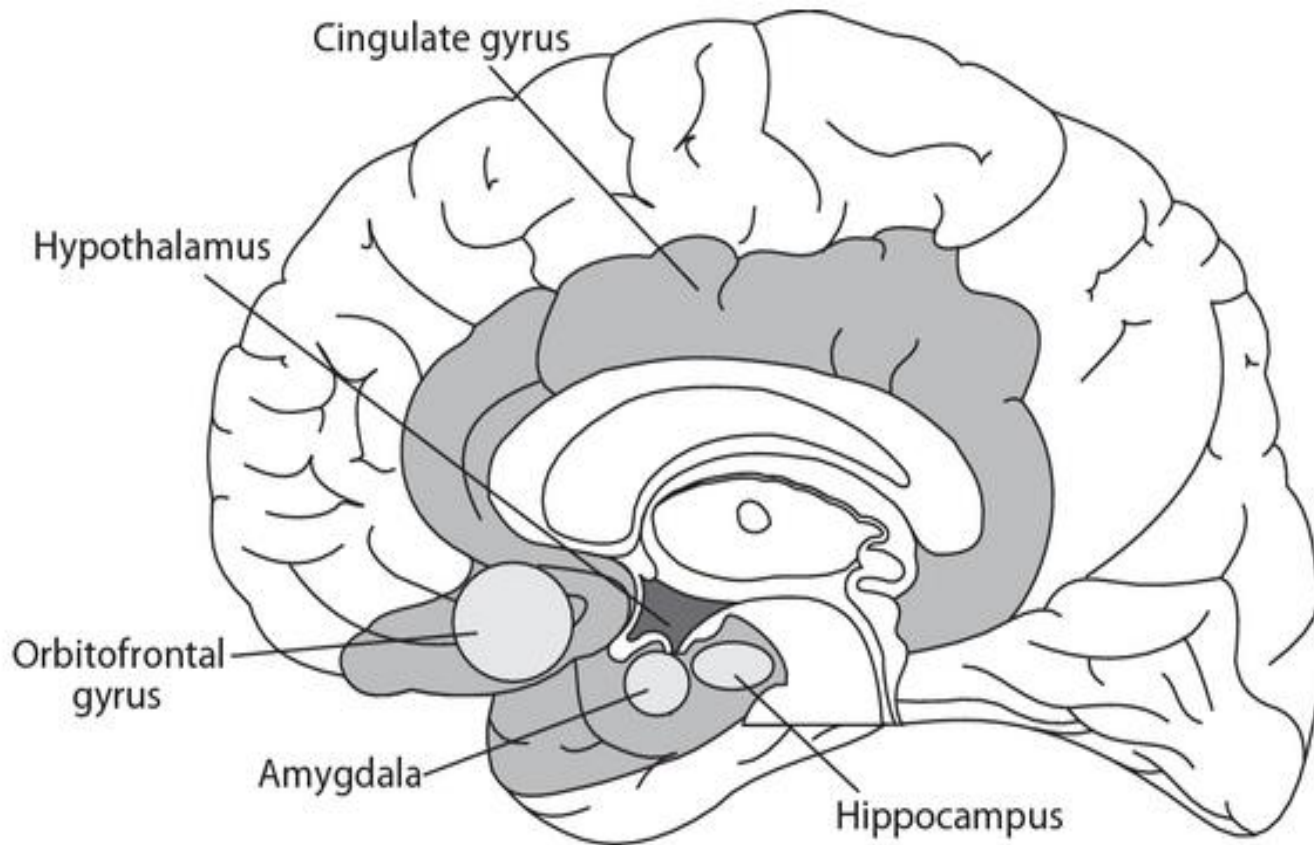
How do we express emotions?

Emotions and the brain

Emotions involve more parts of the brain, especially the limbic system (experience), amygdala (assignment of emotional significance to stimuli - primary appraisal) and the pre-frontal cortex (regulation)



The limbic system



Emotions in history

Emotion vs. reason

- Contrast between emotions and reason from ancient Greek philosophers (Plato, epicureans, stoics) to the 19th century (exceptions e.g. Hume and art).

Question

Do you think that the dichotomy still exists? Examples?

Communicating emotions in art

Romantic hypothesis:

- We understand emotions better by expressing them in art
- emotions inspire creative expression
- emotional state influence the artistic expression

(Katharsis in Aristoteles; power of art expression recognised by Freud etc.)



XIX century: research interest in emotions

Emotions expressed by facial expressions:
Bell (1844), Duchenne (1867) and
Darwin (1872).

Darwin (1872)

The Expression of the Emotions in Man and Animals:

Darwin uses muscular analysis from Bell and Duchenne, but wants to demonstrate the evolutionary continuity between facial expressions in animals and humans.



Main questions in research

- Are emotions universal and, consequently, are moral and esthetical judgments universal?
- Are emotions the product of evolution, i.e. is human culture grounded in biology?
- Are emotions a cognitive process or a physiological process?



Anthropologists 20th century

Relativism:

- Emotional state “shown” in a cultural specific code of facial expressions which are acquired during childhood.
- Situations can be interpreted differently in various cultures.

Test 1



Test 2



Multimodal Studies

Influence from Darwin

Ekman et al. 1969; Izard 1971; Tomkins 1962:

If emotions are universal

- encoding hypothesis: → same facial expressions are produced in all cultures to express same emotions
- decoding hypothesis: same interpretation of facial expressions through cultures

They test facial expressions, vocal expressions and touch in different cultures

Ekman (1972), Eckman and Friesen (1975)



studies of basic emotions:
anger, fear,
surprise, disgust,
happiness and sadness.
Studies on Americans and
Japanese: same emotions
different ways of showing it
in front of other persons.

Criticism of universalism

i.a. Frilund 1992; Russel 1994

- gradient critique: not all facial expressions are easily distinguished
- forced choice in experiments: people could only choose from a limited number of predefined emotions
- ecological validity: 6 "basic" emotions are not the most commonly used in everyday life, other more frequent emotions are e.g. embarrassment, pride, sympathy, compassion

Some projects from past two years

Notice though: other exam form (synopsis + viva) and some course content differences

[Examples_projects.pdf](#)

An Argument for Basic Emotions

(Ekman 1992)

Previous assumptions questioned

- Pleasant-unpleasant scale is sufficient to discriminate emotions.
- Relation between facial expression and conveyed emotion is socially learned and culturally variable.

Main hypothesis

There are basic emotions:

1. A number of discrete emotional states (emotions) differ from each other in more aspects.
2. Evolution has played an important role in shaping them.

Emotion families

- A basic emotion comprises a family of related affective states.
- Members of an emotion family have common characteristics, e.g. Ekman and Friesen (1975, 1978) found 60 anger expressions.

9 discriminating characteristics

	distinctive states	biological contribution
distinctive universal signals	X	X
presence in other primates		X
distinctive physiology	X	X
distinctive universal in antecedent events	X	X
coherence among emotional response		X
Quick onset		X
Brief duration		X
Automatic appraisal		X
Unbidden occurrences		X

Problems

Not all characteristics are valid for all basic emotions.

Positive emotions (amusement, relief, sensory pleasure, pride in achievement, the thrill of excitement, satisfaction, contentment) do not have distinctive features as it is the case for negative emotions → evolutionary explanation?

Other emotions which have been considered to be basic: embarrassment, awe, excitement.



**Congruence studies:
activating emotional
attitudes
from concepts,
propositions,
images, analogs**

Emotion Congruence

Bower (1981), Meyer et al. (1992) Moods and emotions are associative networks in the mind.

Emotions influence memory and judgement (Forgas & Laham 2000)
different moods → different judgements

Feelings as information (Clore 1992, Clore & Gaspar 2000)

Fazio (2001): participants give quicker responses when concepts and emotion are congruent

E.g. cockroach-disgusting vs. chocolate-disgusting

Mood and memory in everyday experiences (i.a. Bower, 1981) e.g. people in sad mood remembered better sad stories than happy stories and vice versa.

Other congruence studies

- Effects of music – congruence with perception (Niedenthal and Setterlind 1994)
- Effects of colours – congruence with emotions (related to culture?)
- Effects on attention (fear connected to focus)

Weather/Music and mood

Weather is related to mood and feelings – influences moral judgements (kissing), trial judgements, e.g. driving with red light (i.a. Schwartz and Clore, 1983; Clore & Gasper 2000)

Midways evaluation

Appraisal Theories of Emotion

(Moors et al. 2013)

Appraisal Theories

Proposed by Arnold (1960), developed by Lazarus (1966).

Appraisal processes mediate the significance of events for the individual's well-being.

Emotion is seen as a highly complex event or process.

Emotional episodes

An emotional episode involves changes in a number of components which are related:

- Appraisal: evaluation of environment, person-environment interaction.
- Motivational: action tendencies or action readiness.
- Somatic: physiological responses.
- Motor: expressive and instrumental behaviour.
- Feeling: subjective experience of feeling.



Appraisal

Involves interaction between an event and the appraiser.

Dual mode views (Clore and Ortony 2000): a) rule-based mechanism to compute appraisal value(s) b) associative mechanism.

Triple mode views (Leventhal and Scherer 1987): c) sensor-motor mechanism.

Individual, Cultural and Developmental Differences

Ellsworth (1994): differences in appraisal of novelty, goal congruence etc. explain differences in how same event is felt.



Emotions today

Neuroscience: brain generates emotions as a combination of cognitive appraisal and bodily perception.

Emotions are felt individually, but are also expressed physically and can be measured physiologically.

Arousal-biased competition in perception and memory

(Mather et al. 2011)

Arousal-biased competition in perception

Emotional arousal induce a “winner-takes-more” effect, i.e. already evident stimuli gain priority.

The effect takes place with both unimodal and multimodal stimuli.

Amygdala stimulation both positive and negative arousal.

E.g. arousing/non arousing sound + contrasted/non contrasted letters



Amplification of contrast and goal

- a) contrast: e.g. arousing/non arousing sound + contrasted/non contrasted letters
- b) goal: e.g. lamp signals in central vs peripheral position and stressing sounds

Arousal-biased competition in memory

- memory narrowing: e.g. weapon focus effect on witnesses, stressing object on neutral background
- memory for gist not detail: emotional vs. neutral pictures
- within-object memory binding: better memory for colour, location, visual details for arousing items



Arousal-biased competition in memory (2)

memory consolidation:

- 1 aroused item impairs memory of non-aroused ones
- arousal enhances consolidation for emotional items

Emotional intelligence

- processing styles and emotions (Bless et al. 1996) positive mood → knowledge structures, negative mood → analytical thought
- emotional intelligence (Mayer et al. 2000): ability of a person to “read” other people’s emotions/feelings and consequently ability to behave correctly in society



Emotions and social interaction

- informative function of emotions
- cultural variation: Canadian Inuits do not display anger
- Japanese samurai wives' smiles – recognition of heroic death
- ritualized display of emotions
- different cultures recognize different emotions as basic



Studies of appraisal

- discrete approaches (Lazarus 1991): cause-effect between events and emotions
- dimensional approaches (Ellsworth 1991): groups of emotions are related; we can go from one emotion to the other – transitions and in-between relations; similar emotions can be distinguished through various dimensions such as agency
- diary studies (people recording their emotional states)
- cultural variations

