# What is the function of emotion?

Emotion and Emotion Regulation

# Wasn't always thought to be functional

- Emotion was thought to interfere with reasoning (stoicism)
  - Plato, DesCartes
- From roughly 1900-1970, emotions were thought to be epiphenomenon (have no purpose or meaning)
  - Behaviorism; fear and reward are the only possible exceptions
- Darwin: An evolutionary vestige
  - Used to have importance, but no longer does . . .

# Functionalist perspective

- Emotions are functional and constitute solutions to environmental challenges
  - Benefits run from individual to the society as a whole
    - Individual (adjustment)
    - Dyad (communication)
    - Group (social coordination)

# For the individual

- Emotions may be unpleasant (disgust) and/or autonomically taxing (fear), and still be functional/worthwhile
- Emotions motivate adaptive action and facilitate adjustment to environmental demands

Evolutionary Theory (practical ability)

# Cosmides & Tooby (2000)

- The brain uses different "mental programs" to complete different tasks (drive for sleep, escape from a predator, etc.)
- When there is competition between tasks, emotions coordinate the brain's different functional "programs"
  - They "'orchestrate' the mental programs – "deactivating some, activating others . . . – so that the whole system operates . . . harmonious[ly]."
- These situations are limited to challenges to and opportunities for reproduction

integrative theory

# Oatley & Johnson-Laird (1987)

- Extremely similar BUT emotions arise in response to evaluation of their progress towards current goals

| Emotion | Juncture of current plan | State at which transition occurs |
|---|---|---|
| Happiness | Subgoals being achieved | Continue with plan, modifying as necessary |
| Sadness | Failure of major plan or loss of active goal | Do nothing/search for new plan |
| Anxiety | Self-preservation goal threatened | Stop, attend vigilantly to environment and/or escape |
| Anger | Active plan frustrated | Try harder, and/or aggress |
| Disgust | Gustatory goal violated | Reject substance and/or withdraw |

Oatley & Duncan 1992, 1994 support this account using diary-based studies

# Functions for the dyad

- Communication
  - We can perceive the emotion in another, anticipate what they might do and (perhaps) understand why
  - Communicate our emotions to others
- Emotional communication happens quickly; we respond to emotional faces presented for 8 (eight!!!) ms. (Dimberg, 1982; 1988)
  - Perceiver mirrors facial expression presented!
- Appears innate; emotions are communicated from adults to infants quite reliably (83% "get" or "respond" to the emotional message; Klinnert et al., 1986)

# Functions for the dyad

- Communication
- In adults, for example:
  - Communicates love/attraction
    - "flirting", etc. requires postural/facial/vocal expression changes, which bring about reciprocal hormonal and behavioral effect.
  - Communicates dominance
    - Dominant people furrow their brows (anger) and submissive people elevate their eyebrows (fear)

# Functions for the dyad

reciprocal / responsive

- Elicit "complementary" emotions (Hoffman, 1983; 1984)
  - Anger from parent → fear in child
  - Disappointment from parent → guilt/sadness in child

# Functions for the Group

- Emotions vital to social coordination at group level
  - Helps create bonds to define boundaries (and limits) of the group; members remain loyal (outsiders leave)
    - "shaming" used to regulate people's behavior to gain acceptance to the group
    - Masks of shame! Must be worn when group norm is violated in order to invite ridicule from group members

# Functions for the Group

- Emotions vital to social coordination at group level
  - Group cohesion particularly strong during positive emotions – joy, awe, ecstasy

# Functions for the Group

- Emotions vital to social coordination at group level
  - But also occur following negative emotions, e.g., sadness after political figure loses election

not as often

# Functions for the Group

- Emotions vital to social coordination at group level
  - Helps define hierarchy of the group
    - Anger, contempt, and pride often convey superiority and status to lower group members
    - Lower status members feel awe to superiors
    - Low status individuals show greater smiling, embarrassment, fear, and submissiveness to higher status individuals → appeasement of high status individuals

# The value of positive emotions

- Positive emotions lag in interest/research
- They are relatively poorly differentiated
- BUT, they still appear to have value 경험하기가 좀 어렵다

**Summary of the Action Tendencies and Resulting Skill or Social Outcome Associated with Four Positive Emotions**

| Emotion | Action tendency | Outcome |
|---|---|---|
| Joy | Free activation/play | Motor skill acquisition |
| Interest | Exploration | Knowledge acquisition |
| Contentment | Mindful broadening of ideas | Knowledge integration and elaboration |
| Love | Attachment and bonding | Social relationships |

From Fredrickson, B. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300–319.

# Fredrickson: Broaden and build

- Positive emotions lead to a building of physical and psychological resources
  - Joy fosters rough-and-tumble play
    - builds muscular and vascular fitness
    - Allows for the practice of important skills, such as danger negotiation and social confrontation
- Interest fosters exploration
  - Builds greater knowledge

cont'

# Fredrickson: Broaden and build

- Positive emotions help build relationships with others, which involve norm of reciprocity
- Positive emotions help "undo" negative emotions
  - Fredrickson & Levenson (1998) found that cardiovascular recovery following a fear-inducing film was speeded by watching positive, but not neutral or negative films

Different positive emotions *broaden* the individual's momentary thought-action repertoire.
— positive emotions are associated with expansion of the focus of attention.
— take in a wider amount of cues and meanings from the environment.
— positive emotions tend to broaden the scope of action.

(+)2

# Shiota et al.: Social Constructionist Model

- Positive emotions are important for romantic relationships
  - Desire leads to flirting behavior, which may (or may not) be reciprocated. This helps identify potential partners
  - The display of affection, love, and compassion helps maintain relationships
    - Fosters commitment and leads to strong bond

- John Gottmans 5:1 ratio (+):(-)

+ contempt → 경멸

segue ok?

# Segway to Levenson (1999)

- The emotion system, like the heart, is comprised of 2 sub-systems
  - Core: A remarkably durable, simple, and efficient "processor," designed early in evolution to cope with basic, ubiquitous problems
    - Hard-wired and not capable of modification
    - A "failsafe" system which does essential work no matter what

# The Core System

- Responds to prototypical situations by recruiting/orchestrating appropriate responses
  - Perceptual/attentional (scope/vigilence)
  - Physiological support
  - Gating of higher mental processes (accessing successful, time-tested responses)
  - Behaviors
    - Gross motor behavior (postural adjustments)
    - Purposeful behavior (fight, go to water, etc.)
    - Expressive behavior (facial displays, prosody)

# Prototype-Emotion Complex

- Loss → Sadness
- Gain → Happiness
- Satiation → Contentment
- Cheating/Harm Inflicted → Anger
- Decay → Disgust
- Danger/Threat → Fear

# But . . .

- Not all loss leads to sadness
- Not all decay leads to disgust
- Etc . . .

- There must be a 2nd subsystem!

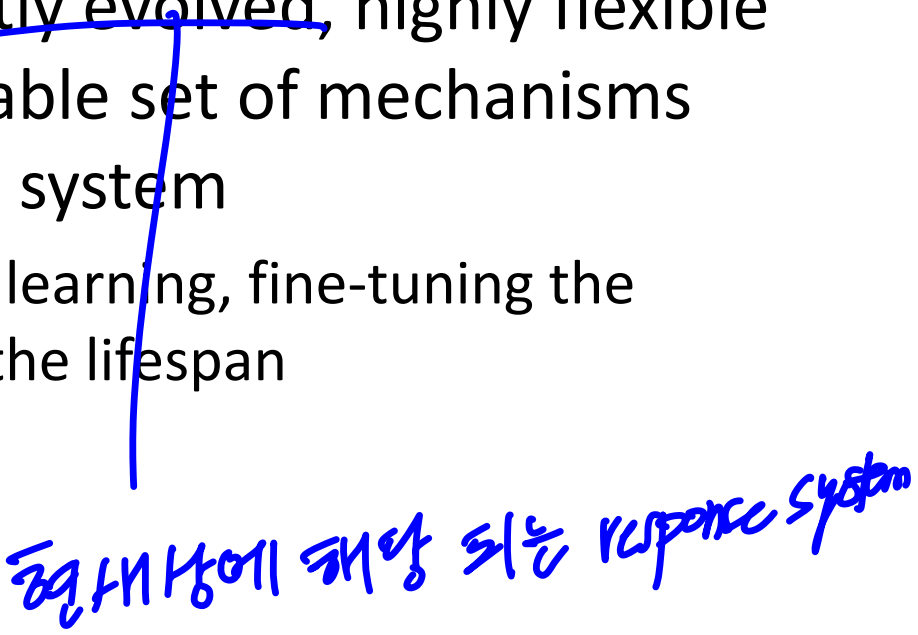
# In addition . . .

- Tigers rarely jump in our paths
- People rarely steal our food ← lies
- Conspecifics rarely threaten to kill our young
- Instead, we typically encounter smaller threats, which may still fit a prototype
  - Road rage: A "cheater" cut us off, but this doesn't warrant the full mobilization of our response system – does it?!?!

we can control this

# The second subsystem

- The emotion system, like the heart, is comprised of 2 sub-systems
  - Control: A more recently evolved, highly flexible and much less predictable set of mechanisms which control the core system
    - Exquisitely sensitive to learning, fine-tuning the operation throughout the lifespan



# The control system

- Influences 2 aspects of the core
  - The "input" by altering the conditions that set the core into action
    - Or changing the way in which we appraise a situation, thus altering the likelihood that the situation matches a prototype
  - The "output" by intercepting tendencies to respond to prototypic situations in characteristic ways; modulates the translation of response tendencies to resulting behavior

# Costs/Benefits

- Altering the input side
  - Reduces emotional behavior and felt emotion, with little physiological cost
- Altering the output side
  - Reduce emotional behavior, doesn't change felt emotion, and has enormous physiological cost
- Unfortunately, not all emotions lend themselves easily to early intervention

# From Levenson (1999)

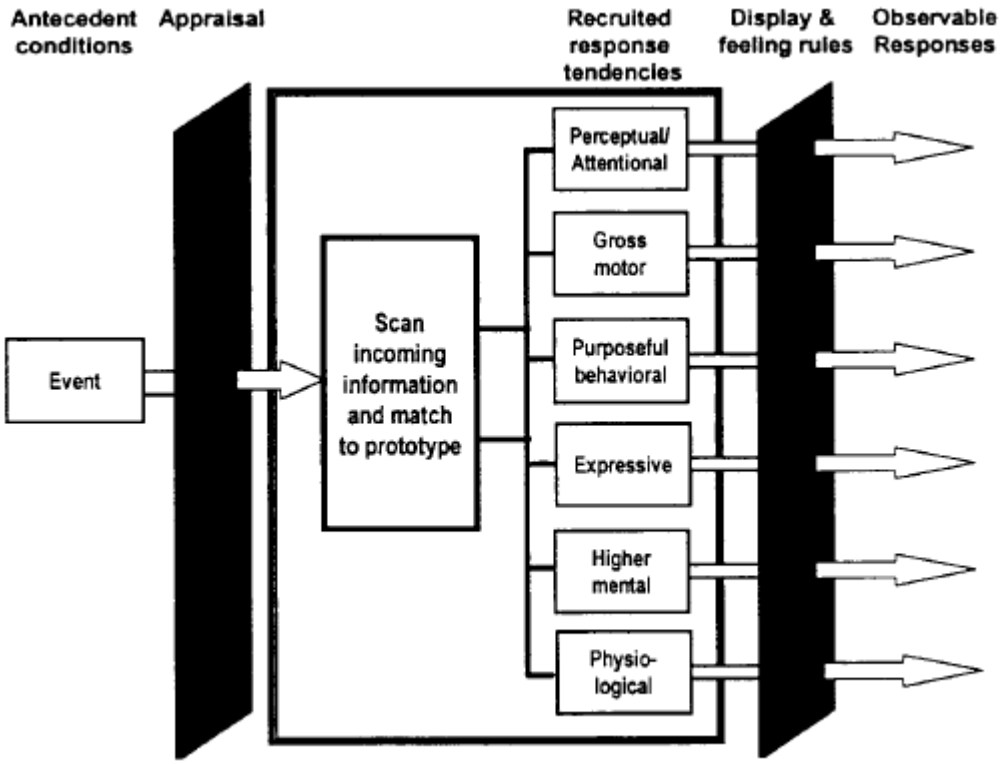



FIG. 2. The core emotional system and the control system.

Of course, responses may be suppressed or enhanced!

# Stimuli

- External
- Internal
  - Dialogue, Imagery, Recollections
- Emotional responses themselves!
  - Autonomic (Schachter & Singer)
  - Facial (Facial Feedback Hypothesis)
  - Behavior (James-Lange)

# Emotion Regulation

- ". . . Emotion regulation refers to the lifelong process of working out an etiquette of action and interaction between the two emotion systems. By this I mean allowing the core system sufficiently free reign so that it can serve its basic adaptive functions, while maintaining sufficient controls so as to minimize the potential negative effects . . . that unrestrained emotions can have on the individual and on others."

# Intrapersonal Functions of Emotion

- Escape from homeostasis (more)
- “Undoing” function of positive emotions (more)
- Shifting behavioral and cognitive hierarchies (more)
- Subjective experience
- Providing Associative structures in memory
- Group differentiation
- Individual differentiation

# Escape from homeostasis

- The body works to maintain a constant, optimal bodily milieu (ANS especially important)
- Emotions (i.e., anger, fear, disgust) are the "temporary antidote" for homeostasis
  - Body "escapes bonds" to deal with threat/challenge – clearly functional
  - Chronic emotions are non-functional – prolonged anger, fear, sadness, etc. can cause CAD, hypertension, gastric syndrones, etc.

# Undoing function of positive emotions

- Positive emotions don't fit the prototype-response paradigm well (i.e., fear → flight, anger → fight, etc.)
- Positive emotions are different – they don't lead to significant autonomic arousal
- What is the value of positive emotion?

# Undoing function of positive emotions

- What is the value of positive emotion?
- Soothing: They quell negative emotions (e.g., a parent soothing a baby)
- Positive emotions hasten the speed of autonomic recovery following the induction of negative emotion

# Undoing function of positive emotions

- Two types:
- *Automatic*: amusement following fear or disgust (laughing after car accident)
- *Intentional/Purposeful*: Introducing positive affect to counteract current negative emotion (e.g., in couples)

# Shifting Behavioral and Cognitive Hierarchies

organizer vs disorganizer

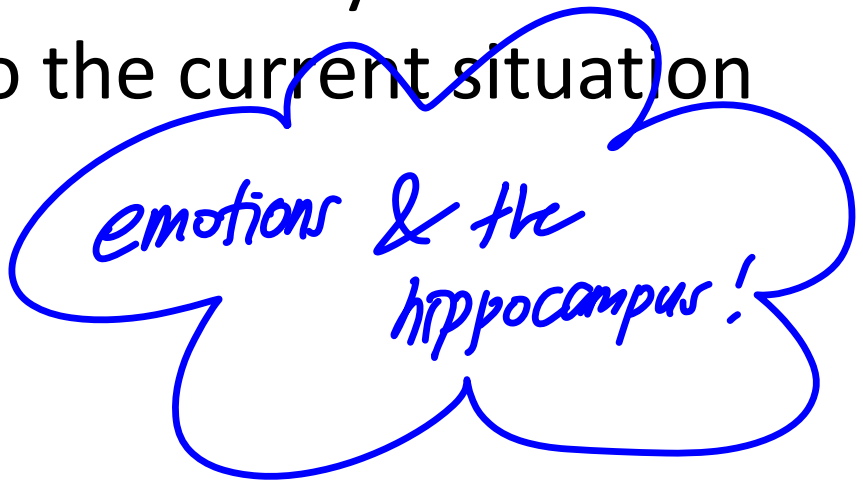
- Both! (depends on perspective)
- Strong negative emotion interrupts ongoing complex thoughts & behavior
    - Viewed from perspective of what we were trying to accomplish previously, the emotion acts to disorganize!
- Replaced with a “bare-bones” behavioral and cognitive state (time-tested; speed is critical)
    - Viewed from perspective of survival, the emotion is adaptive and organized!

# Subjective Experience

- Subjective emotions are the signal which helps us engage in adaptive voluntary behaviors, for example:
  - Clarify how we feel
  - Think and talk about what led to emotion
  - Make future plans about these antecedents
  - Share our feeling with others to garner support AND alter others' behavior
- Think about someone who wronged you

# Providing Associative Structures in Memory

- Emotions act as magnets for "like" memories
  - E.g., experiencing a death leads to the recollection of past significant losses
- May provide access to additional experiences/outcomes that may be useful in planning responses to the current situation



# Group differentiation

- There are group differences in emotion (gender, age, culture, etc.)
- Core System
  - Some groups may require, say, a greater intensity of stimulus which is closer to the prototype in order to elicit fear
- Control System
  - How to appraise
  - Cultural display rules (never show emotion)

# Individual differentiation

- There are individual differences in emotion (gender, age, culture, etc.)
- Core System
  - Some individuals may require, say, a greater intensity of stimulus which is closer to the prototype in order to elicit fear
- Control System
  - How to appraise ("Maybe she's having a bad day.")
  - Individual display rules (never let them see you angry)