Emotion and Multimedia Learning

- Emotions Defined
- Theoretical Foundations
- Practical Relevance
- Design Activity

What are examples of basic emotions?
- Name some basic emotions.

Examples
Examples

Emotions Defined

Seven basic emotions

- fear (or terror, shock, phobia)
- anger (or rage, directed to the self or others)
- joy (or glee, gladness)
- burglary
- anticipation
- surprise

Emotions

- Acceptance
- Affection
- Ambivalence
- Anger
- Apathy
- Anxiety
- Compassion
- Depression
- Disgust
- Doubt
- Ecstasy
- Empathy
- Envy
- Embarrassment
- Euphoria
- Fear
- Forgiveness
- Frustration
- Guilt
- Gratitude
- Grief
- Happiness
- Hatred
- Hope
- Horror
- Hostility
- Homesickness
- Hysteria
- Suffering
- Sympathy
- Surprise

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Emotions Defined
Emotions Defined

Evolutionary Perspective
- Emotions: based in evolution, serve essential biological and social functions

Physiological Perspective
- Emotions: result of a "bodily change" that results in physiological arousal

Cognitive Perspective
- Emotions: generated by people's judgement about the world, initiated by an individual's appraisal of his or her circumstances
  (Frijda, 1993; Lazarus, 1991; Oatley & Johnson-Laird, 1987)

Psychiatry: "mood" routinely used to denote states of happiness and sadness and their extremes

Emotions: person's mental state of being, normally based in or tied to the person's internal (physical) and external (social) sensory feeling

Emotion is the conscious experience of affect, with attribution of cause and identification of its object

Figure 1: Desmet & Hekkert model of product emotions
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Levels of Emotions
- Visceral
  - Appearance, physical features of the material
- Behavioral
  - Pleasure and effectiveness of use by providing interactions between the user and the material
- Reflective
  - Deals with self-image, personal satisfaction, and memories, which come from the conscious reflection and experience including knowledge, learning and culture

Examples

Visceral Appearance, physical features of the material
- Instant and rapid judgments

Behavioral Pleasure and effectiveness of use by providing interactions between the user and the material
- Reflective Deals with self-image, personal satisfaction, and memories, which come from the conscious reflection and experience including knowledge, learning and culture

Discussion

What practical relevance does emotion have for instructional designers?

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Practical Relevance
- Emotions are inseparable from and necessary part of cognition
- Emotions affect cognition
- Cognition affects learning
  - Mood dependent retrieval
  - Mood congruent processing

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Mood-dependent retrieval

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Mood-congruent processing
How do emotions affect learning?

Facilitation Hypothesis
- Emotions broaden available cognitive resources
- Positive emotions help long-term memory and retrieval (Erez & Isen, 2002; Weiss, Nicholas, & Daus, 1999)
- Learners experiencing positive emotions interpret situations more positively than they would at other times, making more positive judgments and give more favorable feedback (Isen, Shalker, Clark, & Karp, 1978; Isen & Patrick, 1983; Petty et al., 1993; Weiss et al., 1999)

Cognitive Load Hypothesis
- Emotions compete with cognition for available cognitive resources, i.e., emotions increase extraneous cognitive load

Suppression (Cognitive Load) Hypothesis
- How would you determine whether the facilitation hypothesis or the cognitive load hypothesis applies to your materials?

How are emotions induced?
- Externally, before learning materials
- Internally, as part of the learning materials

Example
- The Immune System
  How Immune System Works
How can visual design affect emotion?

- Comparison of different visual designs
- Variation of hue, saturation, lightness
- Use of "baby face bias" (Lorenz & Generale, 1950)
- Use of Anthropomorphism effect (Dehn & Van Mulken, 2000)

Study with 116 NYU graduate students:
- The design of visual materials can affect emotions positively, resulting in better learning (Um & Plass, 2007)
- Control affects learning with animations (Hasler, Kersten, & Sweller, 2007)

The affective background circle, showing how the colors, shapes and sizes of objects vary together with Russell's circumplex model of affect (Fagerberg et al., 2004)

The affective gestural plane model (Fagerberg et al., 2004)

The tangible interface—expressing emotions through gestures (Fagerberg et al., 2004)
Emotions in ID

Define which hypothesis will apply to your situation,

Decide what emotions you plan to affect

Decide how you will affect emotions

Describe how you would test whether your plan has worked.

Design Activity

Emotional Design Task

Design an interface for a learning tool that uses elements of emotional design to increase learning:

Define which hypothesis will apply to your situation,

Decide what emotions you plan to affect

Decide how you will affect emotions

Describe how you would test whether your plan has worked.