



# Emotions and EMG measures of facial muscles in interactive contexts

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User experience studies and  
emotion recognition

EMG of facial muscles and  
measurement of emotions in HCI

Theories of emotion

# User experience studies and emotion recognition



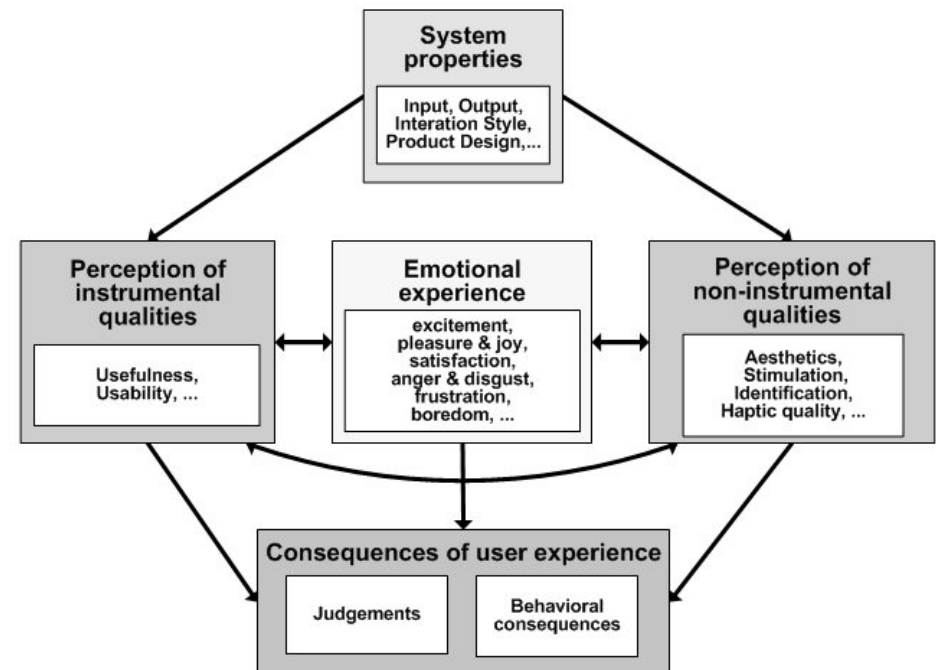
- As technology matured, interactive products became not only more useful and usable, but also fashionable, fascinating things to desire.
- ... practitioners and researchers alike, seem to readily embrace the notion of UX as a viable alternative to traditional HCI.

Hassenzahl & Tractinsky, 2006

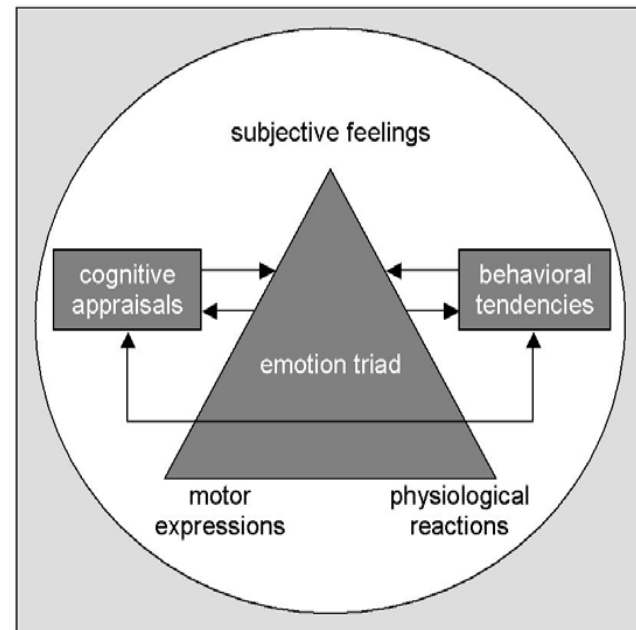
# User experience studies and emotion recognition



- Emotions as one important part of the user experience
- Need for methods to study/evaluate emotional user reactions while using an interactive system



- A theory driven approach to explore methods to measure emotions in interactive contexts
  - Multi-component models of emotions (e.g. Scherer, 1984)
  - The Face plays a role for the expressive component
  - EMG measures of facial muscles as one way to measure this component



# EMG measures and the study of emotion in HCI



- EMG responses from the *zygomaticus major* and *corrugator supercilii* muscle sites that control smiling and frowning
  - Two different simulations of a mobile phone to induce different emotional experiences: one was designed usable and the other one had various usability flaws.
  - Analyses of correlations with other components and differences between conditions
- Data from the *corrugator supercilii* is consistent with presumed differences and connections to other components, not for *zygomaticus major* (Lang et al., 1993).

From 'Measuring Multiple Components of Emotions in Interactive Contexts' (Poster No. 161)



## Hint for future measurement applications

- Discrete vs. dimensional approaches to emotion structure (Peter & Herbon, 2006)
- Some measurement methods are connected to specific emotion theories
  - FACS → discrete approach
  - EMG → dimensional approach
- Important for the connection to other measurement approaches



- Facial information to measure emotional aspects of the user experience
- Expressive component of emotions measured with EMG measures: method and results
- Combination of emotion theories and measurement methods



*Thank you!*

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