



Studying emotions and non-instrumental qualities as parts of the user experience

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Background

Research framework

Methodological aspects

Empirical research

Consequences and application



Evaluation of quality in use

(Bevan, 1995; ISO 9241-11, 1998)

- Interaction-centred components
 - Effectiveness
 - Efficiency
- User-centred components
 - Satisfaction



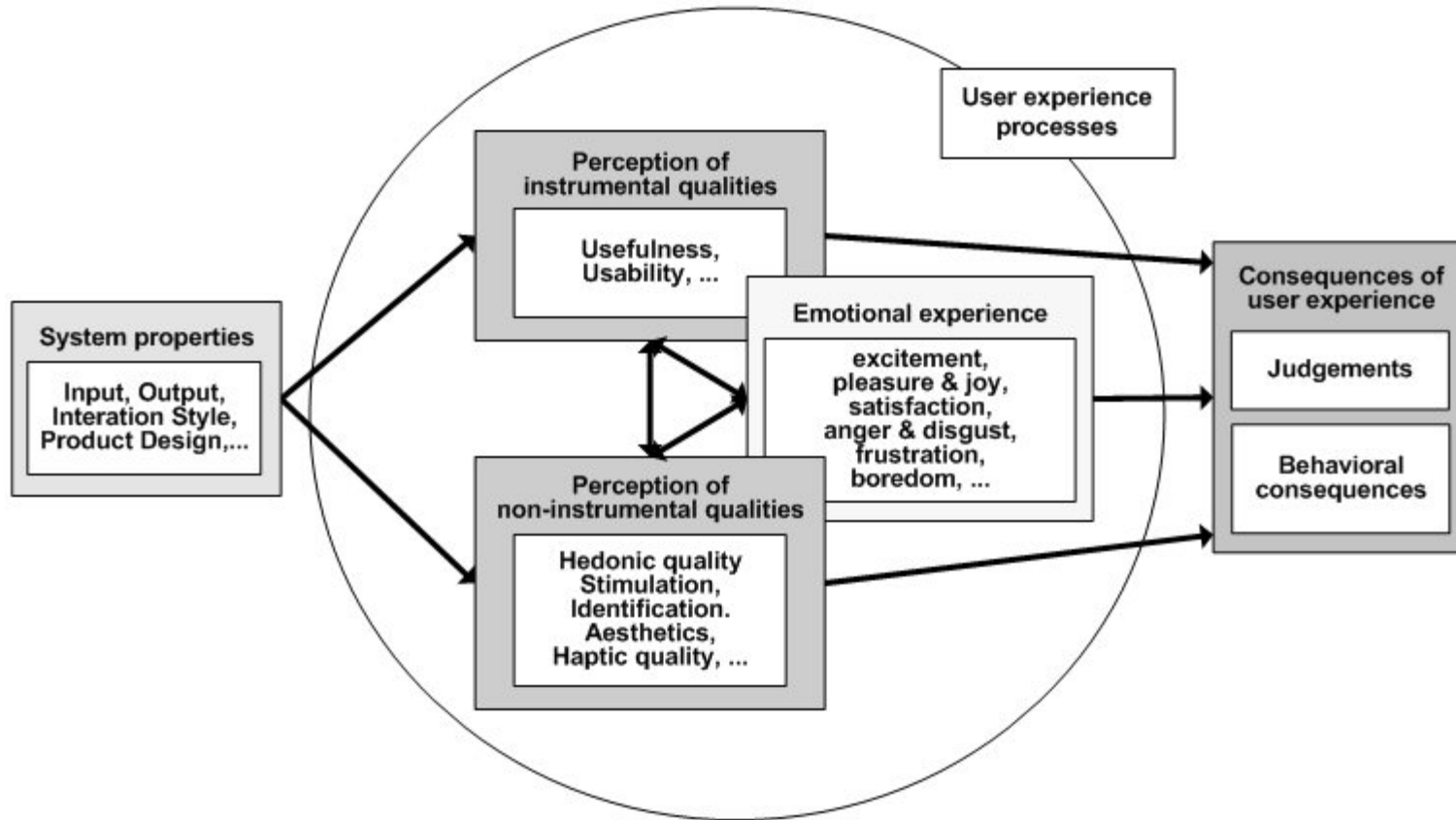
New concepts regarding user-centred components

- fun of use (Carrol & Thomas, 1988)
- emotional usability (Logan, 1994; Kim & Moon, 1998)
- ludic products (Gaver & Martin, 2000)
- pleasurable products (Jordan, 2000)
- hedonic quality (Hassenzahl, 2001)
- product emotions (Desmet & Hekkert, 2002)
- visual aesthetics (Lavie & Tractinsky, 2004)
- affective quality (Zhang & Li, 2005)



- User-centred perspective on product quality gets more important!
- A lot of new components, but ...
 - ... which are important?
 - ... how do they interact?
 - ... how to use them to evaluate user experiences with interactive systems?

Research framework





Better understand the components of user experience and their connections to ...

- ... investigate the effects of quality assessments on emotional experiences,
- ... research their influence on overall judgments and usage behaviour and
- ... question which system qualities affect the components of user experience.



Emotional reactions as multifaceted phenomena

- Studying the relationship between different components of emotions (Process Model; Scherer, 1984)
 - cognitive: appraisal questionnaire
 - physiological: skin conductivity, heart rate
 - facial action: electromyographie (zygomaticus, corrugator)
 - subjective feelings: SAM (self-assessment manikin)
 - behavioural: accuracy and speed during working tasks
- Aim: understand which methods are best applicable to study emotional consequences as part of the user experience



Perception of non-instrumental qualities

- Aesthetic and symbolic dimensions
 - Visual aesthetic
 - Haptic quality
 - Identifiaction
 - Acoustic quality
 - Stimulation
 - ...
- Aim: understand which components are important and which methods are best applicable to study non-instrumental qualities as part of user experience

User experience evaluation approach

- Studying *instrumental and non-instrumental qualities* as well as *emotional user reactions* ...
- ... in the domain of consumer electronics (digital audio players).





Case study

- 30 participants
- Questionnaires to survey the components of user experience
 - Task-related qualities: perceived usefulness & ease of use (Davis, 1989)
 - Non task-related qualities: hedonic quality (Hassenzahl, 2004), visual aesthetics (Lavie & Tractinsky, 2004), haptic quality (Jordan, 2000)
 - Emotional consequences: self-assessment manikin (Morris, 1995)
 - Judgements: ranking, overall acceptance

Empirical research



Task-related qualities		more useful and higher ease of use
Non task-related qualities	higher ratings regarding haptic and hedonic quality as well as visual aesthetics	
Emotional consequences	more pleasurable and arousing	neutral
Overall judgement		higher ranking, better acceptance ratings



Experimental approach

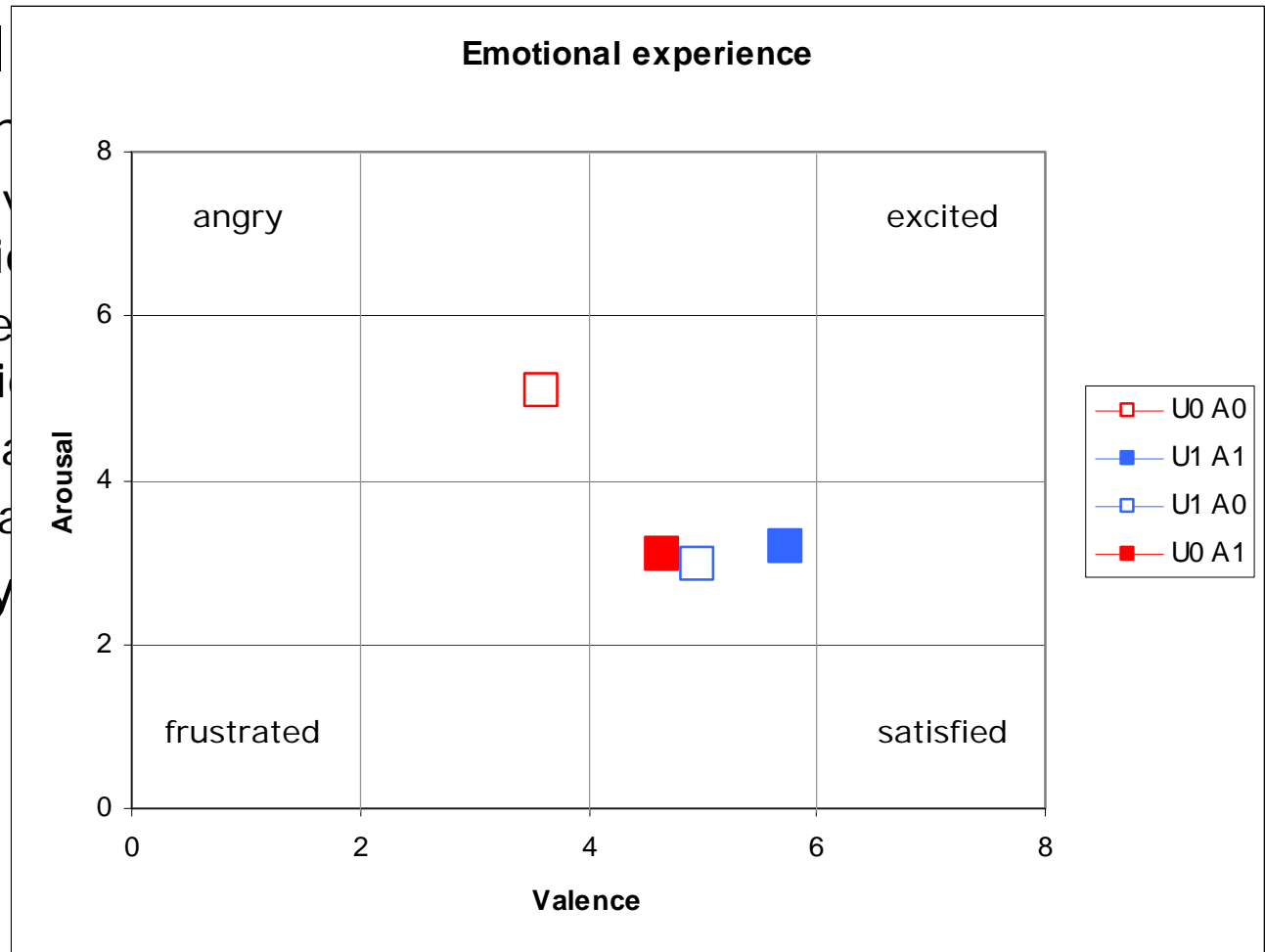
- First study finished
 - Controlled variation of usability and visual aesthetics of a digital audio player prototype
 - How do these influence emotional experiences during system use (questionnaires & physiological data)?
 - In which way are overall judgements founded?
 - 48 participants, first results
- Second study in planning ...

Empirical research



Experimental

- First study first
- Controlled vs. uncontrolled digital audio
- How do they use (questionnaire)
- In which way
- 48 participants
- Second study



Consequences and application



- The presented work provides
 - theoretical foundations,
 - methodological knowledge and
 - empirical results.

- How to prepare these contributions for the application in
 - evaluation and
 - design of interactive systems?

Thank you!

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