Prototyping for the development of ergonomic interactive surfaces
Agenda

1. What is Ergonomics?

2. Ergonomic Input Parameters

3. Projects with or without Ergonomic Prototyping

4. Is Prototyping reasonable?
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1. What is Ergonomics?
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4. Is Prototyping reasonable?
What is Ergonomics?

“Without investigation of real use, technical feasibility can be meaningless.”

Interactions among humans and other elements of a system can be seen as ergonomic if data and methods are designed “in order to optimize human well-being and overall system performance.”

Source:
Fitton et. al (2005)
IEA (2000)
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Ergonomic Input Parameters

- Size
- Input Device
- Height
- Orientation
- Aptitude
Orientation & Aptitude
Height

Standing

Sitting

Sources:
Widgor et al. (2007), Ryall et al. (2005)
Size

Single Workstation – Collaborative Work

Public Display – Handheld Computer

Sources:
Input Devices

Keyboard & Mouse

Stylus

Ergonomic Mouse

Tangible

Sources:
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Curve

Source: Wimmer et al. (2009)
Source: Wimmer et al. (2009)

General Requirements → Literature

Additional Requirements → Experts

3 Independant Variables

18 Prototypes + Study

Curve
BendDesk

Source: Weiβ et al. (2009)
Interactive Group Learning

Source: Sugimoto et al. (2002)
Interactive Group Learning

General Requirements → Later Users

6 Paperprototypes + Study → Maximized Adjustment to Users‘ Requirements

Source: Sugimoto et al. (2002)
Hermes 1

Source:
Fitton et. al (2005)
Hermes 1

- Early Feedback
- Advancement in every Development Phase
- Functional Range++
- Devices++
- Users++

Fast Deployment

Source: Fitton et. al (2005)
SMS Public Asynchronous Messenger ("SPAM")

Source: Fitton et. al (2005), Cheverst et al.(2002)
SMS Public Asynchronous Messenger ("SPAM")

Design Workshop

Ethnographic Data

Prototypes

Maximized Adjustment to Users Requirements

Source: Fitton et. al (2005), Cheverst et al. (2002)
Hermes 2

Source: Fitton et. al (2005)
Hermes 2

- 6 Prototypes
- Define Parameter
- Showcases + Probepack
- High Quality Feedback
- Maximized Adjustment to Users Requirements

Source:
Fitton et. al (2005)
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Is Prototyping reasonable?

Maybe

Uncertain Requirements ↔ Preliminary Work

Ergonomic Issues:
Influencing by Parameters
User Feedback
Any Questions?
Interuptibility Prediction

Source:
Hudson et al. (2003)
Interuptibility Prediction

23 Parameters → Longtime A/V Rec

Machine Learning → Model

Wizard of Oz: Verifies the Model

Source:
Hudson et al. (2003)
Sources


BBC: http://www.bbc.co.uk/liverpool/content/image_galleries/big_screen_rugby_gallery.shtml visited on February 3rd 2010


Logitech.de
Mouse: http://www.logitech.com/index.cfm/mice_pointers/mice/devices/3002&cl=de,de visited on February 7th 2010
Mouse (ergo): http://www.logitech.com/index.cfm/mice_pointers/mice/devices/5845&cl=de,de visited on February 7th 2010
Keyboard: http://www.logitech.com/index.cfm/keyboards/keyboard/devices/3046&cl=de,de visited on February 7th 2010

ubergizmo.com: http://www.ubergizmo.com/15/archives/2007/05/old_ballpoint_pen_doubles_up_as_stylus.html visited on February 7th 2010
Sources

visited on February 7th 2010


