

Agenda

- Usability / User Experience
- ■ Human Factors
 - User-Centered / Usage-Centered Design
 - Interaction Design
 - Usability Test / Study
 - Multimodal Interfaces
 - Designing UIs of Mobile Devices
 - Human-Robot Interaction

Human Factors

- ■ Humans and UIs
 - Human Cognitive Abilities
 - Cognitive Ergonomics
 - Human Motives
 - Challenged People

Humans and UIs

- Problems or errors during use through “bad” UIs
- Bad UIs often a reason for non-use
- Judgment of a (software) system often based on its UI rather than its functionality
- Design and implementation of UIs should take human factors into account!

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Human Cognitive Abilities

- Humans are not all the same:
 - Different abilities
 - Different preferences (e.g., graphics vs. text)
- Limited short-term memory
 - "7 +/- 2 Chunks"
- Increasing frequency of errors under stress
 - When an error occurs, possibly even more errors caused through inappropriate alarms and a sheer number of error messages

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Cognitive Ergonomics

- International Ergonomics Association

- <http://www.iea.cc/whats/index.html>

“Cognitive ergonomics

is concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system.

(Relevant topics include mental workload, decision-making, skilled performance, human-computer interaction, human reliability, work stress and training as these may relate to human-system design.)”

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Human Motives

- Wheel of Joy in Life
- <http://www.incontextdesign.com/innovationincool/core-principles/>



Human Motives (cont.)

Accomplishment: Design for the unstoppable momentum of life. Help people use small moments in time for chores or entertainment wherever they are. Move from supporting tasks to supporting life.

Connection: Help people maintain real relationships with regular, spontaneous touch. Help people find conversational content and things to do so they can connect to others online and in person.

Identity: Support the creation and celebration of self. Help people figure out who they want to be by seeing what others do and think—wherever they are in the life cycle—and then express that identity with joy and fun.

Sensation: Magnify the cool experience with sensory delight. Hook into people's core experience of touch, sound, and physical manipulation to create a compelling experience. Or just let them immerse into a sensory world and escape.

Human Motives (cont.)

- Empowerment, Sharing, etc.
- Google Glass vs. Head Camera
- https://de.wikipedia.org/wiki/Google_Glass
- <http://shop.gopro.com/EMEA/shopbyactivity/ski/session-ski-bundle-eu.html#/start=1>



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Challenged People

- E.g., blind people
- Barrier-free Web-pages
- Haptics
- Smartphone for blind people
- <http://www.detail.de/fileadmin/blog/uploads/2011/09/2.jpg>
- Phones for elderly people
- Presbyopia
- Gradually challenged

