# Focus on the Human

Albrecht Schmidt

# Learning Goals

- Understand …
  - the basic activities in a human centered design process
  - what are potential products in the design process
  - what typical design objectives are
- Be able to
  - explain design products and design objectives in the context of a real world scenario
  - explain the key principles for usable systems by Gould and Lewis
  - discuss the statement "Make Mistake Early and Recognize Them" in the context of usability

# We build tools that extend our abilities

## Tool use, intelligence, and evolution

The way humans make and use **tools** is perhaps what **sets our species apart** more than anything else. Now scientists are more and more uncovering the forces that drove our lineage to our heights of tool use — and how **tool use**, in turn, might have **influenced our evolution**."
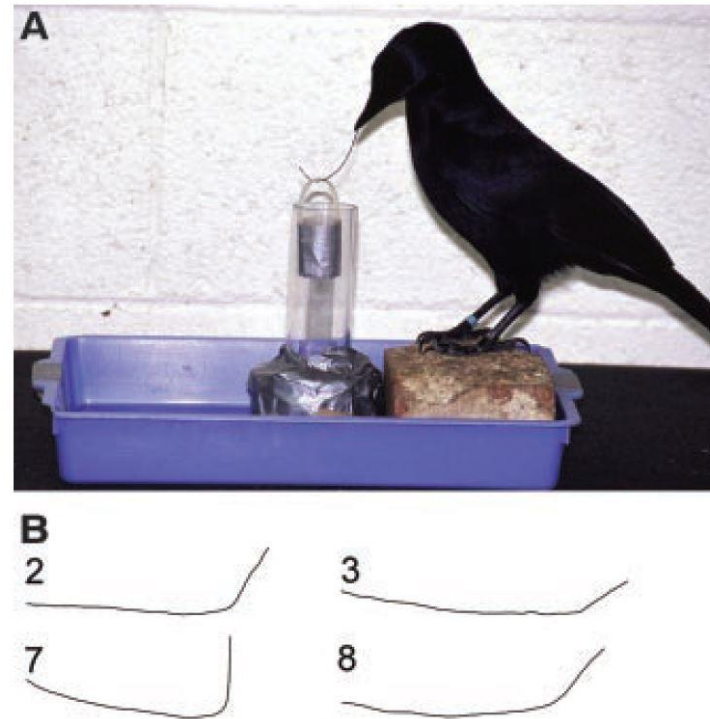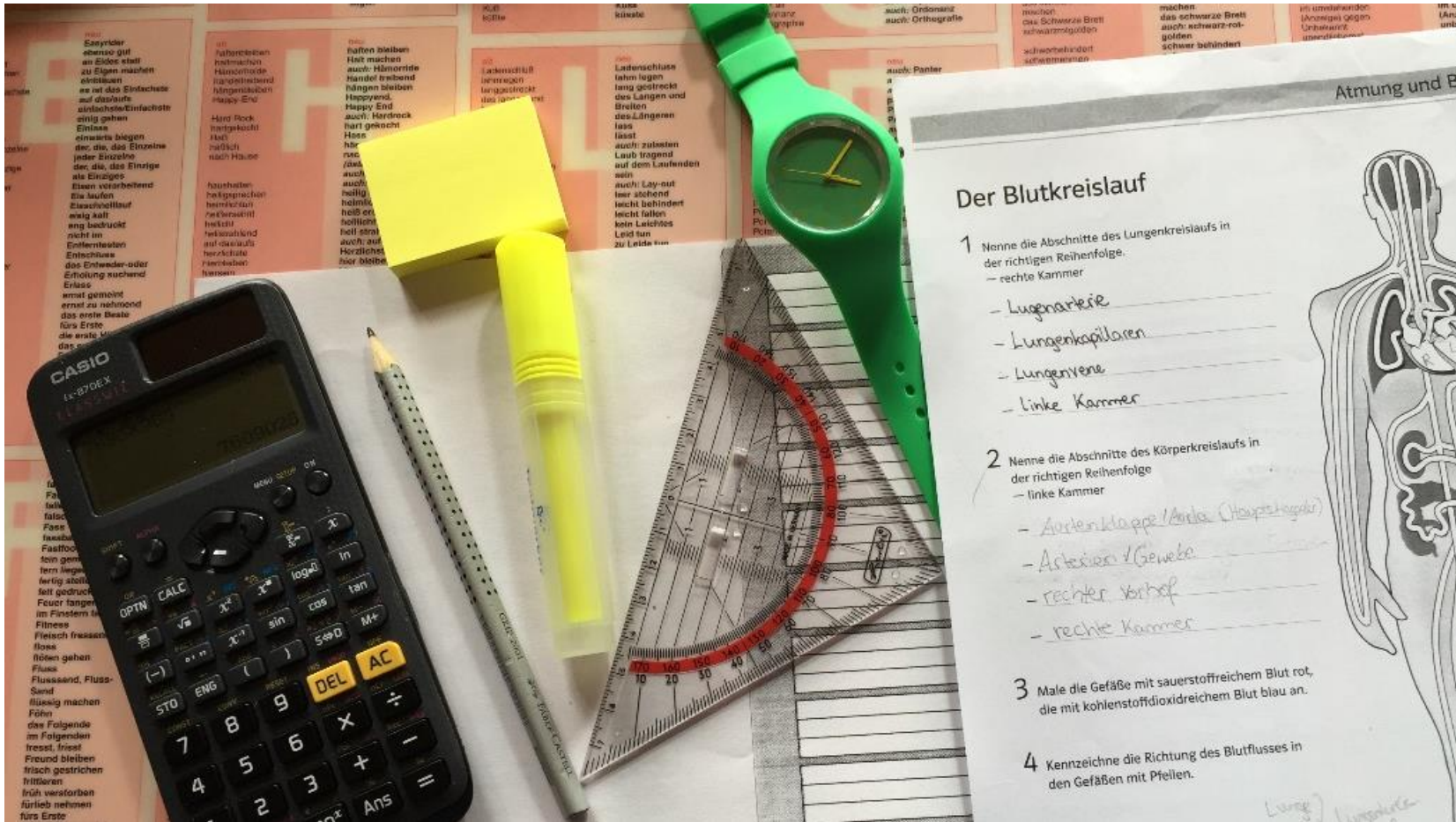
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# Tools to Augment Cognition
## Tool use, intelligence, and evolution

# It is not Simple to Make Good Interactive Products!

**Examples are all around us…, some basic misconceptions**

- If I (the developer) can use it, everyone can use it

- If our non-technical staff can use it, everyone can use it

- Good designs/user interfaces are applied common sense

- A system is usable if all norms and style guidelines are met

That is why a process is required.

# How it does NOT work

**…. Don't fall for this**

- Usability tests at the end when the product is ready and needs to be shipped

- Designing a new and pretty skin or look & feel to a product

- Introducing HCI issues after the system architecture and the foundations are completed

- Have the developers and testers test the usability of the system

# Creating Interactive Systems

**Structured process along the development cycle**

- An interior designer can not make a great house if the architect and engineers forgot windows, set the doors at the wrong locations, and created an unsuitable room layout.

- Creating the user interface at the end of the project will not work – it has been considered from the very beginning.

# Make Mistake Early and Recognize Them!

**Early involvement is key**

Frank Lloyd Wright

"You can use an eraser on the drafting table or a sledgehammer on the construction site."

# Focus on Technology or User?
## Cylinder or Disk?



- Thomas Alva Edison (1880)



- Emile Berliner (1887)
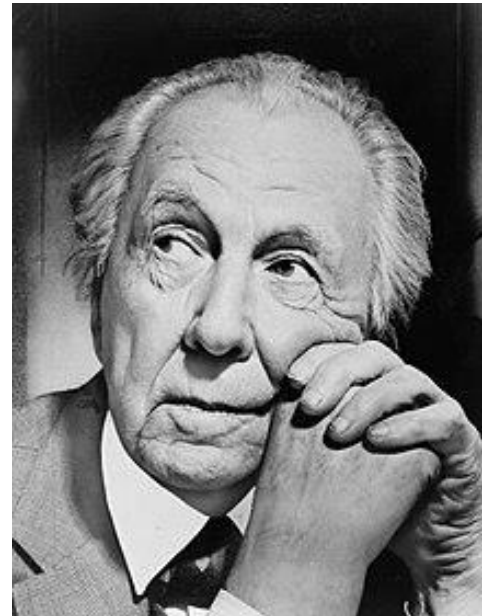
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# Focus on Technology or User?

## Cylinder or Disk?

**Benefits of the disc**

- mass-production

- less storage space

- easier shipping

- allow double-sided recordings

- better marketing (famous artistes)

- Emile Berliner (1887)

# Personal and Mobile Stereo Music Players

**Mini-Exercise: Stereo-Belt vs. Walkman**
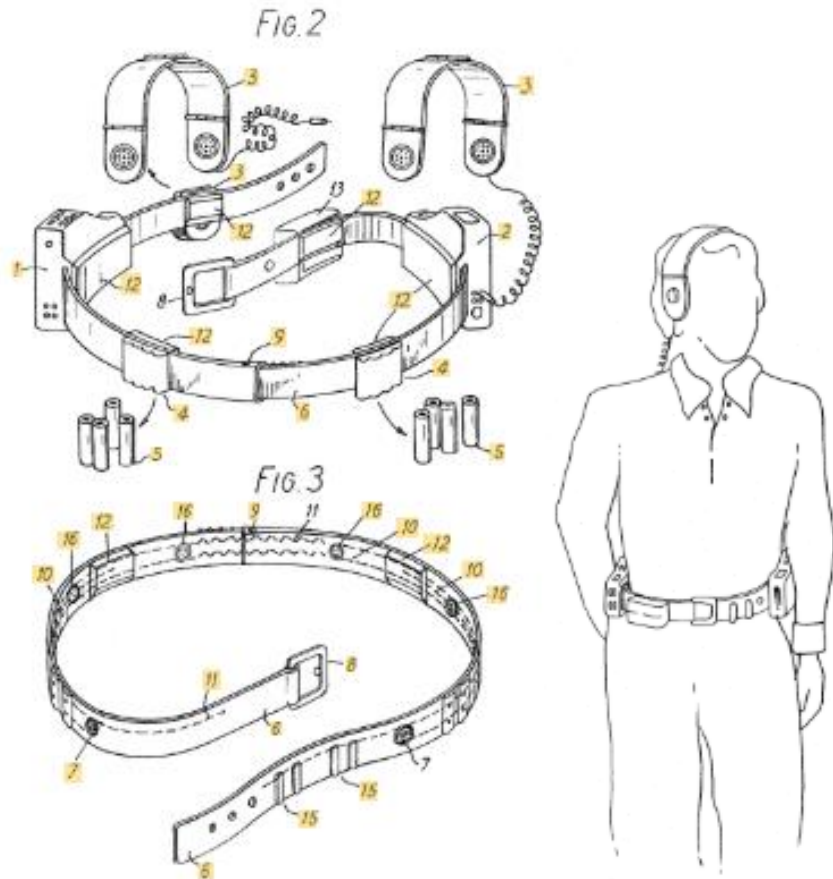




Sony TPS-L2 (1979) by Binarysequence
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# Design products

- Interfaces
- interactions
- environments
- tasks and processes
- user experience
- organizational structures
- society
- needs

# Why to design?

**Design objectives**

- create new products, systems, & experiences

- improve existing products

- ensure safety: features and training

- develop performance support

- develop methods for training and assessment

- guide team and organization formation

| front-end analysis | → | prototyping | → | technical design | → | test & evaluation |

Slide Adapted from Lewis Chuang

# Desiging for Usability
## Key Principles by Gould and Lewis, 1985

- "Any system designed for people to use should be **easy to learn** (and remember], **useful**, that is, contain functions **people really need** in their work, and be **easy and pleasant to use**."

- "…three principles of system design which we believe must be followed to produce a useful and easy to use computer system […]

  - Early Focus on Users and Tasks

  - Empirical Measurement

  - Iterative Design"

Gould, J. D., & Lewis, C. (1985). Designing for usability: key principles and what designers think. *Communications of the ACM*, *28*(3), 300-311.

# Desiging for Usability
## Key Principles by Gould and Lewis, 1985

- **"Early Focus on Users and Tasks**
First, designers must understand **who the users** will be. […] studying their cognitive, behavioral, anthropometric, and attitudinal characteristics, and in part by studying the nature of the work expected to be accomplished.

- **Empirical Measurement**
Second, early in the development process, intended users should actually use simulations and prototypes to carry out real work, and their performance and reactions should be observed, recorded, and analyzed.

- **Iterative Design**
Third, when problems are found in user testing, as they will be, they must be fixed. This means design must be iterative: There must be a cycle of design, test and measure, and redesign, repeated as often as necessary."

Gould, J. D., & Lewis, C. (1985). Designing for usability: key principles and what designers think. *Communications of the ACM*, *28*(3), 300-311.

# Four basic activities of interaction design

- **Identifying needs** and establishing requirements for the user experience

- **Developing alternative designs** that meet those requirements

- **Building interactive versions** of the designs

- **Evaluating** what is being built throughout the process and the user experience it offers
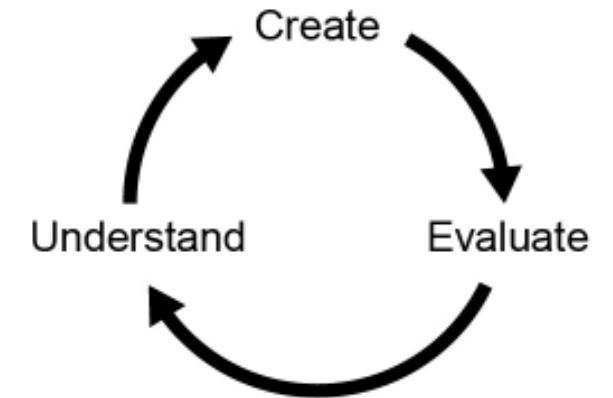
# Did you understand this block?

**Can you answer these questions?**

- Name the key principles for usable systems according to Gould and Lewis

- Give an example of an interactive systems design, that shows the importance of the statement "Make Mistake Early and Recognize Them"

- Describe typical design products and design objectives.

- What is the difference between design objectives and design products?

- What are the basic activities in a human centered design process?

# References

- Pavel, A. (1983). U.S. Patent No. 4,412,106. Washington, DC: U.S. Patent and Trademark Office. http://www.google.com/patents/US4412106

- Gould, J. D., & Lewis, C. (1985). Designing for usability: key principles and what designers think. Communications of the ACM, 28(3), 300-311.

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