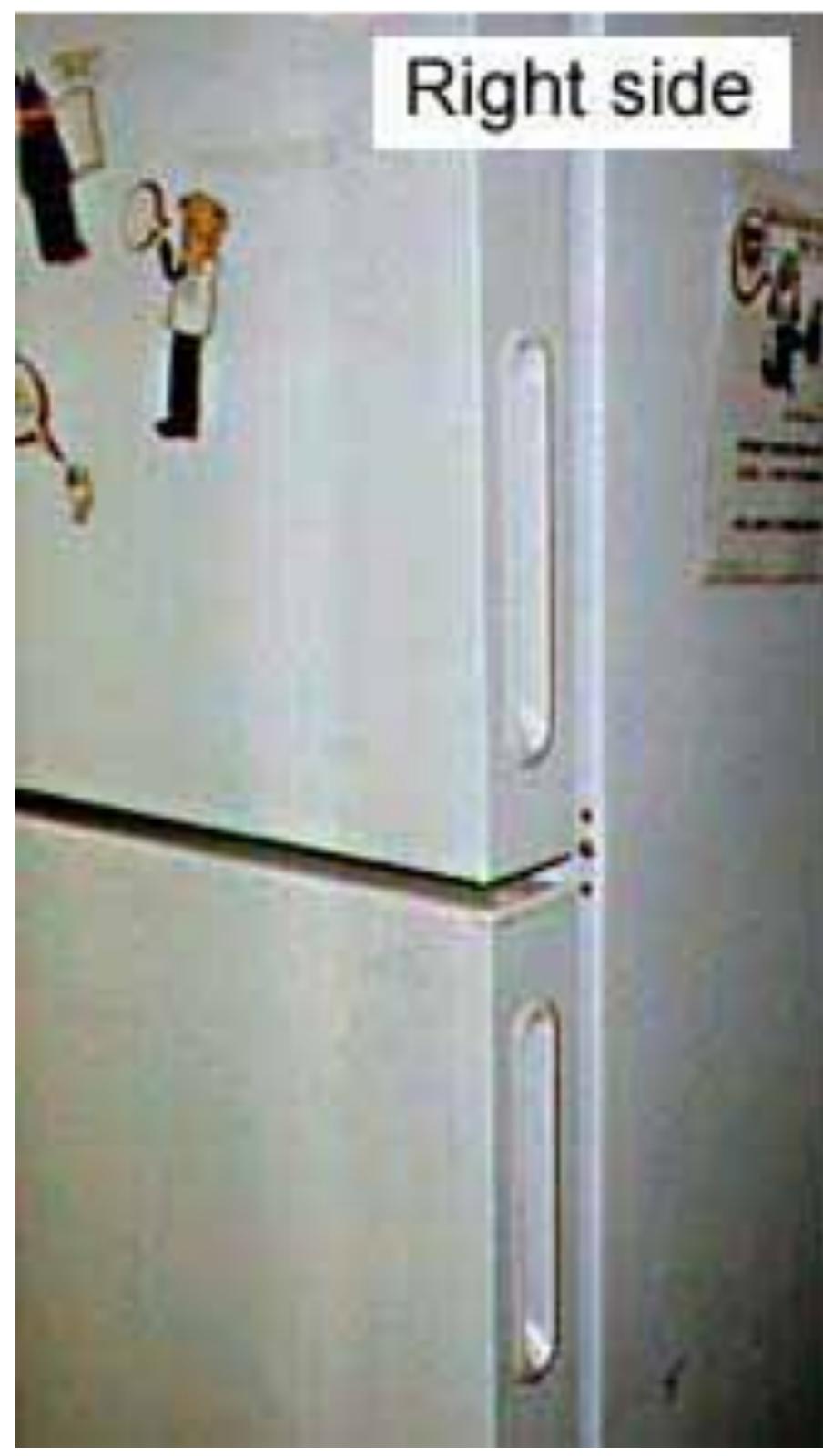


Human-Computer Interaction

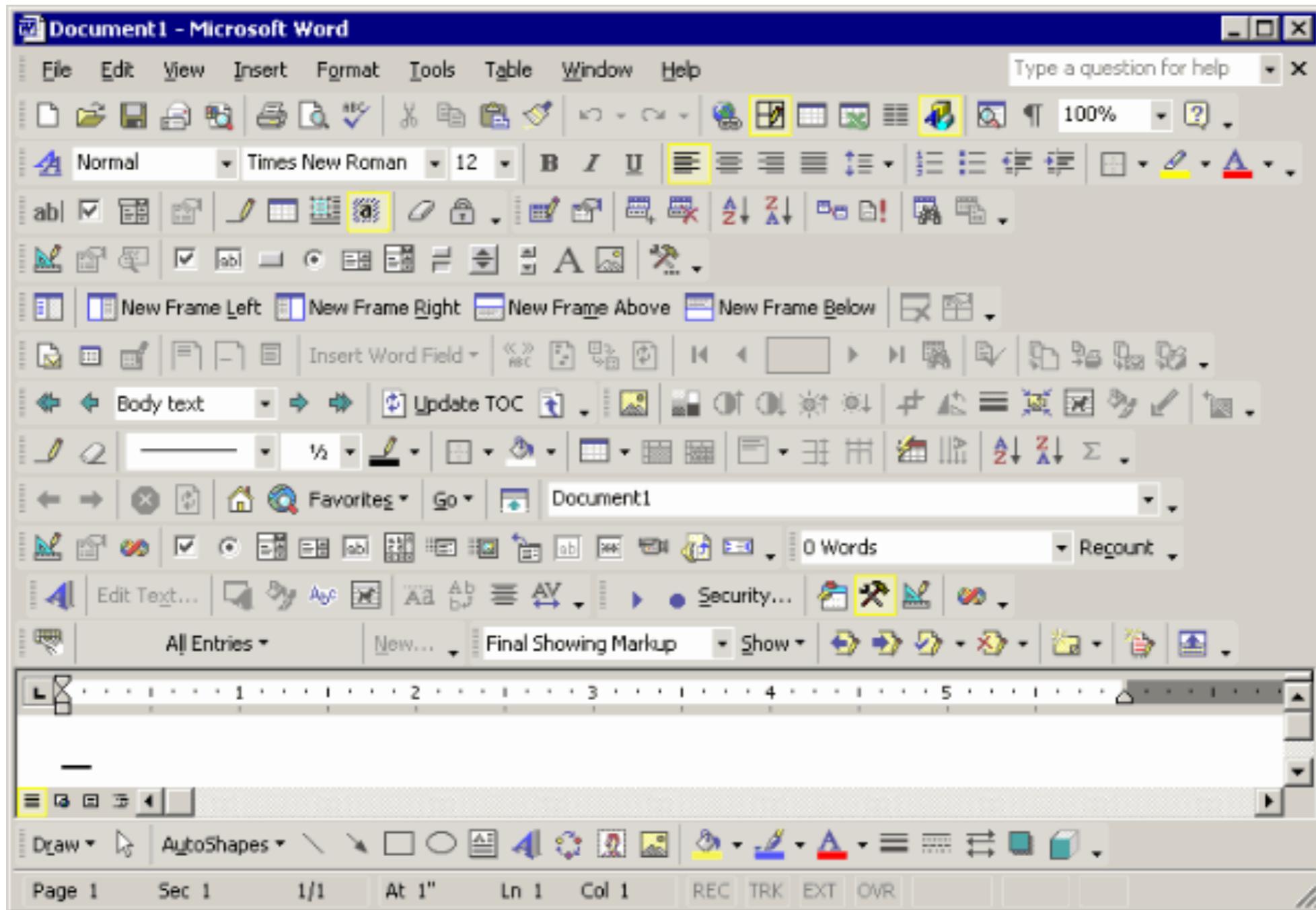
Good Interfaces

CPSC 481 - Winter 2019



What makes a good experience?

What makes a good experience?



What is User eXperience (UX)?

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User eXperience (UX)

“How people feel when they use something.”

–Tomer Sharon

Characteristics of a good interface

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- People can complete their tasks **error-free**

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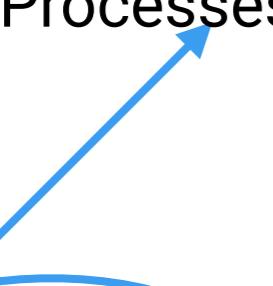
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What is design?

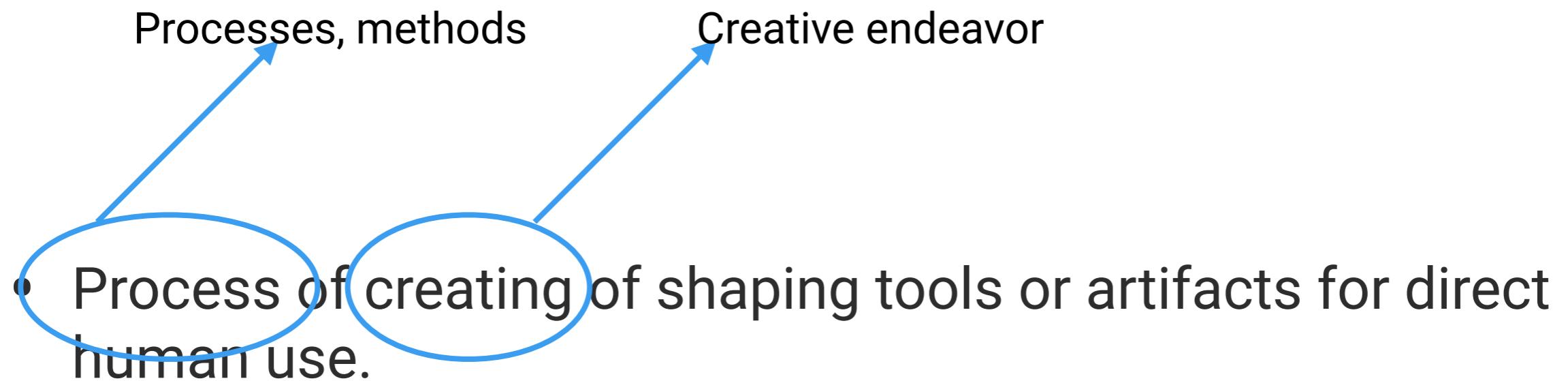
What is design?

- Process of creating or shaping tools or artifacts for direct human use.

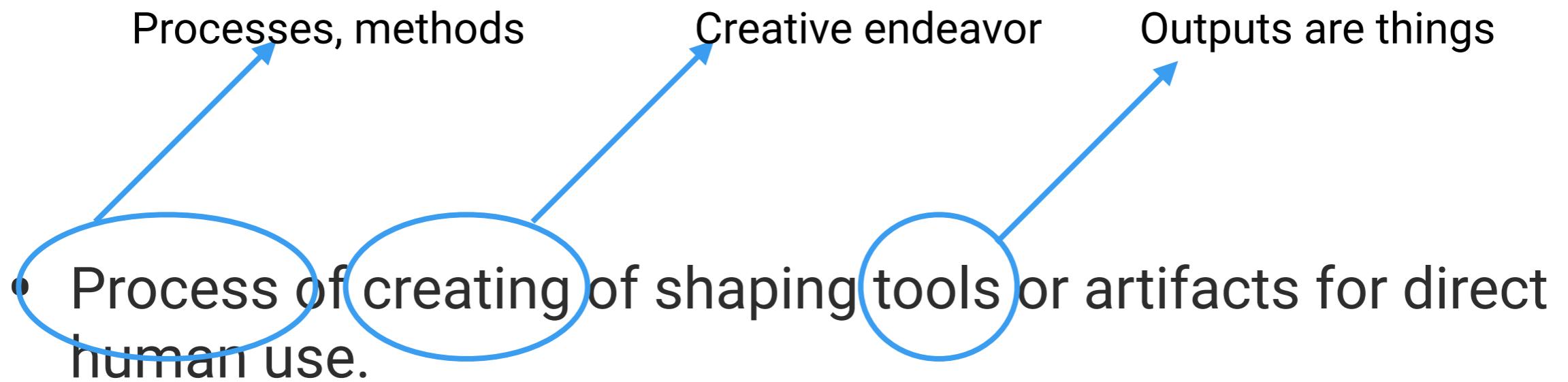
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Processes, methods

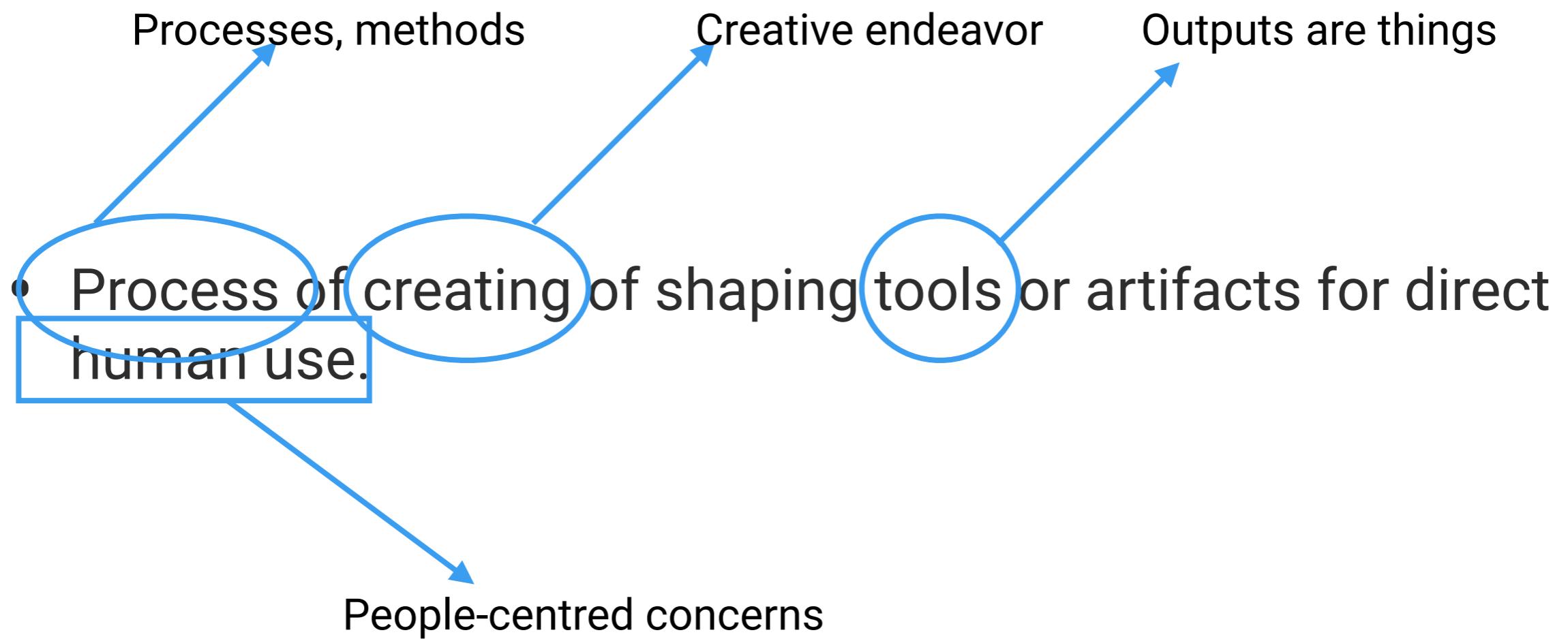
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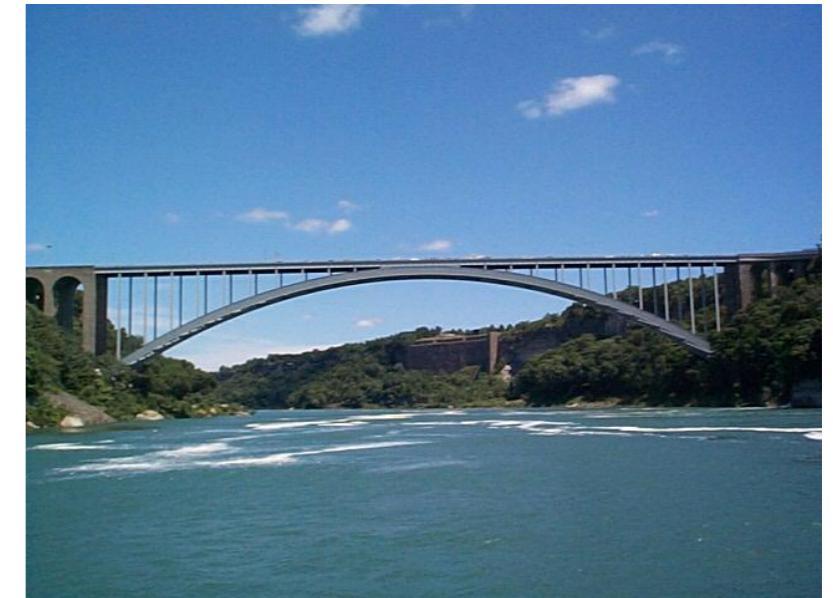
What is design?



Design vs. Engineering

Design vs. Engineering

- Engineering
 - Make a mostly-known outcome possible
 - Construct a bridge based on specifications
 - Concerned with what can be done
 - Reliance on well-established formulae
 - Humans may or may not be directly “in the loop”
- Design
 - Envision new possibilities, new outcomes
 - Determine what outcome should result among infinite possibilities
 - Reliance on process over formulae
 - Humans are central actors “in the loop”
 - Context (cultural and temporal) matters



Design vs. Art

- Design
 - (as we regard it) concerns the creation of something **useful and usable**
- Art
 - does not bother with this restriction
 - The test: how to deem what is “good”?



Design vs. Art

- Design
 - (as we regard it) concerns the creation of something **useful** and **usable**
 - **Useful:** something that has a purpose that can solve a problem that I have
 - **Usable:** meaningfully easy for me to use it
- Art
 - does not bother with this restriction



Why should we care?

Why should we care?

- Shift of attention in computer science:
 - Algorithms -> People

What is designed?

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Why is design hard?

- Everyone is different
 - *Age, knowledge, skill, ability, background*
- People appropriate technology unexpectedly
 - *Designer's fallacy that a designer can design into a technology, its purposes and uses*
 - Contexts of use may differ than what we expect
 - *Smartphone app use in the early days, and now*

Appropriation



Appropriation



Appropriation



Why is design hard?

- Judging/predicting which designs will be successful is difficult
 - Way more is possible than what is good
- Design involves making trade-offs
- Good designs are non-obvious

People make errors

People make errors: two kinds

- Slips
- Mistakes

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- Slips
 - error in carrying out an action (e.g. motor action)
- Mistakes
 - error in choosing an objective or action (e.g. cognitive goal)
- Key:
 - mistakes typically occur when a person misunderstands something in the system;
 - a slip you could imagine to be a lapse in attention, or due to a change in typical circumstance

Slip vs. Mistake



Slip vs. Mistake

- Imagine you are using a mapping application wanted to find something, and clicked this icon.



Slip vs. Mistake

- Imagine you are using a mapping application wanted to find something, and clicked this icon.
- Let's pretend that in the application, the icon meant to magnify.



Slip vs. Mistake

- Imagine you are using a mapping application wanted to find something, and clicked this icon.
- Let's pretend that in the application, the icon meant to magnify rather than to search.
- Is this a slip or a mistake?



Slip or mistake?

- Mistyping an email address

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Slip vs. Mistake

- Good designers help users avoid mistakes. With careful design, we can avoid slips too.

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- To visualize and prototype the intended solution.

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“The user is not like me”

- Familiarity with the interface problems being solved
- Confidence
- Designer's setting vs. user's setting
- Designers have different skills (perceptual, cognitive, or domain)

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- An iterative design **process** that makes use of knowledge through **investigation** of a domain of work/play to create **ideas and prototypes**.
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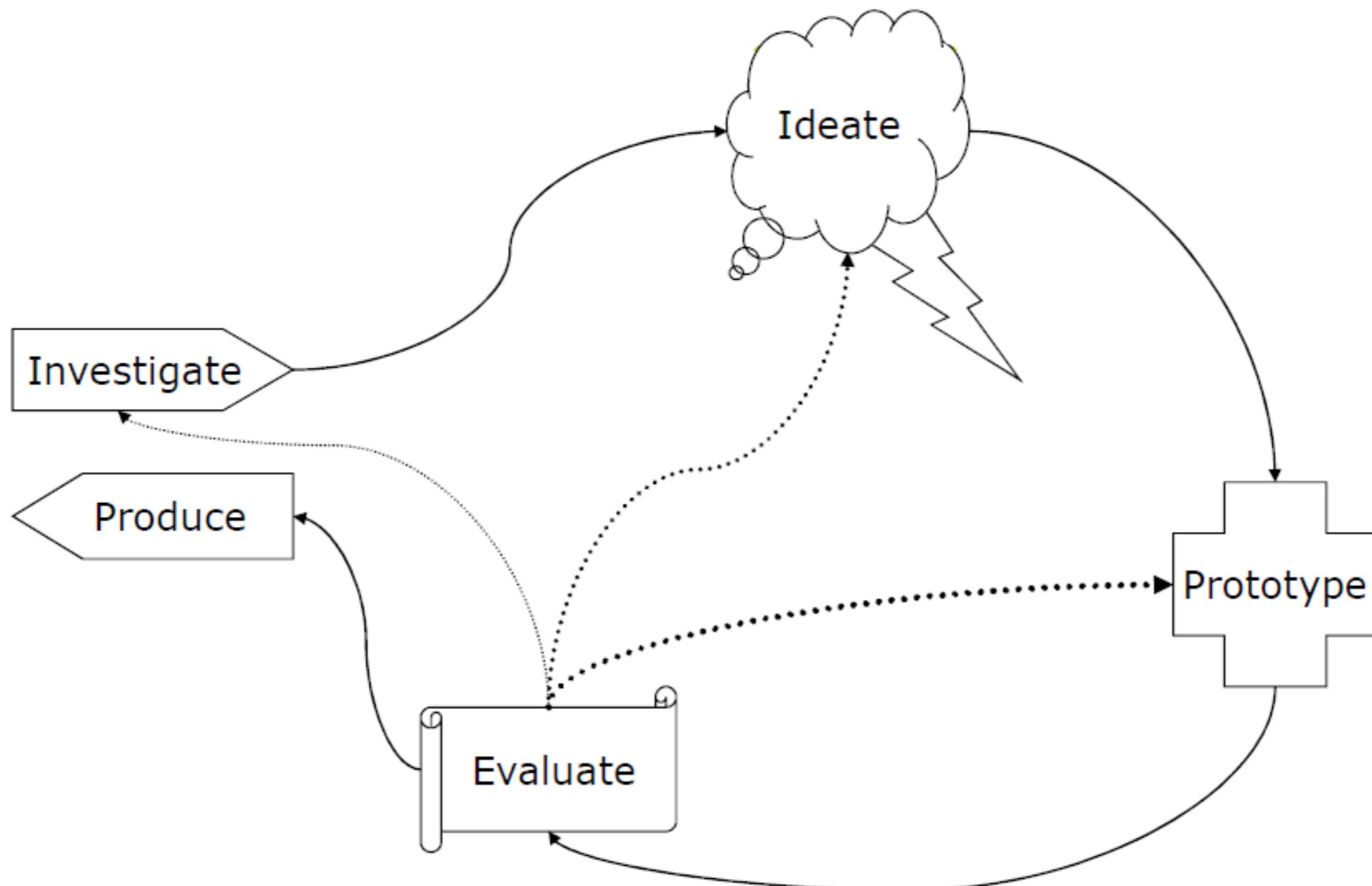
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- Forces us to **iterate**
- Helps to **keep the users first**

User-Centered Design (UCD)



Acknowledgements

- Tony Tang
- Lora Oehlberg
- Ehud Sharlin
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- Saul Greenberg