

The Psychology of Everyday Actions

Lecture 03 of *Researching People-Centred Design* with Tim Maciag



University
of Regina

Faculty of
Engineering and
Applied Science



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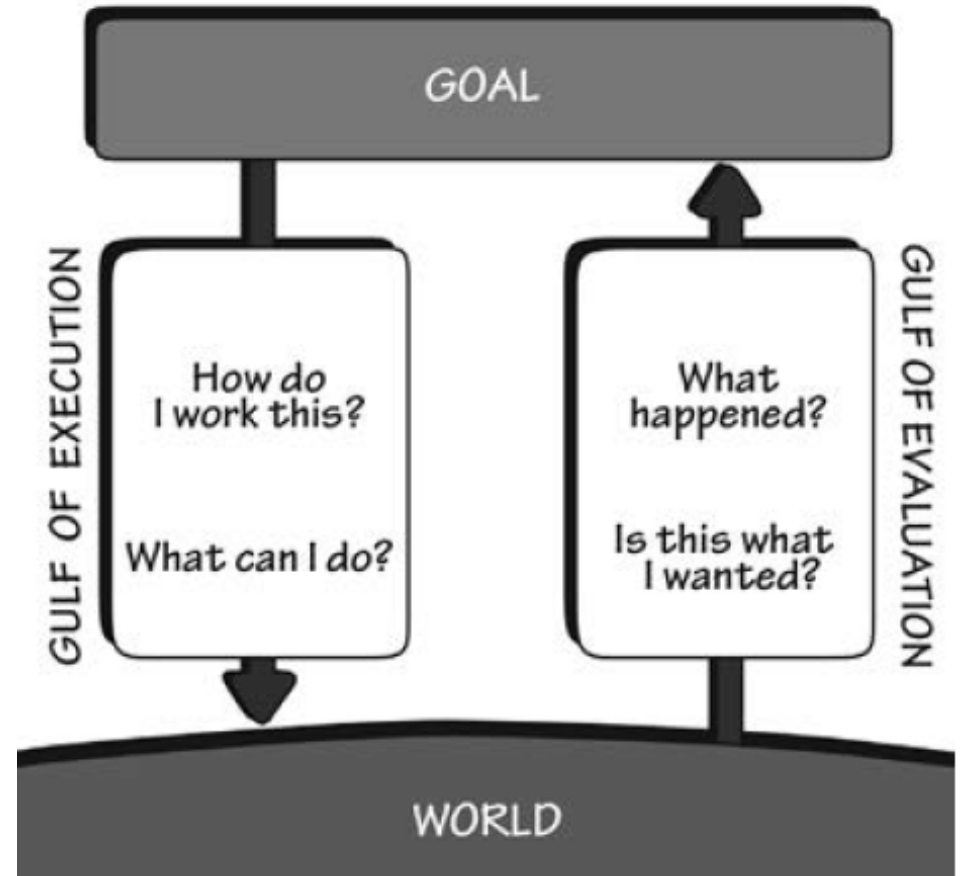
Outline

- Gulfs of Execution & Evaluation
- False-consensus effect
- Seven stages of action
- Human thought
- Levels of processing
- Emotion and cognition
- Blaming the wrong things
- Design advice

How people do things

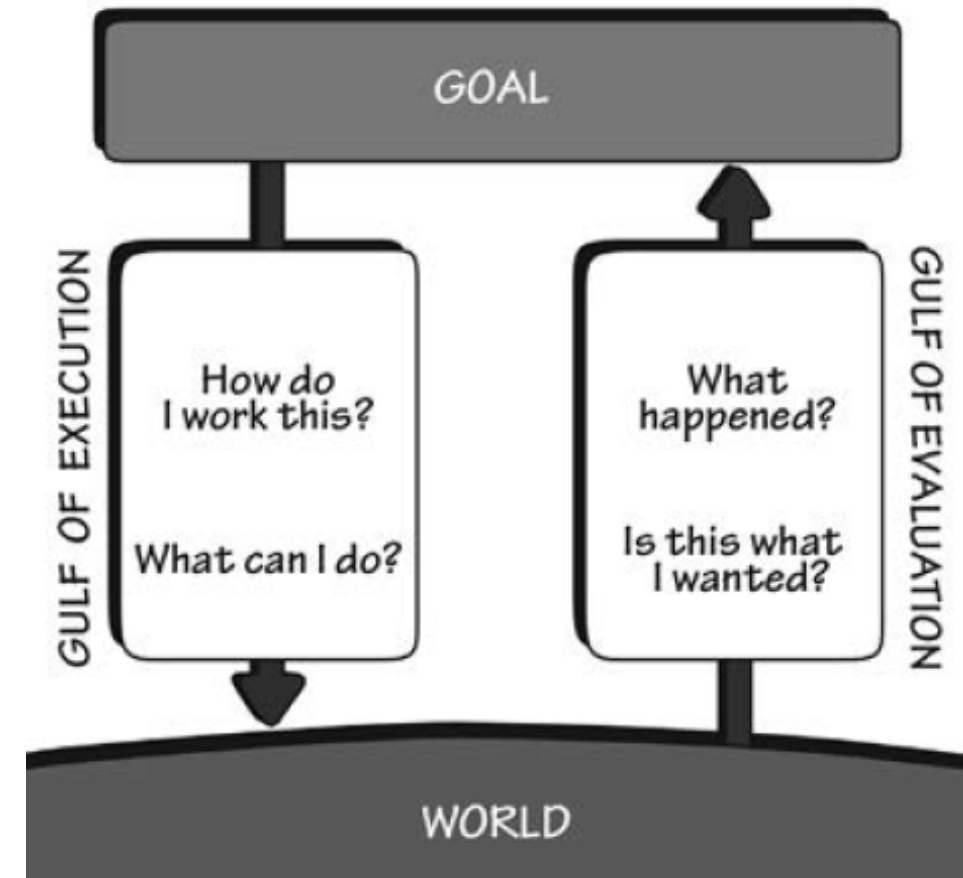
How people do things

- “When people use something, they face two gulfs”
 - Gulf of execution
 - Gulf of evaluation



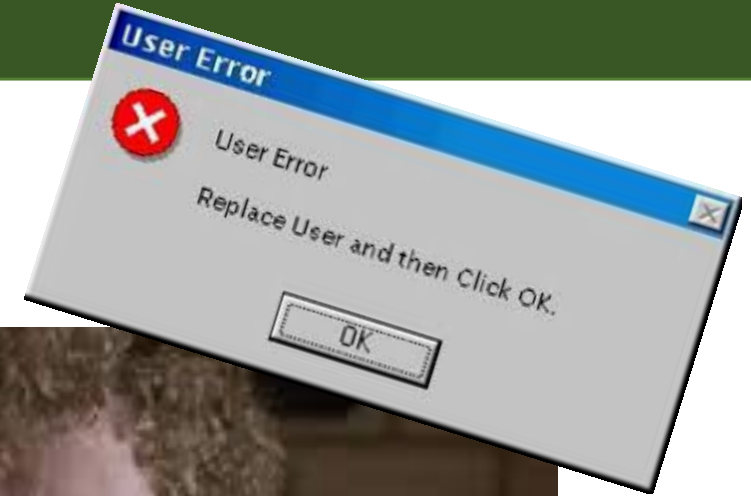
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- “When people use something, they face two gulfs”
 - Gulf of execution
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- A designer’s goal (our goal)
 - To bridge the two gulfs



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- A designer’s goal (our goal)
 - To bridge the two gulfs
- User difficulty
- Importance of feedback and a good conceptual model (designer, system, user)
 - Having a good understanding of our psychology will help!



False-consensus effect

- R. Budiu (NNGroup). You Are Not the User: The False-Consensus Effect (2017). Online: <https://www.nngroup.com/articles/false-consensus/> (Accessed Jan 2019)

False-consensus effect

- Why do we need psychology?
 - “You are not the user”
 - <https://youtu.be/TewiUcN35Yo>



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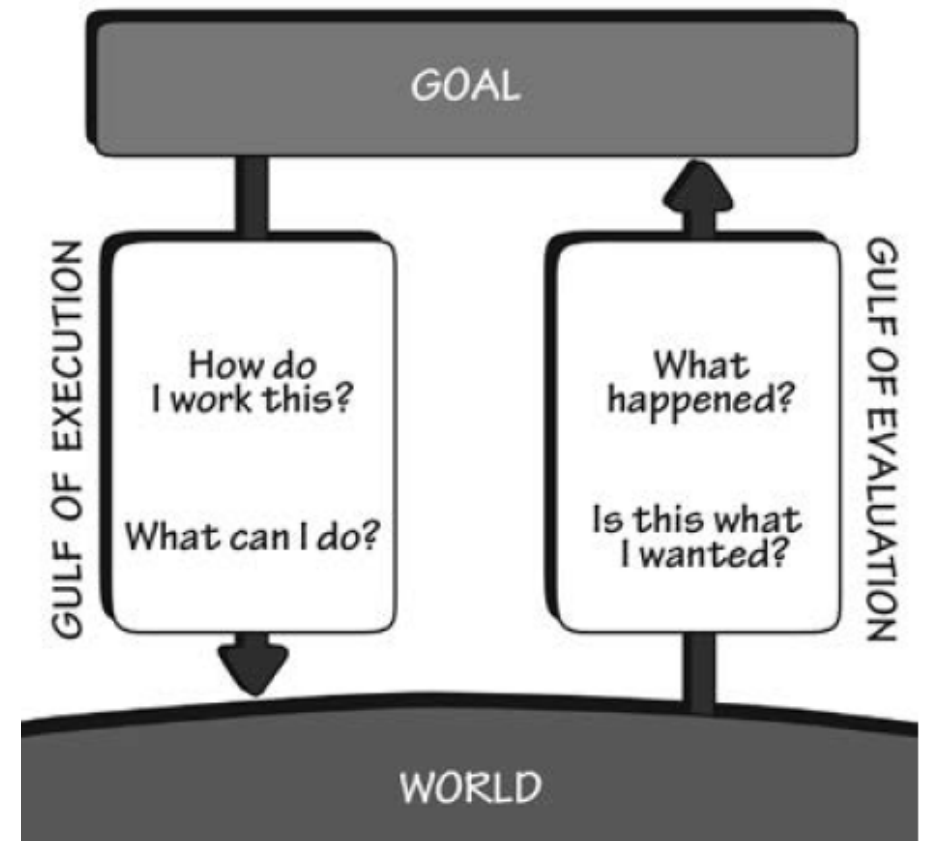
- Why do we need psychology?
 - “You are not the user”
 - <https://youtu.be/TewiUcN35Yo>
- Can get complicated in social environments, however
 - Explored in ENSE 405/805,
 - Just look online #filterbubbles



Psychology of human action

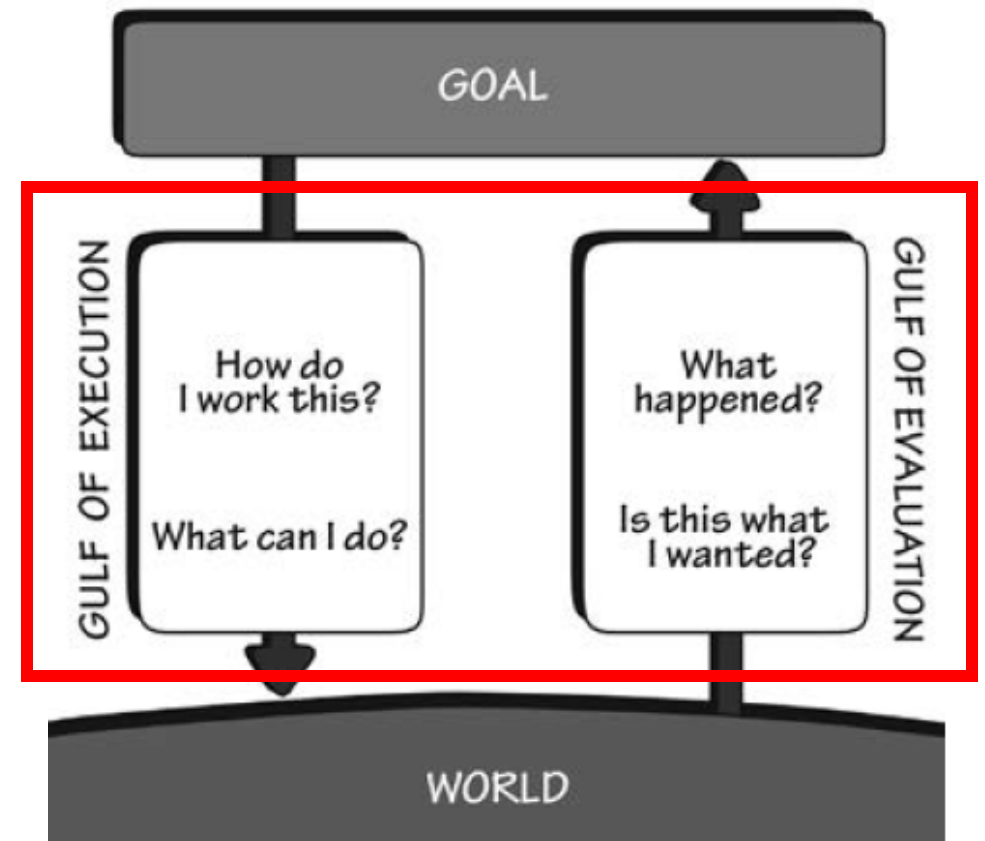
Psychology of human action

- Actions include both execution and evaluation
 - Requires discoverability & understanding
 - Experiences can affect our emotional state



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- Learning interactions vs. habits
 - Learning = conscious process
 - Sub-conscious process = habits
 - John Dewey



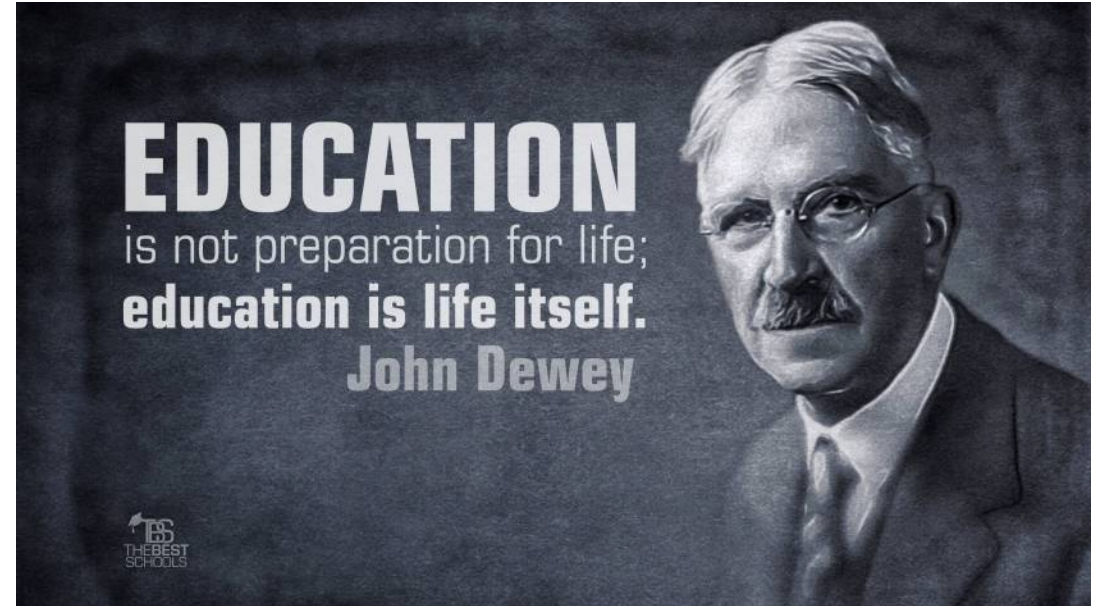
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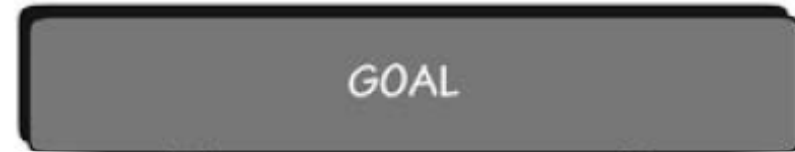
Seven stages of action cycle

Seven stages of action cycle

- Bridges the gap between our goals & the actions to achieve them

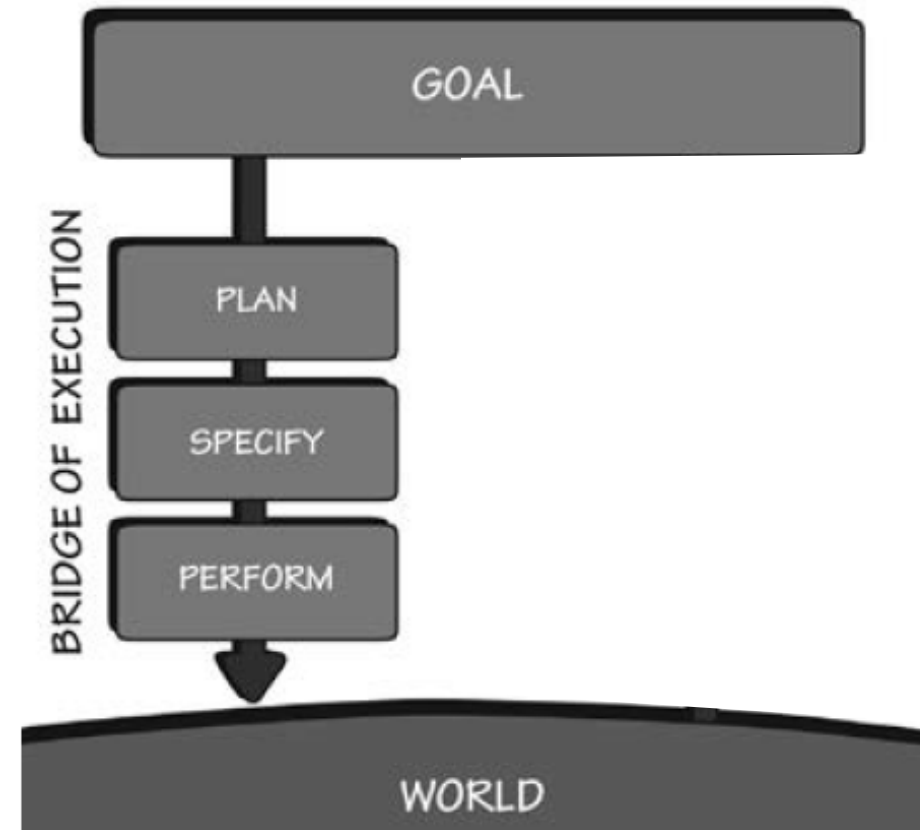
Seven stages of action cycle

- Bridges the gap between our goals & the actions to achieve them
- Starts with goal formation
 1. What is it we wish to achieve



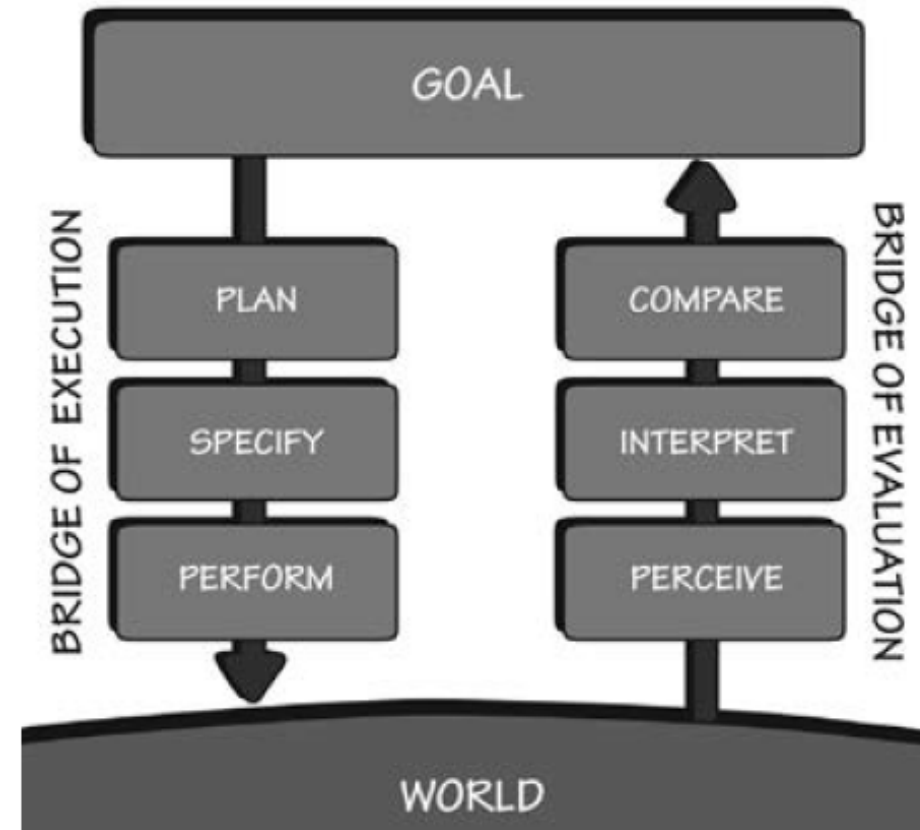
Seven stages of action cycle

- Bridges the gap between our goals & the actions to achieve them
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- Stage (bridge) of execution
 2. Plan (the action)
 3. Specify (an action sequence)
 4. Perform (the action sequence)



Seven stages of action cycle

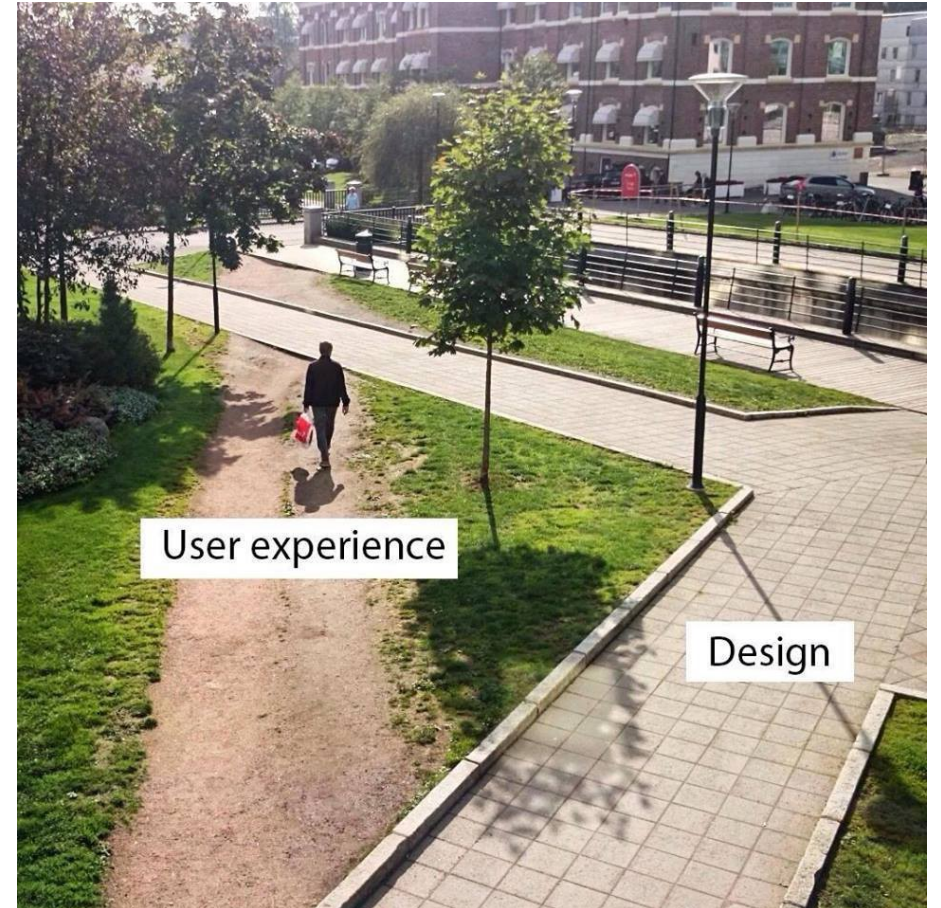
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 4. Perform (the action sequence)
- Stage (bridge) of evaluation
 5. Perceive (the state of the world)
 6. Interpret (the perception)
 7. Compare (the outcome with the goal)



Human thought

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- Design is all about people



Human thought

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- Activity
 1. Wiggle the second finger of your hand
 2. Wiggle the third finger of the same hand
 3. Describe what you did differently those two times



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- Most of our behavior is a subconscious (habitual) process (preconscious)



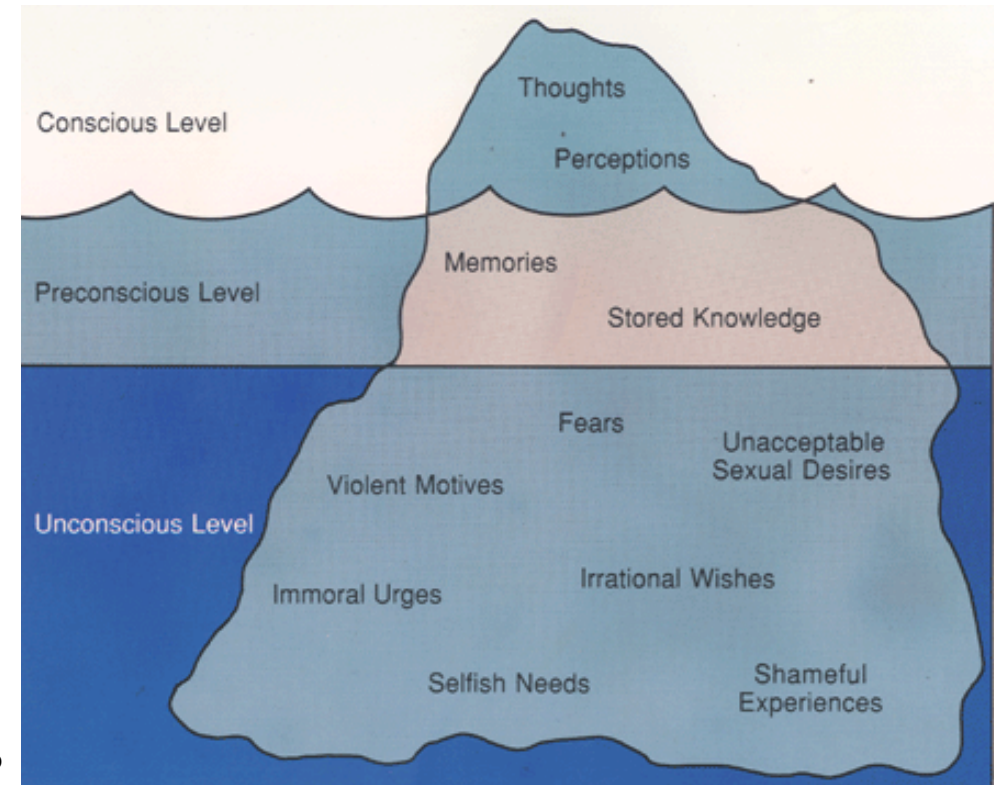
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- However, conscious/reflective process is important for learning most things
 - After much practice, *overlearning* (mastery) occurs and our performance appears effortless (habitual), e.g.
 - What is the capital city of Saskatchewan?
 - What was Beethoven's phone number?
 - Is the door handle to get into ED 441 (our lab) on the left or right?



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- Declarative and procedural memory



Conscious/Subconscious thought

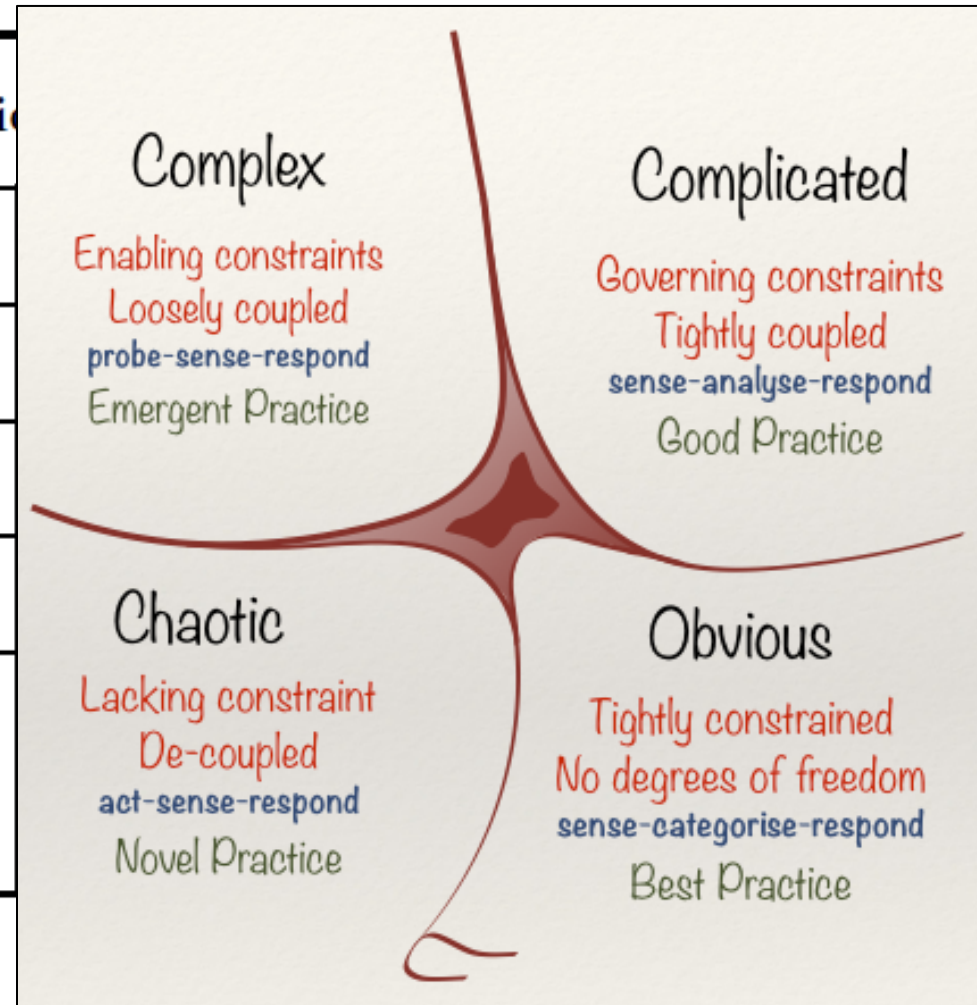
Conscious/Subconscious thought

TABLE 2.1. Subconscious and Conscious Systems of Cognition	
Subconscious	Conscious
Fast	Slow
Automatic	Controlled
Multiple resources	Limited resources
Controls skilled behavior	Invoked for novel situations: when learning, when in danger, when things go wrong

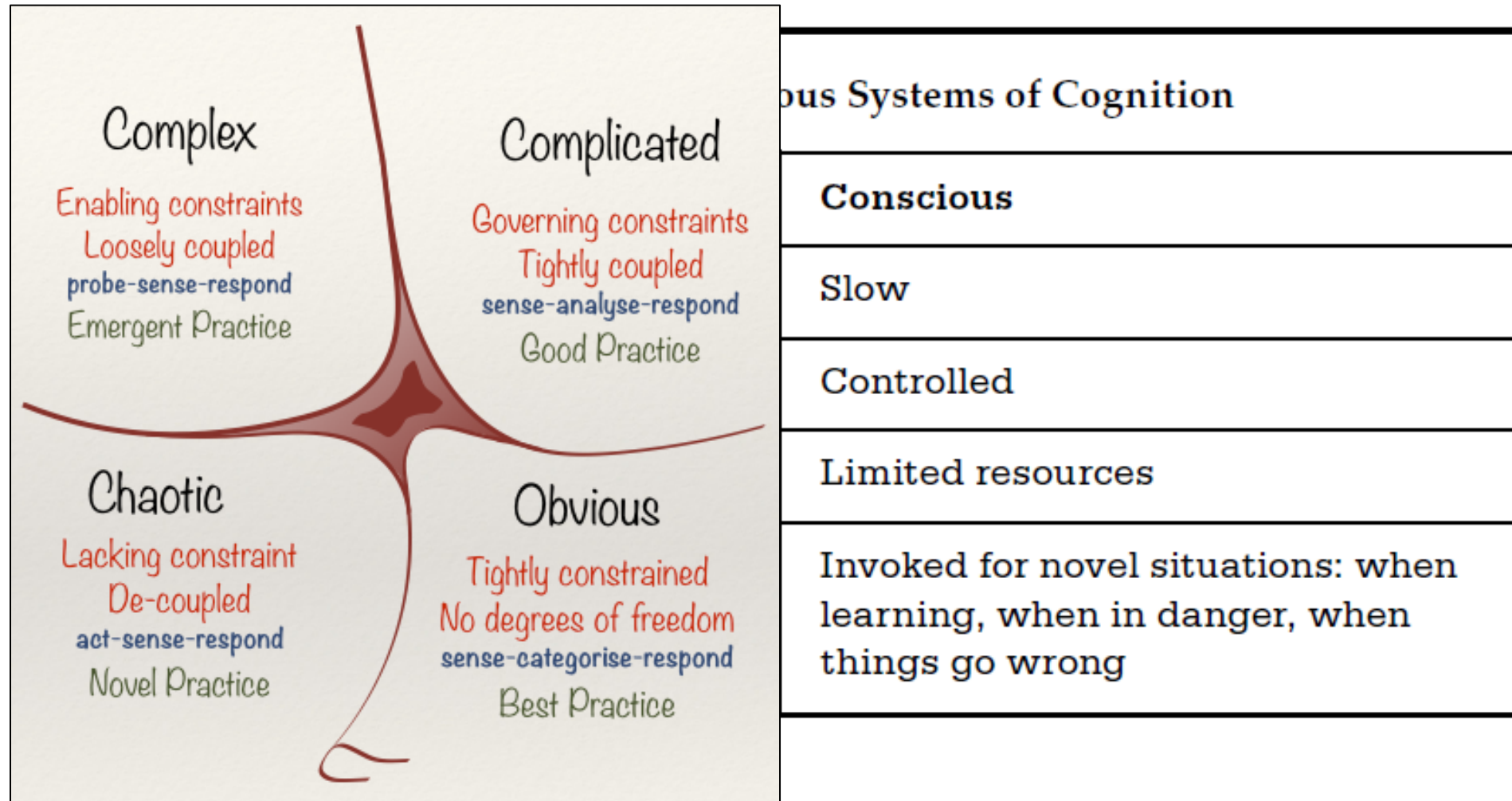
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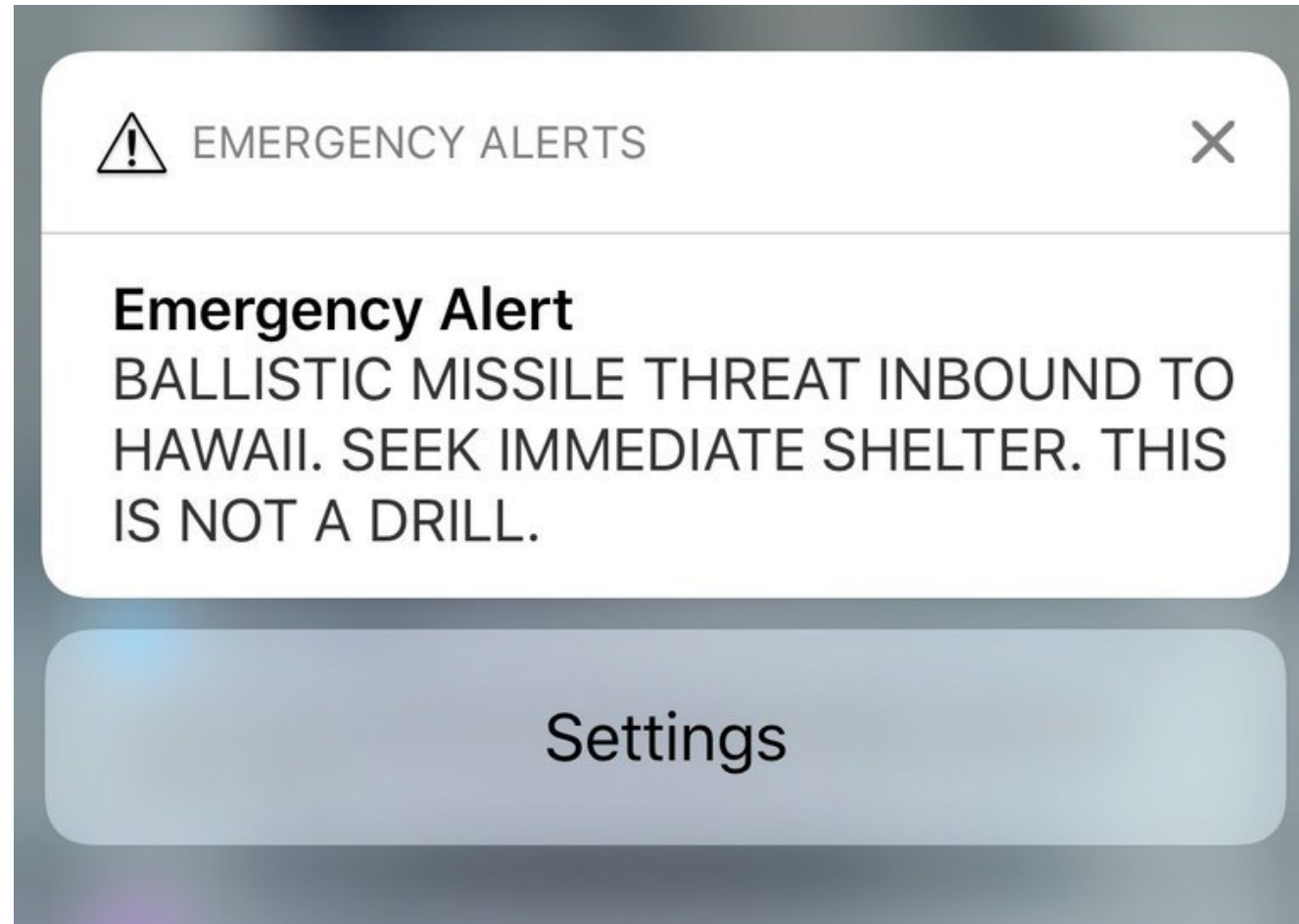
Subconscious
Fast
Automatic
Multiple resources
Controls skilled behavior



Conscious/Subconscious thought



Conscious/Subconscious thought



Conscious/Subconscious thought



EMERGENCY ALERTS



Emergency Alert

BALLISTIC MISSILE THREAT INBOUND TO HAWAII. SEEK IMMEDIATE SHELTER. THIS IS NOT A DRILL.

Settings

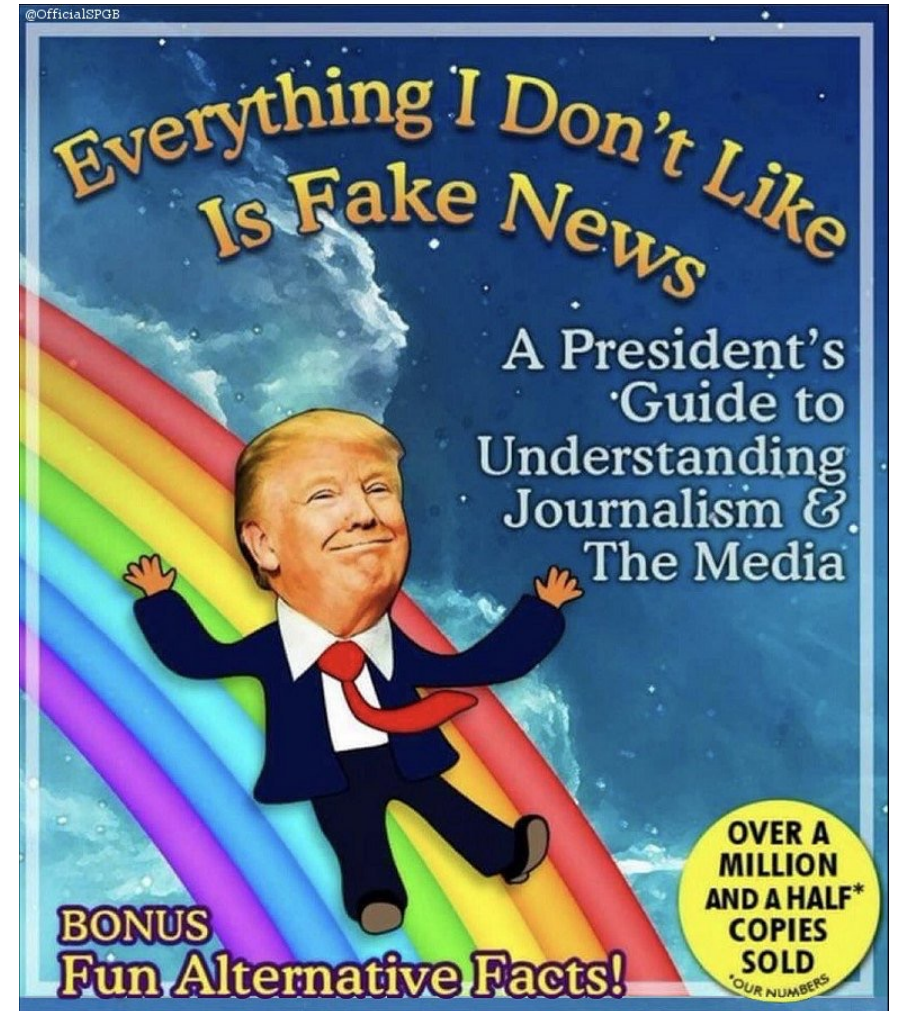
Conscious/Subconscious thought



Cognition & emotion

Cognition & emotion

- Cognitive thoughts lead to emotions, emotions drive cognitive thoughts



Cognition & emotion

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- Levels of processing

Three Levels of Processing

Reflective

Behavioral

VISCERAL

Cognition & emotion

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- Levels of processing
- Visceral
 - The “lizard brain” – most basic level, subconscious
 - Design implications

Three Levels of Processing

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Cognition & emotion

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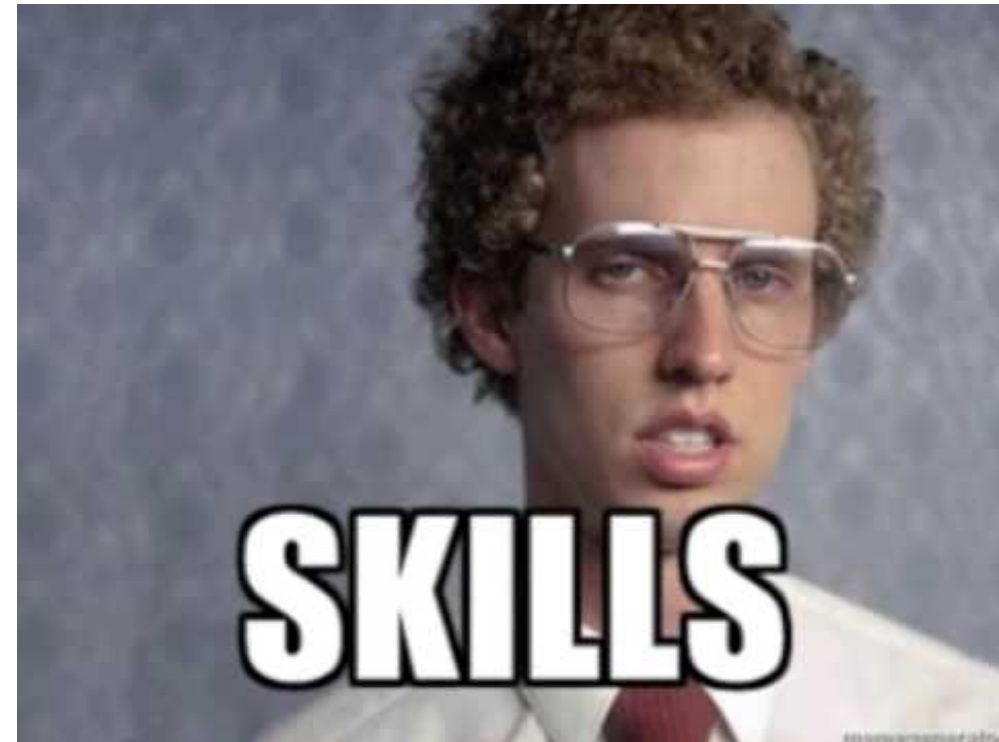
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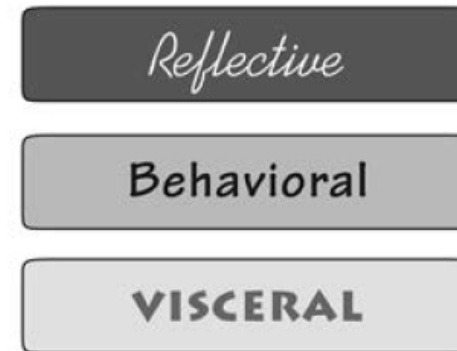
Three Levels of Processing



Cognition & emotion

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- Behavioral
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- Reflective
 - Reasoning and decision making, conscious
 - Design implications
- Design at all levels

Three Levels of Processing

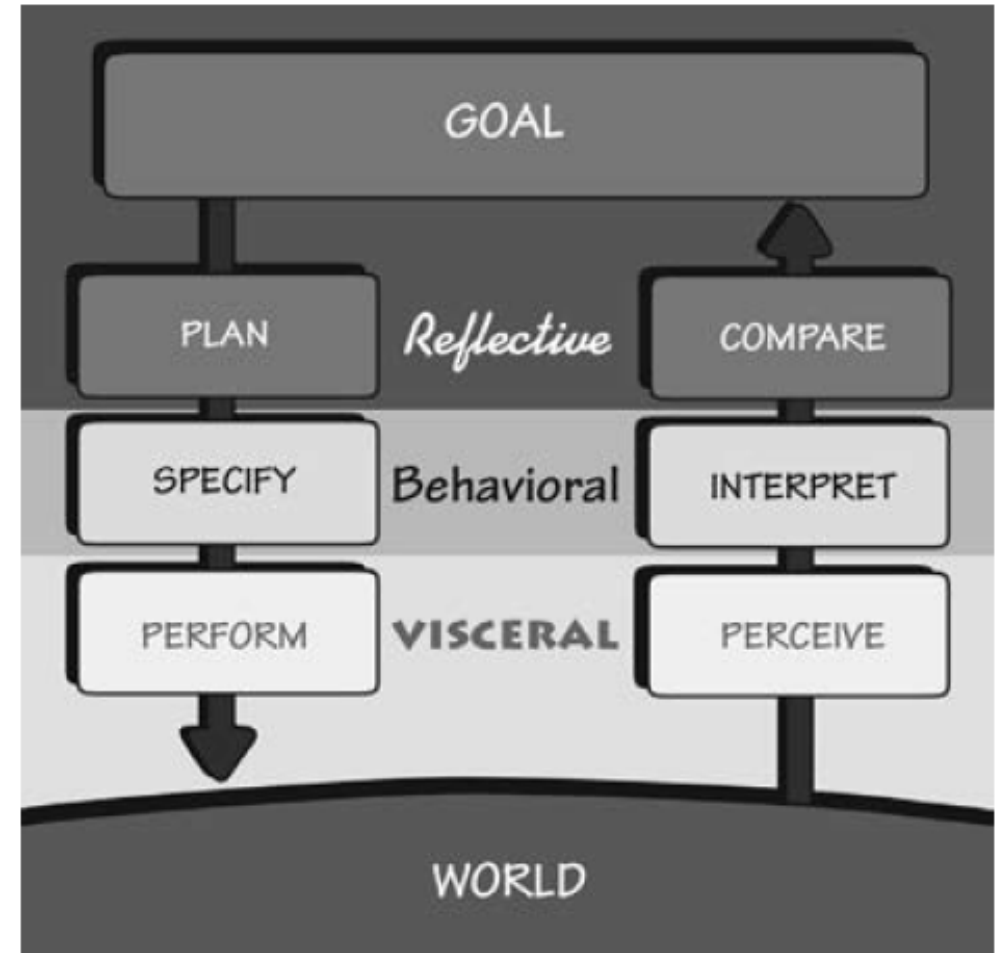


Cognition, emotion, & flow

- D. Norman. The Invisible Computer. MIT Press. 1998

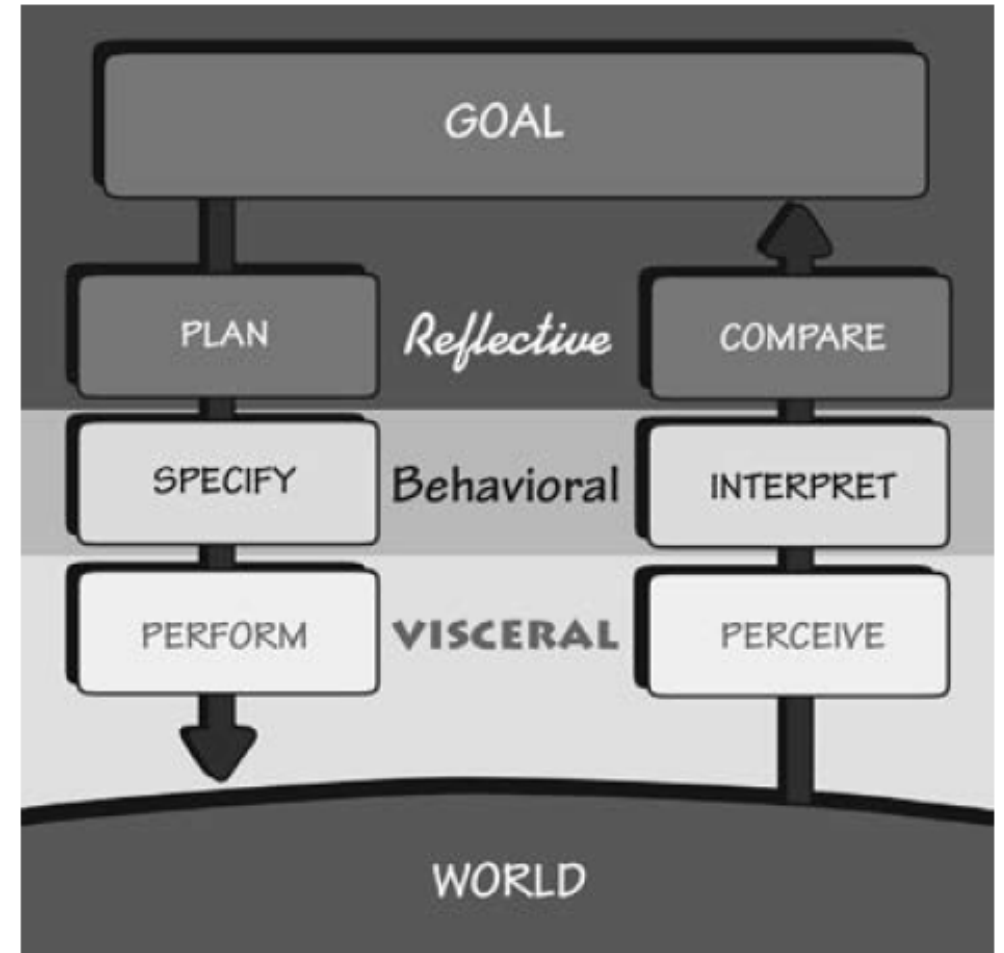
Cognition, emotion, & flow

- Linkage between stages of action and cognition and emotion



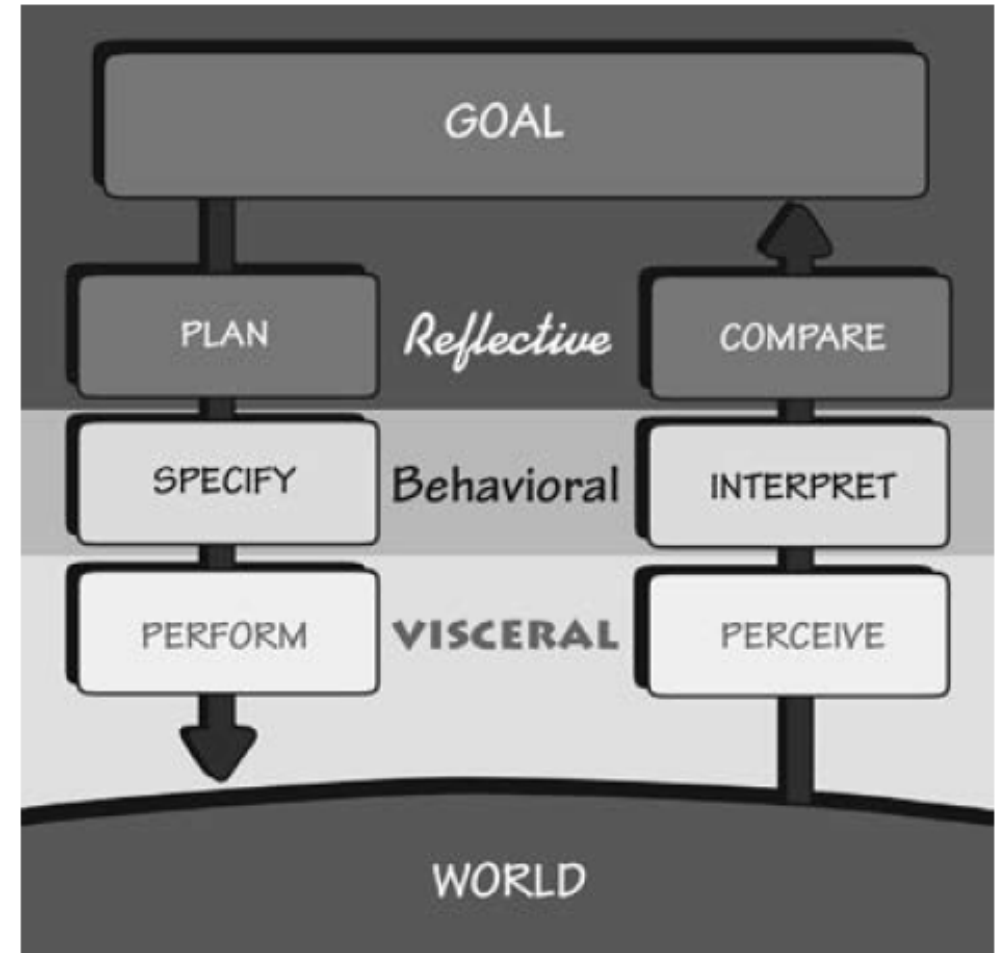
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 - The *invisible* computer



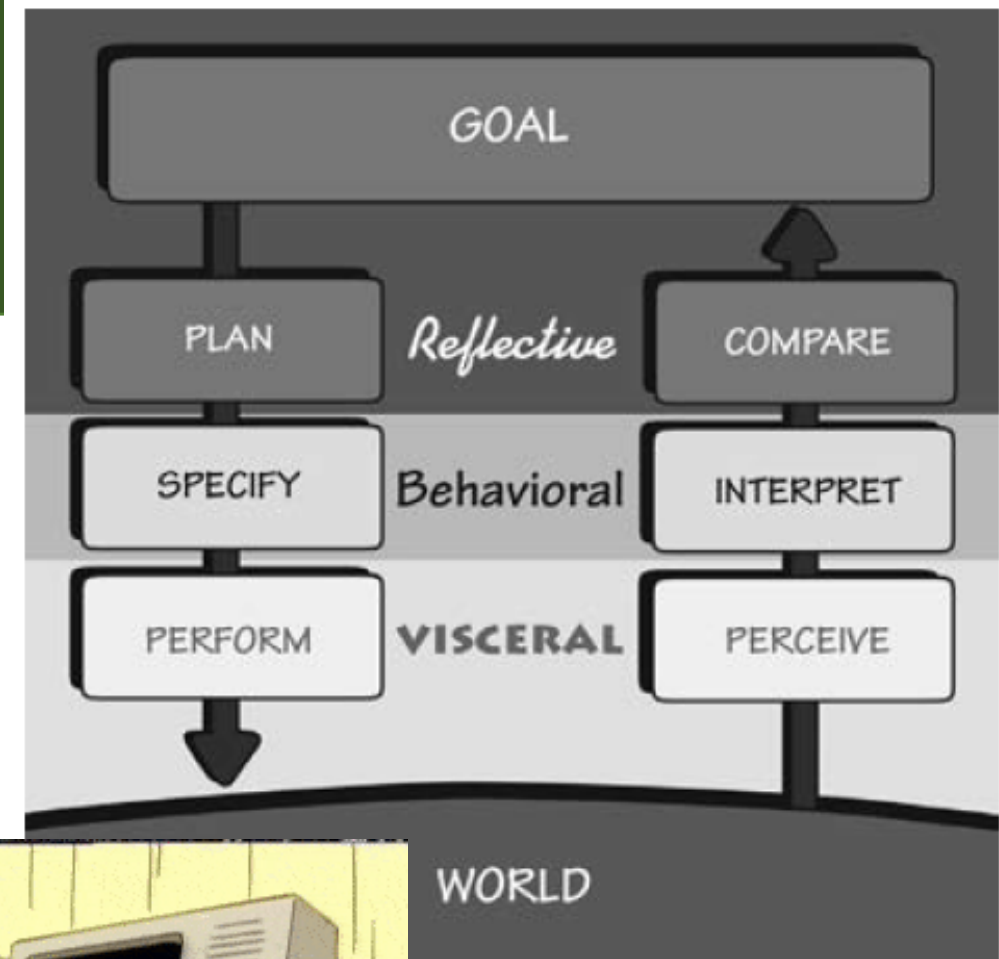
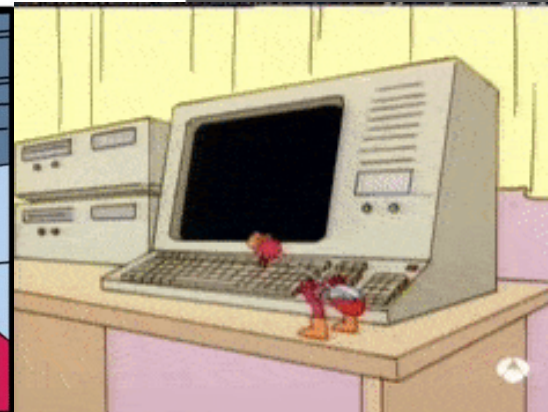
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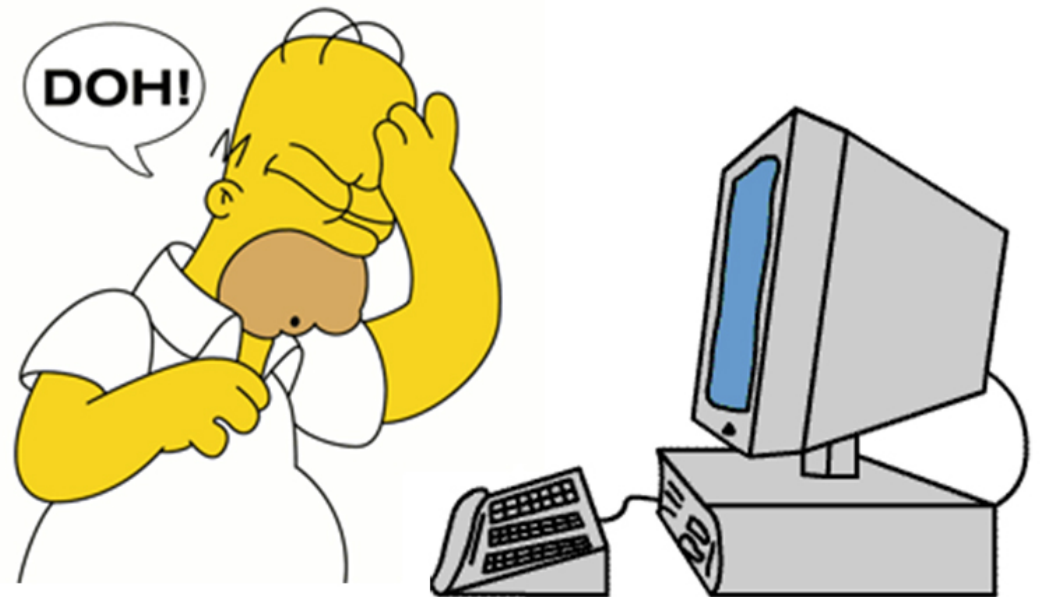


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Blaming the wrong things

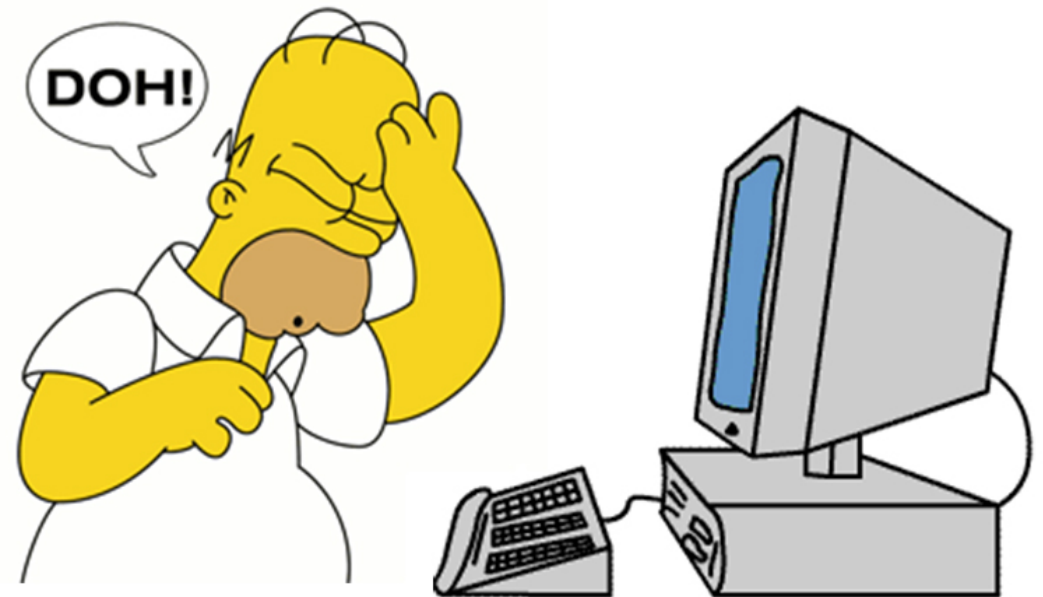
Blaming the wrong things

- We try to find causes for events
 - Put a USB key in wrong, flip it around
 - Mini HDMI is no different
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Blaming the wrong things

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 - Learned helplessness = repeated failure at a task



Blaming the wrong things

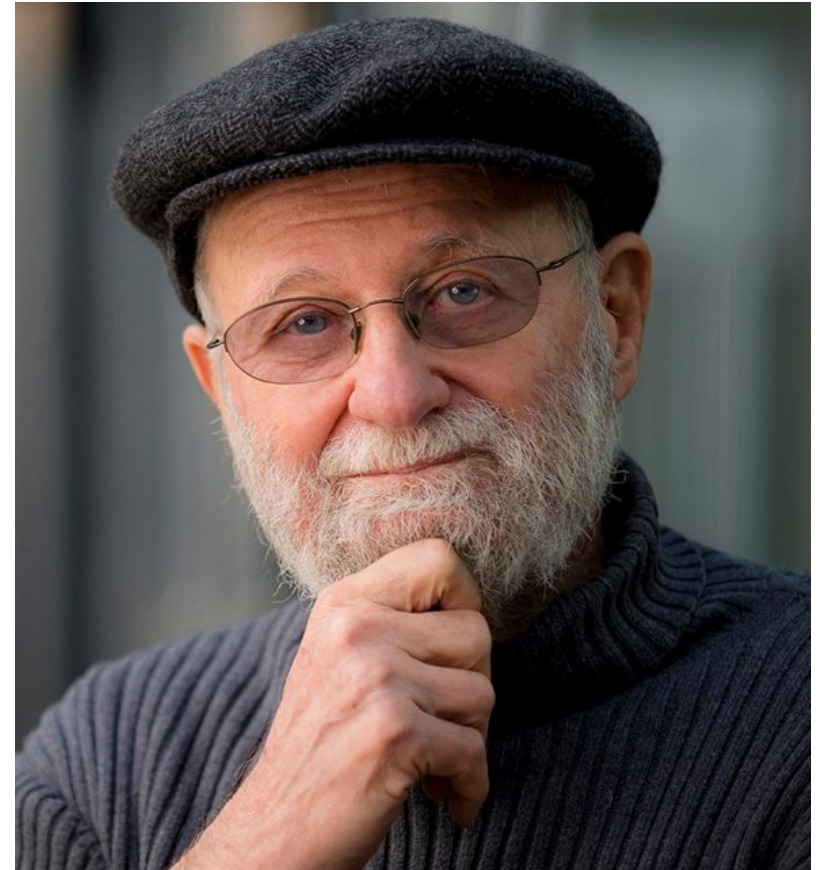
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- Positive psychology
 - A shift to when something doesn't work (as we expect), it's a challenge, not a failure
 - All failures are learning experiences
 - Lean: Fail-Forward Fast through PDCA



Design advice

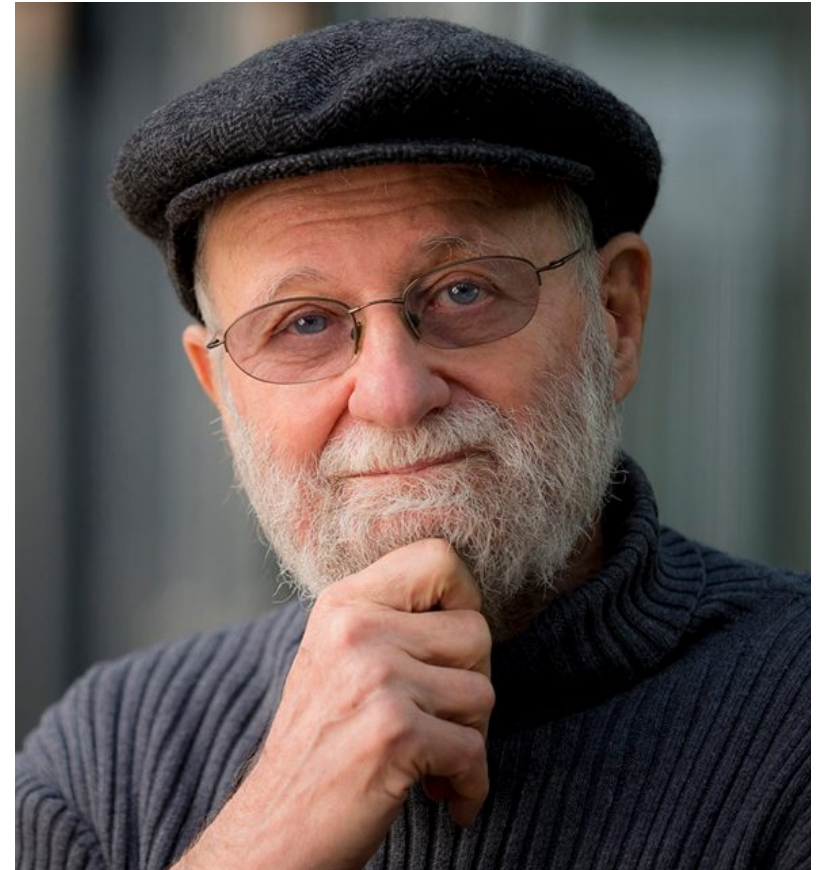
Design advice

- Do not blame people when they fail to use your products properly #rtfm



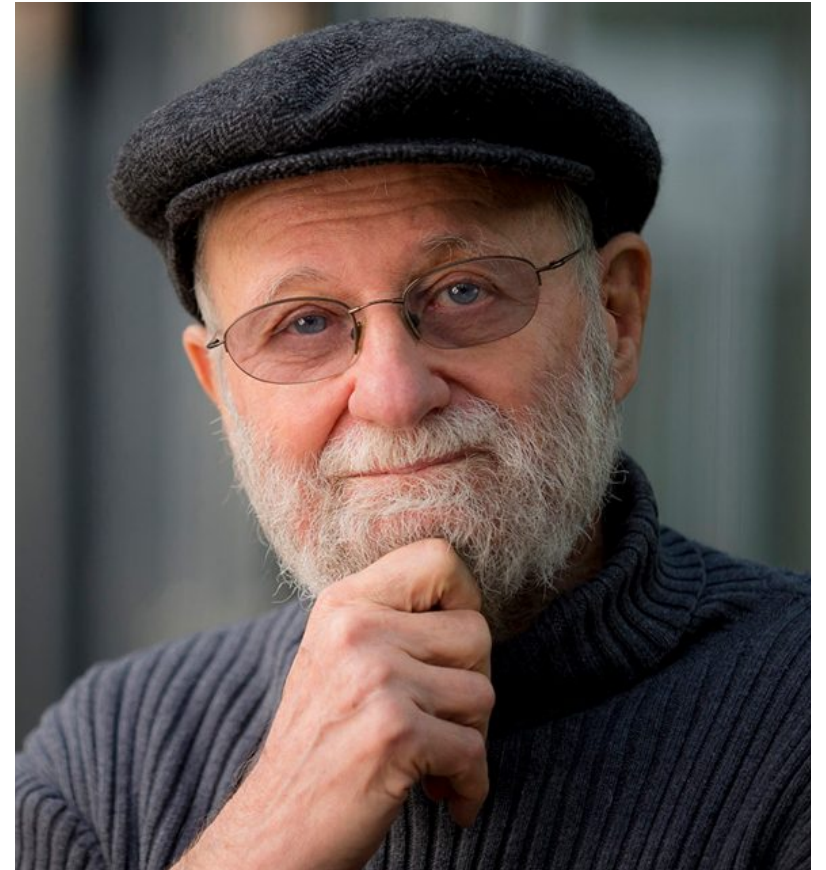
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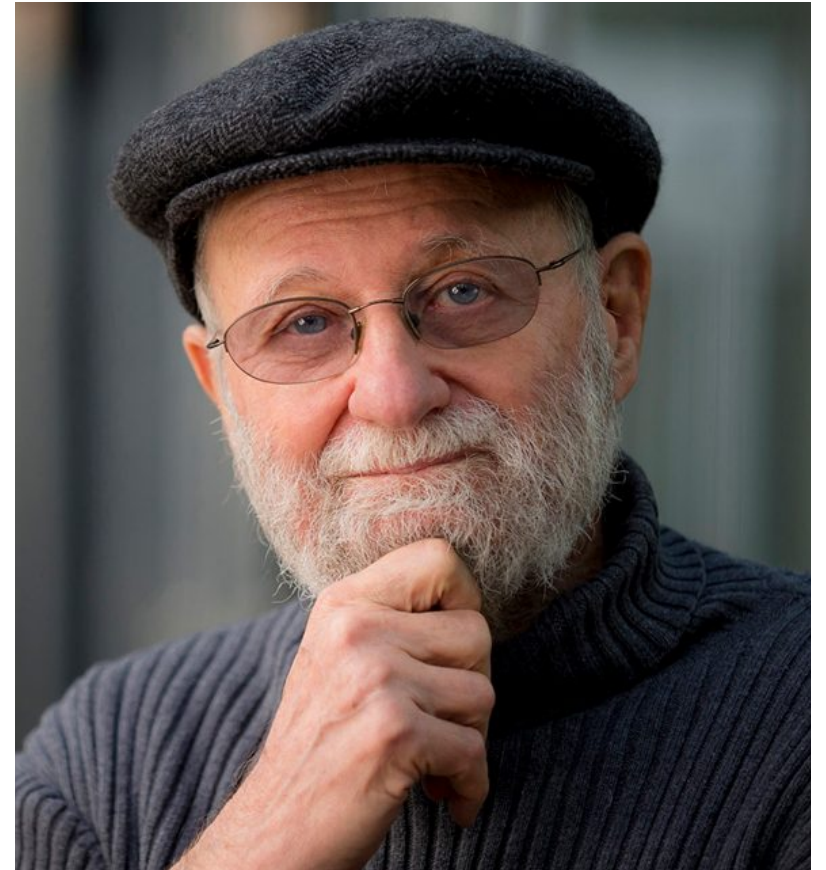
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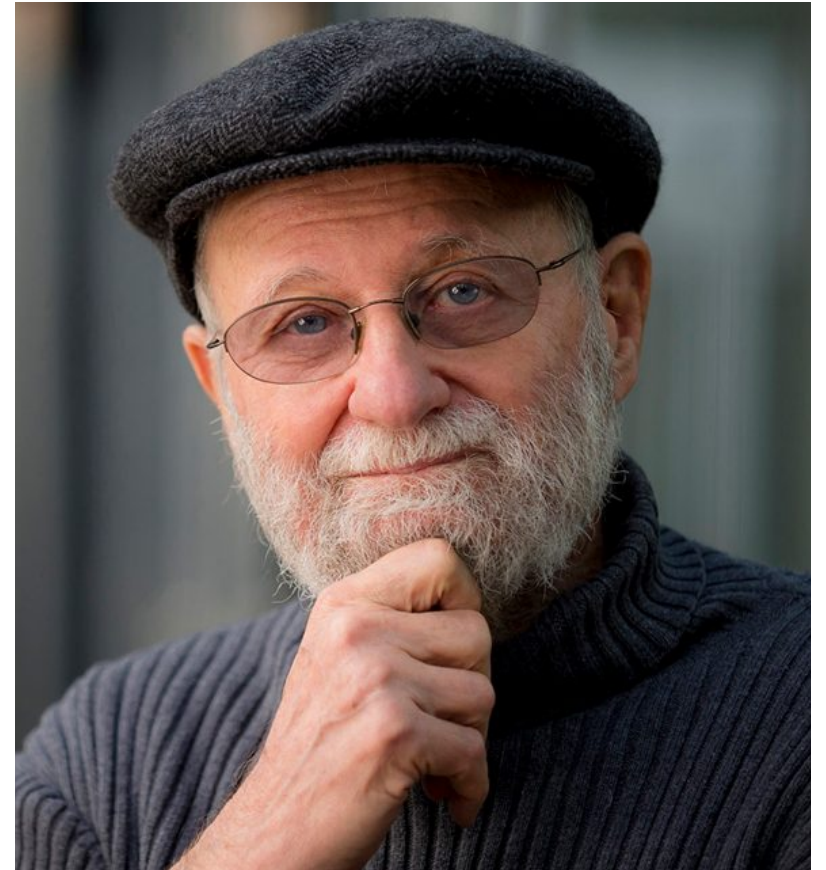
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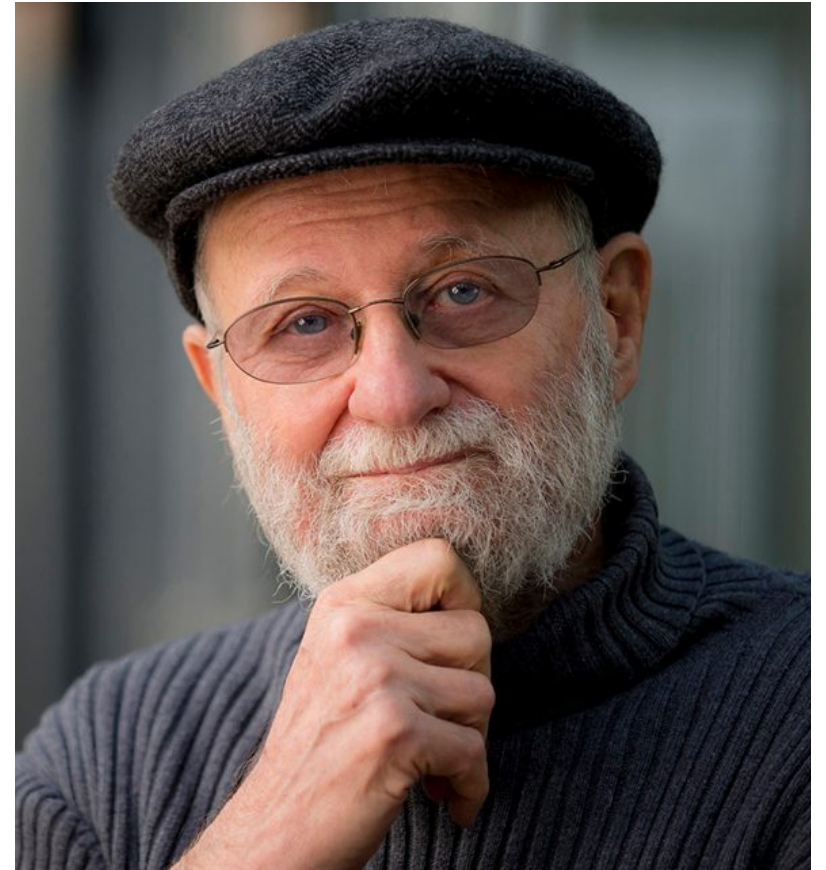
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- Eliminate the word "human error"



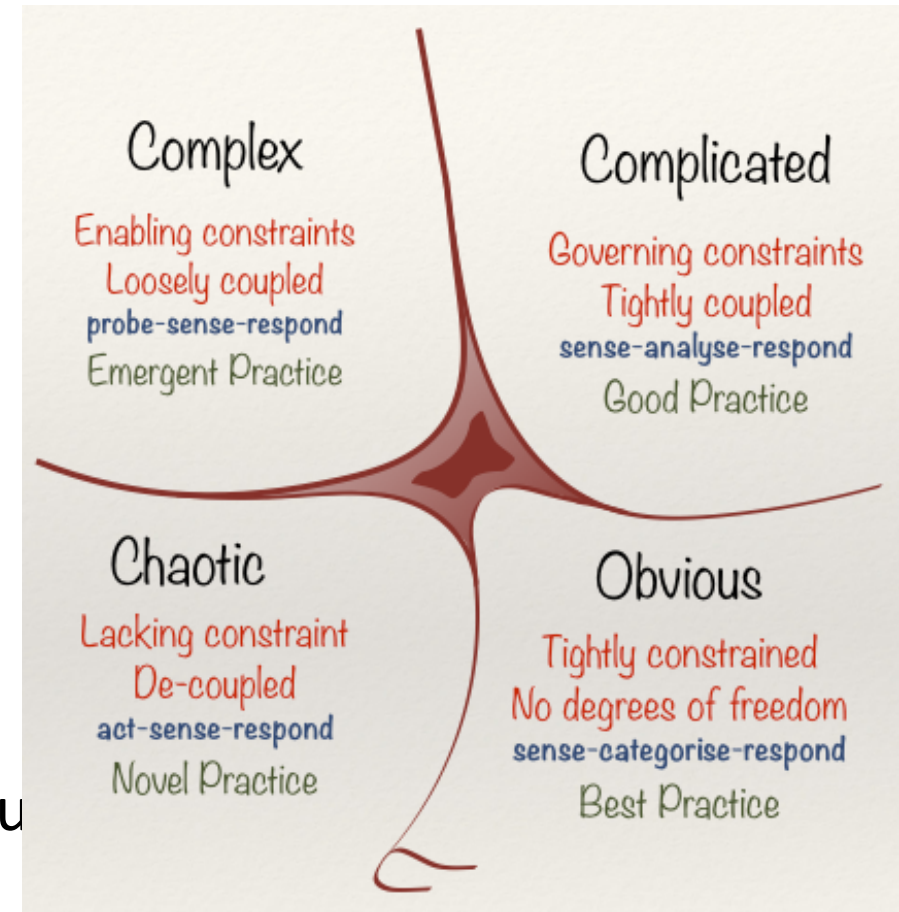
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Seven fundamental design principles

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- The big user question



What do I want to accomplish?

WORLD

Seven fundamental design principles

- The big user question
- Feedforward



Seven fundamental design principles

- The big user question
- Feedforward
- Feedback



Seven fundamental design principles

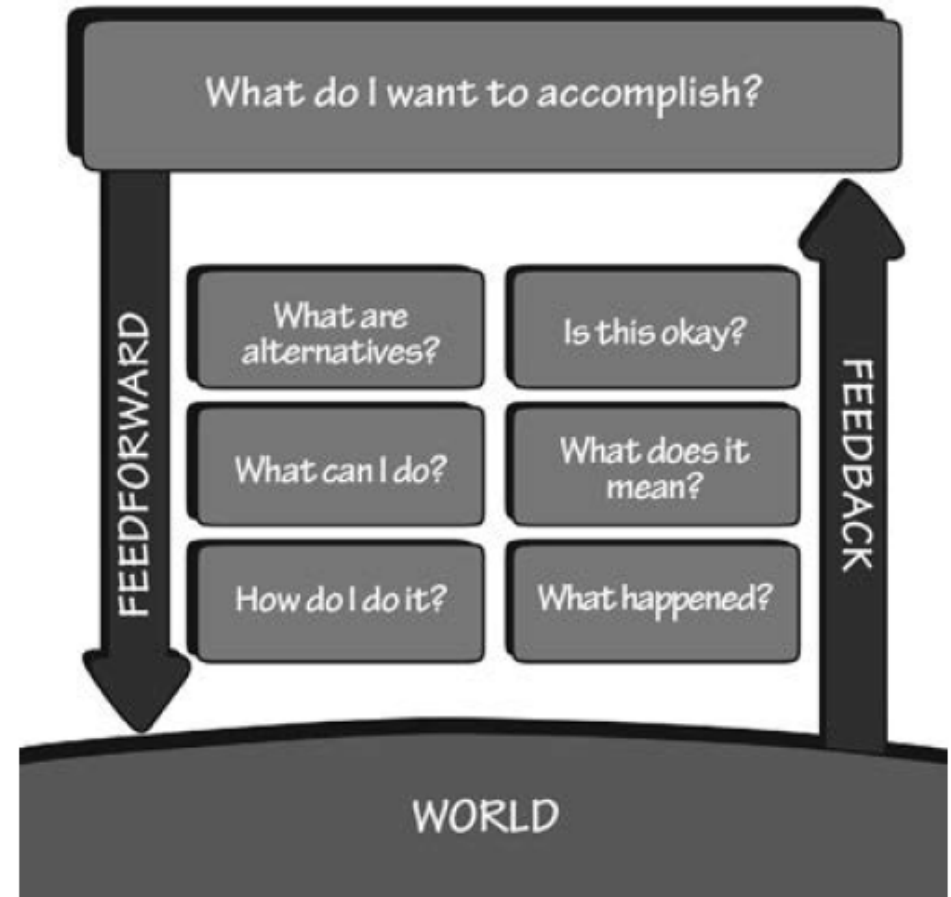
- The big user question
- Feedforward
- Feedback
- Seven stages of action as a model for design



...Seven fundamental design principles

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- Discoverability



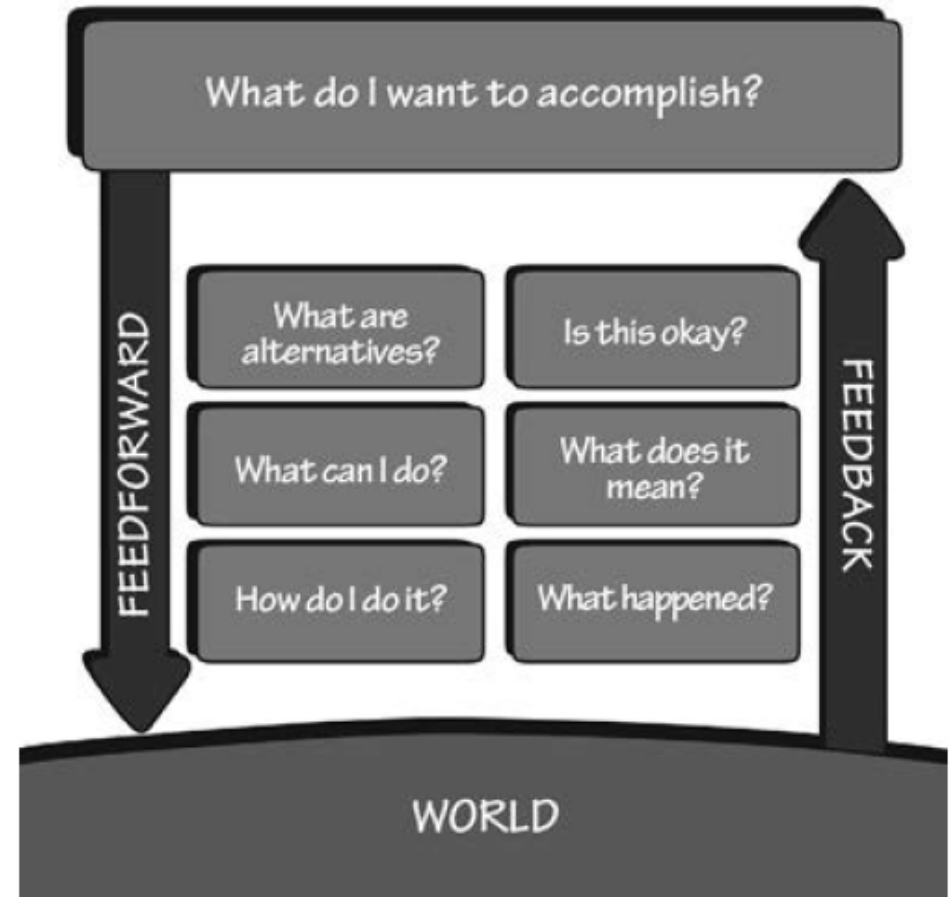
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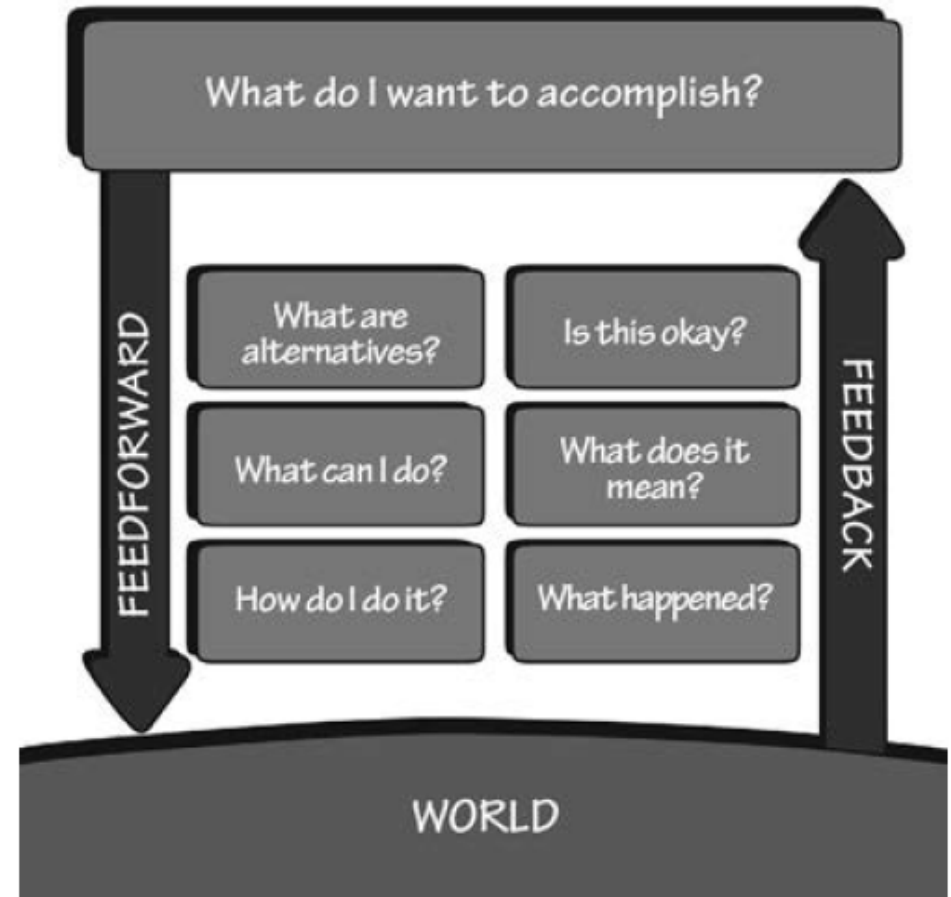
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- Feedback
- Affordances & Signifiers



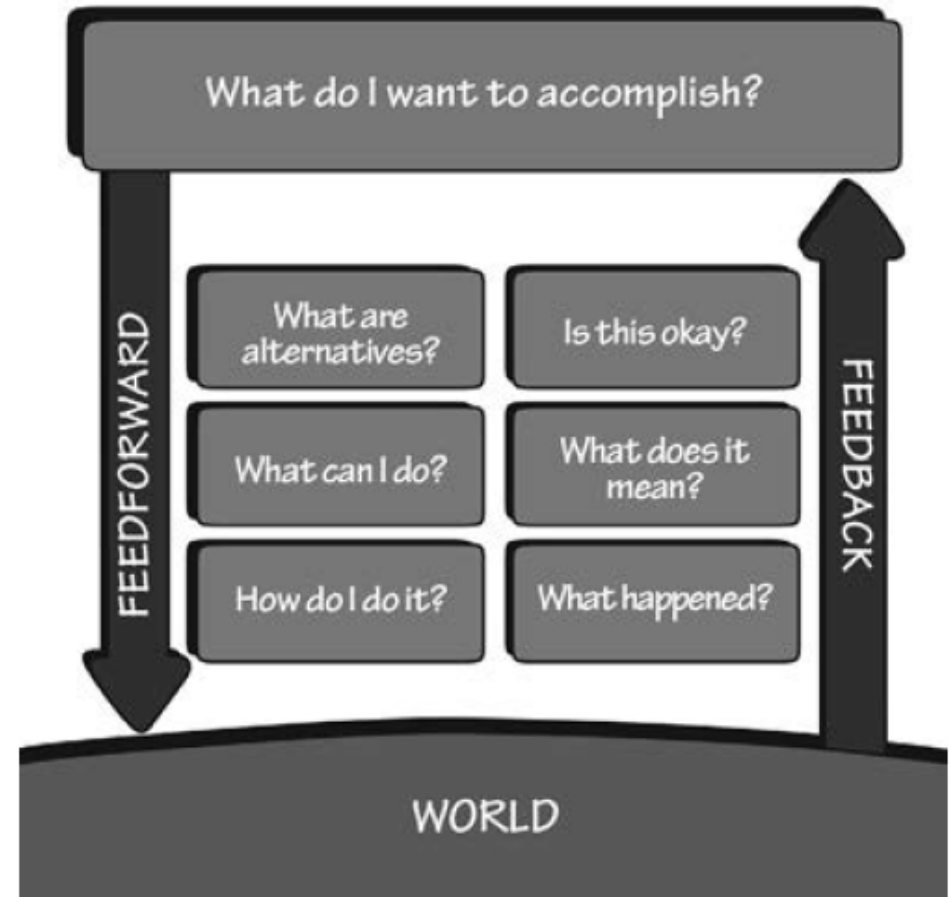
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- Conceptual models & mappings



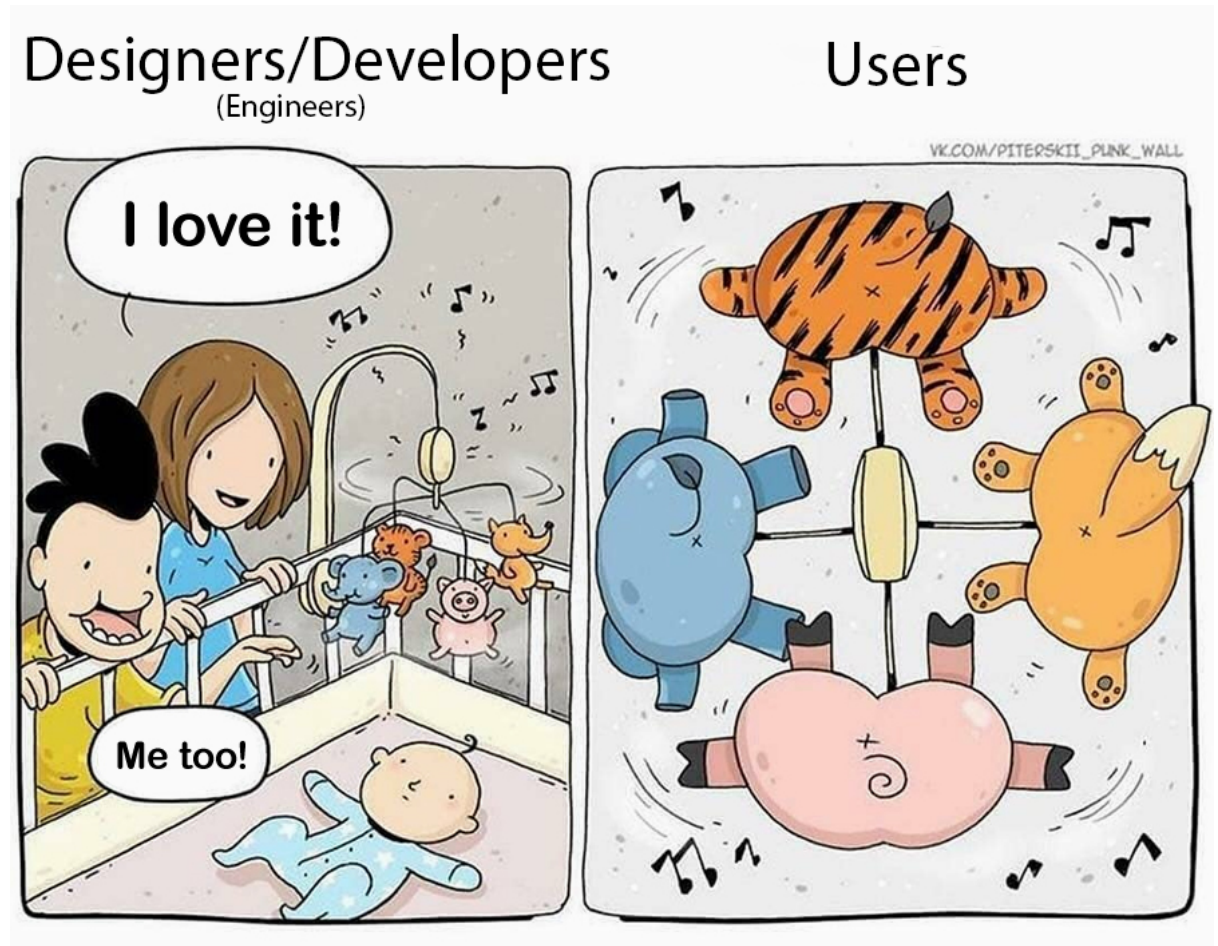
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- Constraints



...Seven fundamental design principles

- Discoverability
- Feedback
- Affordances & Signifiers
- Conceptual models & mappings
- Constraints
- Our focus in all of this



Questions/Discussions

- Gulfs of interaction
- Seven stages of action
- Behavior
- Cognition and emotion #1
- Cognition and emotion #2
- Feedback
- Features & experiences

Image refs

- Bridge, <http://i.ytimg.com/vi/VgolfyRO-RI/hqdefault.jpg>
- User error, https://cdn-images-1.medium.com/max/1600/1*v66sjGvwB0XDzBR1jDV2Zg.jpeg
- Idiot, <https://memegenerator.net/instance/52600078/napoleon-dynamite-1-gawd-idiot>
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- Clean hands, https://mir-s3-cdn-cf.behance.net/project_modules/fs/df06f816828607.562b1d9d16265.jpg
- Mob, <https://www.michaelmaharrey.com/wp-content/uploads/2015/08/mob.jpg>