

Process Affordances: Nudging Toward Change

Michael Keeling '09

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Conference

Michael Keeling

- Prior to MSE
 - Black Knight Technology
- MSE Class of 2009
 - Square Root Team
- Currently
 - Net Health Systems
- Other hobbies
 - Running, brewing, thinking, mischief
 - <http://neverletdown.net>



The Incident

One year ago...





Why get so upset?





The Urinal Fly

In Amsterdam, the tile under Schiphol's urinals would pass inspection in an operating room. But nobody notices. What everybody does notice is that each urinal has a fly in it.



Look harder, and the fly turns into the black outline of a fly, etched into the porcelain. It improves the aim. If a man sees a fly, he aims at it. Fly-in-urinal research found that etchings reduce spillage by 80%. It gives a guy something to think about. That's the perfect example of process control.

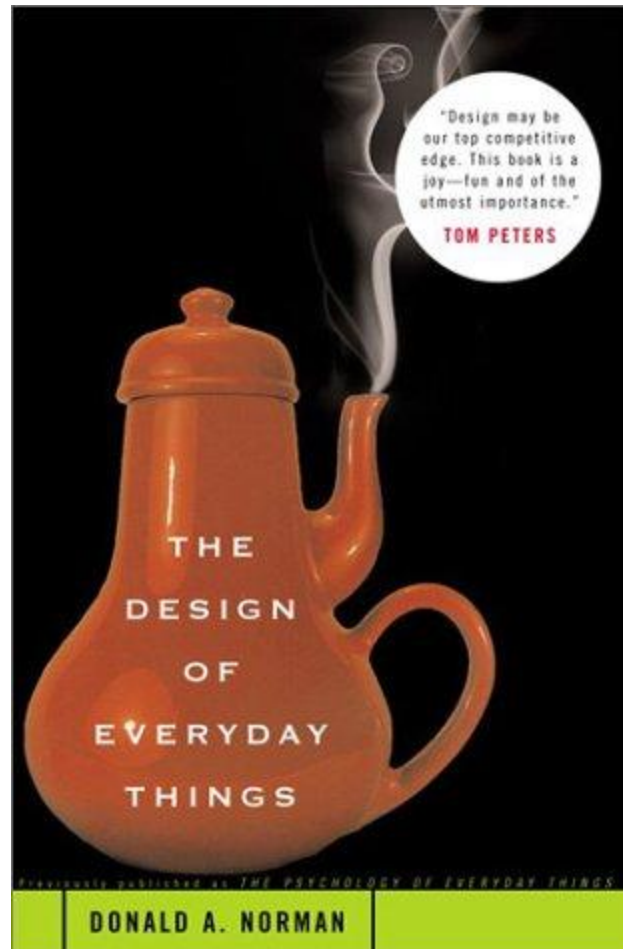


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Psychology Review

The Design of Everyday Things



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The Theory of Affordances

- Ecological psychology
 - Help predict animal behavior
- Exists in the environment
 - Object or idea
 - Directs animal's actions
- Contributes to evolution
 - Advantages and disadvantages in an environment

Norman Affordances

- Object design
 - Choose affordances to nudge behavior
 - Better affordances increases usability
- Affordances influenced by
 - Experience
 - Culture
 - Goals
 - Background

Good Affordance..Bad Affordance



Process Affordances

Is process part of the environment?

- Process exists in our minds
 - Perception
 - Understanding
 - Knowledge
 - Experience

You must believe in, understand, and follow a process for it to exist.

Was I being nudged?

- No backlog
 - Nudge: keep tasks until finished
- Milestone “owner”
 - Nudge: no sharing
 - Nudge: compelled to finish
- Disconnection between day-to-day, overall
 - Nudge: over commitment

Affordance Driven Improvement

- Awesome opportunity for improvement
- Identify affordances
 - Helping the team
 - Hurting the team
- Replace the bad, keep the good

Identifying Process Affordances

- Problem:
 - In well-designed things, affordances are subtle
- Think Like a Designer
 - “Reverse engineer” processes
 - Focus on affordances over function

Affordance Driven Design

Identify a user's needs in terms of functions.

A large, hollow, downward-pointing arrow with a black outline, indicating the flow from the first step to the second.

Identify affordances which help achieve the functions.

A large, hollow, downward-pointing arrow with a black outline, indicating the flow from the second step to the third.

Choose affordances to design into artifacts which are most likely to help.

Example: Blend a Drink

- Functions
 - Prepare the blender
 - Blend
 - Clean the blender
- Functional Affordances
 - Countertop-ability
 - Clean-ability
 - Transportability





Example: Blend a Drink

- ~~Functions~~ Process Functions

Identify with use cases



- ~~Functional Affordances~~ Process Quality Attributes

Understand with Quality Attribute Scenarios

Application to Software Process

- Process Functions
 - Write software, test software, release software
- Process Quality Attributes
 - Plan-ability
 - Predictability
 - Changeability
 - Quality
 - Performance
 - Reliability
 - Estimate-ability
 - Harmony

Process Affordance Examples

- Iterative planning, light documentation
 - Nudge: changeability
- Pair programming
 - Nudge: knowledge sharing, performance, quality
- Large planning buffers
 - Nudge: procrastination
- Developer Branches
 - Nudge: solitary development

Conclusions

- Process is part of the environment
 - You create it, you choose it
 - Theory of Affordances Apply
- Think like a designer to find affordances
 - Use software engineering skills
- It may not be your fault
 - Manipulated by your environment

Thank you!



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