

The Thoughtless Design of Everyday Things



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PROCESS IMPACT

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v. 4

Agenda

- ◆ What is thoughtless design?
- ◆ Why design is hard
- ◆ Nine principles of good design
 - thought~~less~~ examples
 - thought~~ful~~ examples
- ◆ See 19 of my 70 design lessons
- ◆ Good practices for usage-centered design



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What Is Thoughtless Design?

- ◆ Violate any of my 9 principles of good design.
- ◆ Could have been designed better without much effort.
- ◆ Some terms:
 - obvious
 - intuitive
 - easy to use



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Why Design Is Hard: Requirements

- ◆ Design is based on requirements
 - could be incomplete, inaccurate, or obsolete
 - could come from the wrong people
 - could focus on solutions, not needs
 - could focus on features, not usage
 - could overlook nonfunctional requirements
 - could be poorly recorded and communicated

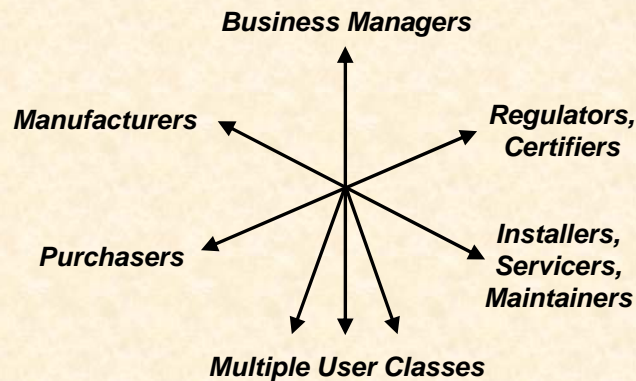


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Why Design Is Hard: Stakeholders

◆ Multiple stakeholders to please



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Why Design Is Hard: Quality Dimensions

◆ Multiple quality dimensions to balance

<i>Some Design-For Attributes for Software Systems</i>	<i>Some Additional Design-For Attributes for Physical Devices</i>
Availability	Assembly
Efficiency	Cost
Installability	Durability
Performance	Ergonomics
Reliability	Manufacturability
Robustness	Safety
Scalability	Serviceability
Security	Standards
Testability	Sustainability
Usability	Upgradeability

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Three Key Design Lessons

Lesson #1. Focus design on usage, not on product features.



Lesson #2. Design demands iteration.



Lesson #3. Involve real users.



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1. Make the Product Easy and Obvious to Use

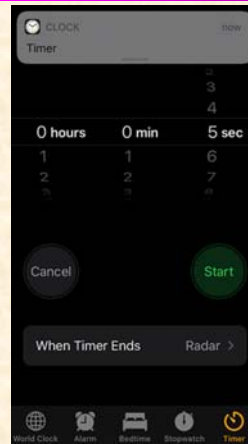
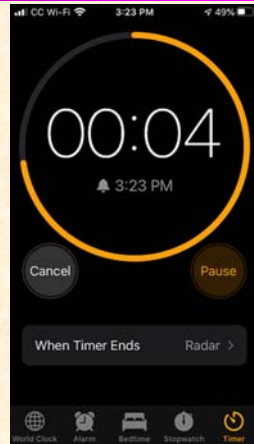


Lesson #6: Small design problems can interact to yield unexpectedly significant results.

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Unobvious Design: iPhone Timer



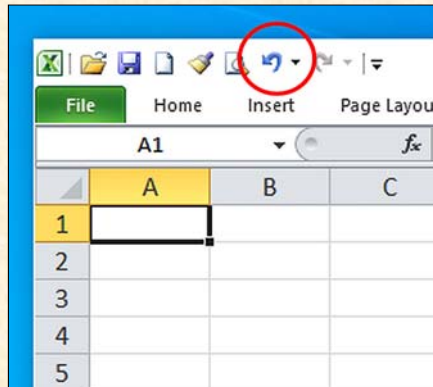
Lesson #7: Present the user only with unambiguous and useful options.

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Surprise, Surprise, Surprise!

◆ Undo in Excel



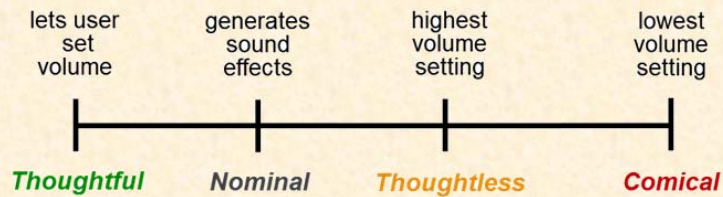
Lesson #10: Ensure that the user won't be surprised by unexpected and undesired behavior.

Lesson #12: Use context to activate relevant functions.

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2. Consider Realistic Usage Scenarios



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Get a Grip!

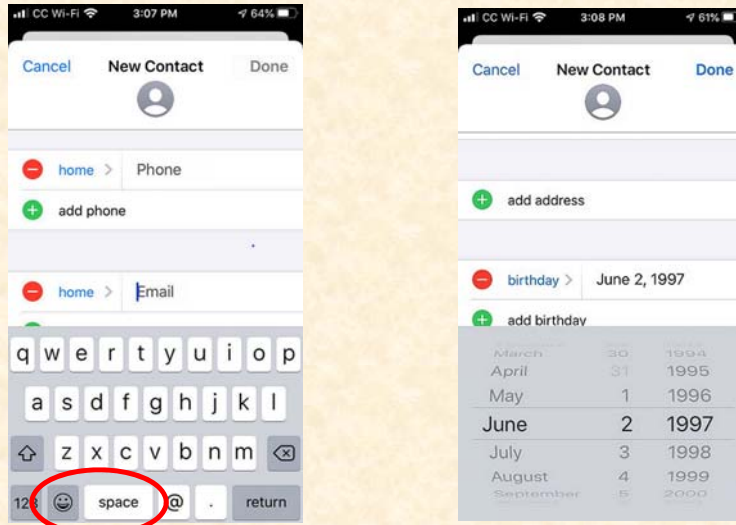
Lesson #18: Design the product to perform well in wide range of realistic usage contexts.



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Thoughtful Design: iPhone Contacts App



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3. Consider a Wide Range of Usage Environments



- ◆ Nice climate control layout in a car, but...
- ◆ My gloved fingers kept hitting extra buttons.

Lesson #24: *Ensure the design's usability and safety in a wide range of environments and conditions.*

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Usage Environments: Computer Systems

- ◆ Are outdoor systems usable under expected lighting and weather conditions?
- ◆ Can the product be used under expected noise conditions?
 - speech recognition
 - synthesized speech



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4. Make It Hard to Make a Mistake

headlights



4-wheel drive

make it impossible
for the user to
make a mistake

make it difficult
for the user to
make a mistake

make it easy
to recover
from an error

just let it
happen

Best

Good

Acceptable

Worst

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Avoid Destructive Actions

Lesson #32: Make it very hard for a user to take a destructive action by mistake.

Confirm deletion of mailbox test@karlwiegers.com

Are you sure you want to permanently remove all mail stored on our servers for test@karlwiegers.com?

This includes unread messages, previously read messages, and messages saved in folders. (If you're not sure what messages this mailbox contains, you can use our [Webmail pages](#) to view them first.)

Check the box and click "Delete Mailbox" to continue:

Delete the test@karlwiegers.com mailbox

I understand that deleting my mailbox will immediately and permanently remove all mail stored for "test@karlwiegers.com".

Delete Mailbox

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Some Tips to Help Users Avoid Mistakes

- ◆ **Make mistakes impossible**
 - physical objects: exploit asymmetry to fit things together
 - software: don't offer logically impossible options
- ◆ **Make mistakes difficult**
 - Provide input controls and processing to minimize the need to report errors.
- ◆ **Make it easy to recover**
 - provide correction assistance, not just error messages
- ◆ **Just let it happen**
 - no tips necessary!

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5. Provide Meaningful Feedback

- ◆ Immediate
- ◆ Informative
- ◆ Necessary
- ◆ Clear
- ◆ Actionable
- ◆ Persistent
- ◆ Polite



Make Feedback Clear

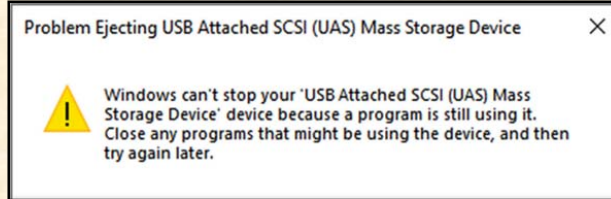


- ◆ **Label buttons clearly and answer the dialog's question**
 - "Yes, cancel it" and "No, keep it"
- ◆ **Make destructive buttons harder to hit by mistake**

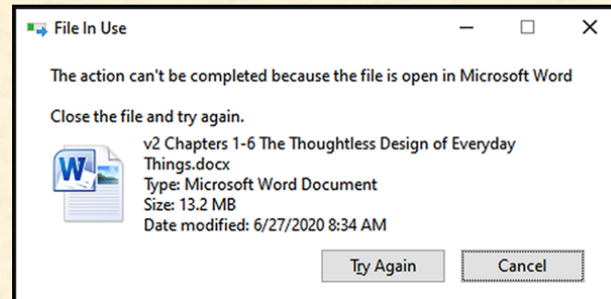
Yes, cancel it

No, keep it

Make Feedback Actionable



BAD



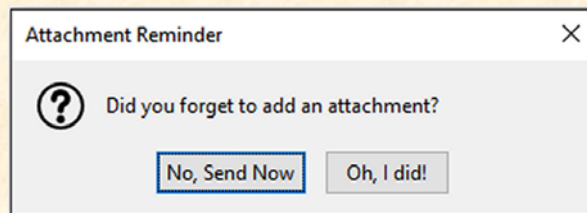
GOOD

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Make Feedback Polite

- ◆ **Mozilla Thunderbird looks for attachment keywords**
 - attached, attaching, enclosed, .pdf, etc.

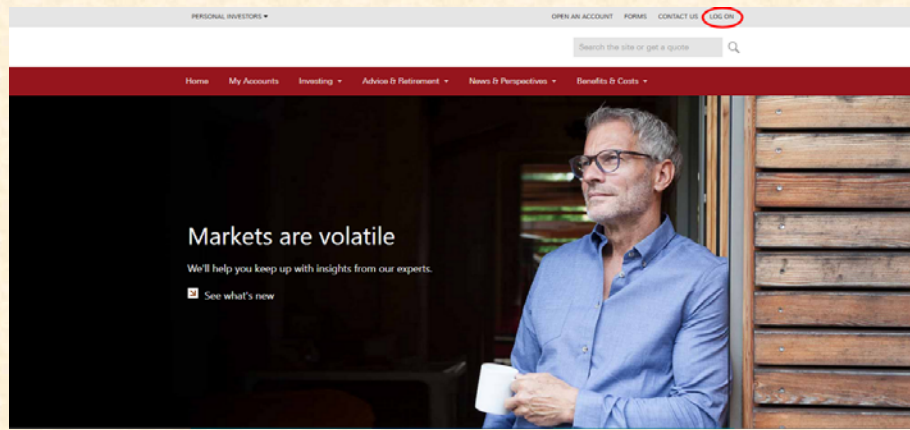


- ◆ **It's a 7-way winner, a heptafecta!**
 - immediate, informative, necessary, clear, actionable, persistent, polite

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6. Don't Waste the User's Time



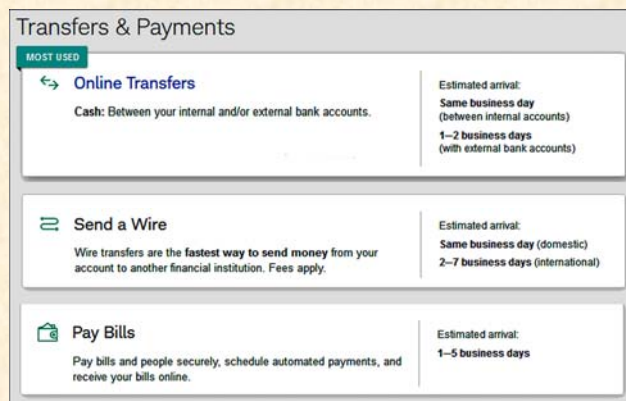
Lesson #44: Let the user take the fewest possible actions to perform a task.

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Use Operational Profiles

Lesson #43: Make it easy for users to access the tasks they perform most frequently.



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7. Design for the User's Convenience



Lesson #55: Design products to tolerate both technical faults and unexpected, imprecise human behavior.

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Designing for the User's Convenience

Lesson #51: Let the user customize as much of the product's behavior as they wish.

Lesson #52: Have the computer do as much work as possible to enhance the user's convenience.

Lesson #57: Design packaging that customers can open easily and safely.

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Watch Out for Deliberately Devious Design

Payment Center

Calculator

Pay From: Checking *1234

PERSONAL CARD
Association for *1234

Amount: \$ Payment Date:

DUE MAY 9 \$25.00

Last Payment: 3-14 \$10.00

Activity AutoPay eBills ON

Always show Make Payments

Make Payments

eBills Due

Association for *1234	\$25.00	05/09/2020
View Bill Mark as Paid Pay		
Total	\$25.00	

Payments

Outgoing Recent

Scheduled payments are listed here.

Lesson #58: Design for the benefit of the consumer over that of the business.

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8. Accommodate the Range of Human Variation

Lesson #60: Design to accommodate the range of user characteristics, capabilities, and limitations.

◆ Humans come in many forms

- Age
- Gender
- Body size and shape
- Strength
- Handedness
- Abilities
- Native language



◆ Thoughtless designs

- Furnace filters in 12-foot ceiling of retirement condos
- Maps with colors that people with color blindness can't distinguish

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Thoughtful Accommodations



Symmetrical Mouse



ClearMask Face Mask

9. Place the Minimum Mental Burden on the User



- ◆ Do I *have* any unsaved data?
- ◆ If so, where is it?
- ◆ What do I do about it?
- ◆ Don't scare me like this!

Inconsistences Drive Me Nuts!

Lesson #66: Make functionality shared by members of a product family consistent.

◆ Deleting objects on iPhone

- text, mail, contact, note, photo, alarm, voice memo, saved map location, voicemail, multiples of these...

◆ Shortcut keys in Microsoft Office

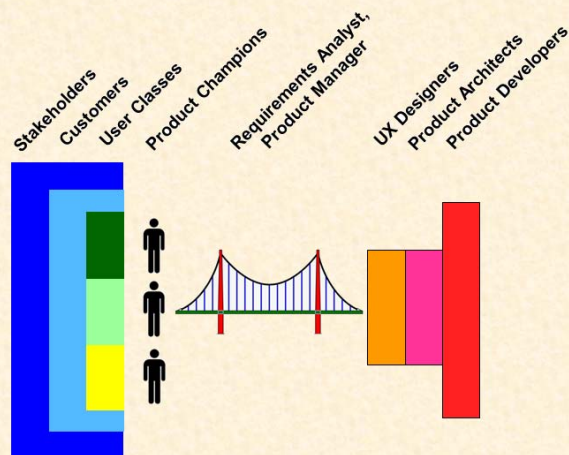
Action	Result	Word	PowerPoint	Excel
CTRL-E	center text	Y	Y	N
Shift+CTRL+C	copy formatting	Y	Y	N
Shift+CTRL+V	paste formatting	Y	Y	N

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Good Practices for Thoughtful Design - 1

◆ Stakeholder analysis and product champions



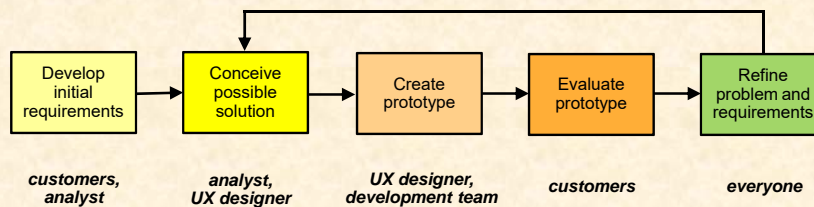
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Good Practices for Thoughtful Design - 2

- ◆ **Personas**

- ◆ **Prototyping**



- ◆ **Usability testing**

- ◆ **Retrospectives and customer feedback**

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- ◆ **A final reminder**

Lesson #1: Focus design on usage, not on product features.

Lesson #2: Design demands iteration.

Lesson #3: Involve real users.

- ◆ **For more information**

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