



Class 4 CS545

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Welcome to class 4! We spend a bit of time on the laws of simplicity since I think that simplicity is an essential aspect of any user experience. I also would like to have a table next week of all the class projects. It really is essential to start engaging in your project.



Roadmap

- Simplicity
- Story boards
- Paper Prototyping
- The Project
- Tidwell Chapter 2
- Readings this class: Laws of Simplicity, <http://lawsofsimplicity.com/>

Okay, this week we explore a simple technique, paper prototyping, talk about the laws of simplicity that should permeate all of our design, discuss a bit of statistics and move on to working on our projects.





My Weekly Log



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I have alluded to the Amazon Echo as the device that changed my opinion of speech interfaces. It is one bit of tech we use constantly in our home. If you have a chance experiment with it, please do so. My next adventure is to attach Internet of things devices to it. I will keep you posted!



LoS

- Reduce
- Organize
- Time
- Learn
- Difference
- Context
- Emotion
- Trust
- Failure
- The one
 - Away
 - Open
 - Power

John Maeda wrote a terrific book on the laws of simplicity. This is a list of the 10 laws (he cheated a bit on the last one 😊). The next two slides lead to a punch line.



Simplicity

- <http://lawsofsimplicity.com>
- Reduce
 - How simple can you make it <-> How complex does it have to be
- Organize
- Savings in time feel like simplicity
- Knowledge makes everything simpler
- Simplicity and complexity need each other

Browse his web site for further information. A brief expansion that leads to ...



Simplicity - 2

- What lies in the periphery of simplicity is definitely not peripheral - context
- More emotions are better than less
- In simplicity we trust
- Some things can never be made simple!
- The One
 - Simplicity is about subtracting the obvious and adding the meaningful

Simplicity is about subtracting the obvious and adding the meaningful. Now a bit more detail

How simple can
you make it

REDUCE!

How complex does
it have to be



- Easiest way to simplify is to reduce
- SHE
 - **S**hrink - small is good and comforting
 - **H**ide - most used controls, interface code - hide complexity - perceived sense of control
 - **E**mbody - what shows is of quality

The first principle, reduce, using the principle of SHE



Organize

- Organization makes a system of many appear fewer
- SLIP
 - **S**ort - the items
 - **L**abel - the categories
 - **I**ntegrate - combine similar groups
 - **P**riority - combine highest priority into single set: 80/20 rule
- “Humans are organization animals.”

SLIP really is an excellent strategy for dealing with card sorting. Card sorting is a device to determine how folks organize things – for example computer commands such as open, copy, delete, move, I highly recommend using card sorting to get a handle on how users organize the commands/task(s) in their minds. SLIP captures the methodology in a succinct acronym.



How can you make
the wait shorter

Time

How can you make the
wait more tolerable

- Savings in time feel like simplicity
- Best interface may be to automate (no interface)
- Indicate time remaining
- Rarely exclude time!

Note if you can't reduce time, you can possibly make it more enjoyable. Apple has its employees chat with you while you are on line at an Apple store.



Learn

- “knowledge makes everything simpler”
- Professor or student BRAIN
 - *Basics* are the beginning (tacit): feel confident
 - *Repeat often* simplicity and repetition are related
 - *Avoid creating desperation* - gentle, inspired start to learning: feel safe
 - *Inspire* with examples
 - *Never forget to repeat*: instinctive

Did I mention that you should repeat things. Seriously, knowing how things work does make everything more straightforward.



Learn 2

- Good Design
 - Eases process of understanding (form with function)
 - Provides sense of instant familiarity
 - Surprises!
 - Cell phone, digital camera, car and instruction manuals
- “In the beginning of life we strive for independence, at the end of life it is the same”

Did I mention to repeat things! 😊 Design should make it easier to understand how to use something, the design naturally leads to the use. Maeda, also discusses a bit of philosophy on our own life cycle. Reminds me of the riddle of the sphinx, "Which creature in the morning goes on four legs, at mid-day on two, and in the evening upon three, and the more legs it has, the weaker it be?" – Man – crawls as a baby, walks as a man, uses a cane when old. From wikipedia



Differences

- Simplicity and complexity need each other
- Complexity provides an even greater appreciation for simplicity

Often one needs a contrast for appreciation. Silence seems a lot more special after a deluge of noise. There is a similar relationship between complexity and simplicity.



Context

- Laser beam or light bulb?
- "What lies in the periphery of simplicity is definitely not peripheral"
- White space
 - Web pages
 - My home
- "Given an empty space or any extra room technologists would invent something for the expanse"
- Nothing is an important something - focuses on the something

Remember the gestalt perceptual test of the lady vs. the vase. There is something very design worthy about differentiating figure and ground. Often we as technologists want to use every available bit of real estate, yet there is merit and usability gains of saving white space to focus on the something.



Ambience

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Case in point



How directed can
I stand to feel

<->

How directionless can
I afford to be

Depends on the situation – if you are flying a plane, correct direction is good, however if you are exploring data you may want to encourage browsing.



EMOTION

- MORE!
- Simplicity looks cheap
 - Individual differences
- “Form follows function and feeling follows form!”
- Email and :-) -> ☺
- Blinging (marking) nude electronics
 - Protection - enlarge or protect simple surfaces

Emotion is not bad, it is part of the charm – depending on the user experience, one may want to evoke emotions, awe, discomfort, comfort, safety, security, frivolity, ...

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<http://www.decalgirl.com>




[nvousedpc.com](http://www.nvousedpc.com)

<http://www.letscrystalit.com/>



[alienware.com](http://www.alienware.com)

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A few examples of blinging technology – folks have been doing it to cars for decades

EMOTION 2

- Animism, anthropomorphism - naming of cars, computers (Shintoism & Miyazaki)



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imdb.com

<http://movies.lovetoknow.com/wiki/Fantasia>

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There was once a concerted effort to avoid anthropomorphizing computation, but as reported in the MEDIA EQUATION, people react similarly to computers and people in social situations. As user experience designers we should be aware of this and design accordingly. If you have never watched any of Miyazaki's epic cartoons, you are in for a treat. SPIRITED AWAY is one of my favorites.



Emotion - 3

- “Perhaps this is the fundamental distinction between pure art and pure design. While great art makes you wonder, great design makes things clear.”
- “Achieving clarity isn’t difficult. ... The true challenge is achieving comfort.”
- ROE - Return on Emotion



Rather self explanatory – yet it should make you think a bit more about the depths of experience and how evocative design can be. Note that this is all part of the user experience, how the user reacts and how we want to shape that reaction, at times.



TRUST

- The best interface is none
 - TiVo Suggestions
 - Social filtering
 - Expert filtering - chef's discretion
- The power of undo
- The fear of "trust me" - trust but verify :-), opps that was EMOTION!

TRUST is engendered through experience. If something is automated and it serves us well we will feel comfortable, It is of further comfort to make such actions reversible.



HOW MUCH DO YOU
NEED TO KNOW
ABOUT A SYSTEM?

↔

HOW MUCH DOES
THE SYSTEM
KNOW ABOUT YOU?

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For those of you that have TiVo, or even shop at amazon, this clearly has some implication. Part of modern technology attempts to tune the experience to your interests and this can be enhanced by knowing a bit about the system. Each of these laws would make fantastic discussion points.



FAILURE

- ROF - return on failure - even when you fail to simplify, you learn – value to the journey



Focusing on these issues improves the experience in other ways too, even if you do not simplify that dramatically. It is yet another context in which you interact with the user to try to improve the experience.



Ten – The One

- **Away:** More appears like less by simply moving it far, far away
- **Open:** Openness simplifies complexity
- **Power:** Use less, gain more
 - Axiom of Design: More constraints, better solutions are revealed

One way of invoking “away” is to keep the minimal interface close to the user and have the rest of the computer and device separate. At the very least the situation does not appear as intimidating. One current example of “open” is open source software, which provides us with as much insight about a system as we need. Sometimes simplicity is being minimal and sometimes simplicity requires understanding to dissolve complex myths and inaccurate hypotheses. The designer must make these choices in conjunction with the user. Finally “power” has many contexts and many twists. Maeda, relates a game of laptop chicken, where he left his charger at home and rationed his access to the machine. By using it less he actually interacted more with the folks around him and his experience was enhanced. Using less energy will be a common design theme in the years ahead. Constraints in all design be it software or usability enhance the solution.





What's on your shelf?

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The final discussion of simplicity is a discussion of what each of us actually needs. He relates a story concerning a homeless person who died and one of his grad students who had befriended him had the task of clearing his only possessions on his shelf. Through all the man's difficulties, he managed to keep a few things that were important to him. It is worth reflecting on what is essential.

Technology can both be an exhilarating enabler and exasperating disabler.



Reduce
Organize
Time
Learn
Differences
Context
Emotion
Trust
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The One

Away
Open
Power

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So this is what we covered

Simplicity is about
subtracting the
obvious and adding
the meaningful

Now back to regularly
scheduled programming

And this is where we began.

Paper Prototyping

- Nielsen: Biggest improvements in user experience comes from getting usability data as early as possible
- Software engineering, cheaper to make changes earlier in the process
- Norman: a usable interface becomes invisible
- This technique will last – not subject to the latest technology

So once you decide on your project, you want to understand how the user reacts to the experience. The earlier you get the information the more likely your design will reflect the users needs since you understood them early in the design process. Paper prototyping is a useful technique to get this information in an efficient manner.

Paper Prototyping - 2

- “Paper prototyping is a variation of usability testing where representative users perform realistic tasks by interacting with a paper version of the interface that's is manipulated by a person "playing computer" who does not explain how the interface is intended to work.” –Carolyn Snyder
- Paper is not just shown to the users, they *interact* with it
- Aka low fidelity prototyping
- Online survey on paper prototyping of 172 usability professionals 30% essential, 56% additional useful, rest marginal

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This is just more motivation to use paper prototyping. How do you use it? You simply draw stages in the proposed user experience on separate sheets of paper and then ask the user to “press” buttons on the paper, move sliders and the like. As the user selects options, you as the computer provide the next sheet according to their input. You may have to draw a sheet on the fly if a user chooses an unexpected next state! Each project should do a paper prototype before they attempt their first balsamiq or equivalent prototype.



Users and Disabilities

- 1998 amendment to Rehabilitation Act requires Federal Agencies to assure access to Information Technology, including computers and web sites by employees and the public
 - Keyboard modifications
 - Supporting vision and hearing impaired
 - Color coding issues
 - Font size settings
 - Empathy Tools, e.g., clouded glasses, weighted tools, Vonnegut's short story, "Harrison Bergeron,"
http://www.nexuslearning.net/books/holt_elements_of_lit-3/Collection%204/Collection%202/Harrison%20Bergeron%20p1.htm
 - Conversion to Braille and text to speech including description of figures
- Plan early .. Computer curb cuts, e.g., in design move on/off switch to front
- Packages for learning disabled, e.g., game-like interfaces
- W3C, world wide web consortium has done a fantastic job of addressing these needs: <http://www.w3.org/WAI/>

Extreme Users!

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I feel strongly about designing for users with disabilities. We so often forget about them. When I was in charge of development for a speech recognition and text to speech project I was struck by the needs of the deaf and blind communities. They were dismayed that so little consideration was given to their needs. Besides the obvious accessibility issues, considering their needs is great economically. As this generation ages, they will have difficulty hearing and seeing yet they have grown up as information technology users. This growing segment constitutes a valuable and lucrative segment of our population. So if you are not enamored by my humanitarian pleas, understand that it should also appeal to your economic interests! The short story Harrison Bergeron by Vonnegut depicts a society in which every one with special skills is handicapped so that they are consistent with the government's prescribed norm. Worth the read. They are also extreme users, often designing for them will result in benefits to the rest of the population, e.g., relying more on speech recognition and text to speech results in hands free operations that work well in the car.

Evaluate User Experience, 5 E's

DIMENSION	KEY NEEDS	Design Tactics
Effective	Accuracy	Focus on places in the interface for potential error and protect against them. Look for opportunities to provide feedback and confirmations
Efficient	Operational Speed	Present only most important information. Work on smooth, direct navigation. Interaction style should minimize actions required
Engaging	Attract users	Consider what aspects of the product are most attractive and incorporate into design
Easy to learn	Just-in-time instruction	Step by step interfaces that help users navigate through complex tasks. Provide training in small chunks if possible
Error tolerant	Validation	Look for places where selection and calculators can replace data entry. Error messages provide opportunities to correct problems

Quesenberry(2003) in Stone, p.109

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These are the E's. Recall you have to choose one to optimize. They are fairly obvious and some cannot be co-optimized. There is an old saying in software engineering, projects can be fast, cheap or good – choose 2 of the 3. You can have it fast and good but not cheap or cheap and fast but not good, well you get the idea. For your project I would like you to select one to improve and part of the selection process should be how you can measure the improvement. Not always as simple as you might think.



References

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