HCI in Product Design

Deloitte Digital

About Me

My name is Josh and I'm a UX Designer

I have been a UX Designer at Deloitte Digital since early 2017 servicing major government transportation and healthcare clients. I specialize in translating user research into user interface design.

My design principle is empathy

Empathy to me is both the starting point and driving force of user experience. I am passionate about my user's problems.

Educated through mentorship and self-study

I found my love for UX at Virginia Tech where I was mentored as a UX intern under HCI professor Kim Gausepohl Ph.D.

Since then, I've made UX a part of my daily life from self-study to application.

Feel free to ask me about my learning process at: *joshkim@deloitte.com*

Contents

Why does good HCI matter?

Digital products fail when there is an absence of design. More than ever, digital teams need to account for the experience of end users to differentiate their products and find success.

(Bad) Example: *Arkansas Medicaid Portal*

https://www.healthaffairs.org/do/10.1377/hblog20180904.979085/full/

Key Project Takeaway #1
Poor design can have serious consequences. Always consider the experience of your end users.

Absence of design creates problems.

"Most digital products emerge from the development process like a sci-fi monster emerging from a bubbling tank."

Alan Cooper, *About Face*

Recommended Reading:
Set Phasers on Stun by Steven Casey

Digital products are rude

Digital products often blame users for making mistakes that are not their fault, or should not be.

Digital products require people to think like computers

Digital products regularly assume that people are technology literate.

Digital products have sloppy habits

Sometimes software requires us to step out of the main flow of tasks to perform functions that shouldn't require separate interfaces and extra navigations to access. Dangerous commands cause ejector seat problems.

Digital products require humans to do heavy lifting

Computers should be labor-saving devices, not labor-extensive devices.

User experience matters.

The main value driver in the future economy will be user experience.

Jakob Nielsen, *A 100-Year View of User Experience*

https://www.nngroup.com/articles/100-years-ux/
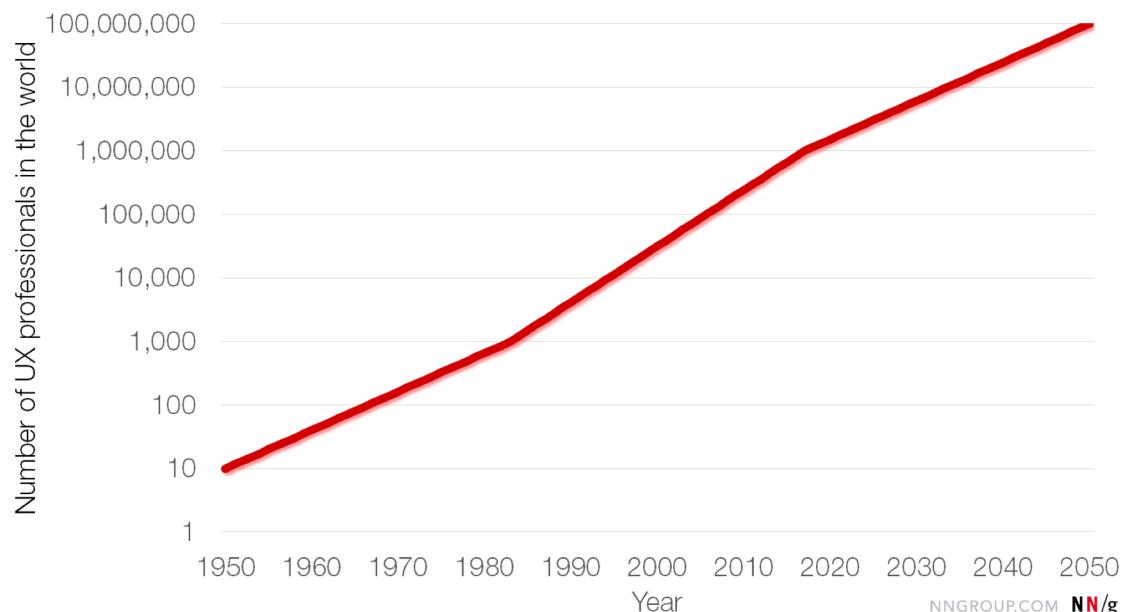
Recommended Reading:
The Design of Everyday Things by Don Norman

UX generates a strong ROI

The average business metrics improvement after a usability design is now 83%. ROI is high because usability is cheap relative to gains. *Nielsen Norman Group.*

The UX Profession is a growing industry

The digital landscape is no longer payment first, user experience second. With websites its user experience first, payment second. This has led to more executives investing in UX teams.

NNGROUP.COM NN/g
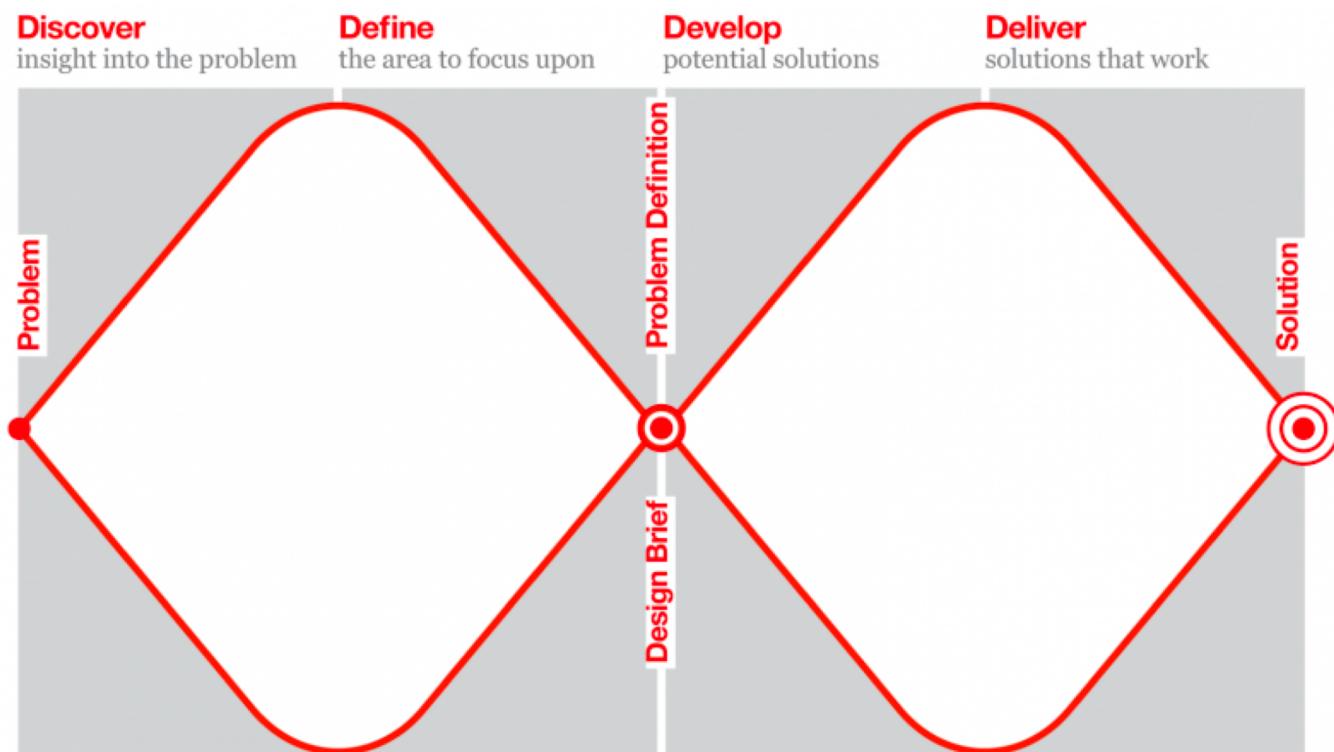
Design as a process.

HCD (Human Centered Design)
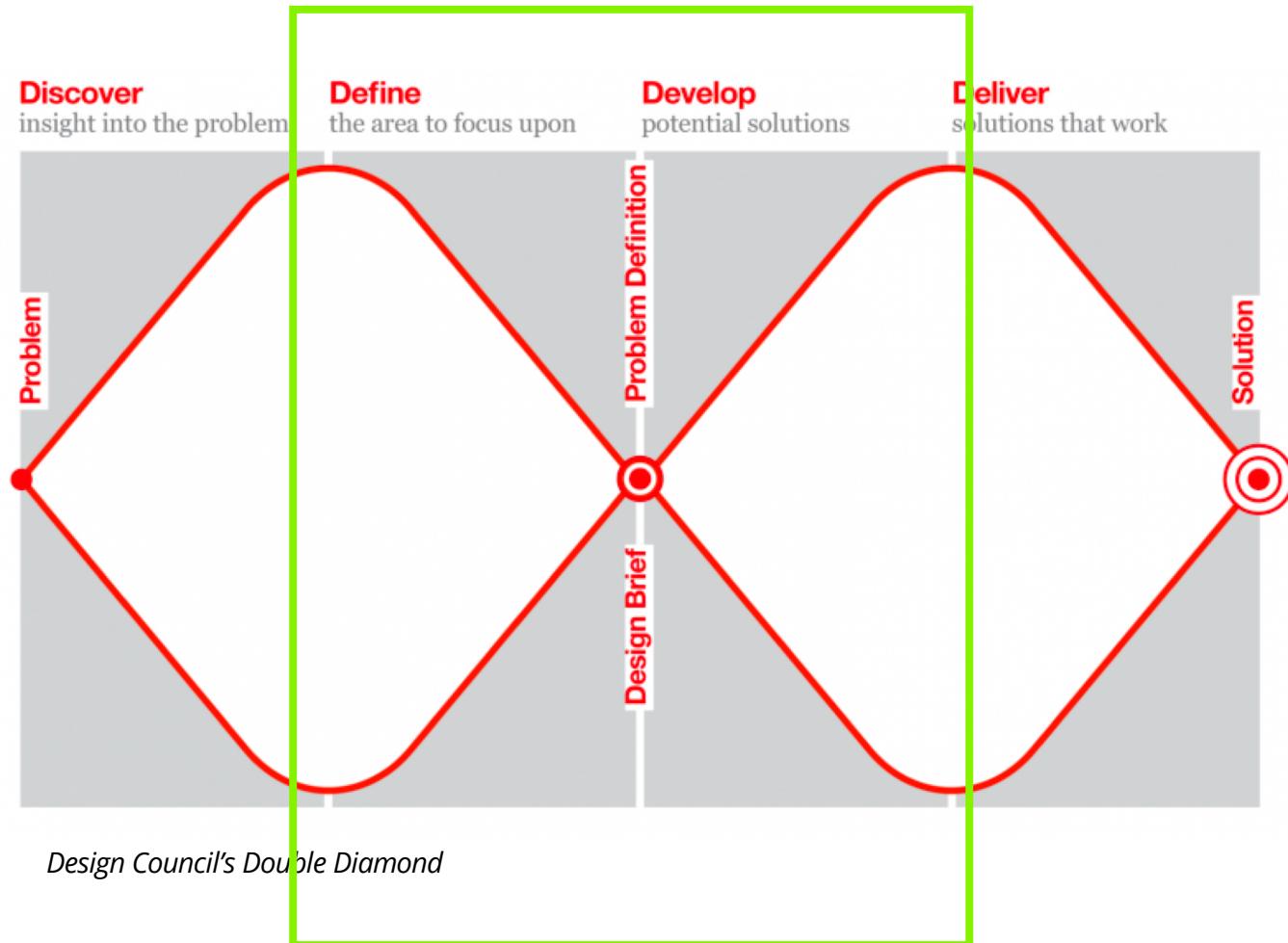
Ensuring that the designs match the needs and capabilities of the people for whom they are intended.

Don Norman, *Design of Everyday Things*

Discover
insight into the problem

Define
the area to focus upon

Develop
potential solutions

Deliver
solutions that work

Problem

Problem Definition

Solution

Design Brief

Design Council's Double Diamond

Design Council's Double Diamond

Modeling Users and Narratives

"When you are trying to imagine an entirely new concept or a design that will change basic processes, you need a story to fill in the gaps and make the connections between *how it is now* and *how it might be.*"

Whitney Quesenbery, *WQusability*

Personas as Models

Good design has meaning only for someone who uses a product for a particular purpose.

"If you try to design an automobile that pleases every possible driver, you end up with a car with every possible feature that pleases *nobody.*"

Alan Cooper, *About Face*

Key Project Takeaway #2
It's counterintuitive to please everyone. Use personas to help you design for specific types of individuals with specific needs.

## Personas are based on research.
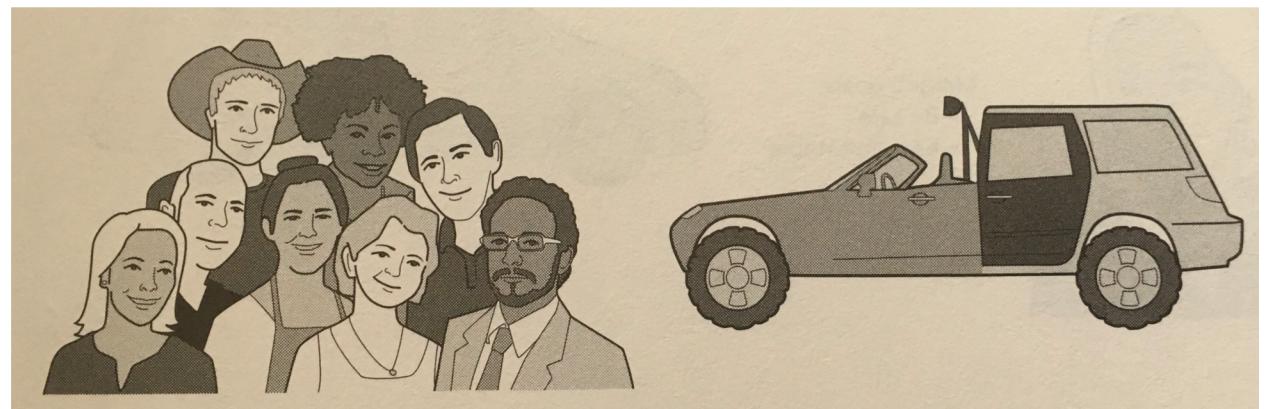
Based off of your research and interviews, behaviors can be assembled by related usage patterns. They are context-specific. They are not stereotypes.

Personas prevent design pitfalls.

Personas remedy a lack of precision about the user, prevent self-referential design and prevent designing for edge cases.

Personas ensure a focused design.

The best way to successfully accommodate a variety of users is to design for *specific types of individuals with specific needs*.

Jill Anderson

"I'm looking for a site that will simplify the planning of my business trips."
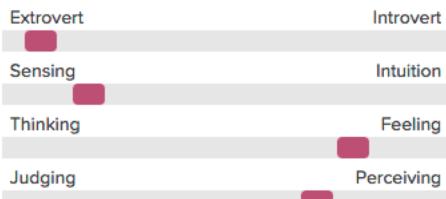
|	
AGE	29
OCCUPATION	Regional Director
STATUS	Single
LOCATION	Portsmouth, NH
TIER	Frequent Traveler
ARCHETYPE	The Planner

Organized Practical
Protective Hardworking

Bio

Jill is a Regional Director who travels 4-8 times each month for work. She has a specific region in which she travels, and she often visits the same cities and stays in the same hotel. She is frustrated by the fact that no matter how frequently she takes similar trips, she spends hours of her day booking travel. She expects her travel solutions to be as organized as she is.

Personality

Extrovert — Introvert
Sensing — Intuition
Thinking — Feeling
Judging — Perceiving

Brands

KAYAK Basecamp
Outlook
enterprise IHG InterContinental Hotels Group

Goals

- To spend less time booking travel
- To maximize her loyalty points and rewards
- To narrow her options when it comes to shop
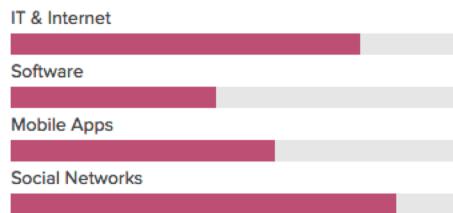
Frustrations

- Too much time spent booking - she's busy!
- Too many websites visited per trip
- Not terribly tech saavy - doesn;t like the process

Motivations

Price
Comfort
Convenience
Speed
Preferences
Loyalties/Rewards

Technology

IT & Internet
Software
Mobile Apps
Social Networks

Behavioral Patterns

Personas are a composite of key behaviors found in research. Synthesize characteristics related to these key behaviors to create your persona.

Identify Goals

What goals lead to the behavioral patterns identified? Infer these goals and tie them into your persona's narrative.

Create a Narrative

Include enough detail to cover basic demographics and to weave behavior patterns into the story. The detail should not exceed the depth of your research.

Resources

Photos

http://www.exactitudes.com/
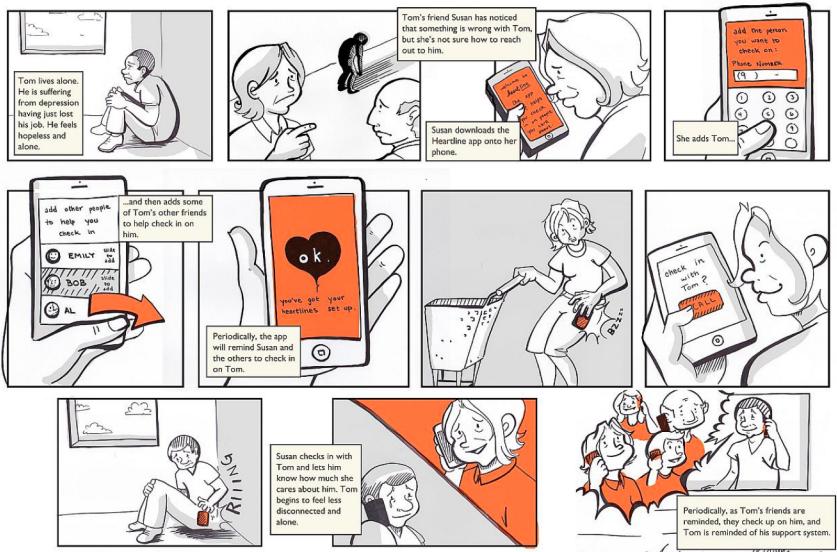
Process

Alan Cooper, *About Face*

Narrative as a Design Tool

Experiences designed around narratives tend to be more comprehensible and engaging for users because they are structured around a story.

Use context scenarios

Tells the contextual story of a particular user persona and their various motivations, needs, and goals in using the future version of your product. Don't worry about the *how* things will get accomplished, instead imagine it as a bit of a magic black box.

Use story boards

Helps visualize, predict, and explore a user's experience with a product.

https://uxplanet.org/storyboarding-in-ux-design-b9d2e18e5fab

Create design requirements

Extract requirements from your scenarios and storyboards through objects, actions, and contexts

   Call (action) a person (object) directly from an appointment (context)

Recommended Reading:
Storytelling for User Experience: Crafting Stories for Better Design by Whitney Quesenberry

Key Project Takeaway #3
Use narratives to help you illuminate the full experience of your new product. It will help you ideate more effectively.

Ideation to Wireframing

"Ideation is applied design thinking."

Rex Hartson, *The UX Book*

How to Ideate

Ideation is the start of conceptual design. It is inseparable from sketching and evaluation aimed at exploration of design ideas.

Rex Hartson, *The UX Book*

The legendary IDEO shopping cart
https://www.youtube.com/watch?v=M66ZU2PCIcM

Iterate to explore

Ideation involves exploration and calls for extensive iteration. If you are starting out with only two or three alternatives, you are not doing this right.

Separate creation from critique

Don't hobble early design ideas with early cries of "that will never work." Allow sessions to be free-flow and creative.

When critiquing, critique constructively

Instead of shooting down ideas, take parts that can be changed or interpreted differently and use them in better ways.
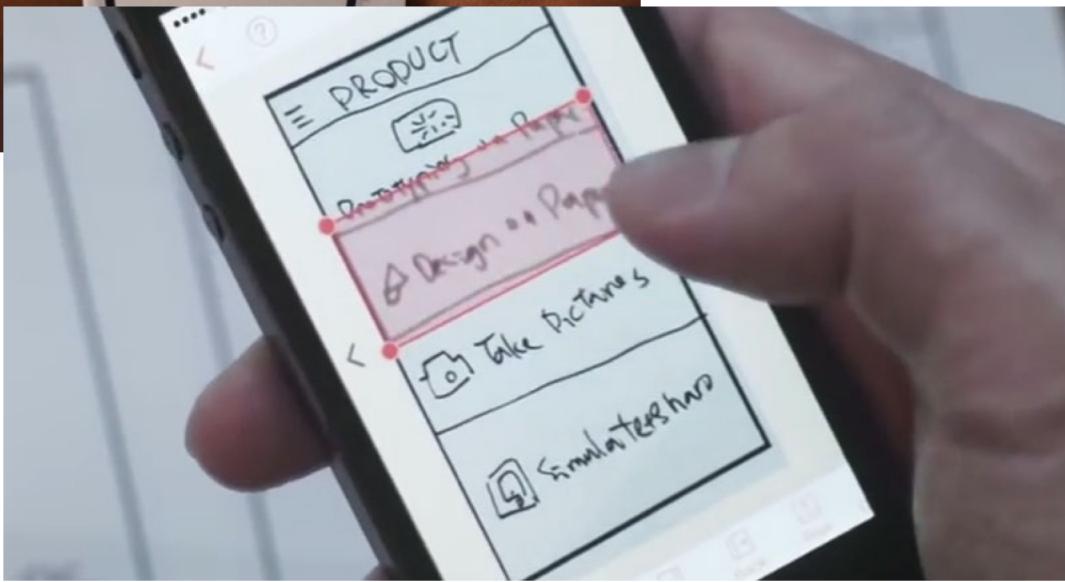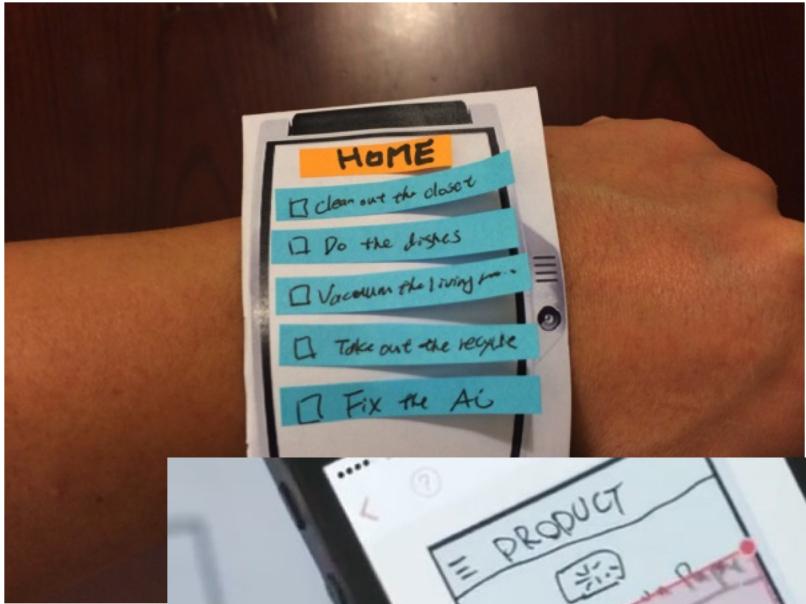
Assemble an open-minded team

Include people with a breadth of knowledge and skills. Gather a creative and open-minded team to maximize ideation.

Key Project Takeaway #4
Be open-minded when ideating.
The best solutions are almost
always collaborative.
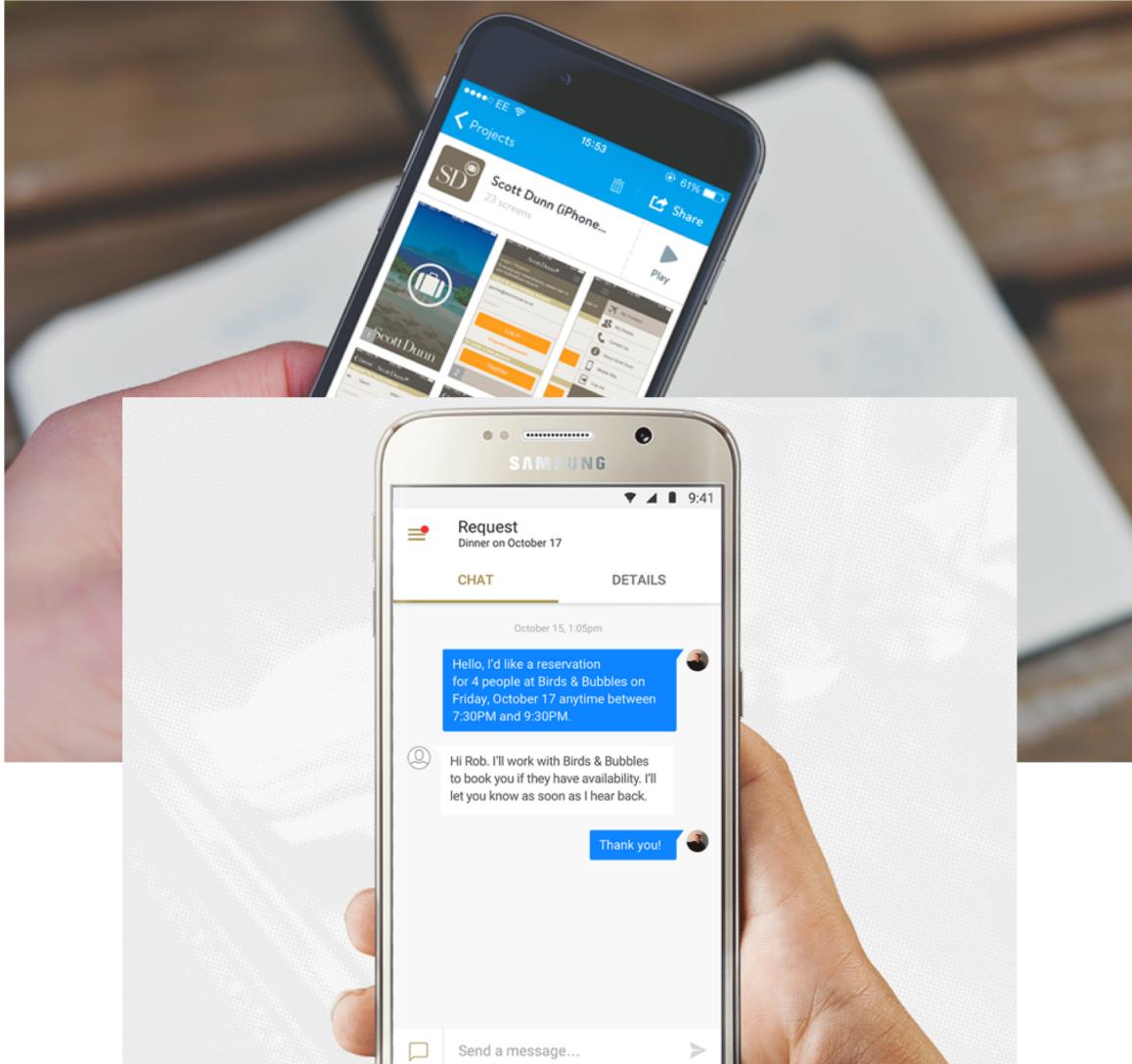
Low-Fidelity Prototypes
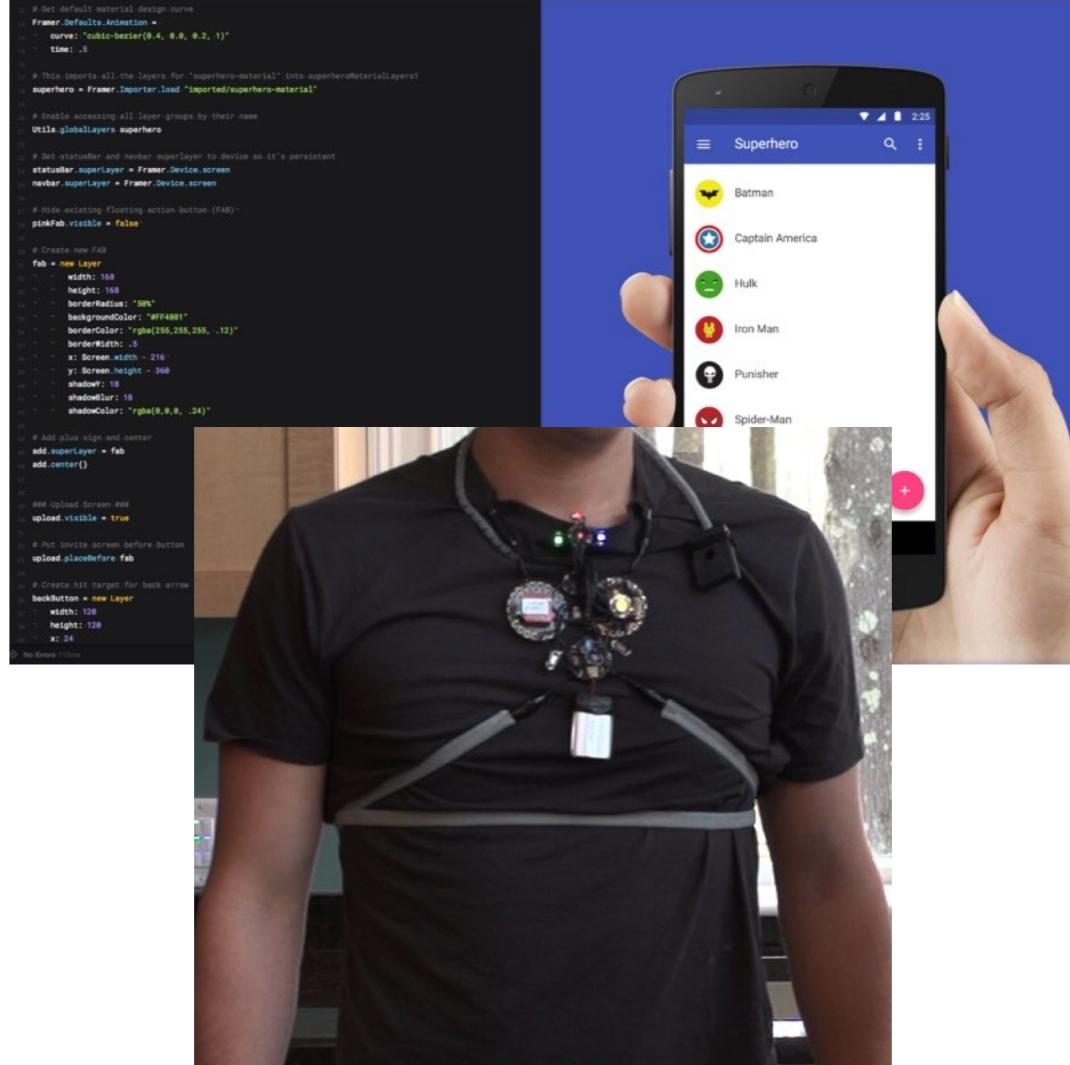
- Iron out "look & feel" issues quickly early on
- More interactive than storyboards
- Use: paper, tape, markers, rubber bands, anything!

Mid-Fidelity Prototypes

- Prototyping with a computer

- Wizard of Oz (example: chatbot)

- Tools: Sketch, Illustrator, Marvel, Invision

- Laser cutting, 3D-printing, electronics

High-Fidelity Prototypes

- Can be built into the actual product
- Finished nature discourages user feedback
- Cost a lot of time and money
- Use: Framer.js, web apps, fabrication, electronics

General HCI Guidelines

There is no such thing as an objectively good user interface. Quality depends on the context: who the user is, what she is doing, and what her motivations are.

Alan Cooper, *About Face*

Design Values

Designers should create design solutions that are *ethical, purposeful, pragmatic, and elegant.*

Key Project Takeaway #5
Design for good. Ensure every design decision has a reason. Consider diminishing returns. Reduce when possible.

Ethical: Do no harm

Products shouldn't harm anyone. They should at the very least minimize harm.

For more on evil design and its applications for both good and bad read "Evil by Design" by Chris Nodder.

Ethical: Improve human situations

Improving things should be a goal of design. This may include increasing understanding, increasing efficiency, improving communication, reducing socio-cultural tensions, and more.

For more on our responsibilities as designers read "Nudge" by Richard Thaler.

Purposeful design

Design should be purposeful. That means understanding and appropriately addressing the user's goals and motivations.

For more on purposeful design, read "About Face" by Alan Cooper.

Pragmatic interaction design

A design must get built to be of value. Maintain active dialog between your team to understand where firm boundaries exist and what areas are flexible.

For a pragmatic methodology for an innovation course, read "The Lean Startup" by Eric Ries.

Elegant: simplicity

"in anything at all, perfection is finally attained not when there is no longer anything to add, but when there is no longer anything to take away."

For simplicity in design, read "The Laws of Simplicity" by John Maeda

Elegant: internal coherence

Good design has the feeling of a unified whole, in which all parts are in balance and harmony.

Digital Etiquette

Humans treat and respond to computers and other interactive products as people. Pay attention to the "personality" projected by your product.

Recommended Reading:
The Media Equation, Clifford Nass and Byron Reeves

Key Project Takeaway #6
Pay attention to the "personality" projected by your product.

Design Considerate Products
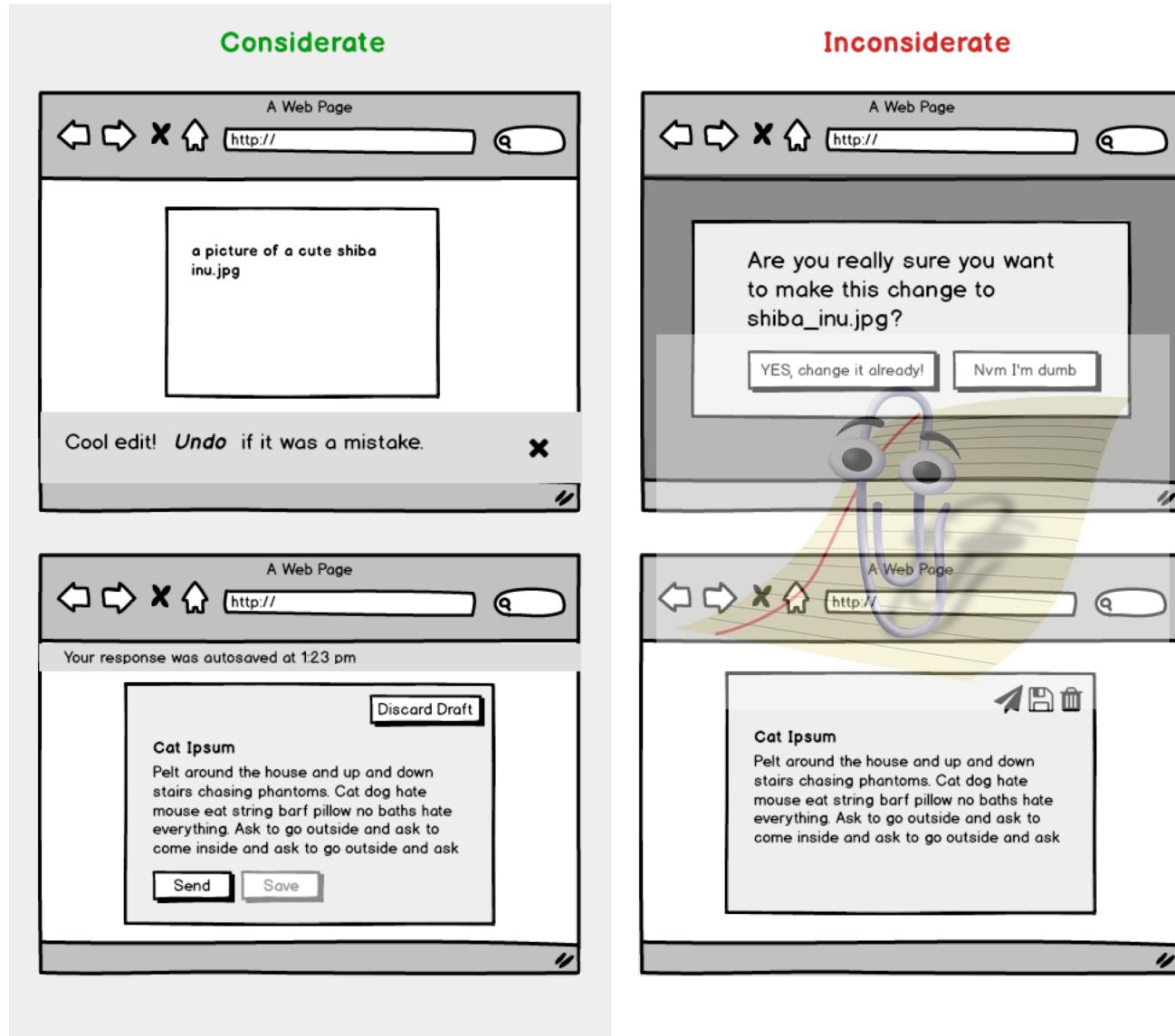
Above and beyond performing basic functions, considerate software has the goals and needs of its users as a concern.

Design Smart Products

Products should work hard even when conditions are difficult and even when users are not busy.
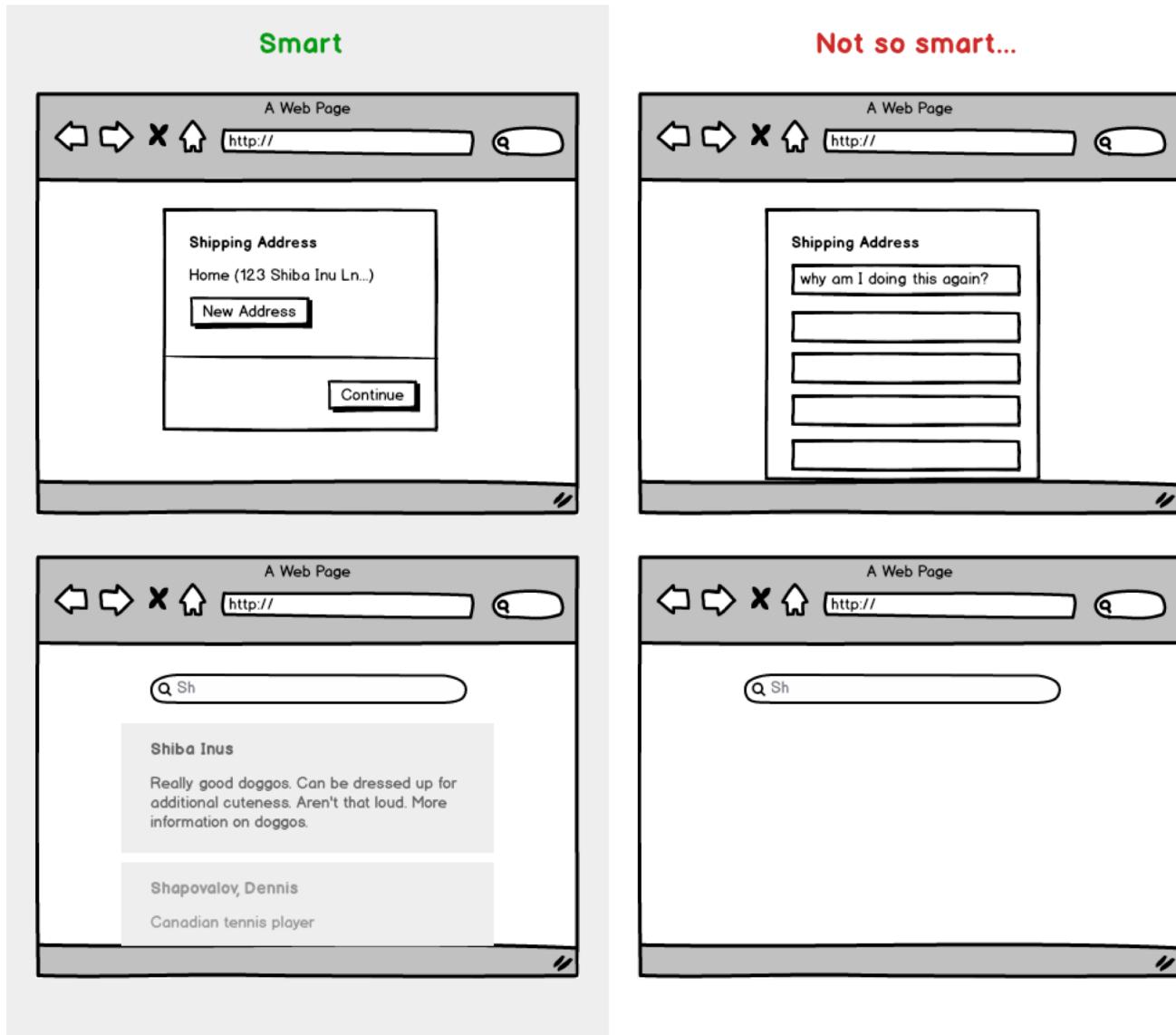
Design Social Products

Software is becoming less like a private office and more like an open-plan one for collaboration. Design your product to take into account social norms and the expectations of other users.

Considerate Products

- Take an interest

- Use common sense

- Anticipate people's needs

- Don't burden you with their personal problems

- Don't ask a lot of questions

- Fail gracefully

- Please don't resurrect Clippy
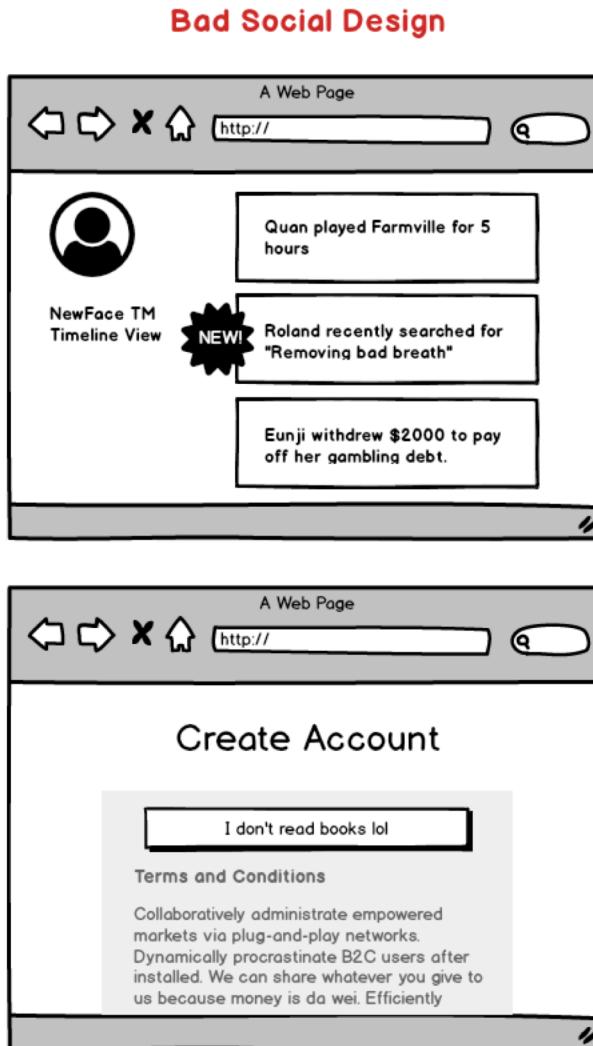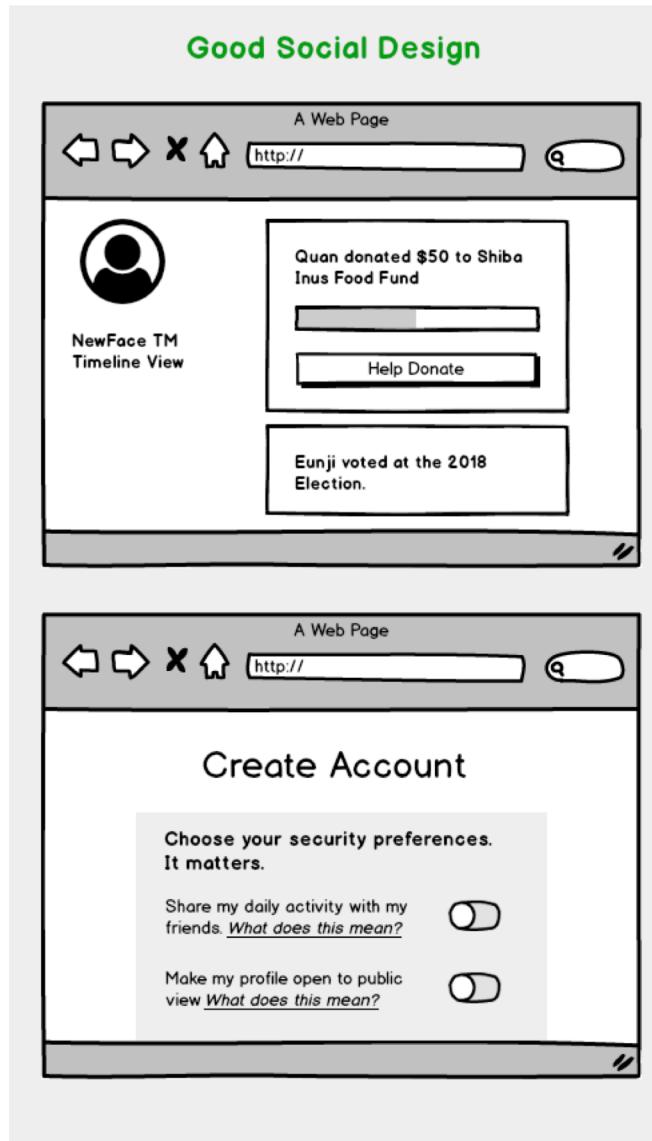
Smart Products

- Put idle cycles to work

- Have a memory

- Anticipate needs

- Remember details

Social Products

Good Social Design / Bad Social Design

- Know the difference between social and market norms
- Lets users present their best side
- Permits easy collaboration
- Knows when to shut the door
- Help networks grow organically
- Respect other users' privacy

It is naïve to assume that this is the best possible method.

Eric Ries, *The Lean Startup*

Applying a set of one-size-fits all principles makes user interface creation easier, but it doesn't necessarily make the end result better.

Alan Cooper, *About Face*

Remember that a process does not necessarily imply a rigid structure or even a linear one.

Rex Hartson, *The UX Book*

It Depends.

Key Project Takeaways

Poor design can have serious consequences. Always consider the experience of your end users.
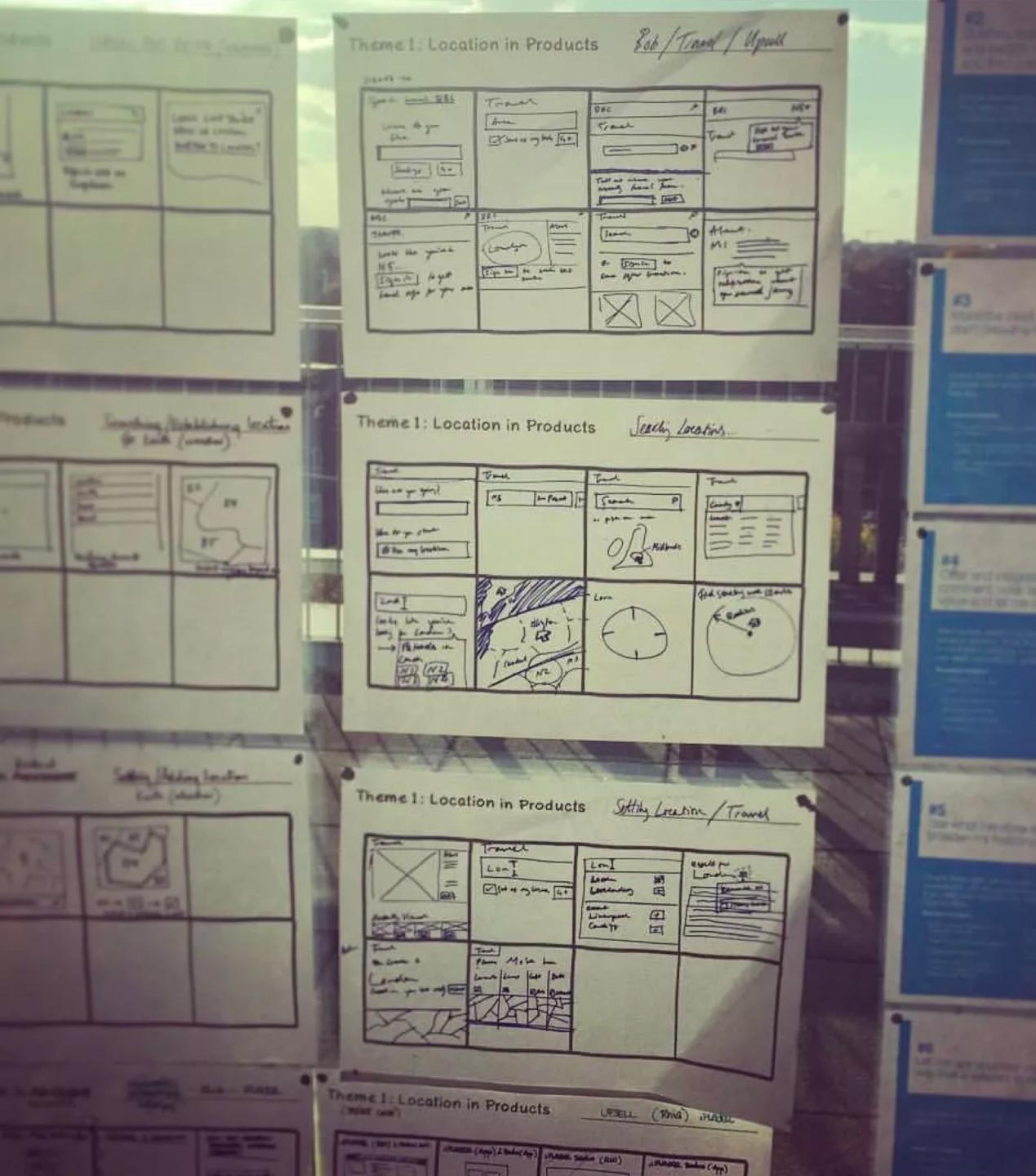
It's counterintuitive to please everyone. Use personas to help you design for specific types of individuals with specific needs.

Use narratives to help you illuminate the full experience of your new product. It will help you ideate more effectively.

Be open-minded when ideating. The best solutions are almost always collaborative.

Design for good. Ensure every design decision has a reason. Consider diminishing returns. Reduce when possible.

Pay attention to the "personality" projected by your product.

Crazy Eights Exercise

The Challenge:

Sketch eight distinct ideas in eight minutes.

Why?

1. Fast sketching forces you beyond your first idea (usually the least innovative)

2. Generates more solutions to your problem; strengths of each individual idea can be merged together

3. Easy, collaborative, and fun!

Crazy Eights
1. Prep

1. Review the problem your team is attempting to solve.

2. Write a list of ideas you want to explore.

3. Pick one idea to sketch out.

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Crazy Eights
2. Ideate!

1. Fold your paper into eight sections.

2. Each team member will sketch one idea into each rectangle (if you are sketching a short flow, sketch in sets of 2 screens per idea for a total of 4 flows or 4 screens per idea for a total of 2 flows).

3. A timer will be set for 8 minutes. When time's up, pens go down.

Crazy Eights
3. Brainstorm

1. Let each team member take 3 minutes to talk through their ideas they generated and answer any questions.

2. Remember to focus on positives and strengths of each design- not weaknesses.

Crazy Eights
4. Round 2

1. Reflecting on the ideas in the group, repeat the Crazy Eights activity.

2. Feel free to spend a little more time fleshing out the current ideas instead of generating more than one solution.

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Crazy Eights
5. Wrap Up

1. Everyone once again gets 3 minutes to explain their idea.

2. Each team member can vote for 2 sketched solutions they like.

3. Bump the sketch into a low-fidelity prototype and get to testing!

Recommended Reading:
Handbook of Usability Testing by Jeffrey
Rubin and Dana Chisnell

Additional Resources

Tools

Balsamiq

- Easy to learn and use
- Perfect for low-fidelity wires

UXPin

- Good for mid-fidelity wires with clickable interactivity for testing

Lucidchart

- Visual communication
- Flowcharts/process maps/etc

Design Inspiration

"Steal like an artist."

- Dribbble
- Codepen
- Behance
- Google is your friend

Books

General UX/UI Guidelines

- The UX Book
- About Face
- The Design of Everyday Things

Step by Step Guides

- Handbook of Usability Testing
- Designing for the Digital Age

Design Ideas/Inspiration

- Evil by Design
- Universal Principles of Design

Books Continued

Psychology/Understanding Users

- Nudge
- Thinking Fast and Slow
- Hooked
- Switch

Other Useful/Interesting Reads

- Set Phasers on Stun
- Renegade Dreams
- The Design of Business
- Understanding Comics: The Invisible Art
- The Lean Startup

Deloitte.
Digital

Thank you.

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